HOROLOGICAL™ TIMES

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Happy Holidays from AWCI and *Horological Times*!
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President's Message

By Joseph Juaire, CW21

A New Year

As you are reading this, the passage of time is yet again punctuated by the celebration of a new year and as such, provides us with the opportunity to reflect on the previous year and to look forward in hope toward the next.

I am quite sure that none of our members have been immune to the challenges and hardships that the economic crisis of 2008 has wrought on the world's financial sector but I am hopeful that the coming year will offer more promise of stability to reassure not only our families and ourselves but also our customers.

These hard economic times also provide further incentive for the practitioners of our trade to obtain additional skills, knowledge and credentials in order to maintain or gain an advantage in this ever increasingly competitive marketplace. In this burgeoning age of information, consumers tend to investigate the qualifications and the reputation of businesses and individual craftsmen more than ever before. Where previously, the businesses with the biggest Yellow Page ad or glitziest web page may have enjoyed additional market share, in times of tight consumer spending these methods may not provide enough incentive for new customers to part with their hard earned dollars. This is evidenced by the fact that in spite of the lackluster holiday sales in our industry this year, demand for watchmaking graduates with top credentials such as the AWCI CW21 or WOSTEP remains strong, with salary and benefit packages at or near the $50,000/year range. The largest growth in employment opportunities for these graduates has been at the individual jewelry store level. These attractive career offerings continue to entice many professionals from other professions that offer fewer opportunities for stability and growth. This new cohort of watchmakers often have additional higher education degrees and professional experience outside of horology that can further enhance their value to potential employers and thus add to their starting wage and benefit packages.

In response to this increasingly apparent trend, the AWCI remains committed to the principles and practice of providing world-class professional development for experienced watchmakers and clockmakers as a means to insure that our members can remain competitive. As an educator, I know that training is of very little value when not followed up with an assessment of student learning to insure that the trainee has retained the skills and knowledge. The AWCI certification exams for both watchmaking and clockmaking have been designed to provide validation for the practitioner and the consumer that the certification holder has the most current skills and knowledge our profession has to offer and thus may provide a competitive edge.

As you look toward your goals for next year, adding a CW21 or CC21 to your credentials could prove to be a very rewarding achievement. In fact, many of those who have tested for their certification have indicated that the refreshment of skills as preparation for the exam was just as rewarding as passing it. I wish you all the success you desire for a prosperous 2009.

Executive Director's Message

By James E. Lubic, CMW21

I would like to wish everyone a very Happy Holiday season. Since it is the season for giving I want to remind you of the AWCI-ELM Charitable Trust. The ELM (Educational, Library and Museum) Trust is the charitable arm of AWCI. The trust is organized under section 501(c)3 of the Internal Revenue code for charitable not-for-profit organizations. When you donate cash or an item to the ELM Trust you will receive a letter acknowledging that gift. The acknowledgment letter may be useful come tax time. By giving to the ELM Trust you are not only eligible for a possible tax deduction, but you're helping to perpetuate our trade by helping the ELM Trust to accomplish their mission:

AWCI-Educational, Library & Museum Charitable Trust Mission Statement
The AWCI-ELM Charitable Trust was organized and is operated to aid in the advancement of the art and science of timekeeping (horology) through activities in education. Its purpose is:

1. To lend all practical assistance to schools that engage in the teaching of horology;
2. To educate and encourage students / individuals who are either pursuing or considering studies and / or careers in horology and the horological crafts;
3. To provide those individuals who are interested in horological crafts with practical, technical and current information about horology. We are able to provide these services by maintaining our Henry B. Fried Resource Library on-site; and
4. To provide and maintain a horological museum on-site where unique timepieces (i.e., watches, clocks, etc.) and tools can be stored or placed on permanent / semipermanent display for study, research and public viewing. The Orville R. Hagans History of Time Museum provides the public and the professional with a better understanding about the history of watchmaking and clockmaking through the years.

Battery Recycling Program
The AWCI-ELM (Education, Library, and Museum) Charitable Trust announces a new partnership with Star Refining of Michigan.

Star Refining would like to handle the recycling needs of AWCI members while at the same time benefiting the ELM Charitable Trust, a 501(c)3 IRS-recognized charitable organization. The purpose of the partnership is to make it easy for AWCI members to have their exhausted silver oxide batteries recycled. In doing so the AWCI member receives a tax benefit and helps the ELM Charitable Trust to continue its mission of education.

AWCI members with batteries to recycle can contact Pat Bracken of Star Refining toll free at 866-812-2333. Star will fax a UPS call tag pickup label. The batteries will then be picked up the next business day by UPS at Star's expense. If you don't have a fax machine you can contact Pat toll free at the number above to learn how and where to ship your materials and how to be reimbursed for your shipping cost.

Once your package is received at Star Refining you will receive notification from Star Refining within 24 hours of the weight and value of your exhausted batteries.

Continued on page 33.



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Questions & Answers

By David A. Christianson, CMW21, FAWI

Question

This watch has been on display at "Beauvoir" Jefferson Davis's home and the Jefferson Davis Presidential Library and Museum as well as "The First White House of the Confederacy" where it is currently on display. This watch was used as "barter" when the ex-president was paroled from "Fortress Monroe", Virginia in 1867 and proceeded out of the United States to a small township outside of Quebec, Canada by the name of Lennoxville. It was in Lennoxville that he traded this watch to a boot maker by the name of Robert Balfour in exchange for a pair of custom-made boots. The watch was passed down through the family until its heirs ran out. The watch was given by the last surviving relative of the Balfour family to Tom and Doris Courchene who were next-door neighbors and good friends.

Can you tell us anything about this watch, it's origin, maker, approximate date of manufacturer, etc.

We would like to have this watch appraised. We have included an auction value of the Jeb Stuart Watch if it would be of any value to you as a possible comparable.

George Berry
Medford, OR







Answer

Your photographs show a very nice hunting case pocket watch with a machine-stamped design pattern that has been enhanced with hand-engraving (i.e., hand-chased) to highlight the design, and then further embellished with blue and green enameling. The movement itself is, as one of your supporting documents noted: "although the dial is marked 'Dent London,' the works are Continental."

Dent of London was a prestigious watchmaking firm beginning with Edward John Dent (1790-1853) who was an accomplished and well-respected chronometer maker as well





as the builder of the Great Clock of Westminster. His son Frederich (Rippon) continued the watchmaking firm from 1853 until his death in 1860. The business continued after his death until 1864.

Like most of the prestigious makers of the time, the firm of Dent bought unfinished, rough watch movements that either they themselves finished or contracted with other finishing watchmakers to finish. Dent would put their name on the dial of the contract pieces and sell them as a lower priced alternative to the ones they finished themselves.

T.R. Losada of London (the name on the case) was an importer and distributor of fine jewelry and timepieces doing a large business with Spain and South America. Jose R. Losada ran the firm from 1835-1875. Obviously he bought the Dent movement and had it cased for his trade. The Dent movements were obviously intended for the English-speaking market (note the F[ast] and S[low] as opposed to A[vance] and R[etard] on the regulator for the French-speaking market, for example). But since they were put in cases marked in Spanish, they were probably intended for Mr. Losada's Spanish-speaking clientele. (The Dent name was well known and respected internationally.)

I don't know much about Jefferson Davis, but perhaps he was in South America or Spain or even London promoting the Confederate cause as President of the Confederacy (1861-1865) when he acquired this watch; or perhaps he traveled to one of these areas when he was a U.S. Senator (1847-50 and 1857-60); or even when he was U.S. Secretary of War in the Pierce Administration (1853-57) when he may have acquired the watch.

But, back to the movement itself: "Continental origin" means that the movement was produced on the European continent as opposed to the British Isles. This movement is machine-made and hand finished. The major makers of machine-made watch movements on the Continent were Japy near Besancon, France (beginning in 1771), and Fontemelon, Switzerland (beginning in 1773). They both produced the thin style movements with suspended mainspring barrels in response to fashion's need for a flatter pocket watch at the time. This watch's movement is in the "English style" ¾-plate design. Although both Japy and Fontemelon produced an English-style movement (as opposed to the more common French "Lepine" style) between 1883 and 1889, a Parisian maker, Victor Pierret (1806-1893), produced a large number of English-style ebauches (blank, rough movements) that look much more like your watch than the English-style movements of Japy and Fontemelon. V.A. Pierret produced his ebauches earlier than Japy and Fontemelon: between 1840 and 1885.

Your watch is key wind and key set, a system that was in common use before the universal use of stem winding in 1880. It has a cylinder escapement that, after 1795 was used in moderate and lower priced watch movements.

Conclusion

From all of the above information I can conclude that your Jefferson Davis watch was probably made from a rough movement made by V.A. Pierret of Paris in the English style between about 1850 and 1865. It was probably finished by an unknown contract watchmaker for the firm of Dent in London. The finished movement with Dent's name was wholesaled to the marketing firm of T.R. Losada of London for sale to both his London clientele and his Spanish-speaking clients from which Mr. Davis probably purchased the watch sometime immediately before or during his Presidency of the Confederate States of America in the mid-19th century.

Valuation

Because of its detailed, documented and unbroken provenance along with the historical significance of its original owner, the Jefferson Davis watch is far beyond the purview of the ordinary horological appraiser. I would suggest you contact one of the large internationally recognized auction houses that have handled similarly unique pieces, such as Antiquorum, Christie's and Sotheby's, for an auction price opinion.

Send your questions to:
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Timing and Quality Control Procedures for Servicing Certified Wrist Chronometers

By Bernhard Stoeber, CW21
Vice President Technical Operations
Rolex Watch USA

Introduction

This article is an adaptation of procedures that have been used successfully for many years in a factory service center environment. It is our sincerest wish that practicing bench watchmakers will find these procedures helpful and apply them in their daily work when servicing certified chronometers.

As professional watchmakers, it is our responsibility to the consumer, and to the integrity of the watches we service, to adjust and test them to the same standards as that of the manufacturer, and as certified by COSC (Contrôle Officiel Suisse des Chronomètres, the official Swiss Chronometer Testing Institute).

It is also our wish that other manufacturers of fine watches will share their key tolerances and pertinent technical information with their audience, in order to empower more qualified watchmakers to do an even better job.

The Timing Process

Before starting the actual timing process, all prerequisites must be met. The movement must be properly serviced and lubricated according to the manufacturer's technical instructions and standards (see General Lubrication Guide).

We will follow the Timing Process Flow Chart (Chart 1), which will be explained step by step. At this point only the base movement is assembled (the calendar function may be assembled, yet make sure the calendar is not in the process of changing). The automatic unit is removed and will be installed only after dialing and casing.

