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February 2009



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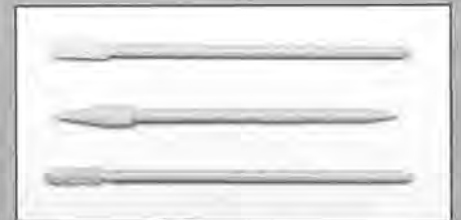
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701 Enterprise Drive  
Harrison, OH 45030  
Toll Free 1-866-FOR-AWCI (367-2924)  
or (513) 367-9800  
Fax: (513) 367-1414  
E-mail: awci@awci.com  
Website: www.awci.com  
Office Hours:  
Monday-Friday 8:00 AM to 5:00 PM (EST)  
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HOROLOGICAL TIMES (ISSNO 145-9546) is published monthly and copyrighted by the American Watchmakers-Clockmakers Institute, 701 Enterprise Drive, Harrison, OH 45030-1696. Subscription price for the public is \$137.00 per year (\$8.50 per copy). Members subscription is \$70.00 which is included with annual dues of \$137.00. Periodicals postage paid at Harrison, OH 45030 and additional entries. POSTMASTER: Send address changes to HOROLOGICAL TIMES, 701 Enterprise Drive, Harrison, OH 45030

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## COVER

This month's cover features the  
Seiko Premier Direct Drive



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# President's Message

By Joseph Juairé, CW21

## The AWCI Annual Convention

During the past several months, I have been ranting about the necessity for professional development as a means of assurance for our customers and ourselves that we have the most up-to-date skills and knowledge to effectively practice our trade. One of the most cost effective ways we, as practitioners, can access professional development opportunities is by attending the AWCI Annual Convention. At this annual gathering of horologists there are many lectures and demonstrations that help maintain or enhance technical skills or business knowledge with the ultimate goal of helping our members achieve more prosperity and success.

The enrichment opportunities at the convention also include the time we spend together with our colleagues sharing ideas and celebrating at the social events. The friendships I have made and the knowledge I have gained from my attendance at these annual events have made a lasting impact on my personal and professional life.

The 2009 AWCI Annual Convention and Educational Symposium is going to be held in Rhode Island. The dates are August 6-9. Please note this year's convention is being held one week later than usual. The Convention Committee is working very hard to put together another exciting schedule of events. In doing so, the committee would like to have your input. If there is a topic of discussion or a particular horological technique you wish to see demonstrated, we would like to hear from you. If you have a desire to make a presentation yourself about a particular topic that you feel would benefit the membership please let us know so that the committee can consider this for inclusion as well. We welcome any ideas that will help make this the best and most interesting convention we have ever had.

Please send your ideas to me, Joe Juairé at [jjuaire@awci.com](mailto:jjuaire@awci.com) or Jim Lubic at [jlubic@awci.com](mailto:jlubic@awci.com) and we will pass these on to the Convention Committee.

If you have never been to an AWCI Annual Convention, I sincerely hope you will consider attending this year. I am quite sure you will find it a very rewarding experience.

## Executive Director's Message

By James E. Lubic, CMW21

This year membership dues are being returned at a steady pace. I would like to thank those who have renewed their membership with AWCI, and remind those who haven't that this issue will be the last that you will receive before being purged from our membership March 1<sup>st</sup>. The trustees of the ELM Trust would like to thank all of you who generously donated to the Trust this year. So far the total cash donations for fiscal year 08-09 are \$4,299.33.

By the time you receive this issue of the *Horological Times* the 2008-09 Mid-year Executive Committee Meeting will have already taken place. The dates for this year's meeting are February 19<sup>th</sup> through 21<sup>st</sup>. AWCI's financial direction, educational programs, and member benefits will be big topics of discussion as well as updating our Strategic Plan. We should have a full report in the April issue of the *HT*.

The AWCI Board of Examiners (BOE) will also be meeting. This meeting will take place Friday, February 19<sup>th</sup>. The purpose of this meeting is to review certification policies and procedures. If there is any tweaking to the certification that needs to be done, proposals will be made to the Board of Directors for consideration.

The Industry Advisory Board (IAB) will also meet on February 19<sup>th</sup>. Again this year the IAB members will be helping to facilitate the trade fair booth at the upcoming JCK show in Las Vegas, May 30<sup>th</sup> through June 2<sup>nd</sup>. We also hope to participate in the new *INSTORE* Show in Chicago, April 19<sup>th</sup> through the 21<sup>st</sup>. The IAB has become very instrumental in the progression of AWCI's mission. We appreciate their support and volunteerism.

Another reminder – Go to the AWCI website at [www.awci.com](http://www.awci.com) and make sure your contact information is visible to the public. How do you do this? Once you are at the AWCI website click on "Referral Directory" in the blue box. Follow the directions on that page and see if your contact information comes up. If it does, great! If not, click on the "log in" in the upper right side of the page. On the "log in" page type your member number where it is required, and then your "password". If you have never logged in to the member area before, your password is your member number and the first initial of your last name capitalized. Click "Submit." Now you will see a list of 19 options. The 16<sup>th</sup> option is "Update your online Referral Directory record;" click that. On the next page is your record. The first item is "Make your Referral record public" with a drop down menu. Click "yes" in the menu and correct any other information that appears there. When everything is correct click on "Submit Form" at the bottom of the page. Now you should be all set.

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## Question

My customer inherited this watch and asked me to tell him about it. It winds only – stem in or out. I'm hoping you can tell me something about it.

*Paul E. Soraci, CC  
Loveland, CO*

## Answer

Your pocket watch has a one-piece, box-hinged style case with a screw-off front bezel and a hinged, swing-out movement. After removing the bezel, be sure to pull out the stem into setting position before attempting to swing out the movement, otherwise you'll break the stem.

The case is marked sterling silver, which accounts for the beautiful, deep dark patina. It was made by A.W. Co.

(American Watch Case Company?) with a patent application date of 1879. The case number is 21146.

The movement is a 20-ligne (slightly larger than an American 18-size), 15-jewel, lever set, with an anchor escapement by Longines of St. Imier, Switzerland. On the balance bridge is the very early Longines' trademark of a "winged hourglass." The movement's serial number is 261767 which tells us that the movement was made in 1883 according to production lists published by Orville Hagans ("Longines Movement Numbers," *American Horologist & Jeweler* magazine, December 1976) and Gilbert, Engle and Shugart (*Complete Price Guide to Watches*, No. 26, 2006, p. 522). Gilbert et al identifies the movement as a Longines caliber L20B. ☉



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# SEIKO PREMIER DIRECT DRIVE



## Development of a New Generation Kinetic Watch with Manual Winding Mechanism and Power Reserve Indicator

Shuichi Tamura and Takashi Kawaguchi  
Seiko Epson Corporation Watch Development & Design Group  
Shiojiri-machi 390, Shiojiri-shi, Nagano-ken, JAPAN

Seiko Epson has developed the Direct Drive Caliber 5D as a new model of Kinetic series; its uniqueness is to enhance an interrelated communication with a user and a watch.

Its characteristics are as follows:

1. a switching wheel accelerating rotating speed that synchronizes both automatic power generation and the manual power generation, which is newly developed

2. a permanent power reserve system that has a power generation display function and then displays the amount of generated electronic power by manual power generation means

3. an electronic charging load system that enables this model to display more accurate duration of operating compared to conventional rough calculation means.

## Introduction

To maximize the pleasure of owning a watch, Seiko Epson is developing watches that gratify their owners by enabling direct interaction between man and machine, engendering a sense of “oneness.” Kinetic watches are a particularly good example. Their one-of-a-kind structure, which marries mechanical watch craftsmanship to advanced quartz watch technology, gives them lasting appeal. The next descendant in the still evolving Kinetic line is the Seiko Direct Drive Caliber 5D.

## Product Specifications

1. Basic structure: 3 hands/day-date  
9 o'clock position: power reserve indicator  
4 o'clock position: retrograde day indicator  
3 o'clock position: date indicator
2. The watch is equipped with a manual winding mechanism in addition to a conventional automatic winding mechanism.
3. A power generation indicator shows the user how much power is being generated during hand winding.
4. When the watch is not being manually wound, the power generation indicator accurately shows how many hours of charge are in reserve.
5. The construction includes two-motors, one for basic timekeeping and the other for the power generation indicator.
6. A microcontroller-controlled electronic charging load system boosts the accuracy of the power reserve indicator.

## Development Objectives

1. We sought to develop a manual winding mechanism that allows the watch to be charged either by hand or automatically, thus heightening the Kinetic's defining sense of direct interaction between man and watch. In connection with this, we wanted to provide a power generation indicator showing the charge being generated during manual winding.
2. We wanted to provide an accurate power reserve indicator that would convey a sense of reassurance and reliability to wearers. Our efforts were also geared toward developing a power reserve indicator that would show the length of the Kinetic's sustained charge.
3. Finally, we sought to improve the start-up characteristics to further enhance useability.

## Detailed Description of Development Projects

### A. The manual winding mechanism

A wheel train design that allows both automatic winding and manual winding wheel trains is shown in Figure 1.

The Caliber 5D employs a newly-developed switching wheel to enable both manual and automatic winding. The switching wheel used in conventional automatically wound mechanical watches serves as a reduction wheel train that slows rotation from the oscillating weight to the movement barrel complete by about 1/50-1/200. The effect of mechanical loss from the switching wheel's spring and from friction arising during ratchet engagement is negligible, so winding performance is not significantly affected. On a Kinetic watch, however, the automatic

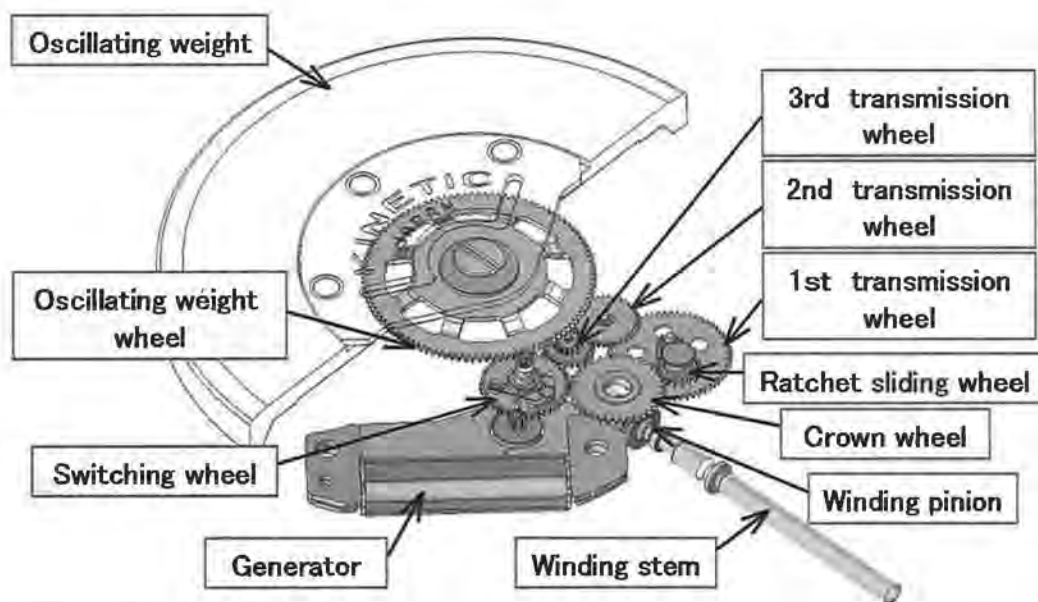


Figure 1. Wheel train layout

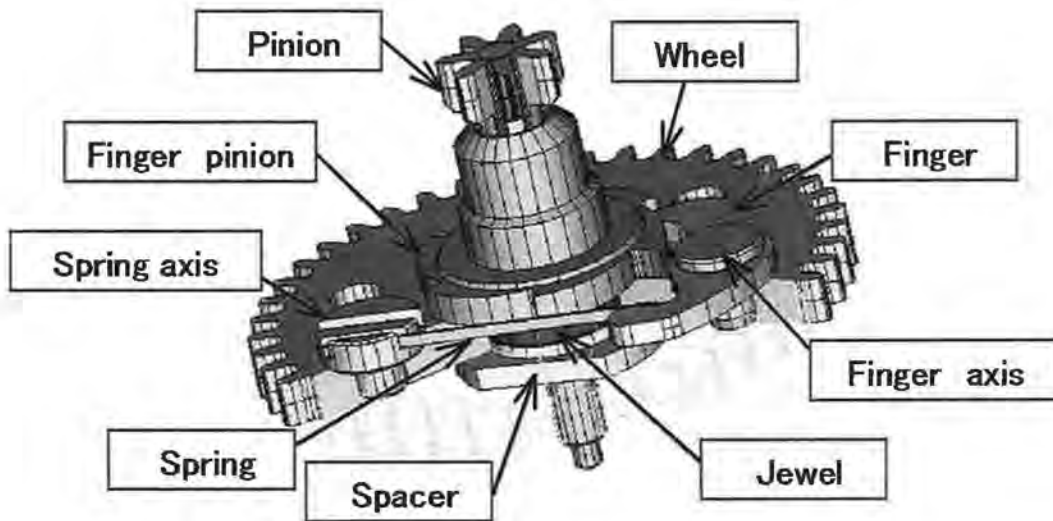


Figure 2. Detailed view of switching wheel

winding wheel train serves as a multiplying wheel train in which rotation from the oscillating weight to the switching wheel and then to a generator is accelerated by a factor of approximately 100. Accordingly, wheel train friction has a huge effect on power generating performance, necessitating a switching wheel construction that would not increase wheel train friction during automatic winding. This need prompted development of a new low friction, low loss switching wheel for the multiplying wheel train (Figure 2). This switching wheel, which requires the skillful assembly of nine components on a gear measuring 4 mm in diameter, provides both good power-generating performance and good durability. The new switching wheel has several defining features:

1. a low-load spring made from the same material as that used in mainsprings;
2. a 6-tooth finger pinion (versus the 30-50 teeth on a pinion in a mechanical watch) that reduces mechanical loss and optimizes power generation and;
3. a jewel is used on the shaft to reduce mechanical loss and enhance durability.

Manual winding characteristics differ from those on a mechanical watch in that more winds are required, since manual winding action is converted to electrical energy. Therefore, we conducted a study with assumed target users to select the manual winding characteristics. The survey showed that users felt comfortable with a winding torque of 2-3 mN•m and a 3-hour charge from a 30-second winding, so these are the conditions we used. The frequency characteristics of the generator are shown in Figure 3. As the graph shows, the quantity of electric charge becomes saturated at a certain point as the manual

winding speed is increased. Saturation occurs because, as shown by the following equation, although induced voltage rises as frequency increases, so does impedance.

$$I = V/Z \text{ [A]}$$

$$V = N \cdot \Delta\phi / \Delta t \text{ [V]}$$

$$Z = 2 \cdot \pi \cdot f \cdot L \text{ [\Omega]}$$

where,

- I is current from the generator; V is induction voltage of the generator; Z is the generator's impedance;
- N is the number of windings on the generator coil;  $\Delta\phi$  is the magnetic flux at that time;  $\Delta t$  is the time at that time (the reciprocal of the frequency);
- Z is impedance;  $2 \cdot \pi \cdot f$  is angular velocity (f is frequency); and L is generator inductance.

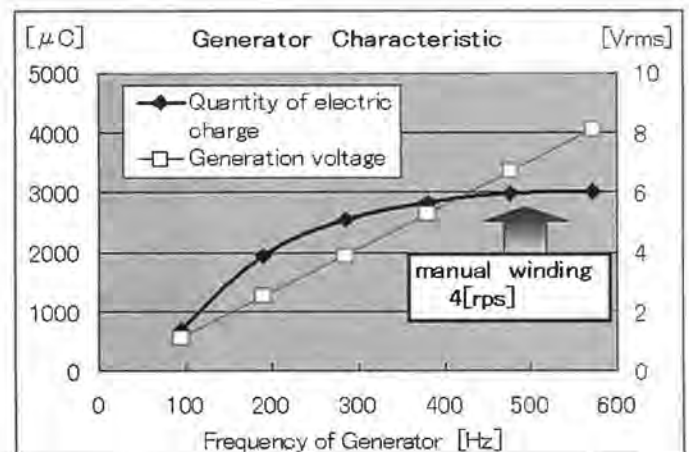


Figure 3. Generator frequency characteristics

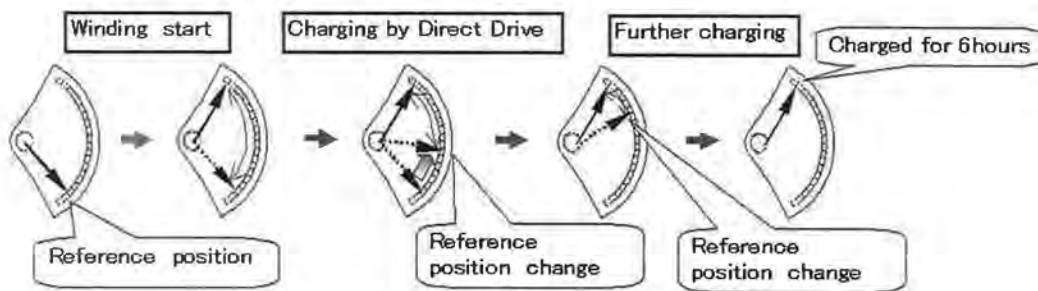


Figure 4. Power generation indicator operation

The survey results also revealed that the average manual crown winding speed was 4rps. Therefore, we set the generator specifications and the multiplication ratio of the manual winding wheel train so that peak power-generating performance is achieved when the crown is wound at 4rps. A single generator is used for both manual and automatic power generation, which enabled us to shrink the size of the movement.