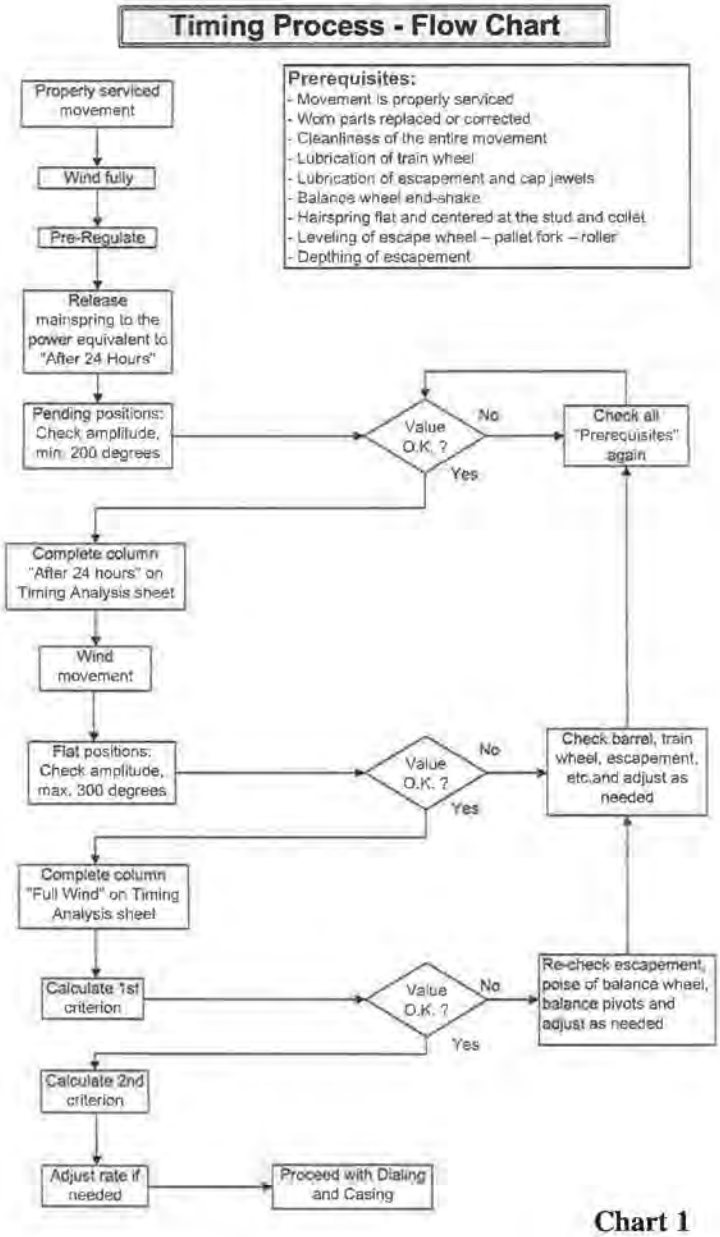


Chart 1

Timing Tolerances, Amplitudes and Ratchet Wheel Turns for Rolex Calibers

Caliber			Tolerances			Amplitude		Ratchet Wheel Turns		
Number/Designation	Beat/Hour	Lift Angle	First Criterion *	Second Criterion **		After 24 Hours Minimum (Pending Positions)	Full Wind Maximum (Dial Up and Down)	Full Wind (Approximately)	After 24 Hours	Release (From Full Wind)
Ladies										
1400 ..1401	21600	52°	35	-1	+15	200°	300°	7.0	3.5	3.5
2030 ..2035	28800	52°	20	-1	+9	200°	300°	7.0	3.5	3.5
2130 ..2135	28800	52°	15	-1	+6	200°	300°	10.5	5.0	5.5
2230 ..2235	28800	52°	15	-1	+6	200°	300°	10.0	5.0	5.0
Gents										
1600 ..1601	19800	51°	25	-1	+10	200°	300°	6.0	3.0	3.0
1602	21600	51°	25	-1	+10	200°	300°	6.0	3.0	3.0
1210 ..1215	18000	52°	25	-1	+15	200°	300°	7.0	3.5	3.5
1220 ..1225 ..1240	21600	52°	25	-1	+10	200°	300°	7.0	3.5	3.5
1530 ..(35) ,[55] ,[60] and ,[65]	18000	52°	25	-1	+10	200°	280°	7.0	3.5	3.5
1520 ..[25] ,[56] ,[70] ,[75] ,[80]	19800	52°	25	-1	+10	200°	280°	7.0	3.5	3.5
3000 ..[35] ,[56] ,[75] ,[85]	28800	52°	15	-1	+5	200°	300°	10.0	5.0	5.0
3130 ..(35) ,[55] ,[75] ,[85] ,[86]	28800	52°	15	-1	+5	200°	300°	10.0	5.0	5.0
Chronographs										
727	21600	48°	20	-1	+8	200° ***	300° ***			
4030	28800	52°	15	-1	+5	200° ***	300° ***	6.5	3.5	3.0
4130	28800	52°	15	-1	+5	200° ***	300° ***	10.0	7.0	3.0

* First Criterion: The maximum difference between two of all ten (10) positions and two states of power ("Full Wind" and "After 24 Hours")
** Second Criterion: Average rate of the five positions at "Full Wind"
*** Chrono Running: With chronograph engaged the maximum loss of amplitude is not to exceed 30° (versus disengaged)

Chart 2

In order to time a wrist chronometer properly, a high-quality timing machine with an amplimeter function is required. Witschi or Greiner-Vibrograf products are recommended.

The next step is to wind the movement to "full wind" and place it on the microphone of the timing machine with the movement side up. Ensure that the beats per hour and lift angle settings correspond to the caliber being timed. Adjust the beat and the regulator so that the results are between +/-0 to +10 s/d and the beat error is less than 0.2 milliseconds. Refining the regulation may be required, yet we have established a baseline from which to proceed.

Note: In case the balance staff or any other major component of the escapement/balance wheel portion of the movement have been altered or replaced, it is advised to poise the balance wheel statically and later in the movement dynamically.

Objective of the Timing Process

To adjust the timing of a serviced chronometer movement to established timing tolerances in five positions (two horizontal and three vertical) and in two states of power ("full wind" and "after 24 hours").

Release the mainspring from "full wind" to "after 24 hours" (see Timing Table for Rolex calibers, Chart 2). Note that the ratchet wheel turns in the table are rounded to the nearest half turn.

Measure the amplitude in the "crown down" position, which must be at least 200 degrees. If needed, check the additional pending positions to ensure that the amplitude exceeds 200 degrees.

If the amplitude is acceptable continue with the timing process. If not, re-check the various prerequisites mentioned above.

The next step will be to take and record the measurements of the rates and the amplitude on the Timing Analysis sheet in the fields labeled "after 24 hours" (see Sample 1 of the Timing Analysis).

TIMING ANALYSIS

WATCHMAKER	CALIBER	REPAIR N°
	3135	
CASE REF N°	CASE SERIAL N°	MOVEMENT N°

After 24 Hours			Full Wind		
Position	Rate	Amplitude	Position	Rate	Amplitude
⊥	+4	230°	⊥	+8	
⊢	+7		⊢	-1	
⊤	+2		⊤	+5	
◁	-2		◁	+3	290°
▷	+/-0		▷	+4	

1st Criterion		2nd Criterion	
Maximum variation between all ten rates	-2 → +8 / 10	Sum of the five Full Wind rates divided by 5	3.8

QUALITY CONTROL (CASE BACK TIGHTENED)

	Date	Time	Position	Status*	Difference
0	7/9	8:00	Full Wind	0	0
1	7/10	8:15	⊢ /24 H	+4	4
2	7/11	8:10	Winding Machine /24 H	+7	3
3	7/12	8:05	◁ /24 H	+12	5
4	7/13	4:40	Run down/Stopped	/	/

Actual Daily Rate	Sum of the three "Differences" divided by 3	4.0 Sec/day
	Power Reserve	44.5 Hours

* Preferably Use Official Time Signal (http://tf.nist.gov/ or http://nist.time.gov/)

Sample 1

Wind the movement to "full wind" and measure the amplitude in the "dial up" position. Preferably, this value should not exceed 300 degrees yet up to 315 degrees may be acceptable depending on the caliber.

If the value is within this range proceed with the timing process. If it is not acceptable, check the sliding of the mainspring inside the barrel (automatic calibers), the depthing of the escapement, etc.

Take and record the measurements of the rates and the amplitude on the Timing Analysis sheet in the fields labeled "full wind" (see Sample 1 of the Timing Analysis).

Now we can calculate the "1st criterion", which is essentially a measure of the isochronism (maximum variation of ten rates in two states of power, also sometimes referred to as the "delta"). We take the slowest of all ten readings (minus 2 s/d) and compare it to the fastest (plus 8 s/d) which always gives a whole number (10 s/d in our sample). By checking the Timing Table for caliber 3135 we can determine that this is within the tolerance of 15 s/d.

TIMING ANALYSIS

WATCHMAKER	CALIBER	REPAIR N°
	3135	
CASE REF N°	**CASE SERIAL N°**	**MOVEMENT N°**

After 24 Hours			Full Wind		
Position	Rate	Amplitude	Position	Rate	Amplitude
⊥	+23	220°	⊥	+29	
⊢	+30		⊢	+20	
⊤	+25		⊤	+23	
	+18			+26	285°
	+22			+20	

1st Criterion	+18→+30	2nd Criterion	
Maximum variation between all ten rates	12	Sum of the five Full Wind rates divided by 5	23.6

QUALITY CONTROL (CASE BACK TIGHTENED)

	Date	Time	Position	Status*	Difference
0	7/9	8:05	Full Wind	0	0
1	7/10	8:10	⊢ /24 H	+5	5
2	7/11	8:00	Winding Machine /24 H	+9	4
3	7/12	8:15	/24 H	+13	4
4	7/13	7:00	Run down/Stopped	/	/

Actual Daily Rate	Sum of the three "Differences" divided by 3	4.3 Sec/day
	Power Reserve	47 Hours

* Preferably Use Official Time Signal (http://tf.nist.gov/ or http://nist.time.gov/)

Sample 2

If this value is acceptable we can proceed. If not, re-check all pertinent parameters such as the escapement, balance staff, poise of balance wheel and especially the play of the hairspring between the regulating pins (if the movement is equipped with a regulator). If the value is within the tolerance then we can calculate the "2nd criterion", which is the average rate in "full wind". In our example it is 3.8 s/d which is within the tolerance of -1 s/d to + 5 s/d for caliber 3135.

If this value is within tolerance the timing process is completed. In case the "1st criterion" is within tolerance yet the "2nd criterion" is not, only the timing in one position needs to be adjusted.

The Timing Analysis sheet in "Sample 2" illustrates such an example. The average rate in the "2nd criterion" is + 23.6 s/d. Adjust the timing in the position "dial down" from + 20 s/d to +/- 0 s/d and retake the five measurements at "full wind". This will work for movements with a free-sprung hairspring and usually there is no need to retake the five measurements "after 24 hours". If the movement has a traditional regulator the rates after 24 hours should be re-checked.

Quality Control and Run-Down Procedure

The Quality Control process encompasses several areas: first and foremost is the verification that the watch is functioning within the standards of the manufacturer and to the expectation of the customer. This includes the timekeeping, the proper function of winding and setting features, power reserve (especially for automatic watches), function of additional indicators (day, date, etc.) and features (chronograph, alarm, etc.), as well as the proper protective features of the case (water-resistance) and the functionality of the strap or bracelet (if applicable).

The second important control is that the watch is aesthetically presentable. The case and bracelet (if applicable) need to be clean and possibly refinished; the crystal, dial and hands are clean and in the same (or better) condition than upon receipt.

The following is an outline of the key checks done in a Factory Service Center environment, which could be applied to any size business as well:

- Verify that the watch and paperwork match, including the watch description and all pertinent numbers (model reference, case and/or movement serial number, etc.).
- Verify that all work has been completed as estimated or agreed upon with customer.
- Check the manual winding of the movement and setting of the hands.
- Check that the crown turns evenly (no "wobble").

- All visual checks are usually performed at a distance of 10" without a loupe. The use of appropriate light is essential (either halogen lamps or fluorescent lamps with 5,000 Kelvin daylight comparable).
- Make sure the crystal, reflector ring, dial, hands and calendar disk(s) have no smudges, scratches, chips, lint, etc. (other than noted on the paperwork upon receipt).
- Check all hands for proper alignment and clearance.
- Check function of stop lever for the balance and friction of cannon pinion (if model doesn't have a stopping lever, turn the hands' setting slowly counter-clockwise and make sure that watch stops within 20 seconds).
- Check that the date jumps within the tolerances according to the caliber's specifications. (The general rule is for instantaneous calendar mechanisms to change -1/+2 minutes at midnight and all others +/- 10 minutes.)
- Spin watchcase close to your ear to hear if the rotor is turning freely without touching the movement or case back.
- Check function and snap locking of clasp as well as the tightness and quality of the links, rivets, screws and pins.
- Make sure the bracelet or strap is securely attached to the watch head.

The Run-Down Process

Objective: To determine the actual daily rate and the power reserve of a serviced automatic movement to factory specifications (four-day test).

Before starting the run-down process as part of the Quality Control procedure, the following conditions must be fulfilled:

- The movement has been regulated and timed to the manufacturer's specifications and has been cased up properly.
- The movement and the case, dial and hands are clean.
- The hands are aligned and the date (if applicable) jumps properly.
- The automatic unit is installed.
- The case back is tightened.
- The watch head has been tested for water-resistance (if applicable). If detachable, the bracelet should be kept separate.

Wind the watch manually to "full wind" and set it to the correct time and date.

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Synchronize the second hand with an official time signal or very accurate clock (GPS or official time signal is preferred).

Write down the date and time on the Timing Analysis sheet (see Sample1, values inserted below *in italics* are taken from this sample).

Store the watch in the "Crown Left" position (as seen from the dial side) and keep it in this position for the first 24 hours.

After 24 hours (and around the same time of the day) take the next reading of the time. Write down the date *(7/10)*, time *(8:15)* and the status by comparing the time on the watch with the official time signal *(+4 s/d)* as well as the difference between the status of Day 0 and Day 1 (+4 s/d).

Place the watch on a watch winder (see Bergeon "Final Test" information below) and keep it on the watch winder for the next 24 hours.

Remove the watch from watch winder and take a reading after 48 hours (from the start of the procedure). Write down the date *(7/11)*, time *(8:10)* and the status *(+7 s/d)* as well as the difference between the status of Day 1 and Day 2 *(+3 s/d)*.

Store the watch in position "Dial up" and take a reading after 72 hours. Write down the date *(7/12)*, time *(8:05)* and the status *(+12 s/d)*, as well as the difference between the times displayed on Day 2 and Day 3 *(+5 s/d)*.

Calculate the "Actual Daily Rate" by adding up the three daily differences (or use the value in the last "status" field) and divide it by 3. The result in the example is *+4 s/d*, which is within the tolerance for this caliber (-1 to +5 s/d)

Allow the watch to run down in the "Dial up" position and keep it in this position for the remainder of the test.

Check the following day when the watch had stopped and calculate the run-down time (power reserve), which should exceed 40 hours for all modern calibers (usually 45 to 48 hours). In this example the power reserve is *44.5* hours *(from 7/11 at 8:10 AM to 7/13 at 4:40 AM)*.

General Requirements for Watch Winders

There are now a multitude of watch winders on the market with different features, such as adjustable rotation speed, rotational direction, continuous or intermittent winding, etc.

The commonly used watch winders in Factory Service Centers come in two winding speeds: either one or four rotations per minute. The first type requires the watch to be on the winder for a full day, the second type allows the full winding of a given watch in about 6 to 8 hours.

The use of the one rotation per minute model is recommended for the power reserve test described above since it rewinds the watch at a slower rate, rotating it over a 24-hour period, while simulating different positions and affecting any possible influence on the timekeeping. Please note that these winders must be used in a vertical (hanging) position.

Manual Wind Watches

The above procedure for testing the run-down time should be used for manual wind watches as well.