### B. Power generation indicator and power reserve indicator

In considering ways to heighten interaction between man and watch, we came up with the idea that we could offer a more interesting product if users could see how much power they are generating when they wind the crown.

Therefore, we provided the Direct Drive Caliber 5D with a power generation indicator that shows the amount of change produced by manual winding. A Kinetic watch, however, is unlike a mechanical watch, which fully winds even with a slow winding motion. On a Kinetic watch the level of power generated differs according to the amount and speed at which hand winding is performed, for example. Users can efficiently generate power by manually winding the crown the proper way. The power generation indicator's job is to provide users with visual clues to proper manual winding by highlighting variations in levels of power generation. This indicator paved the way to a groundbreaking manually wound watch that communicates its "intent" to the wearer. The actions of the power generation indicator are illustrated in Figure 4.

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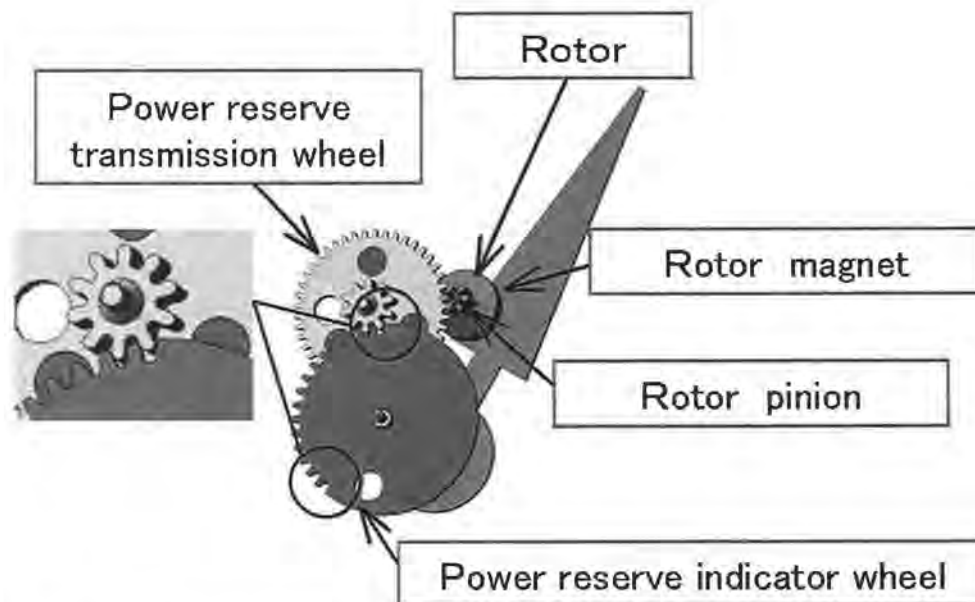


Figure 5. Power generation indicator structure

The structure of the power generation indicator is shown in Figure 5. The stepping motor used for the power generation indicator is different from that used for the basic clock. The power generation indicator's stepping motor is capable of high-speed forward and reverse rotation, which allows the indicator to mimic the movement of a tachometer. For the power generation indicator's stepping motor and transmission wheel train we developed a new structure that does not require users to manually perform troublesome hand position adjustments. The motor and wheel train reliably position the hands and reduce the power requirements of the watch. The main features of the power generation indicator, the operating range of which is determined by a mechanical positioning means, are below:

1. the rotor magnet and the rotor pinion are assembled together so that the direction of the magnetic pole and the phase of the pinion are aligned;
2. the gear and pinion of the power reserve transmission wheel are manufactured as a single piece, with phases of the gear and pinion matched;
3. the phases from the rotor to the power reserve indicator wheel are aligned when the power generator indicator is assembled in the movement;
4. mechanical positioning is achieved by means of the two positioning features (indicated by the red circles) provided on the power reserve indicator wheel. The quality of the power generation indicator is assured by giving these

positioning features the proper profile and by mitigating manufacturing variation when the parts are built into the movement.

The power generation indicator constantly shows the power in reserve, except during manual winding, so that the wearer can see at a glance the amount of drive time that remains. The power reserve indicator is illustrated in Figure 6. Whereas mechanical watches typically indicate power reserves of from 48 to 72 hours, this power generation indicator indicates reserves of up to 1 month. The biggest difference between this indicator and conventional power reserve indicators is accuracy: The Caliber 5D's power reserve indicator is accurate to within 3 hours. From 0 hours up to 1 day, the power reserve is indicated using a 3-hour scale. Thereafter, reserves are indicated using a

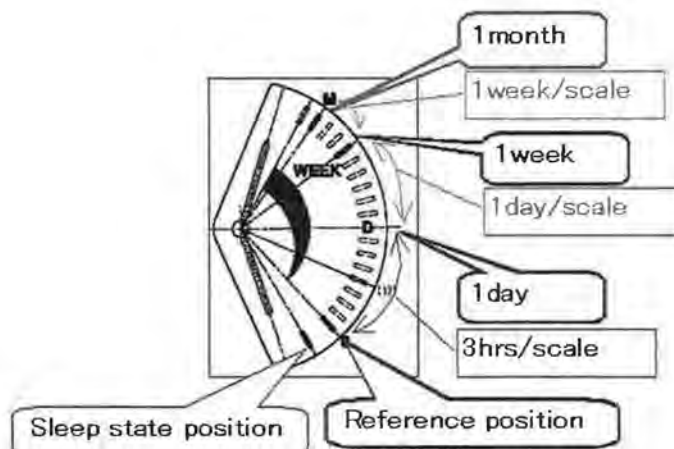


Figure 6. Power reserve indicator operation

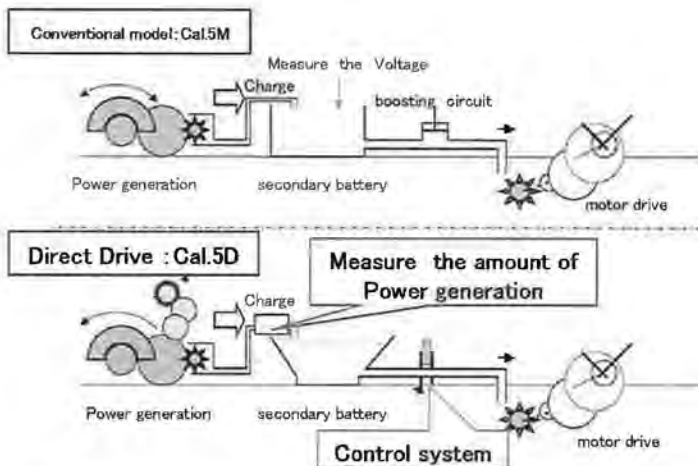


Figure 7. Schematic view of system

1-day scale, a 1-week scale and, finally, a 1-month mark. Underpinning this high-accuracy is a newly-developed electronic charging load system.

### C. Electronic charging load system

The power reserve indicator on a typical battery-powered watch is fairly rough in terms of accuracy. A three-level scale with a high, medium and low level area may be used, for example. Even Seiko's earlier Kinetic watches indicate power reserves with a lack of exactitude, with charges being shown as 7 days or more or 1 month or more. Accuracy was difficult to raise for two primary reasons. First, previous power reserve indicators were somewhat simplistic, working by measuring the voltage of the secondary battery and indicating the length of sustainable operation on the basis of the measured results. And, second, the voltage of the secondary battery is unstable, depending as it does on the charging and discharging characteristics of the secondary battery. On the Direct Drive Caliber 5D, therefore, an electronic charging load system, which we will examine below, was used to create a power reserve indicator with unprecedented accuracy.

The Figure 7 is a schematic diagram showing the energy flow on our conventional Kinetic Caliber 5M model (top) and that on our Direct Drive Caliber 5D (bottom). On the conventional model the generated charge is stored in a secondary battery, the voltage of the secondary battery is measured, and the power reserve based on that measurement is displayed by pressing a push-button switch to drive the second hand by a prescribed amount. On the Direct Drive Caliber 5D, on the other hand, we decided to measure the generated charge before it is stored in a secondary battery. A series resistor was provided between the power generator and the secondary battery and the amount of power generated is measured by current-voltage conversion. The Direct Drive Caliber 5D is also the first

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Kinetic watch with microcontroller control. The measured power generated is converted to a corresponding drive time, and every time power is generated, either by manual winding or the wearer's movement, it is added to the total drive time.

The electronic charging load system calculates available charge time and indicates the power in reserve by adding and subtracting energy inputs and outputs. Not only is power generated added as input energy, the energy required to power the watch is subtracted as an output energy. Subtracted values are determined by the driving conditions. For example, when an auxiliary pulse is output, a value commensurate to that is subtracted. By thus accurately controlling additions and subtractions, we were able to realize an accurate power reserve indicator.

#### ***D. Improvement of start-up characteristics***

Today's watch users tend to own multiple watches, wearing different ones for work, vacations, and exercise. This pointed to a need for a watch that can be used immediately when the owner needs it, whatever the state of winding or charge. Conventional Kinetic watches sometimes need to be jiggled for a while to recharge them after the secondary battery becomes fully discharged. We therefore wanted to create a system that would start up with only a slight manual winding action and that, once started up, would run for a sufficiently long time on nothing more than the charging performed during normal wear.

Conventional Kinetic watches are used until the energy stored in a secondary battery is exhausted. In other words, the entire charge of the secondary battery is used. The advantage of such a system is that it allows the watch to run continuously for six months or more, depending in part on the performance of the secondary battery. On the down side, the system needs a boosting circuit to help ensure start-up when the secondary battery runs low or when the second battery's voltage is low. Therefore, we decided that instead of using the entire region of a secondary battery on the Direct Drive Caliber 5D, we would use only the voltage region capable of supplying stable energy.

This idea was made possible by the electronic charging load system and accurate power reserve indicator. That is, since the power reserve is not dependent on the charge of a secondary battery, when the power reserve reaches 0, the watch can be arrested even if the secondary battery has sufficient charge. Moreover, after driving is arrested, the watch moves into sleep mode. Current consumption in sleep mode is extremely low—about 1/50th the current consumed during normal operation—so the battery lasts a long time. Consequently, even if the hands are still, the

system quickly starts up when the crown is manually wound one or two turns. This represents a dramatic improvement over the start-up characteristics of conventional Kinetics in the stopped state.

#### **Conclusion**

The newly developed switching wheel enables the use of both an automatic winding wheel train and a manual winding wheel train. Power can thus be generated by hand winding the crown, a Kinetic first.

A power generation indicator depicts the state of power generation by hand winding, enabling users to manually wind the crown properly and generate power efficiently. Users can now see for themselves how long they need to hand wind the crown to gain a sufficient charge.

By developing a new electronic charging load system, we were able to come up with an accurate power reserve indicator that gives users a sense of reassurance and suggests reliability.

The Caliber 5D has better start-up performance than earlier Kinetic models because the electronic charging load system enables the secondary battery to maintain its charge for an extended duration of time.

The next generation Kinetic Direct Drive Caliber 5D was created by merging our mechanical watch technology with microcontroller electronics to further heighten the sense of interaction and oneness between man and watch. The Direct Drive Caliber 5D, one of the few interactive watches, will become a core technology of the Kinetic series.

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September 17, 2008



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# Preparing for Certification

Because the members of the Education Committee and the BOE want you to succeed when you take either certification, keep watching the *HT* over the next few months. We will offer discussions on what you can do to be ready for each section. Of course we are all sure you have mastered all the necessary skills of our respective trades—Watchmaking and Clockmaking—that only minor brushing up will be necessary, but still we want you to succeed when you step up to the plate and take the plunge. Right? I have asked the BOE Chair, Wes Grau, to address the watch program and I will offer suggestions for the clock program. Neither of us will be telling you exactly what is on the examination, but we can sure give you some good guidelines and some examples that can help you perfect your skills before you sit down to work on the program.

First, so that you all know exactly what is being examined, consider the following: For the Watch program there are 5 sections that are examined. There is 1.) A written examination, 2.) A micro-mechanical section, 3.) The servicing of an automatic watch, 4.) The servicing of a quartz watch, and 5.) The complete servicing of a chronograph watch. The Clock program consists of 10 elements. These include: 1.) A review of the candidate's workshop, 2.) A written examination, 3.) Re-pivoting an arbor, 4.) Installing 2-3 teeth in a wheel, 5.) Re-ending a mainspring and cleaning and servicing a mainspring barrel, 6.) Replacing the leaves of a lantern pinion, 7.) Servicing a triple chime floor clock movement, 8.) Servicing a cuckoo with music, 9.) The partial servicing of a 400-day movement, and 10.) The servicing of an American type T/S movement. Even though there are more pieces to the Clock program, the watch examination is even more demanding. I know you have read many times that these exams reflect reality, not just someone's or some group's thoughts. They were both developed from the bench work of fellow professionals whose daily lives and income depend on their skills! You can read a breakdown of each category in the respective S&P.

Also, we are gaining examination information from not only what the candidate does but how he/she does it and how he/she follows instructions. I once had an instructor who got so frustrated by students who did not want to read and follow instructions that he gave a test with 25 questions, only one of which had to be answered—the last one—fill in your name at the top of the page. Most of the class failed because they filled in the entire document and failed to first read the instructions completely.

Let me give you an example of this very behavior as we developed the new examination. Take the Watch exam for example. Can you read and follow a tech sheet? Even though you may not oil (or grease for that matter) certain points in a movement in your shop as a normal course of events, the tech sheet calls for you to do so and this is an examination. Just do it! This is an examination of ALL your skills. A top-notch professional needs to be able to follow instructions. If you don't, your scores will suffer. Consider the real world, especially if it's a new model and the manufacturer has no other way to communicate to you what is needed. Can you follow those directions? Is this a trick? What? Is asking if you can read and follow instructions a trick? Try doing that with the DMV. You know how silly some of their questions are and yet, when they ask you how far you can see in front of your headlights, the correct answer is not when you can read what it says on bumper stickers of the car in front of you!! In the Clock exam, even though you do not have to set the beat of the 400-day clock (because of problematic shipping difficulties), you had better know your escapement work and how to rewire a suspension spring when you are given one to duplicate. (You see, that too is written in a book somewhere that you must know about.) You're a professional; you are supposed to know about stuff like that! It is not a question of whether or not you do these kinds of things every day in your shop. This is a professional examination and it is necessary for us to know if you can follow instructions of this kind of detail when asked to do so.

As with any examination, it is not just a matter of asking, "Do you know how to do something?" We need to have you show us you can do it, how you set about the task and the quality of the results you get. Is there an ideal quality? Read the S&Ps! Do we all achieve perfection every day? I'd be a liar if I said we all do! But the S&P defines the quality level that is evaluated. You say you never need to do this or that in your shop. Are you sure you are not missing something that a manufacturer expects to be done? Even at that, this is an examination of professionalism. Can you achieve the demanded level? Also, over the next months, we all will try and prompt you as to where you might look for help or practice when you need it.

Because most of us have learned from a variety of sources, some good, some not so good, it is AWCI's mission to help bring more uniformity to the workbench and help

grow the entire horological community into a more solid, knowledgeable, and skill efficient work force. Our careers and futures depend on it!

I urge the watchmakers to follow the material coming soon from Wes Grau and the Watch side of the BOE and the Education Committee. As for the clockmakers, keep reading, as I and the Clock side of the BOE and the Education Committee will be your guide for the next few months as we try to help you get organized. Have a question about some procedure, technique, or skill? Ask and we all will try to get the word out. If you are unsure, chances are there are many more in the same boat. Otherwise, none of us would ever see a poorly repaired/restored watch or clock. Is there anyone who hasn't seen this problem? More next month.