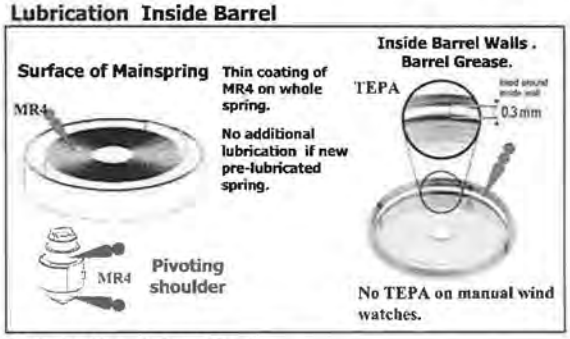
Obviously the watch needs to be wound by hand the second day, yet it is advisable to place the watch on the winder to check the actual daily rate after the watch has been on the winder for 24 hours, simulating the different positions through rotation.



Recommended Watch Winder

General Lubrication Guide

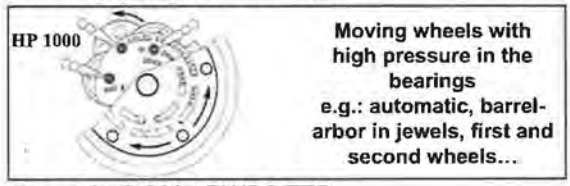
Lubrication Inside Barrel



Lubrication Arbor Pivots

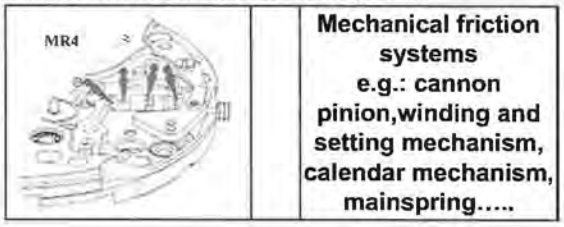


Lubrication of jewels for automatic

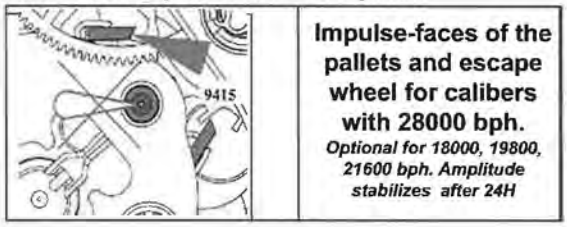


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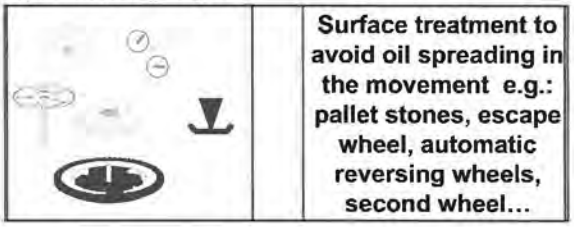
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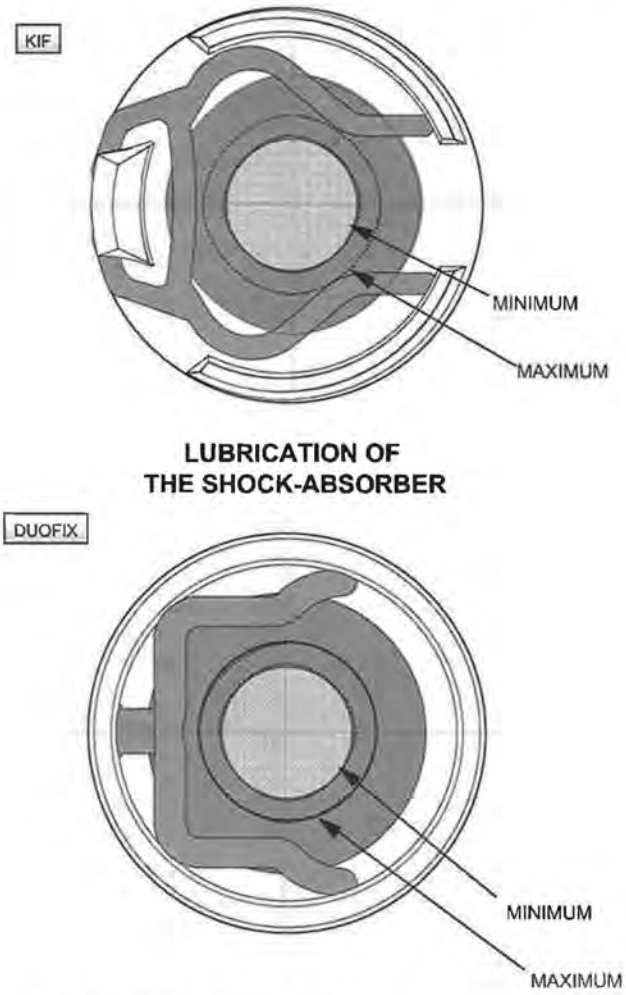


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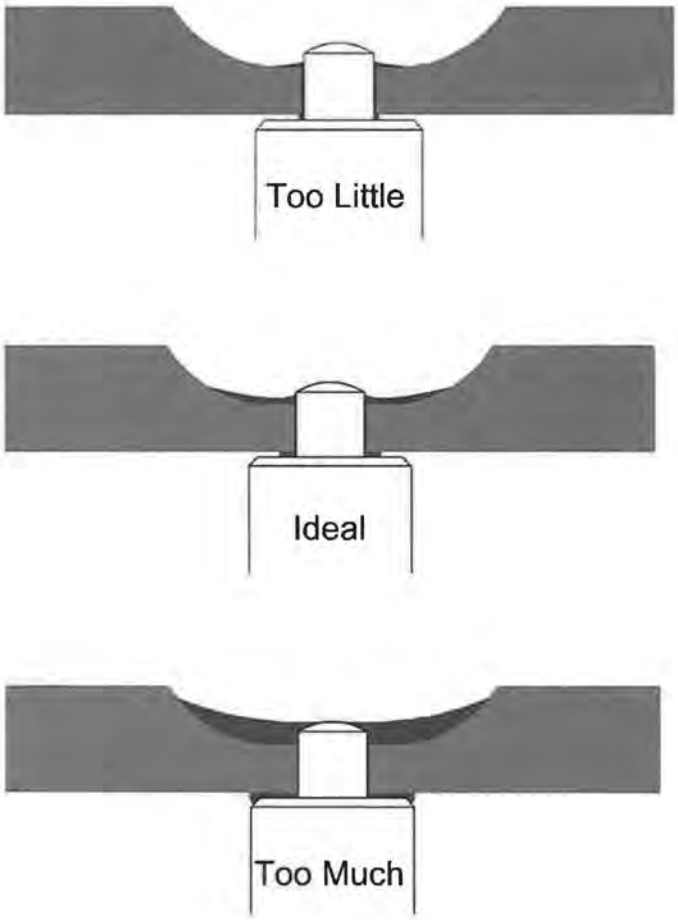
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Lubrication Quantity



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Application Tools

Lubrication Inside Barrel



Deposit a ring of grease about 0.3mm wide around the center of the inside wall of the barrel.

The line of TEPA should be deposited evenly around the whole inner circumference of the barrel.

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Parts are immersed in Fixodrop for 1 to 2 minutes. Immediately after removing from solution dried over a warm air current no warmer than 140°f.

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Rolex Announces New Watchmakers Training Program

Rolex once again leads the way in supporting the future of quality watchmaking education in the U.S. by designing a new watchmakers training program which will be implemented at all four Rolex-sponsored schools in the U.S.

The newly-formed Swiss American Watchmakers Training Alliance (SAWTA), a Rolex owned and directed entity with representatives from Rolex, Watchmakers of Switzerland Training and Educational Program (WOSTEP), American Watchmakers-Clockmakers Institute (AWCI), and the Rolex sponsored schools, will collectively oversee this new SAWTA curriculum, examinations and certification process.

The curriculum will be comprehensive in scope and designed to effectively address the needs of today's watch market by expanding the after-sales service capabilities of luxury watch retailers at their local level. In addition, it is intended to effectively consolidate the instruction of all proficiencies currently required to achieve the AWCI and WOSTEP certifications.

There will be one comprehensive final exam recognized by all alliance members, whereupon successful completion, the candidate would be awarded individual

certifications from SAWTA, WOSTEP, AWCI, as well as diplomas from their respective school and college. This consolidation will set a new standard in professional watchmaking education in the U.S.

For over a decade, Rolex has been active in supporting established watchmaking instruction programs throughout the U.S. beginning with its sponsorship of the watchmaking program at North Seattle Community College in 1996. Rolex further extended its commitment to professional education by founding the Lititz Watch Technicum in 2001 and with the recent funding of the watchmaking programs at Saint Paul College in 2003 and Oklahoma State University-Okmulgee in 2008. Today, this level of endowment totals over $1.6 million annually. To date there have been over 200 graduates from these existing programs.

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NEW REQUESTS

Vibrasonic A800 Cleaning Machine

John M. Baxter, New River, AZ is searching for an operator's manual and wiring diagram for a Greiner Vibrograf Vibrasonic A800 cleaning machine.

Do you have information regarding this month's requests? Do you need information about one of this month's responses? If so, send your information or requests to: *Horological Times* Bulletin Board; 701 Enterprise Drive; Harrison, OH 45030-1696; Toll-Free: 1-866-367-2924, ext. 307; Phone: (513) 367-9800; Fax: (513) 367-1414; E-mail: dbaas@awci.com

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Choosing and Using a Lathe

Part 8

By Laurie Penman

Indexing

Indexing is the rotating of a disc to be cut into a number of specific pieces. Since we cut out the space (leaving the teeth), we are referring here to the removal of the material between the teeth. There are two methods to accomplish this—direct indexing and indirect indexing.

Direct Indexing

Direct indexing makes use of a plate or precut device that is attached to the dividing head to turn our disc the same amount as the cuts on the periphery of our precut disc. Thus, we are "directly" turning our disc to be cut the exact same amount as the pattern. If for instance the indexing plate has 72 holes or notches, it can be used to cut 72t gears, or 36t, 18t, 12t, 9t, 8t, 6t, 4t, 3t, or 2t—the last three of course would not be gears, but there are a number of cases where 4, 3, or 2 divisions are needed.

Indirect Indexing

In indirect indexing, we use a device that will rotate the dividing head a smaller proportion every time we rotate a crank that turns the head. Although the plate may have 72 holes or notches, the gearing system amplifies this to a multiple of 70. Frequently the gearing system is a worm and worm wheel with a multiplication of 40:1, or 60:1. This means that the ring of 72 indexing points becomes a virtual ring of 72 x 40 or 60 (2,800 or 4,200). There is a very wide range of possible gears that can be cut with an indexing ring of 4,200. This is not the only advantage of indirect indexing. Any errors in the direct system are passed directly to the gear being cut. If one hole is out of place (bad manufacture or worn hole) by 10% of the pitch, the teeth of the gear being cut at that point will also have a 10% error in pitch. However if the same indexing plate was being used with a worm and worm wheel of 40:1 ratio, the error would be divided by 40 (0.25% of pitch), which is much more acceptable. At the same time, care must be taken that all backlash in the gearing is taken up, and remains taken up. If the indexing handle is moved too far during the indexing, it cannot simply be moved back by the amount of error, it must be counterrotated by a full turn and taken forward to its proper place again.

Methods of Indexing

Direct indexing can be accomplished by fastening the original of the gear to be cut, to the blank, and locating

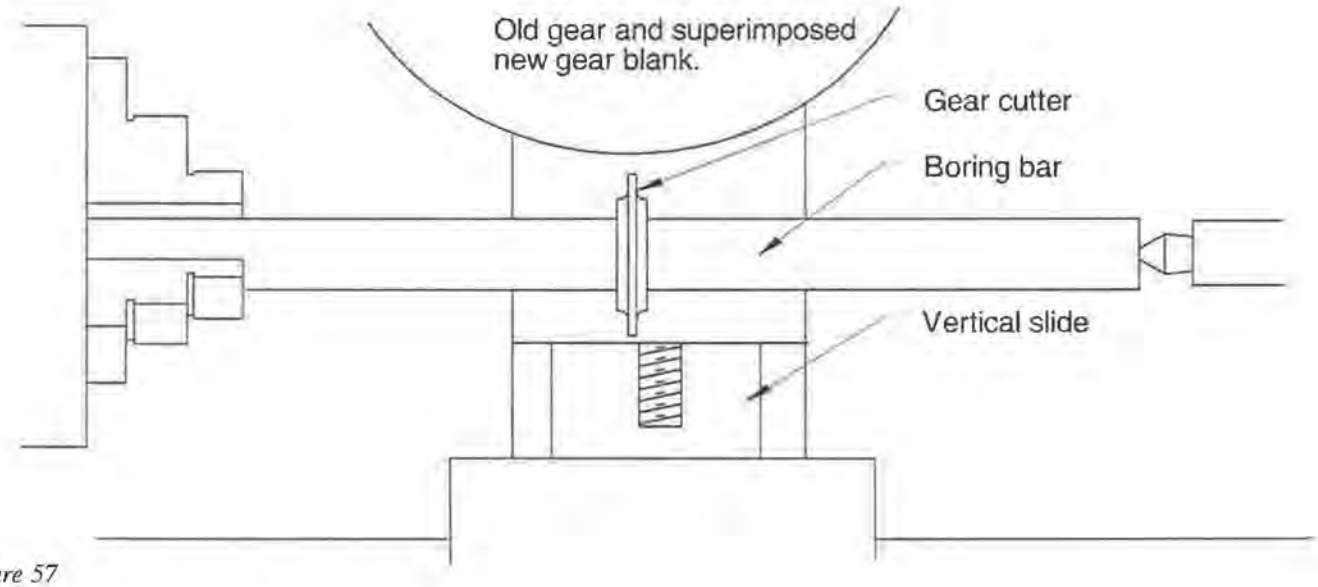


Figure 57

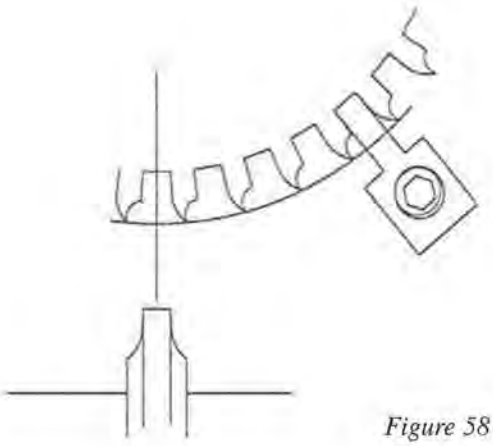


Figure 58

each tooth space in turn with a rigid locator strong enough to hold the blank in position during cutting. This was how I cut my first clock gear (Figure 57). It was a large one, six inches diameter, and the only way I could cut it on my seven-inch lathe was to mount the cutter on a boring bar running between the chuck and the tailstock center, and hold the gear blank above it on a vertical slide. The blank was fastened to the old gear with bolts and I fastened a finger to the slide that was located in the unworn part of the gear tooth space (Figures 58 and 59). Although this gear was in very bad condition (three teeth were missing and the rest were half worn away), the finger fitted into the dedendum, which of course had no wear at all. For normal domestic clock gears, the gear blank and another gear having the required number of teeth could be mounted at each end of a short mandrel, and a hook locator used to index the pattern. In this case a larger indexing gear would