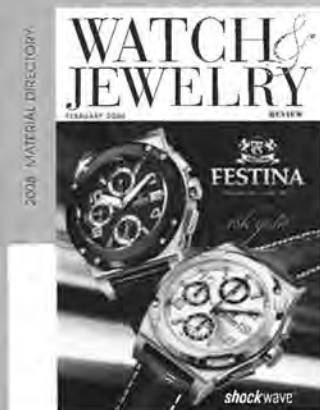


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# Timekeeping with Clocks Using Mainsprings

David J. Carlson

The theme of this article is based on saving valuable bench time in setting a clock to rate after it has been repaired. I have included torque information on a typical mainspring to help the reader understand the basis for the procedure.

The low cost mainspring power source became popular starting in the late 19<sup>th</sup> century because escapements were developed which were less sensitive to the greater than two to one mainspring power variation over its winding range, Figure 1. The affect of the timing error, which remained, can be reduced by a rate setting method that will be described.

Poor service techniques can add to timing error. One example is the mainspring torque curve in Figure 1 marked "Poor or Little Lubrication." The higher value distorted torque curve would make setting the rate and timekeeping totally unreliable. Another potential source of error is poorly adjusted mechanical systems. For example, the rate adjustment on a Sessions Tambour, Figure 2 which is

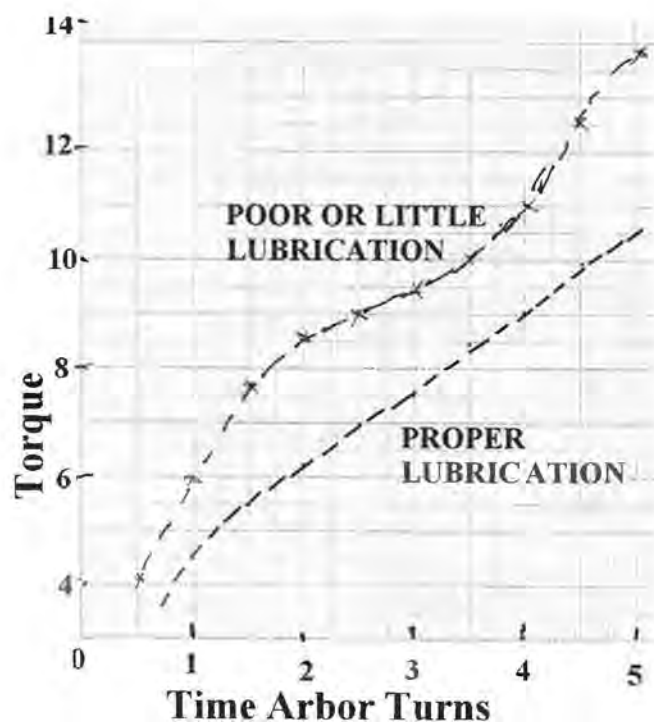


Figure 1. Mainspring torque

located on the dial immediately beneath the 12 o'clock position, Figure 3. Adjustment is made with the small end of the two-ended key or a selected pocket watch key, Figure 4. The mechanism for the rate adjustment, Figure 5, provides support for the pendulum and the rate adjustment by changing the length of the pendulum.

## Setting the Rate

The maximum timing error of a clock can be reduced by setting the rate in the center of the running time. The clock will run faster at full wind, correct in the center, and slower at the end. This procedure divides the timing error in half.

The rate adjustment set up for the Sessions is shown in Figure 6. A TIMETRAX timer is used to measure the rate. (TIMETRAX or MicroSet™ timers are available from most supply houses.) The procedure is:

1. From the full let down position, wind the time arbor halfway between zero and full wind.
2. Start the test at quarter after the hour or quarter to the hour. This eliminates errors in the minute hand position due to gravity and gearing of the minute hand.
3. Allow the clock to run a length of time "T". A minimum of twenty-four hours is recommended.
4. After the time "T" has passed, determine the error in minutes "t".



Figure 2. Sessions Tambour Clock



Figure 3. Rate adjustment arbor

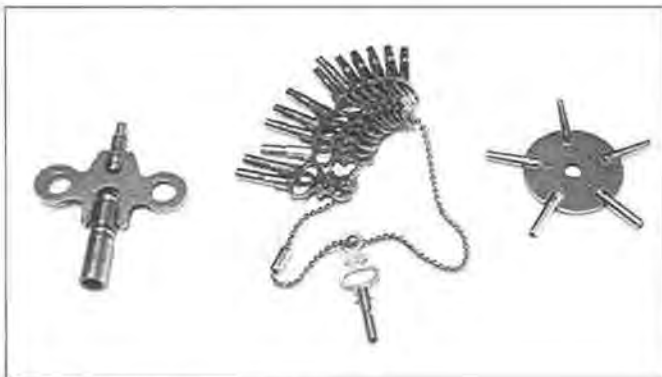


Figure 4. Rate adjustment keys

5. Measure the beats per hour “bph”.

At this point you should have the following data.

T = the time period in hours you selected in Step 3

t = time error in minutes, read in Step 4

bph = beats per hour measured in Step 5

Substitute the data in the equation below. Use the plus sign in the denominator if the error in minutes “t” is plus (fast), and the minus sign if “t” is minus (slow). Calculate the BPH:

$$BPH = \frac{bph}{1 \pm \frac{t}{60T}}$$

For example: T = 24 hours  
t = 1.5 minutes fast  
bph = 5,600

then calculate the new rate,

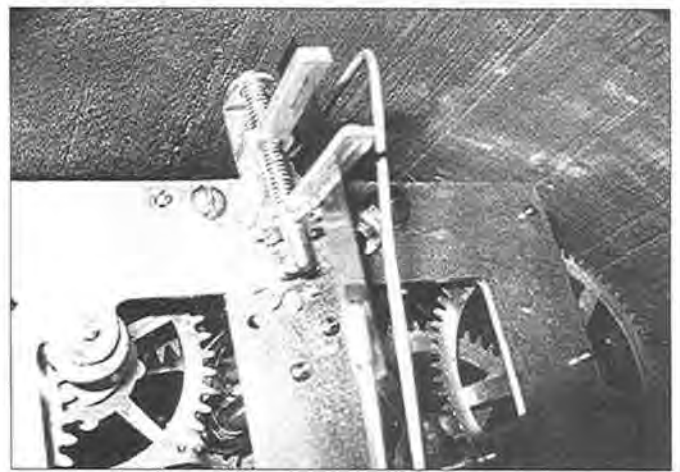


Figure 5. Rate adjustment mechanism



Figure 6. Rate adjustment set up

$$BPH = \frac{5,600}{1 + \frac{1.5}{60 \times 24}} = 5,378$$

To take advantage of the rate setting method, it is important to set the time in the middle of the running time. For example, if you wound the clock on Sunday, set the correct time on Wednesday.

### Additional Reading

“Working with Mainsprings”, *Horological Times*, May 1996, pp. 34-39.

“The Modern German Clock Movement”, *Horological Times*, June 2008, pp. 16-17.



# To Your Health

By John W. Safranek

Here is a question for you to ponder.

Which are the watchmaker's two (2) most valuable tools/assets?

- A. Lathe and Collets
- B. Timing and Cleaning Machines
- C. Screwdrivers (properly prepared, of course) and Tweezers
- D. Eyes and Hands
- E. A CW21 certificate & a Rolex parts account

Hopefully, you have selected choice "D." While all the other choices could be argued to be indispensable to the modern watchmaker, think just a moment what would happen if your eyesight was significantly compromised, or your hands became injured. There is a reason the word "HANDicapped" is so aptly named. Our first three choices

above are also replaceable, tangible goods. Choice "D" is not. One could even make a claim that eyes and hands are more important to the practicing watchmaker than CW21 certification.

With so much at stake, why not take better care of these marvelous "tools"?

Let's explore some simple things one can do to better care for and protect the eyes and hands.

## Eyes

Watchmakers are of course very familiar with the quintessential "loupe" in all of its various configurations. However, traditional loupes offer no protection to the non-dominant eye in the event of foreign, flying debris. A practice affording more protection, and a benefit of



*A pair of Bobster® Eyewear safety/shooting glasses with a Bausch & Lomb 3X-5X eyeglass loupe attached. Note the crack just above the nose bridge.*

wearing prescription glasses, is the “eyeglass” loupe, which clips to the frame of the glasses, and can be lowered for magnification when necessary. This type of loupe is nothing new for our readers, but its application in my situation may be of interest.

What if a watchmaker does not wear prescription glasses or prefers contact lenses? The temptation is to then perform all work with only the traditional loupe, and risk injury to the non-dominant eye.

When I began watchmaking I was very interested in the eyeglass loupes for general purpose work because they offered 3X and 5 X magnifications, as well as the double eyeglass loupes ability to amplify the magnification by stacking the two powers. Not being an eyeglass wearer, I began to search for a pair of eyeglasses which had non-prescription, clear lenses. No luck there. When I found a pair of non-prescription 1X reading glasses, I could not be sure that the lenses were rated to withstand impact. Therefore, I purchased a pair of clear Bobster® Eyewear safety glasses, rated at ANSI Z87+, CE EN-1836:2005, EN 166—high speed impact at 45 m/s in extreme temperatures.

The double eyeglass loupes I purchased from Bausch & Lomb came with an attachment piece to allow the loupe to affix to the curved plastic lense of the safety glasses. This piece utilizes 3M double-sided tape. I currently wear these for general purpose work, virtually all the time, including when performing the more hazardous polishing and lathe work. I continue to use the traditional loupe when inspecting jewels; however, the chance of flying debris capable of injuring one’s non-dominant eye during this operation is negligible.

These “safety” glasses are actually “shooting safety” glasses. They perform well with the exception of a few issues which I will discuss. The clear lense, like any lense, requires regular cleaning, as the surface of the lense tends to become contaminated rather easily with oil from one’s hands and fingers (a reminder of the need to properly wash hands and wear finger cots!). The glasses also tend to develop stress fractures from the brief distortion associated with constant removal from one’s face. Specifically, the nose piece (PT-ESB-4) becomes cracked and requires replacement about every three months or so. The plastic lense (PT-ESB-3) may also develop a split/fracture just above of the nose piece. These problems are easily remedied by purchasing low-cost replacement parts direct from the manufacturer, Bobster® Eyewear ([www.bobster.com](http://www.bobster.com)).

The use of these safety glasses when working in your shop, an annual exam at one’s eye doctor, the prudent use of the

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appropriate sunglasses when outdoors, and the possible addition to one’s diet of blueberries and other nutrients which have been found beneficial for the eyes, (such as Vitamin A, C & E, Lutein, Astaxanthin, Zeaxanthin, and Bilberry) are about all one needs to do to insure proper eye health throughout life.

### **Hands and Fingers**

Turning to the subject of hand and fingers we find that old-man winter may be causing some seasonal drying cracking and flaking of skin. For the watchmaker who routinely washes his hands, this can quickly become problematic. Many of you may be familiar with Manuel Yazijian’s recommendation of special soap to utilize for hand washing. Kirk’s Original Coco Castile soap, fragrance free. This soap leaves the hands very clean and virtually oil free, in spite of containing coconut oil. Granted that hand washing is intended more for the “health” of the clean watch movement, than one’s hands, there are several issues which I will address relative to the proper preparation and maintenance of one’s hands and fingers.

All of us are aware of the danger of contaminants falling from out of “nowhere” during the assembly of a properly cleaned watch movement, and/or when dialing and casing. These contaminants may take the form of dust or floating fibers in one’s shop environment, but are also made up of whatever may have migrated underneath one’s fingernails, including the small bits of dead skin which reside almost permanently on ones fingers and hands. Dry and cold weather exacerbates the possibility that dry skin flakes, even when utilizing finger cots, may migrate into your clean work.

The proper preparation (i.e. cutting very short) of one’s fingernails, and routine washing will typically remove much of this debris, but not all of it. To aid in the removal of dry and/or dead skin cells, one can utilize a “nail brush”. These brushes tend to be specifically designed to scrub the skin of the fingers and hands without causing harm, and when utilized in conjunction with washing will do a superb job of leaving the hands and fingers extremely clean and free of debris. The brush also allows one to remove

almost all the material which may have accumulated even under short nails.

All of this washing and scrubbing may easily make one's hands even drier and more apt to crack and split. Therefore, the nightly use of a hand cream is recommended. I have found only two types of cream to be successful in preventing or healing skin from winter drying and cracking. For prevention I recommend Neutrogena® Norwegian Formula® Hand Cream. If you already have a bad case of dryness, you will need to use something stronger, such as prescribed by your doctor. I have found Penaten Creme to be the best at curing the condition. If your mother was German, you probably had this used on you as a baby for diaper rash. There is nothing else like it. Penaten can be difficult to locate in the USA, but may be purchased directly from [www.smallflower.com](http://www.smallflower.com)

Some of you may also experience cracking of your skin at the border or side of your fingernails in the winter. This can be very painful and difficult to heal. While the concept of superglue and watchmaking is absolutely verboten, the use of medical-grade super-glue in treating split skin conditions, such as at the fingertips and/or heels, is well documented, and will usually heal the condition in one application. I encourage you to try it. Just do not make the mistake of donning finger cots before the application has dried . . .

#### About the Author

John W. Safranek is a full-time, independent watchmaker, and owner of BfW Co., Inc. in Denton, Texas. He has been a professional member of AWCI and the Chronometer Club since 2006, and is also currently the co-editor of *The Communicator*, the official newsletter of the Chronometer Club.



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# Scratchless Filing

By Laurie Penman

I must apologize for the assault on the senses that is about to take place, but there is a reason. Look at Figure 1, shade your eyes if you like, but please look at it. Here you see three of the clock repairer's worst bugbears. The center of the bush was a "mile" out of position, soft solder had been applied by hand that trembled with an amplitude of about three-quarters of an inch and great gouges had been made with a file across the face of the plate. I won't say anything about the punched up hole at the top. It might have been done in the 1950s when a grandfather clock could be bought for 5 UK pounds and nobody would pay more than a few shillings (a shilling was about 18 cents at that time) for repairing one.

Let me discuss the filing first, when a new bush is inserted, it frequently needs dressing down to the level of the plate, particularly when the clock is an antique and the repair is aimed at being as invisible as possible. Many of the old books recommend using a bull's foot riffler for this task. This tool consists of a disk of file welded or forged onto the end of a bent tang (Figure 2) and it is really quite unsuitable for the job. For one thing no mention is made of stoning down the periphery until those teeth are smooth, more importantly it is very difficult to

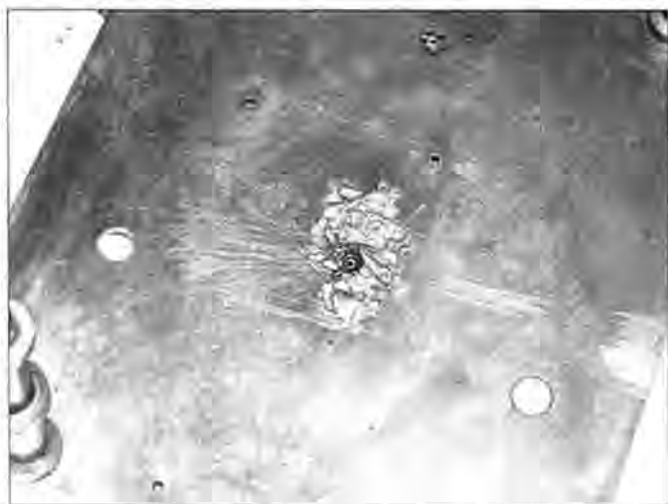


Figure 1

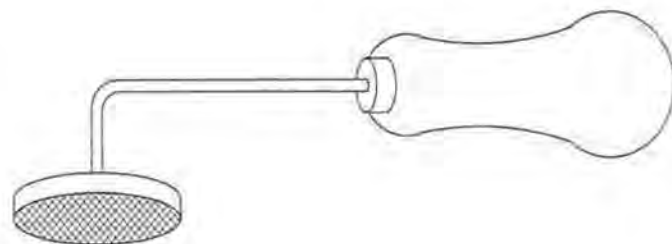


Figure 2

keep control of the disk so that it remains flat and parallel to the surface of the plate with each stroke. If it tips up (and it will) there is a strong tendency to cut into the plate instead of simply filing away the excess length of the inserted bush.

Bull's foot rifflers are designed for reaching down to the bottom of a cavity as in locksmith work, gunsmithing and die sinking and it is really a roughing out tool. However, the plate in Figure 1 was not botched with a riffler, but with a flat file that had not been prepared for the job of leveling a bush and it is this preparation that I wish to discuss now. It happens quite frequently that a repairer needs to reduce metal that has been introduced into the middle of an already finished surface without damaging that surface and having then to treat the whole to remove scratches and bring the metal back to its original condition. A bush is the most obvious, but there are also pins and parts that have been riveted into the plate like pillars and posts. An untreated file has cutting teeth that extend over most of its length and over to the edges too, inevitably the teeth around the leading edge and sides will dig deeper than those in the main body of the file, because they have no neighbors sharing the cutting. Much the same pressure is applied by the hand, but fewer teeth are sharing the load and so they make scores.