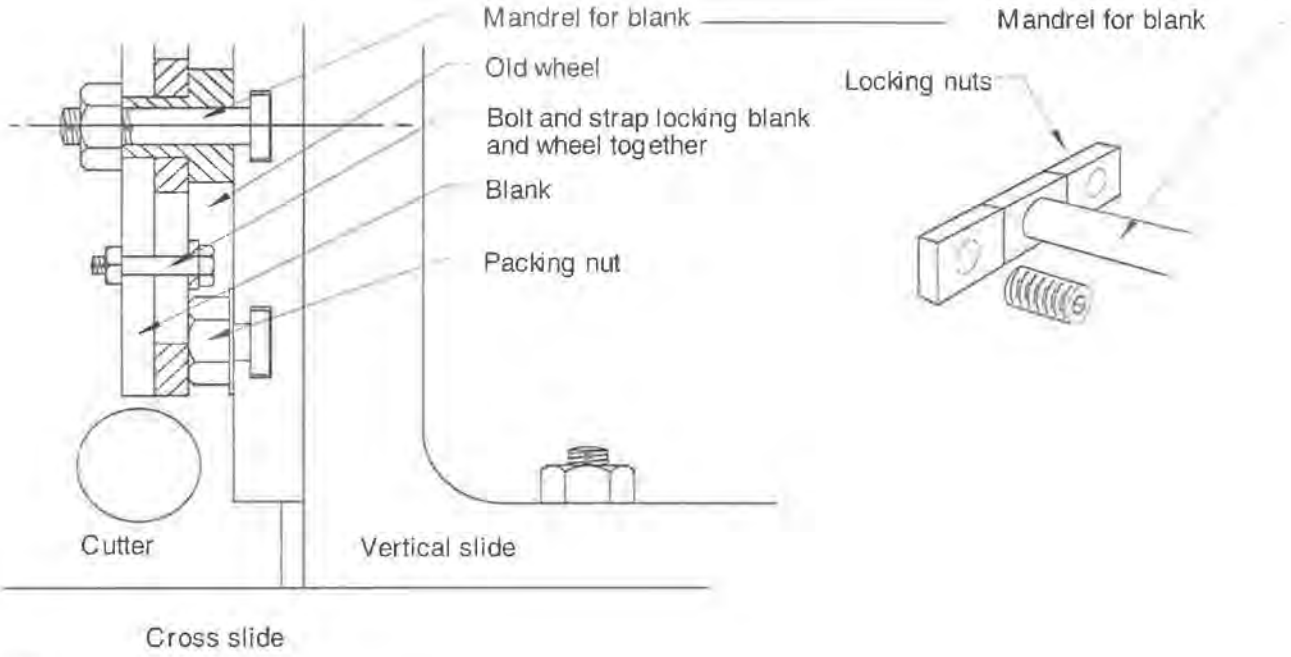


Figure 59

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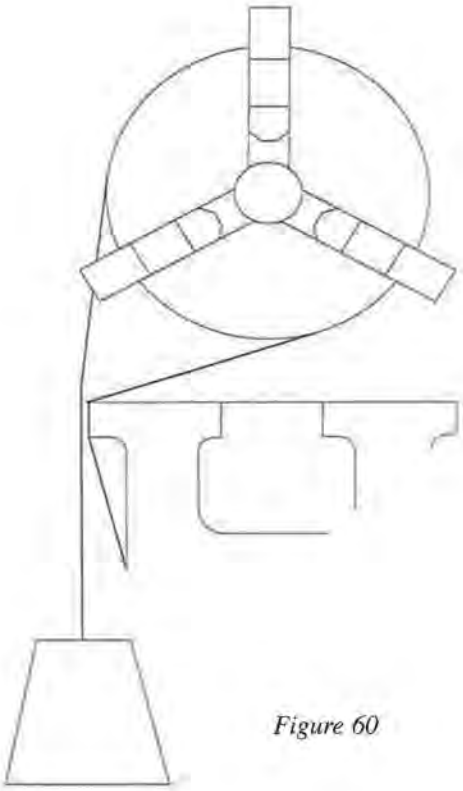
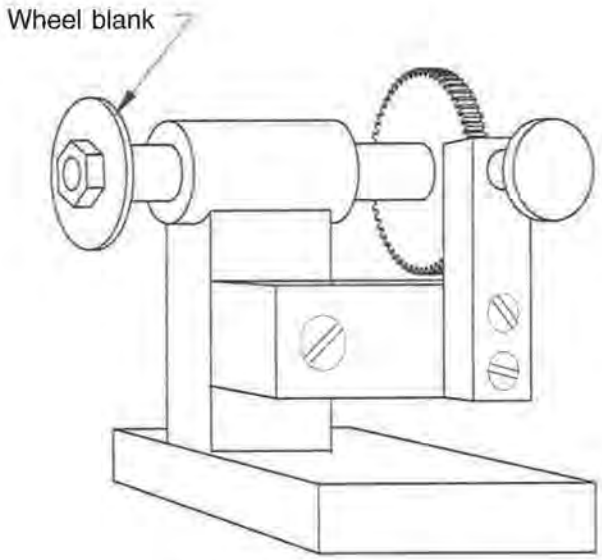


Figure 60



Huckabee dividing head

Figure 61

give the locator a mechanical advantage over the positioning of the blank, reducing any indexing errors originating in the spacing of the pattern gear. In all cases a belt brake, or some other device that clamps the blank in position for each cut, is a distinct advantage (Figure 60). The drawing shows a view of the chuck from the tailstock end of the lathe. One end of the belt has been attached to the lathe bed or the bench, passed over the chuck in the direction of rotation, and then a weight has been hung on the end. Simple friction holds the chuck still during gear cutting and if the chuck is rotated clockwise during indexing, it is quite free to move. There are several ways of directly dividing a gear blank, Figure 61 is one—the Huckabee.

The gears on the headstock (change wheels) are a useful means of indexing both by direct and indirect methods. As you can see, a long finger (hinged from the bench) is used to locate the teeth of a wheel fixed to the lathe mandrel. The wheel to be cut is held in a chuck or collet mounted on the mandrel. This is direct indexing and the other wheels play no part in indexing (Figure 62).

Alternatively a short finger can be used to locate in a wheel at the lower end of the train, in that case the indexing wheel is affected by the train and the blank is indirectly indexed.

Calculating the counts of the gears in the train is not difficult; it is largely a matter of determining which gears are simply transferring movement from one part of the train to another (idlers or transfer gears); and which have an effect on the rotation of the wheel blank.

If the wheel on the lead screw rotates once, the lathe mandrel will make half a turn. Also, if indexing was carried out on the lower wheel, moving it by one tooth space (1/80th of a turn), the lathe mandrel would rotate 1/160th of a turn. It would then be possible to cut 160t, and 32t in addition to the possibilities with the 80t wheel.

The calculation uses the old "Drivers over Driven" formula:

$$\frac{\text{Drivers}}{\text{Driven}} = \frac{96}{80} \times \frac{40}{24} = \frac{2}{1}$$

The driven wheel on the mandrel makes half the angular movement of the 96t on the lead screw.

It is a method that is useful but sometimes tricky to calculate using a collection of odd gear counts, but if there is no intention of cutting wheels frequently it removes the necessity of spending a lot of time or money on a more normal method.

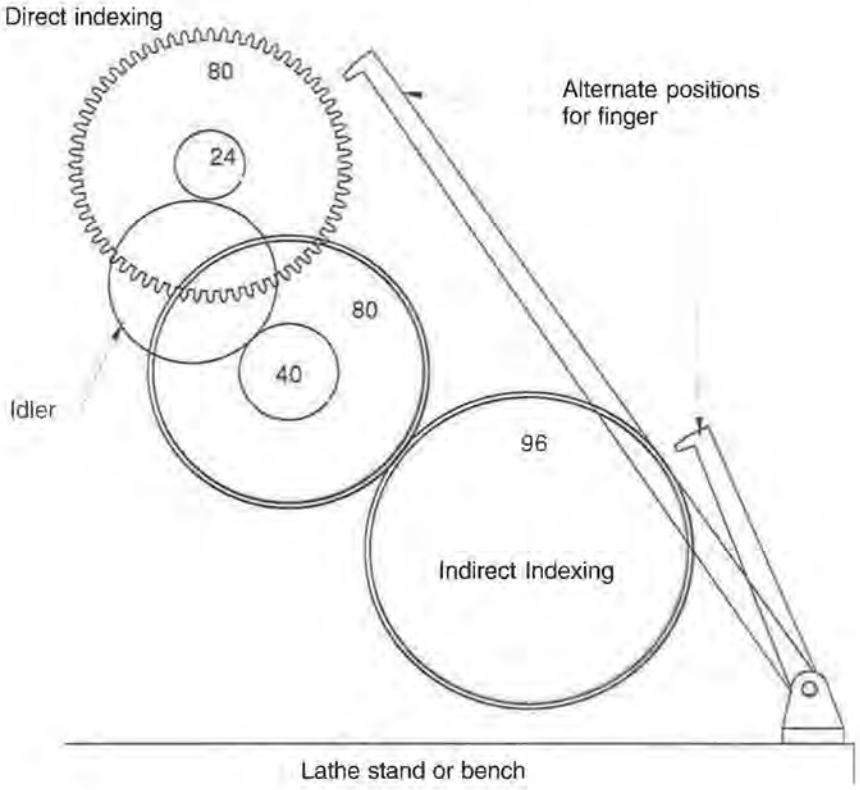


Figure 62

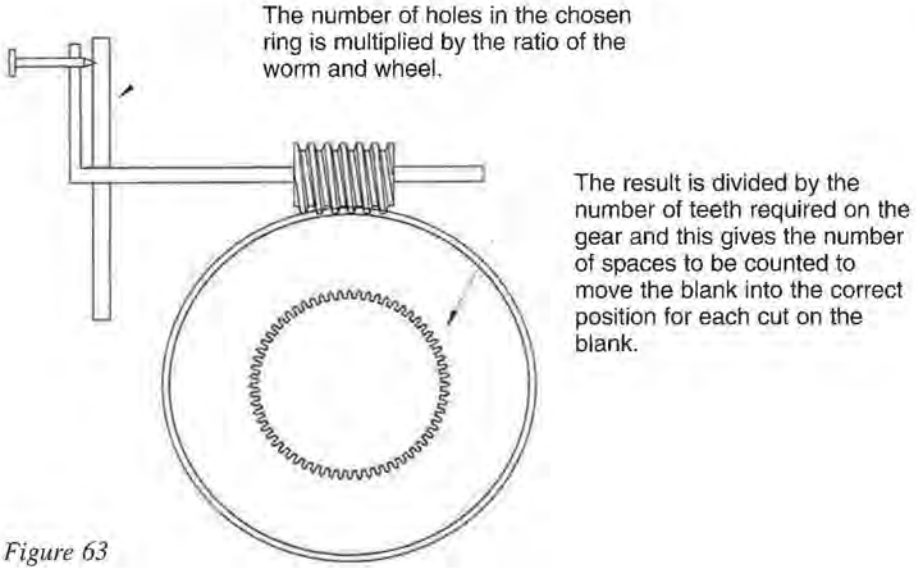


Figure 63

The worm and worm wheel (Figure 63) is usually called a dividing head or dividing engine. The most usual ratios are 40:1 and 60:1. Since the first only has factors of 2, 4 & 5 and the second has 2, 3, 4 & 5 it can produce a greater range of wheel counts for any given set of hole plates. A hole plate has concentric rings of holes in different counts and they are used by dropping a locator into chosen holes with a calculated number of spaces between them. A lever is centered within the plate, which is static. By turning the lever, the worm is rotated and the worm wheel is indexed through the correct angle for one tooth on the gear blank. Figure 64 shows the fingers that are adjusted to encompass the correct number of spaces. Note that it is spaces that are counted, not holes. The holes mark each end of the spaces. To cut a gear, the locator arm is rotated through the angle allowed by the fingers; the locator is dropped into a hole and then the cutter is advanced through the blank. When the cut is finished the cutter is withdrawn, the fingers are rotated to the next position, the locator is dropped into that hole, and the process begins again.

Calculating

In order to choose a hole ring and the spaces to set between the fingers, it is necessary to carry out a little simple arithmetic. Suppose that a gear with 50 teeth is required. To achieve this, the total number of spaces that pass under the locator arm for a complete revolution of the gear blank must be divided by 50; and the result used to set the width of the finger setting.

The dividing head in Figure 64 has a ratio of 60:1, the arm must rotate 60 times for 1 revolution of the work. Now the outermost ring of holes has a count of 40. (The number of holes to each ring is usually stamped at the side of the line of holes that follow a radial line at 12 o'clock.) If this is multiplied by the ratio of worm to wheel, we have 40 x 60 = 2,400. This result can be divided by 50 to give a whole number and, since it is best to set the locator so as to have the greatest leverage, it will be moved along the arm to lie over the outermost ring of holes: 2,400 divided by 50 is 48.

This is the equivalent of one full turn plus 8 spaces. When the locator has been locked in place, the locking screw on the fingers is loosened and they are moved to span 8 spaces and then locked.

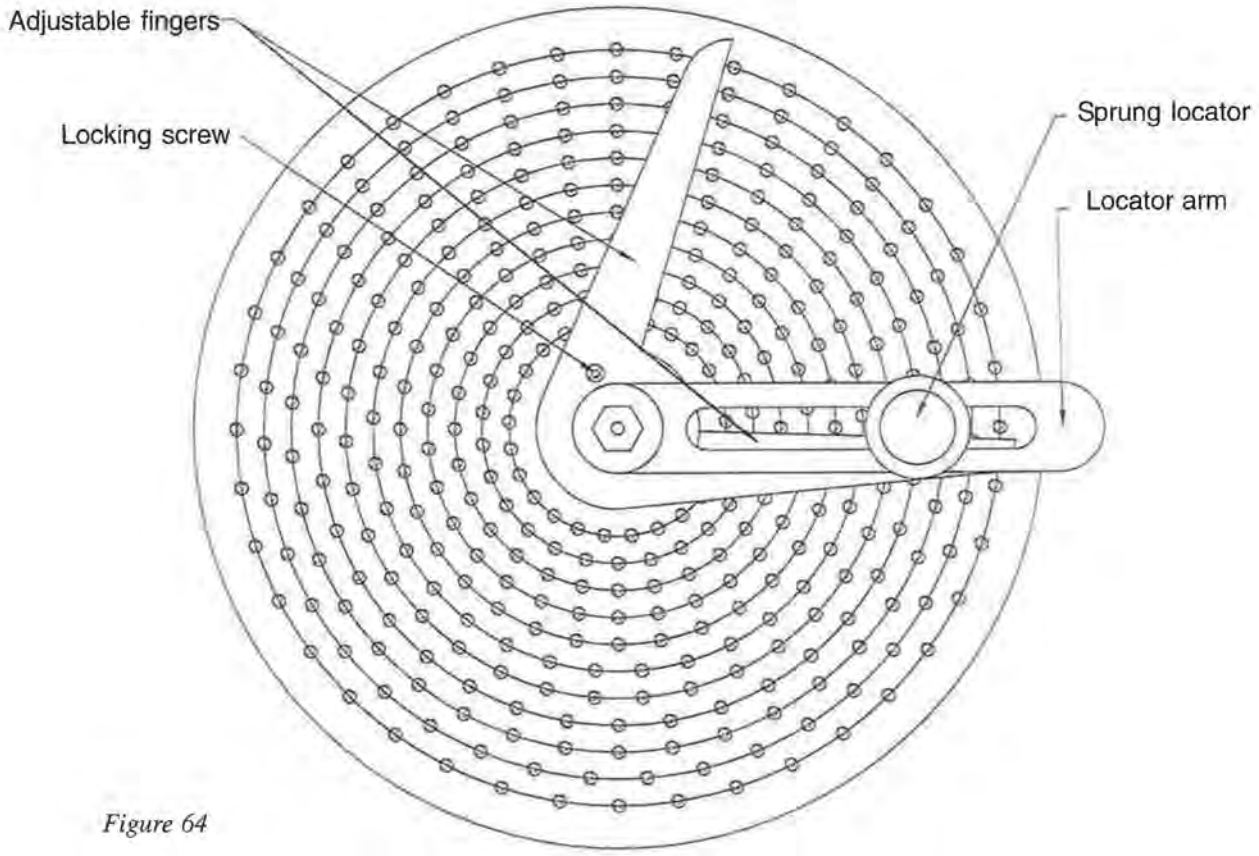


Figure 64

To index the gear blank through one space, the fingers are moved so that they define a space beyond the present position of the locator. While one hand holds the fingers in the new position, the locator arm is rotated one full turn (taking care not to move the finger as the locator passes over them) and on the drop into the hole indicated by the fingers.

The blank has now been indexed by one tooth space of the gear to be cut. The lathe mandrel is locked in place and the gear cutter advanced through the blank, cutting one tooth.

Supposing that the space between the fingers had been greater than 8 (for instance 35). The fingers will not normally open this far, but they will open to 5 and so they can be used by rotating in the opposite direction and dropping the locator short of a full revolution by that amount.

In working out which ring to use consider the factors in the count of gear to be cut, a 72t gear has factors of: 2, 2, 2, 3, 3 (producing 72 by multiplication). The dividing head has factors of 2, 2, 3, 5. Further factors of 2 and 3 are needed. (The 5 is not needed and will not enter into the calculation.) Any ring with these two factors is suitable, in the case of Figure 64 it will be a ring of 36 holes (2, 2, 3, 3). Note that it does not matter if there are more factors than are needed.

It is a good idea to use some means of limiting the travel of the gear cutter so that it cuts a full form but does not travel so far that it hits the headstock of the lathe and, on the return, clears the blank so that it does not cut while it is being indexed to the next tooth space. A piece of wood dropped onto the lathe bed between the headstock and the saddle will limit the forward motion, and the tailstock can be used to limit the recovery from the cutting stroke. Continue cutting and indexing until all the teeth are cut, remembering to pass through the first one or two that were cut and which were not machined to the full depth.

Never let your hands approach the cutter unless the motor is switched off. Always wear safety glasses. The chips from cutting have a high velocity and are capable of damaging your eyes severely.

At a later date I will be making an indexing device for this lathe and will detail here in the *Horological Times*.

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Murphy, Jewel B.—San Diego, CA

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Intermediate Wheel Post Repair

Dale LaDue, CMW

I had a Heuer Carrera chronograph in the shop for servicing that had a worn intermediate wheel post (Figures 1 and 2). Heuer used a Landeron chronograph movement, which has its minute recorder wheel hand post projecting through the intermediate wheel post. Typically, vintage chronographs have their hand posts centered in the post.



Figure 1. A distinctive Heuer chronograph



Figure 2. The Landeron movement used in the Carrera

However, in this Landeron movement the hand post hole is eccentric. When setting this watch, the pressure and friction was developed on the edge nearest the hole (Figure 3).

I could not center the movement in the face plate around the hand post hole due to its eccentricity. I had planned to make a bronze sleeve to fit the intermediate wheel and the post but had to figure out how to center the worn post.

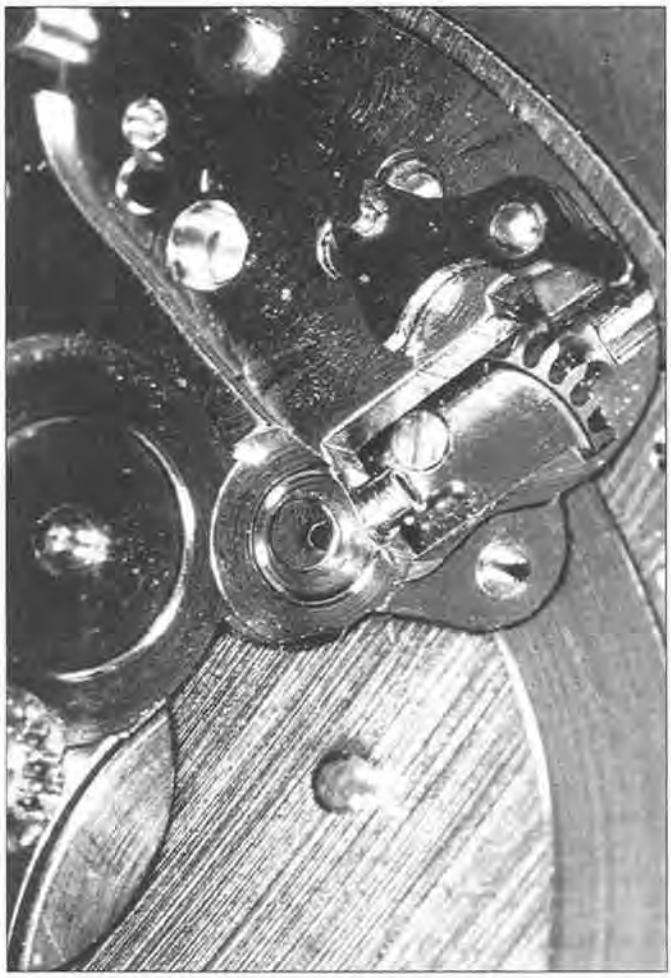


Figure 3. The worn intermediate wheel post



Figure 4. A brass rod was turned down and center drilled.

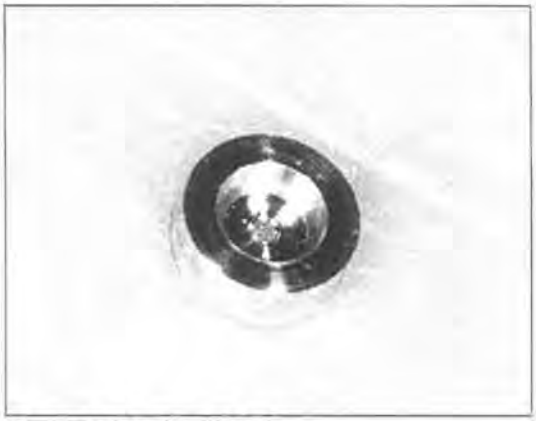


Figure 6. The finished cap



Figure 5. The rod was then bored out to fit over the worn post.

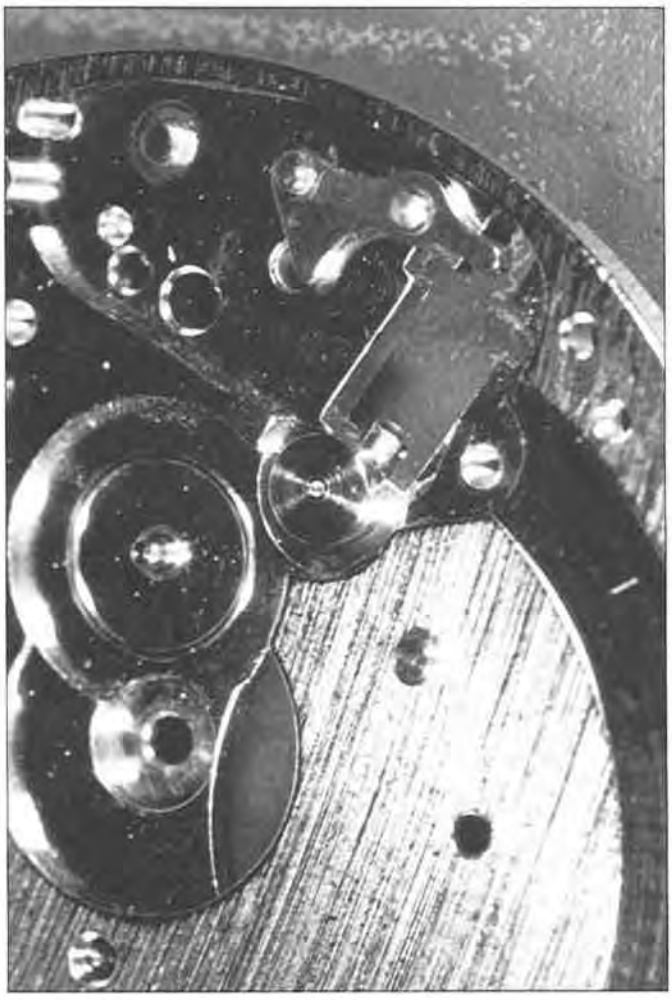


Figure 7. The cap was fitted over the intermediate wheel post.

I decided to make a cap that was bored out with a hole drilled on center to fit over the unworn section of the post (Figures 4, 5, 6 and 7). I used a dollop of Rodico® to temporarily secure the cap to the worn post (Figure 8).

Then I mounted the main frame in a face plate and used a wobble stick to center the post around the hole in the cap (Figures 9 and 10). The clamps were tightened which securely held the main frame in place. A small cutter held in



Figure 8. Rodico® was used to temporarily secure the cap while centering.