This effect is reduced if the craftsman takes care to keep the cutting surface parallel to the plate, because then only the protruding metal is touched by the file, but this is

difficult and becomes more difficult as the difference in heights of insert and plate becomes less. What is needed is a file that does not have cutting teeth on its edges but instead has been ground and polished until it is not easy to make scratches with it. Figure 3 shows the first step in achieving this; the file being ground is a mill file, smooth and single cut. In other words there is only one set of cuts producing teeth. It does not show a diamond pattern. A single cut file does not cut as fast as a diamond cut because the teeth extend in a line across the file, each one like the cutting edge of a carpenter's plane. A diamond cut, on the other hand has individual teeth produced by the crossing of the cuts that make the teeth. The teeth have points on them and they are more prone to breakage than a single edge. When a tooth breaks it leaves a rough surface that holds the metal being removed by filing and this metal then rubs grooves into the parent metal. That is why we clean file teeth—to lift the metal filings out of the tooth spaces.

A single cut file is less likely to scratch.

Notice that I am using the side of the grinding wheel to grind off the leading teeth of the file. Although it is generally bad practice to use the wheel like this (it wears the edges and tapers the thickness), a light job such as this does no harm. However, if this is done frequently the sides of the wheel will become worn, the grits blunted and the spaces between the grits filled with metal and, since there is no support at the side to rest a wheel sharpener on, there is no way of re-sharpening the stone. In Figure 4 you can see the area that has had teeth ground away. This operation is now carried out on the other side of the file and



Figure 3



Figure 4

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Figure 5



Figure 6

along the edges of the file. Grinding away the teeth is not sufficient, in fact the rough lines left from grinding will scratch brass, not as badly as file teeth, but certainly more than sufficient to mar the surface of a plate. A smooth whetstone (Figure 5) should be used to smooth the surface more until a polishing buff and polishing “soap” are employed to put a final polish on the end and the sides of the file (Figure 6).

Although this treatment will lessen the chance of making deep scratches in a brass plate, it is definitely not fool-proof. When the file surface has removed metal from the insert in the brass plate any metal trapped in the remaining (and working) part is clearly getting closer to the brass and when it can touch, it will score the surface. Scrupulously cleaning the teeth, keeping them clean and examining the brass at almost every stroke is the only way to keep scratching to an absolute minimum. Taking care to file in one direction only and then to use emery paper and metal polish in that same direction will ... almost ... guarantee a finish equal to the original. It may seem a lot of trouble to go to when many old books recommend placing heavy weight paper or old film negative between the file end and the brass to prevent scratches. There are two disadvantages to that practice, the first is that whatever is placed under the file will trap brass filings and scratch the plate and the second is that anything between the file and the plate will prevent it reducing the level of an insert to that of the plate.

Next month I will demonstrate making a bush “invisible,” using the new bushing tool and this file.



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## **“It’s the Economy, Stupid”**

Was a phrase in American politics widely used during Bill Clinton’s successful 1992 presidential campaign against George H.W. Bush. For a time, Bush was considered unbeatable because of foreign policy developments such as the end of the Cold War and the Persian Gulf War. The phrase was coined by Clinton campaign strategist James Carville who wanted to have a simple phrase to define the campaign.\*

This month’s “Workshop” focus is on our economy and what we can do to protect our businesses and livelihood during these challenging economic times.

\*Wikipedia

## **Deflation and Inflation**

For most of our lives we have been concerned with inflation. That is, the gradual reduction in the value of our dollar that takes place almost continually and, if only a few percent annually, is not noticeable. Since World War II, the value of our dollar has slowly declined, with few interruptions and a couple of accelerations, so that its current value is a small fraction of what it was then. Deflation, which is the opposite of inflation, has not been seen for several generations, but it can and has happened.

Most of our members are not old enough to remember the deflation that occurred during the great depression of the 1930s. The value of the dollar actually went up rather than remaining stable or going down. The real price of almost everything went down during that depressed decade, the memories of which have lingered for several generations. Some economists are now expressing concern that we may have entered another period of deflation since the beginning of 2008. Housing prices have tumbled, commodity prices have plummeted, and oil prices have redefined the meaning of instability after soaring to nearly \$150/barrel just before sagging to nearly \$40/barrel. The nation’s retailers severely reduced the prices of their merchandise during the recent Christmas season just to keep their business from falling even further behind this fiscal year. Even the rock solid Swiss Franc has deflated versus its dollar value by about 12% in the past few months.

In the midst of all this bad economic news ETA has announced a 10% across the board price increase for all spare parts effective January 1, 2009. In addition, all finished mechanical movement prices will be 5-12% higher. ETA customarily adjusts its prices for movements and parts

annually on July 1. In the past, they adjusted some prices up and some down. The overall effect of those annual price adjustments averaged only a very modest increase. This new price adjustment, coming six months since the last one, is 100% across the board. All prices were raised; none were lowered, save only finished quartz movements, which were left unchanged. Now that you are aware of this price increase, you adjust the value of your spare part inventory to reflect the new prices. Any spare parts purchased by your suppliers, after January 1, 2009 will be costing 10% more than they did in December 2008.

*Jack Kurdzionak*

## **How’s Business?**

That two-word question is on the mind of many people these days, regardless of whatever business in which they earn their living. Those of us who derive all or part of our income by supplying services to retail stores need to know how our retail partners are doing, especially if we extend credit terms to those retail stores for the parts, labor, and shipping we supply to them. Asking the question “How’s business?” directly, may not yield any usable information if it generates a vague response such as, “It’s OK”, “A bit slow”, or “Not too bad”. No retailer will voluntarily disclose bad news, especially if a creditor is asking the question. How then, can the bench watchmaker, clockmaker, or jeweler gain some insight into how a retail client’s business is doing during troubled economic times? Are there any telltale signs to watch for? If the retail store is a part of a chain of stores, the Internet can be helpful. Go to Google’s financial page and search for the company’s name in the news by clicking search news. A quick check of one well-known chain of luxury guild jewelry stores yielded some very interesting information at the time of this writing (early January 2009). It is owned by a larger corporate parent that owns several well-known chains of guild stores totaling about 110 individual units and also operates hundreds of leased jewelry departments for several well respected mall department stores. The parent company’s stock is currently priced at 4 cents per share and exactly one year ago was valued at \$2.69 per share, a decline of 98%, which is not a good sign. They also posted a \$20,000,000 loss for a recent quarter, and have lost the leases on about 150 of their department store operations. In addition, they have to pay usurious rates to borrow money from any lender willing to take a chance lending it money. What does this tell you? If you are doing business with this company or any firm with similar financials, proceed with caution. Any company that cannot make timely payments to its secured creditors will not treat an

unsecured creditor such as a watchmaker any better. In fact, when a firm enters bankruptcy, the unsecured creditors are the last ones to collect any money owed, if there is anything left after the secured creditors have been paid.

You may say to yourself, the problems of large corporations do not concern me as I only do business with small retail stores whose business affairs never get into print. Regardless of the size of a company, those that cannot pay their bills can harm a watchmaker's business. Large or small, companies in trouble send out signals that, if heeded, can prevent your business from becoming an unsecured creditor in the event of a bankruptcy. The signals include:

1. Payments being tardy, incomplete, and often overdue.
2. Payments not being made until one or more reminders are given.
3. The outstanding amount due becomes larger each month without a commensurate increase in the business done with this debtor.

As soon as these signals are apparent, you need to become proactive and take steps to insure that your business does not become just another unsecured creditor. Bob W. shared the steps his watch repair shop is taking this year to do just that. Effective January 1, 2009, he informed most of his trade accounts that it was no longer possible to offer any open accounts to his clients. All work must be paid for, in full, at the time it is shipped from his shop. For those clients who wish to delay payments, Bob will suggest they use their company credit card to pay him. Payment by credit card is beneficial for both Bob and his clients. He is paid immediately and the client can pay the credit card later in the month or extend those payments on credit card terms. For those clients who wish to pay by check, they can mail a check to Bob for payment in full at the time the work is approved so that Bob can ship the work, without delay, at the time the work is finished. Or, they can send a check at the time the work is ready to be shipped.