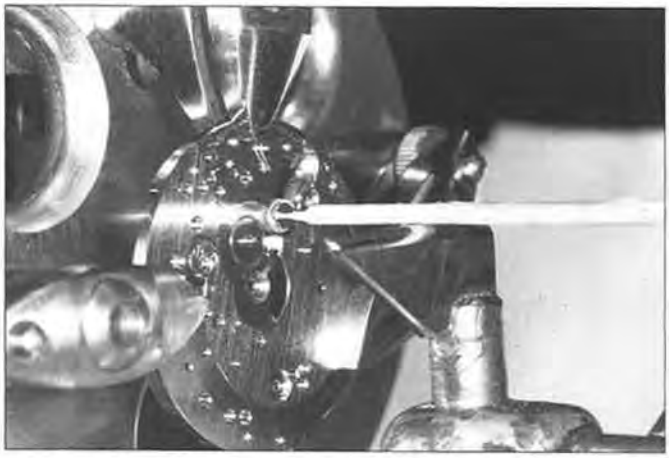


Figure 9. A wobble stick was used to center the main frame around the intermediate wheel post.

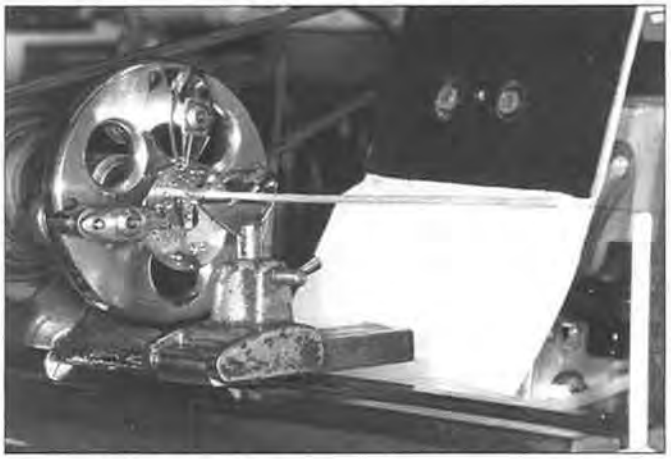


Figure 10. The wobble stick indicates through a 1:10 ratio the centering of the post.



Figure 11. A slide rest was used to turn the post down to the worn section.

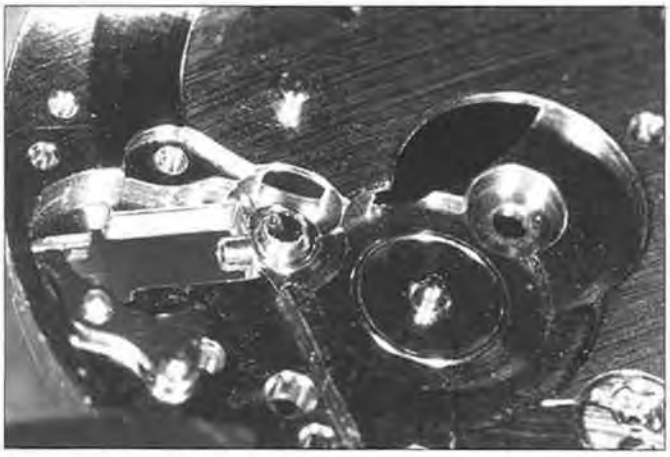


Figure 12. The finished post



Figure 13. A bronze clock bushing was mounted in the lathe and turned down with a slide rest.

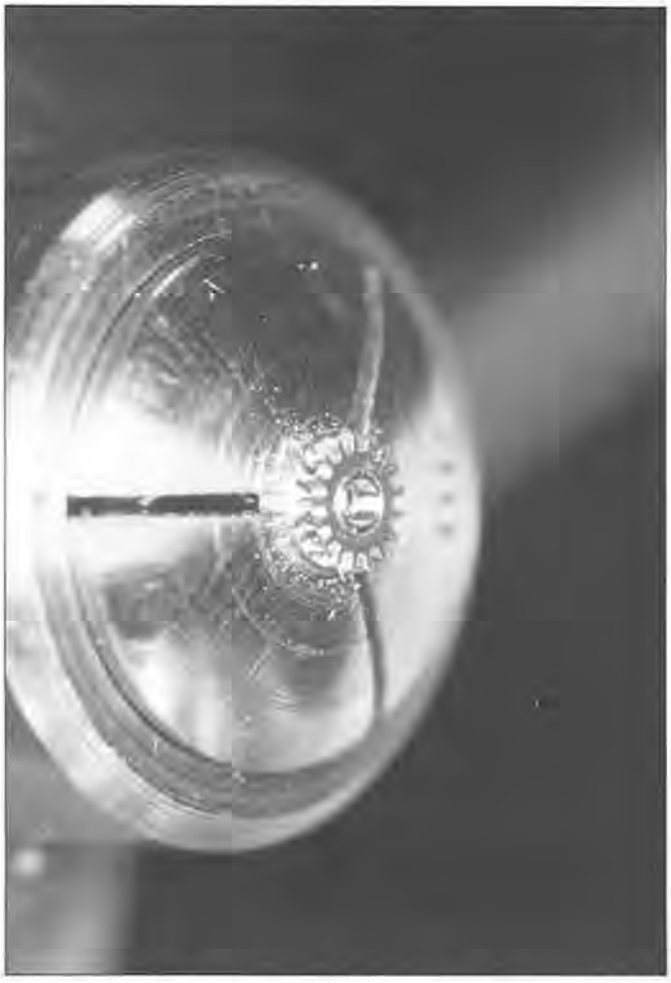


Figure 14. The bushing was turned to fit the intermediate wheel.

a slide rest was used to turn the post down to the worn section and just to the edge of the hand post hole (Figures 11 and 12).

A bronze clock bushing was mounted in the lathe and turned down using the small cutter in the slide rest (Figure 13) to fit the intermediate wheel (Figure 14).

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Figure 15. The bushing was bored out to fit tightly to the post.



Figure 16. The intermediate wheel fit perfectly after the sleeve was pressed onto the post.

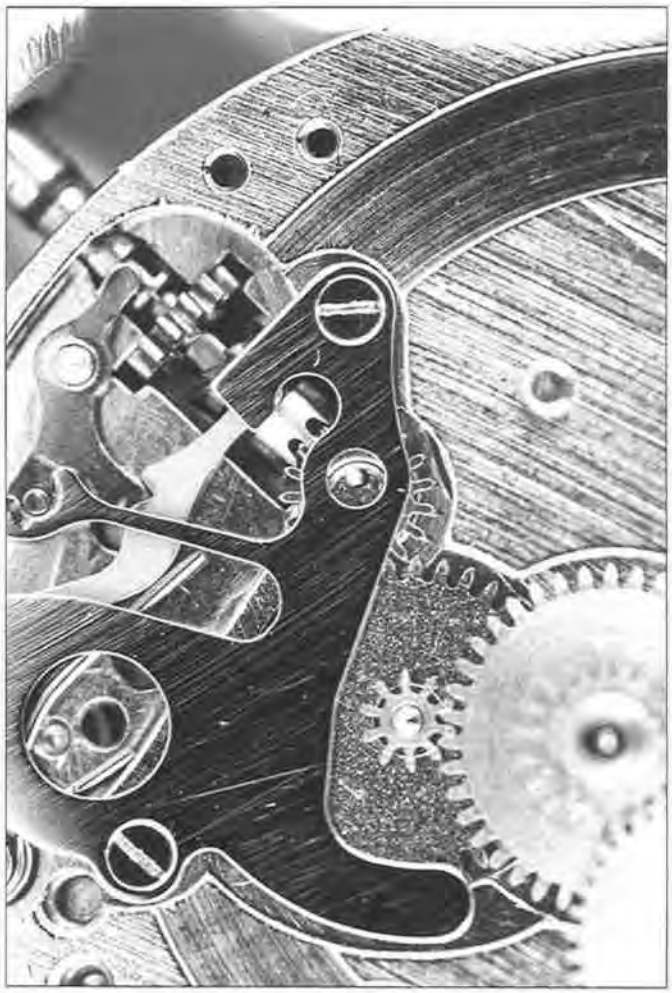


Figure 17. The wheel was tested for depthing of the clutch and minute wheel.

The bushing was then bored out to a snug fit on the intermediate wheel post (Figure 15). The sleeve was parted from the clock bushing and pressed in place with a very small amount of red threadlocker applied on the side opposite the hand hole. The threadlocker was used for extra security. The intermediate wheel was tested for fit and in this case it fit without alteration of the sleeve. Had it not fit correctly, the main frame would have been remounted in the face plate, centered around the new sleeve and then turned down to fit the wheel (Figure 16).

The bronze sleeve brought the intermediate wheel back to its proper depthing of the clutch wheel and the minute wheel (Figure 17). After the repair, the watch functioned well, and it will do so with continued proper servicing and lubrication.

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By Jerry Faier, CMC21

'Tis the Season

Happy holidays to all of you and your families. All of us on the Education Committee extend our sincerest best wishes for a happier, healthier, and wealthier holiday season and New Year! I'm sure it is the hope of all of us that with the ushering in of a new U.S. President, etc., will come a new and more prosperous future for all of us.

To get your new year off right, begin by letting go of all the troubles and woes of last year. They can now be filed in the "that's over—like it or not—it's done!" file. We can't change the past, BUT we can vow and work towards building a better tomorrow and it starts with some tough but simple steps. You have read my discussions of the certification programs and what they can do for you. Some say they don't need all that and that's fine, but if you are to grow your skills and talents, how will you proceed? You say you're good enough? OK, what is good enough? Good enough to get paid a fee for work done? Are you getting what you are really worth for the quality of the work you do? How do you know what you are doing is the "best" way to finish something? My favorite example is the bench man who told me that the clock he just finished was running great. This particular type of movement is known for its active pendulum with a motion of about 3 inches as it travels back and forth. His was just barely moving—about 1 inch total. Was that the best performance the movement could provide? Not really from my perspective but to him it was just fine! Well, who has the answer here? Do we just accept pay and say the work is good? Do we just wait and see if the clock comes back? (And if the customer gets discouraged and just puts it back in the closet and says it's not worth trying to get this old clock or watch fixed, have we really done a good job?) How do we tell if someone is a good watch or clockmaker?

That's where AWCI comes in as the representative of the professional bench practitioner—it sets the standards. What about the hobby person? What's the problem? When work is done properly, the product doesn't care who did it! It only cares that it's done correctly and cleanly. It's like money in one way—it's green for everyone. To some of you, AWCI's 21st Century Certification and education programs may seem daunting but don't give up, you have too much to gain and grow with, when you participate! Let me give you some of the background that stimulated this massive undertaking.

Some years ago, as I began teaching for AWCI, I made it a point to visit clock and watch repair shops all around the area I was visiting. In all my conversations with other bench men and women, it seemed that a phrase kept coming up—"I'm a very good practitioner or I know all about that or I've been in the trade for 30+ years, etc. My favorite is "Yeah, I know all about that!" and then they show up in class and I find there is much that is missing that no one seems to espouse very easily or clearly. Seems there is no shortage of confidence here. But, are watchmakers and clockmakers being less than honest? Are they trying to cover up their inabilities with posturing? Are they just trying to say that they know all they need to know to make a living? The true motives are never completely clear. What is clear is, the more you know and the more skill you have, the better your work quality and the faster you work! How do we really know when someone is a good practitioner? You tell me you are, and I want to accept your word but how do we really know? How do we know when your teachers have left out important technical points and you are unable to perform certain skill tasks? There are 2 easy ways: 1.) Look at your work and compare it to some listed standard or guide and 2.) Take a test and see how you do. The second one requires something else though—a standard to compare your work to! Seems simple enough but who has the standards? The Swiss? The British? Maybe the Germans or the French? Did the Americans ever write standards for the industry? The answer to all of these questions is NO! For 750 years, our education system and our standards have been an oral tradition. Some have written what they know of a subject but until recently, no one has set any agreed upon standards, based on the work of practitioners at the bench and with industry. So who has that kind of knowledge and ability? No one person is blessed enough to have the perfect mind. We all have our strengths and weaknesses. That's why the committee system is such a valuable tool. In a group of 3-5, we can review and debate the issues, but in a consortium of 25 or more we can solicit answers

and suggestions and develop patterns that show what the average or "norm" needs to be. Do our products ever change? Are we all still working on pocket watches? Does the average T/S American mantel clock still only require a few bushings? The only thing that stays the same is change! Heaven only knows what will be there tomorrow. Will we be confronted with silicon hairsprings? Will we be rebuilding every movement (including Hermle and Kieninger products) that comes to our shops? With standards we have a timeless reference to follow with any product and we can be assured that every time we address a repair with quality standards, we will arrive at the best possible product we can provide.

How does this help with education? It allows anyone to pick up those areas or skills that may need more work and develop themselves at their own pace. With lists of needed skills, we can practice and test ourselves with each one until we are confident that we have mastered them. Then, to be sure we are there, put ourselves to the test—certify. AWCI can also focus their efforts into providing the needed programs to help: 1.) Develop the needed skill sets, 2.) Examine the memberships' existing skill sets, and 3.) See to it that all new materials developed are put out into classes to help the membership stay at their peak performance.

But remember, all this comes to you from the hearts and hands of our volunteer membership who have demonstrated their skills and take the time and effort to help AWCI help you. That is how we get things done. Willing members who feel as I do that the only way to grow an organization is to help develop the "garden" and plant the seeds! This brings me to my last thoughts. If you haven't volunteered to help with a committee; write an article; or if you are certified, help with class work or even assessing; consider this for your list of resolutions this next year. It's easy to be an armchair navigator but nothing ever comes from flying a couch. Make it a goal to grow your skills and help grow AWCI stronger in the 21st Century! Happy Holidays.

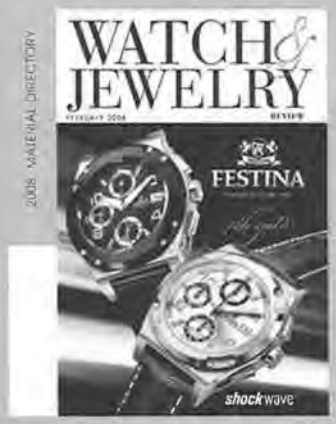


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By Jack Kurdzionak, CW21

This Holiday Season

Have you let the current state of the global economy get you down? Are you weary of listening to the daily news reports about bank and business failures, stock markets in disarray, and unemployment? Yes these can be depressing, but fortunately, most of us have many blessings to appreciate during the holiday season.

Regardless of the state of the economy, the sun will rise every morning, children will still laugh and play, our relatives and friends will still be here for us, watches and clocks will still need repair, and life will go on as it has for millennia, regardless of the current situation of the world. We need to recognize our blessings and understand that we have much to be thankful for. Our world has not collapsed; it just needs repair. The problems of the world are larger than any business or government, let alone one person. During this holiday season, let us all appreciate our blessings rather than focus upon the world's troubles. The Serenity Prayer, attributed to Reinhold Niebuhr, expresses my holiday wish for all. "God grant me the serenity to accept the things I cannot change; courage to change the things I can; and wisdom to know the difference."

Jack Kurdzionak

Restaurant or Restaurant Supplier, Which Model Do You Use?

Which of these occupational models best describe your watch repair business? Before you ask "what do these food business occupations have to do with watch repairing?" take a few moments to reflect upon what these two different businesses have in common with what we do. The restaurant supplier furnishes staple foodstuffs, meats, and produce used by restaurants in contrast to a restaurant that is a retail establishment serving prepared food and drink to customers. Very often, restaurants are able to purchase, from their suppliers, specialized foods that are not generally available to an individual consumer in a grocery store. Foods such as special baking potatoes in addition to the highest quality cuts of beef are only available for purchase by restaurants. Both restaurant suppliers and restaurants provide food to customers, but they have vastly differing operational models.

Watchmakers repair watches utilizing spare parts, purchased from material dealers while material dealers supply spare parts, not generally available to consumers that are used by watchmakers. Watchmakers are able to purchase specialized replacement spare parts from material dealers and/or watch manufacturers that are not generally available to consumers. These businesses, watchmakers and spare parts suppliers are involved in watch repair, but again, as in the restaurant and restaurant supply example, their operational models differ.

Stated simply, restaurants do not provide unprepared foods for consumers to purchase and restaurant food suppliers do not sell restaurant foods to consumers. Why then do some people expect watchmakers to supply spare parts only, without having the watchmaker fit them to the watch? Watchmakers earn a substantial amount of their living by: A.) Knowing where to locate spare parts, and B.) Being capable of fitting those parts to a watch. Taken together, A plus B is essential to a watchmaker's earning potential. Why then, would one wish to separate them? As an example, consider a watchmaker who knows how and where to obtain spare parts for obsolete watches. The ability to locate rare parts is necessary to complete a profitable repair on some obsolete watches. Does it make any sense for this watchmaker to fulfill a request from a consumer who says his brother-in-law, who repairs watches as a hobby, needs an obsolete part to fix his watch? Just because one knows where to locate a part is not the same as an obligation to sell that part, only because someone else wants it.

Every watchmaker, especially those with access to spare parts with limited distribution, has been asked to resell parts without installing them. It can be tempting to consider that option by just thinking of the profit from a quick and simple turnover, but is this the wisest course of action? Most often it is not. One store manager related his experience with a special order, genuine original watch strap for a brand sold in his store. The strap customer was too busy and had to drive too far to bring his watch to the store. He only wanted a strap and he could certainly fit it himself to the watch. He convinced the manager, contrary to the manager's better judgment, to special order the strap, and forward it to him. This manager's goal was customer satisfaction so he ordered and received the strap, charged it to the customer's VISA and mailed it to the customer. The manager thought he had provided great customer service until he received an e-mail from the customer. Not only was the strap too long (the customer had a very small wrist), but it was not an exact color match to the original. The customer demanded an exchange for a shorter strap with a closer color match, and wanted it shipped via overnight UPS at no charge. If his demand was refused, the

customer insisted upon returning the special order strap for a full refund. It made no difference to the customer that this was a non-exchangeable, non-refundable special order item as stated on his invoice. The manager did not meet the customer's demands so the customer filed a challenge on his VISA account and won. The store manager realized the mistake made by selling a special order strap without providing the additional service of matching and fitting the strap to both the watch and its owner. He vowed to not repeat that mistake.

Watchmakers and restaurants both sell comprehensive services to their customers. Restaurant managers understand they are not retail grocers and watchmakers should not try to act as spare parts suppliers. Both restaurants and watchmakers earn their living by adding value to the merchandise they sell. If diners wish to always prepare their own meals there would be no need for restaurants. Likewise, if customers could always repair their own watches, there would be no need for watchmakers. Watchmakers have a unique set of skills they utilize to earn a living. They know how and where to buy spare parts and how to fit those spare parts in order to restore the watch to look and function as it did when it left the factory. Providing less service to a customer by selling only parts without proper fitting does a disservice to both the customer and watchmaker. The customer receives incomplete service and is led to believe the watchmaker's skills are irrelevant. No one expects to buy groceries from the restaurant nor should they expect to purchase parts from a watchmaker.

Jack Kurdzionak

The Times Are a Changin'

In case you have not heard, the only remaining Swiss manufacturer of mainsprings for American watches and out-of-production Swiss calibers has discontinued production of replacement mainsprings for these movements. The distributors will continue to supply replacement mainsprings from their existing stock. Once that stockpile is exhausted, there will be no more mainsprings for those models unless an alternative source is located.

Watchmakers have been repairing these vintage and antique watches utilizing spare parts that were in existence when the factories that made the movements went out of business. Except for commonly used balance staffs, jewels, mainsprings, hands, etc., no new parts for obsolete watches have been reproduced. Several Swiss firms continued to supply these commonly used parts for old movements until a few years ago. In the past ten years our supply of balance staffs, hands, and balance jewels has gradually disappeared with the mainspring factory administering the final blow last June by its surprise announcement that it would no longer supply mainsprings.

What are the long-term implications of this situation for those who are involved in the repair of those old movements? Most likely, it appears that the niche business of antique and vintage watch repair will gradually fade away as watchmakers use up the existing supply of replacement mainsprings. As the supply of mainsprings disappears, the price one will pay for a replacement will certainly go up. In fact, the price of the existing stock of mainsprings has doubled for many models, tripled for others, and will probably continue to climb. Any hope that one may harbor for another firm to step in and produce mainsprings for the replacement market is most likely misplaced. There just is not enough demand to justify a production line set up to produce small lots of over five hundred (500) different mainsprings. The factory bean counters had their say and the management agreed: "No more mainsprings for old watches". Watchmakers specializing in the service of obsolete watches should consider the possibility of altering their business models and update their skills to service watches for which there are sources of readily available spare parts.

Jack Kurdzionak

You Are Invited

Do you have a solution to a watch or clock repair problem that you want to share with our membership? Do you have a question about a repair problem you would like to ask? I invite you to participate in this column with your suggestions, questions, and comments. It is easy. Just e-mail me at AWCI <magazine@awci.com> or write using the old standby known as the postal service. You can even fax me at 513-367-1414.

I will do my best to help you help the membership. By sharing your questions and suggestions, all of our members can benefit from our combined knowledge and experience. The ideas, tools, techniques and products presented in this column are suggested by the author and contributing members and are not endorsed by any manufacturer, supplier, advertiser or AWCI itself.

Reminder for Individuals Holding AWI Certification



Individuals holding the original AWI CEWT, CMEW, CW and CMW certificates who intend to upgrade to the AWCI 21st Century Watch Certification, must either take the upgrade exam or register for the exam by December 31, 2008. If they choose to register with the $300 non-refundable deposit, they will be allowed to take the upgrade exam at a later date at the then current cost.

If they haven't registered and sent in the $300 non-refundable deposit by December 31, 2008 they will no longer be eligible to take the upgrade exam. If you decide after this deadline to attain the CW21 you will need to take the full exam. The $300 deposit, though not refundable, will be applied to the cost of the exam at the time the examination is administered.

Please turn to page 38 for the complete AWCI Certified Watchmaker 21 Exam schedule. For more information contact AWCI Education Coordinator, Nancy Wellmann, 866-367-2924, ext. 303 or e-mail: nwellmann@awci.com



Executive Director's Message
Continued from page 3

If your shipment isn't 100% silver oxide batteries, Star has a sorting service available. Normally, there is a sorting charge of $2 per pound. Star has agreed to waive the sorting fee for participants in this program.

The dollar value of your shipment will depend on the price of silver on the day that Star receives your batteries. The London Fix will be the silver price standard for this program. Your reimbursement price per pound of sorted silver oxide batteries will be 1.23 times the price of silver per ounce. In other words, if silver is selling for $10 per ounce, your price will be $12.30 per pound.

That dollar value of your shipment will be the amount of your tax deductible donation to the ELM Charitable Trust. The ELM Charitable Trust will receive a check in your name for the amount quoted the day your shipment was received at Star Refining.

Once the ELM Trust receives the check, a letter acknowledging your donation will be sent to you from the ELM Charitable Trust. This letter is what is used by the IRS to verify your donation.

IMPORTANT NOTE: Star can also adapt this program to the refining of other precious metal scrap (gold, silver, platinum & palladium). The only difference would be turnaround time and pricing. Turnaround would be 15 working days. Star would pay participants 97% for gold scrap and 90% for the other precious metals.

With the support of Star Refining and the generosity of AWCI members, the ELM Charitable Trust will be able to renew an old revenue stream that has been missing for the last few years.

The Trustees of the ELM Charitable Trust thank you for your continued support.

In Remembrance

AWCI has been notified of the passing of the following members:

FLORIDA
Nelson, Philip E. — Bonita Springs, FL
O'Neil, Peter Ward — Indian Lake Estates, FL

HAWAII
Kawafuchi, Roy S. — Honolulu, HI

MASSACHUSETTS
Corwin, Len — Duxbury, MA

NEVADA
Puthuff, Harley H. — Las Vegas, NV

NEW HAMPSHIRE
Merrill, Robert L. — Kingston, NH

OHIO
Broughton, James H. — Columbus, OH

TEXAS
Langston, David — Austin, TX

VERMONT
Hughes, Hayden A. — Castleton, VT

WISCONSIN
Nett, Don — Appleton, WI

CANADA
Gergely, Stephen — Moncton, NB Canada

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The Financial Markets and the Impact on AWCI

By Dale Coates, CFA
Vice President Institutional Portfolio Manager

Mr. Coates was asked by the AWCI Board of Directors to put together a summary of what has happened in the financial markets, how it has affected the AWCI investment portfolio and how they intend to manage the portfolio in the near future. This is his firm's response to that request.

Over the past several months, a normal cyclical slowdown in the investment markets has turned into a severe bear market that is nearly unprecedented in volatility. Almost daily we are struck with difficult news on the economy and stocks continue to swing wildly in value. If the year ended today, the stock market would have actually suffered its second largest annual decline ever. In this environment it's difficult to escape the message of gloom and doom and look rationally at the long-term prospects for investors. While a quick recovery in stocks and bonds is not expected, the attractive values of many investment securities are providing longer-term opportunities that are excellent. We believe now is the best opportunity in years for patient investors to build an investment portfolio of high quality stocks and bonds that will benefit them in the years ahead. We are reminded of Warren Buffet's quote, "Be fearful when others are greedy and greedy when others are fearful."

While the issues facing the financial sector and economy are certainly serious, we are not forecasting a depression scenario. The global government intervention of recent weeks, although imperfect, should ultimately provide benefits. It will take time to work through the economy and the markets and bring confidence back, but we continue to believe in the free enterprise system and the resiliency of our economy. "This too shall pass." Quality companies will move forward, and at current valuation levels, many represent compelling opportunities. Maintaining the proper asset allocation and diversification is always critical and will be the keys to future success. This is exactly what we are doing right now – buying good companies that are on sale and preparing for the eventual recovery that takes place.

Capitalizing on the current environment is our plan for the Perpetuation Fund. We conservatively entered the recent period with nearly 40% in money market securities and an additional 25% in high-quality bonds. The drop in the value of many stocks is a good opportunity to continue the investment plan initiated earlier this year and build a longer-term portfolio that can provide inflation-adjusted growth in principal and income. We are proceeding carefully and will eventually shift the portfolio to a more balanced blend of quality stocks and bonds. It will take time, but history tells us that the markets do recover after such significant downturns and this will once again result. It's important to remember that stocks tend to lead an economic upturn by two to four quarters. While the economic news will likely get worse before it gets better, many stocks already discount this and will improve prior to evidence from the economy.

AWCI Parts Message Board

The American Watchmakers-Clockmakers Institute **Parts Message Board** is available on line at **www.awci.com** Click on the Parts Forum in the Top Links box. Guests are free to browse our topics and posts but only validated AWCI members will be able to actively post messages and communicate with one another via private messaging.

The purpose of this board is to aid our members in finding watch parts, clock parts and tools. This board is not open to generic advertising posts; therefore, web addresses and e-mail addresses should not be included in public messages.

CLOCKS magazine



Based on our acclaimed series of articles for the horological newcomer, the *Beginner's Guide to Clock Repair* has now been published as a 64-page, A5, full-colour book.

In clear and simple terms, it gives the reader a comprehensive understanding of how a striking clock works and how to repair one when it stops.

A **MUST** for anyone learning to repair clocks for the first time, and a valuable addition to the library of even the veteran.

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www.clocksmagazine.com

AWCI Member Websites

- **Have you always wanted a website for your business, or are you unhappy with your current website?**
- **Do you feel that your business needs more exposure to your customers?**
- **Do you want a website, but don't know where to start, and assume it would be a costly venture?**
- **Do you just not have the time to mess with it?**

Go to: *awci.companysitecreator.com*

AWCI and Companysitecreator have worked together to offer an opportunity to all members!

It literally takes just a few minutes to build your new site in 5 simple steps from start to finish.

Two packages are offered ($8.95 per month or $18.95 per month), and you are able to see your site before you decide to purchase.

AWCI Teams Up with Tempus

The American Watchmakers-Clockmakers Institute (AWCI) is pleased to provide a new and unique value-added membership benefit in conjunction with Tempus, a leading provider of foreign exchange and international payment services. Through this partnership with Tempus, AWCI members can process all international business payments to foreign suppliers more efficiently and more cost-effectively than ever before.

Institute members will benefit from several key Tempus program features designed specifically to facilitate foreign currency purchases and international payments. A dedicated Tempus Account Executive will work with each Institute member to handle every international payment transaction. Tempus Account Executives are specialists, focused exclusively on processing foreign exchange and international payments. Secondly, as an AWCI member, your foreign currency wire fees are discounted at least 50% from Tempus' standard rate. In addition, regardless of the size and frequency of your international payments, Tempus will provide you with highly competitive rates of exchange. Finally, the combination of competitive rates of exchange, market expertise, low transaction costs, and a dedicated staff of international payment specialists, offer more value than banks typically provide, ultimately saving you money and increasing your bottom-line profits.

Tempus is widely recognized by global media sources as a leader in foreign exchange and international currency market analysis. Frequently quoted in prestigious publications such as *The Wall Street Journal* and *Bloomberg*, Tempus utilizes this market intelligence to help AWCI members navigate the volatile currency markets and lower their risk. As part of the Foreign Currency and International Payment Program, AWCI members can receive complimentary monthly Tempus *Currency Outlook* reports, which provide timely currency market insight in major currencies such as Euro, British pound and Japanese yen from a recognized leader in foreign exchange. You can access your free *Currency Outlook* reports each month by either downloading the reports off of the Tempus website: www.tempusconsulting.com or by contacting your Tempus Account Executive who will e-mail your reports.

Tempus CEO Greg Kimball said, "We're delighted to partner with AWCI to make our services available to members. We believe that our combination of service, savings and market insight will help make AWCI members more competitive in the global market."

AWCI members who would like to register should contact Tempus. Please remember to reference your AWCI membership when contacting Tempus directly to ensure that you receive the unique benefits associated with this program that your AWCI membership entitles you to. Tempus contact details are as follows: Phone: (800) 834-2497; E-mail: program@tempusconsulting.com

Does your organization pay overseas suppliers in Euro, Swiss francs, Japanese yen or other foreign currencies?

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The

American Watch Guild

announces

the creation of the



International Watch Collectors Society

The **Society** will provide its members with the following

- Calendar of major watch sales & auctions.
  Antiquorum, Christie's, Phillips & Sotheby's
  The previews of upcoming auctions.
  Reports: photographs, prices and auction results.
- Announcements from significant watch firms of new releases and limited editions.
- Information about emerging new master watchmakers and their creations
- Establishment of regional chapters where the collectors can meet and have guest speakers from noteworthy watchmaking factories.
- Question and Answer service by Stewart Unger, noted watch authority & author.
- Annual meeting at the Concours d'Elegance at the summer Jewelers of America Show held at the Javits Center in New York.
- A book club.
- Plus Free Booklets: *How to Buy a Watch (and its Functions)*
  The Care and Service of Timepieces
  Where to Find the World's Finest Watches
  How to Detect a Counterfeit Watch

Membership	1 year - $65	2 years - $120	6 Issues of Collectors Corner per year Invitation to the Concours d'Elegance
Master Collector	1 year - $120	2 years - $220	the above plus: 10% discount from the Book Club Rebate coupons from Manufacturers

Membership Application Name_____ Phone_____

Address_____ City_____ State_____ Zip:_____

Make check payable to: **International Watch Collectors Society, LLC**

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Academy of Watchmaking Classes

Thomas Schomaker, CMW21 Instructor

AWCI is offering a series of 5-day watchmaking classes. Each 5-day block will cost $725. For additional information, contact Education Coordinator, Nancy Wellmann nwellmann@awci.com or call 1-866-FOR-AWCI (367-2924), ext. 303. Class information is also available online www.awci.com

January 5-9, 2009	Watchmaker's Lathe I
January 12-16, 2009	Watchmaker's Lathe I
February 2-6, 2009	Basic Watch Repair **FULL**
February 9-13, 2009	Servicing & Adjusting the Lever Escapement **FULL**
March 2-6, 2009	Modern Automatic Watches **FULL**
March 16-20, 2009	Modern Mechanical Chronographs, Servicing & Adjusting **FULL**
April 20-24, 2009	Basic Quartz Watch and Quartz Chronograph Repair **FULL**
June 8-12, 2009	Watchmaker's Lathe I **FULL**
June 15-19, 2009	Watchmaker's Lathe II **FULL**
July 13-17, 2009	Basic Watch Repair **FULL**
Aug. 31-Sept. 4, 2009	Balance Staffing & Timing
September 21-25, 2009	Modern Automatic Watches
October 5-9, 2009	Basic Quartz Watch and Quartz Chronograph Repair **FULL**
October 19-23, 2009	Modern Mechanical Chronographs, Servicing & Adjusting
November 9-13, 2009	Modern Mechanical Chronographs, Servicing & Adjusting

21st Century Certified Watchmakers Exam Schedule

Visit AWCI's website for complete information on the 21st Century Certified Watchmakers Exam. To register for an exam or for more information contact Nancy Wellmann, Education Coordinator, at nwellmann@awci.com or call toll free 1-866-FOR-AWCI (367-2924), ext. 303.

January 26-29, 2009	AWCI Training Facility	Harrison, OH
February 23-26, 2009	AWCI Training Facility	Harrison, OH
March 30-April 2, 2009	AWCI Training Facility	Harrison, OH
April 27-30, 2009	AWCI Training Facility	Harrison, OH
June 23-26, 2009	AWCI Training Facility	Harrison, OH
July 20-23, 2009	AWCI Training Facility	Harrison, OH
Aug 31-Sept 3, 2009	North Seattle Community College	Seattle, WA
September 8-11, 2009	Lititz Watch Technicum	Lititz, PA
October 26-29, 2009	AWCI Training Facility	Harrison, OH

21st Century Certified Clockmakers Exam Support Classes

Laurie Penman Instructor

AWCI is offering a series of 5-day clockmaking classes to support the 21st Century Certified Clockmakers Exam. Each 5-day block will cost $725. For additional information, contact Education Coordinator, Nancy Wellmann nwellmann@awci.com or call 1-866-FOR-AWCI (367-2924), ext. 303. Complete class information is also available online www.awci.com

December 1-5, 2008	Servicing the Modern Westminster Chime Movement
March 23-27, 2009	Hand Tools and Making Small Parts
April 20-24, 2009	Basic Turning, Burnishing and Tool Grinding
May 4-8, 2009	Advanced Machining Techniques
May 18-22, 2009	Recoil Pallet Repairs
June 1-5, 2009	Deadbeat Pallet Repairs
June 15-19, 2009	Servicing Modern and Antique Time & Strike Movements
July 6-10, 2009	Servicing an American Time & Strike Movement
July 20-24, 2009	Servicing the 400-Day Clock and Using Electronic Timers
August 10-14, 2009	Servicing the Modern Cuckoo Clock with Music Box
August 24-29, 2009	Servicing the Modern Westminster Chime Movement

Hand Tools and Making Small Parts

March 23-27, 2009 — Harrison, Ohio
Laurie Penman, Instructor

DESCRIPTION
This is the first class in the Clock Support series. It will cover the techniques of filing flats and winding arbor squares, polishing, invisible riveting, heat treatment of steels, making spring washers (leaf springs), bluing and blacking screws and many other procedures that the clockmaker uses when repairing and restoring clocks.

PREREQUISITE
There are no specific prerequisites for this class.

COURSE OUTLINE
For a complete course outline and tool list visit *www.awci.com/services/continue-edu.php*

Basic Turning, Burnishing and Tool Grinding

April 20-24, 2009 — Harrison, Ohio
Laurie Penman, Instructor

DESCRIPTION
This 5-day class is designed to cover the basics of turning on an engineer's lathe, or a watchmaker's lathe that has a cross slide and tool holder (tool post) and also to practice the grinding of cutting tools from High Speed Steel (HSS) tool bits. The class will only deal with the necessities of turning small parts such as are used in clock repair. Cutting speeds are low because of the small diameters involved and tool loading is relatively light. Consequently, tool forms (clearance angles, etc.) do not need to vary much from one task to another.

PREREQUISITE
There are no prerequisites for this class.

COURSE OUTLINE
For a complete course outline and tool list visit *www.awci.com/services/continue-edu.php*

Class fee is $725. For additional information, contact Education Coordinator, Nancy Wellmann nwellmann@awci.com or call 1-866-FOR-AWCI (367-2924), ext. 303

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Volume 32, Year 2008

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GemOro Smart Loupe Pro and Radiant View™ Prestige Diamond Series

Sy Kessler Sales, Inc. has introduced the GemOro Smart Loupe Pro and the GemOro RadiantView for the professional jeweler, diamond or gemstone dealer and gemologist.

The GemOro Smart Loupe Pro has an extra large precision 34 mm optical glass loupe, dual super bright daylight or white LEDs for grading and inspection and UV LED illumination for fluorescence detection, built-in 1.0 mm measuring gauge and more. Keep one on your desk, the bench and every showcase, for its ease of use by your staff and consumers makes it helpful in closing sales, as well as it will increase your repair business too! Introductory price is $49.95, Stock #2610.



The Radiant View has an illuminated 10X magnifier loupe. Crafted out of durable stainless steel-like zinc alloy, its modern, ergonomic design has style and many useful features. The Radiant View features dual super bright daylight or white LEDs for grading and inspection and UV LED illumination for fluorescence detection, genuine leather carrying pouch and more. Introductory price is $69.95, Stock #2609.



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Esslinger & Co. Friction Pin Assortment for Clasps

Esslinger & Co. now offers their popular friction pins for clasps with a larger, 2 mm head, found on many of today's heavier watch styles. The new kit includes 5 sizes, a total of 50 pieces.

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16th Annual Miami Beach Antique Jewelry & Watch Show Reports Increased Attendance

dmg world media today reported increased attendance at the 16th annual Miami Beach Antique Jewelry & Watch Show, October 24-26, 2008, at the Miami Beach Convention Center in Miami Beach, Florida.

The three-day show featured more than 100 dealers from the United States, Canada, South and Central America, Europe and Asia.

"We are extremely happy to see increased consumer attendance at our show during today's fluctuating economy," said Andrea Canady, fair director for dmg world media's Miami Beach Antique Jewelry & Watch Show. "Our show kicks off the antique fair season and we saw that consumers are investing in antique jewelry and watches rather than riskier markets. These items appreciate in value over time and are great long-term investments."

Exhibitors at the show had favorable reports regarding attendance and sales. Pawel Goj, COO with www.signedpieces.com in New York City, said, "We've been able to cultivate strong relationships with other dealers and the general public at this show. Our signed pieces are attracting buyers as a wise investment and we even sold a 9.08 carat emerald ring!"

"We're happy that we attended this year's show. We had some great successes and reconnected with old friends," said Craig Small, owner of Craig Evan Small in Los Angeles, CA.

The 2009 Miami Beach Antique Jewelry & Watch Show is set for November 13-15, 2009. The next show on the U.S. calendar for dmg is the Original Miami Beach Antique Show set for January 22-26, 2009, at the Miami Beach Convention Center in Miami Beach, Florida. For show information, please call (239) 732-6642 or visit www.dmgantiqueshows.com

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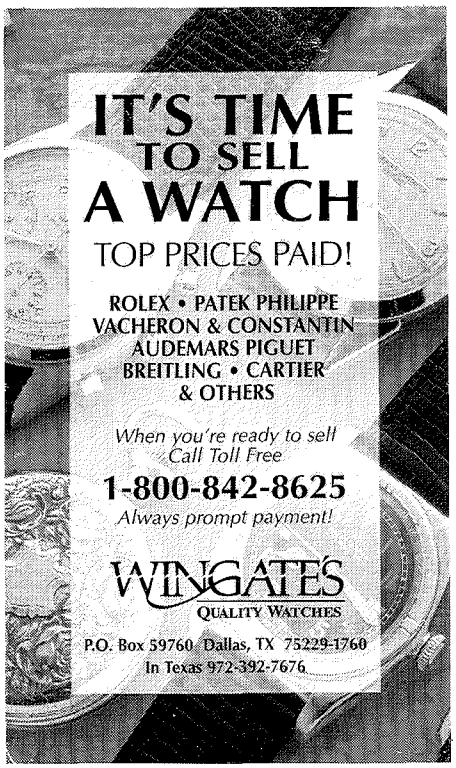
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