Bob reported that most of his trade accounts understood his position, valued his quality work and service, and agreed to the new terms. A few others called to complain that this new procedure was outrageous and told him he was out of order by asking to be paid for his services. Bob has politely handled these clients and very few have stopped sending work. Coincidentally, the complainers were from the same retail stores that were giving a few of the above trouble signals.

We, who are self-employed and earn our living at our benches, will understand the importance of being paid for our services in a timely fashion. Most of us cannot afford to extend credit terms even in the best of times, let alone in this coming year, which will be a financial challenge for all of us. You, just as any other professional, are entitled to be paid for your services at the time they are provided. Contrary to whatever they tell you, your creditors are not doing you a favor when they pay you 30, 60, or 90 days late. Watch your receivables very carefully this year so that when someone asks you, "How's business?" you can honestly reply that your business is good and you will do your best to keep it that way.

*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.

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| Designation                   | Type of Course  | Participants  | Duration | 2009 Dates      | Language | Place        |
|-------------------------------|---|---|----------|-----------------|----------|--------------|
| <b>Quartz Basic</b>           | <b>Basic and improvement course</b><br>ETA quartz products plus Autoquartz (without chronographs)                     | <b>Watchmakers and repairers</b> who would like to learn the basic knowledge of the quartz products and the autoquartz technology | 3½ days  | March 9-12      | English  | ETA Grenchen |
| <b>New Products</b>           | <b>Updating course</b><br>New ETA products  | <b>Watchmakers and repairers</b> who desire to be informed about new ETA products   | 2 days   | June 8-9        | English  | ETA Grenchen |
| <b>Mechanical Chronograph</b> | <b>Specialization course</b><br>On the ETA mechanical chronographs  | <b>Watchmakers and repairers</b> who desire a complete training on ETA chronographs   | 3½ days  | March 2-5       | English  | ETA Grenchen |
| <b>Quartz Chronograph</b>     | <b>Specialization course</b><br>On ETA Quartz chronographs  | <b>Watchmakers and repairers</b> who desire a complete training on ETA chronographs   | 3 days   | September 21-23 | English  | ETA Grenchen |
| <b>Mechanical Basic</b>       | <b>Refresher course on mechanical watches</b><br>On the whole range of ETA mechanical products (without chronographs) | <b>Watchmakers and repairers</b> who wish to refresh their knowledge on the servicing of mechanical watches                       | 3 days   | September 7-9   | English  | ETA Grenchen |

### NEW REQUESTS

#### New England Watch Co.

Jacob Montgomery, West Manchester, OH, is looking for information on this New England Watch Co. movement pictured here. Can anyone identify the caliber number and a source for a staff?



### RESPONSES

#### Vibrasonic A800 Cleaning Machine

Durk De Vries, Hilversum, NETHERLANDS, has provided the Vibrasonic A800 Operating Instructions and Wiring Diagrams for fellow AWCI member John M. Baxter, New River, AZ.

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](mailto:dbaas@awci.com)



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Thomas Schomaker, CMW21 Instructor

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| March 2-6, 2009       | Modern Automatic Watches <b>FULL</b>                              |
| March 16-20, 2009     | Modern Mechanical Chronographs, Servicing & Adjusting <b>FULL</b> |
| April 27-May 1, 2009  | Basic Quartz Watch and Quartz Chronograph Repair <b>FULL</b>      |
| June 8-12, 2009       | Watchmaker's Lathe I <b>FULL</b>                                  |
| July 13-17, 2009      | Basic Watch Repair <b>FULL</b>                                    |
| 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                  |
| October 19-23, 2009   | Modern Mechanical Chronographs, Servicing & Adjusting <b>FULL</b> |
| November 9-13, 2009   | Modern Mechanical Chronographs, Servicing & Adjusting             |



## 21<sup>st</sup> CENTURY CERTIFIED WATCHMAKERS EXAM SCHEDULE

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

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| February 23-26, 2009   | AWCI Training Facility          | Harrison, OH |
| March 30-April 2, 2009 | AWCI Training Facility          | Harrison, OH |
| May 4-7, 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 |



# 21<sup>st</sup> CENTURY CERTIFIED CLOCKMAKERS EXAM SUPPORT CLASSES

Laurie Penman Instructor

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

|                    |   |
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| March 23-27, 2009  | Hand Tools and Making Small Parts                       |
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| 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         |

## Advanced Machining Techniques

May 4-8, 2009 — Harrison, Ohio  
Laurie Penman, Instructor

### DESCRIPTION

This 5-day class will mainly be concerned with the making of new parts. In addition to various turning techniques for producing leaf springs, hand washers, formed pillars, etc., simple milling can be demonstrated and practiced such as gear cutting and producing flats.

### PREREQUISITE

The student should have basic knowledge of turning, the use of hand tools and drilling machines, and machine tool safety.

### COURSE OUTLINE

For a complete course outline and tool list visit [www.awci.com/services/continue-edu.php](http://www.awci.com/services/continue-edu.php)

## Recoil Pallet Repairs

May 18-22, 2009 — Harrison, Ohio  
Laurie Penman, Instructor

### DESCRIPTION

This is one of the most common forms of escapement and used in many types of clocks—longcase, bracket, mantel, wall clocks. This five-day class includes the making of solid recoil pallets, strap pallets and a study of pendulums and suspensions.

### PREREQUISITE

Knowledge of the use of hand tools, familiarity with lathes and drilling machines, and machine tool safety.

### COURSE OUTLINE

For a complete course outline and tool list visit [www.awci.com/services/continue-edu.php](http://www.awci.com/services/continue-edu.php)

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



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# AWCI Correspondence Course in Clock Repair

Based on the original correspondence course written and administered by Laurie Penman, AWCI's resident clock instructor, this course is constructed to provide information and instruction in a manner that is immediately useful in both learning and practicing clock repair. The course contains 16 lessons. At the completion of each lesson you will receive comments and suggestions from Laurie Penman, and a pass or fail grade. Those who achieve a pass grade in each section will receive a certificate of completion. Mr. Penman will be available to answer questions or offer suggestions to each student.

The AWCI Correspondence Course in Clock Repair package contains all the material and information necessary to successfully learn the fundamentals of clock repair, including *The Clock Repairer's Handbook* by Laurie Penman.

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Contact Nancy Wellmann, AWCI Education Coordinator

E-mail: [nwellmann@awci.com](mailto:nwellmann@awci.com)

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## PARTS MESSAGE BOARD

The American Watchmakers-Clockmakers Institute **Parts Message Board** is available on line at [www.awci.com](http://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

m a g a z i n e

## A Beginner's Guide to Clock Repair



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## BASELWORLD 2009

The watch and jewelry trends for 2009 are many and varied, in precisely the same way as BASELWORLD – the World Watch and Jewellery Show. From March 26 to April 2, these versatile new developments, creations and innovations can be experienced in six exhibition halls in Basel. This rendezvous for the world's leading brands promises to be the true highlight of the watch and jewelry industry in 2009.

The art of a good watch designer lies in capturing the spirit of the times in the space of just a few square centimeters. A colorful timepiece on a chain, hanging right down to the navel, brings back memories of the wild, hippy years of the Seventies. Elegant restraint, by contrast, conveys the feel of the Sixties. Watches are a reflection of their time, a ticking piece of history. And this will be borne out once more at BASELWORLD 2009—at the world's biggest and most important event for the watch and jewelry sector. The world's leading brands will be



present in Basel from March 26 to April 2, 2009, showcasing their innovations and trends.

### Watches – Boundless Creativity

In the watch sector, experts sum up the trends for 2009 as follows: anything that is theoretically feasible from the design angle is being taken up and

implemented by the watchmakers. On the masterpieces emerging from the manufacturers, materials and techniques alike are being mixed, merged, combined, and varied with creativity knowing virtually no bounds. And it is the big watches, in an especially wide variety of materials, that continue to predominate, offering a direct view of their frequently minimalist-design dials. The predominantly round cases, often featuring square components, are both flat and elegant.

### Jewelry – The Classics Making a Comeback

“Ornamental decors reminiscent of art nouveau and art deco are all the rage for 2009”, reports a confirmed specialist in the field. This development will be manifested in watches set with an abundance of precious stones, while boasting highly decorative elements, sculptural forms and surprising materials. “And, at quite the opposite end of the scale, come sober, minimalist styles, which will



similarly be making their mark over the year to come," explains the expert, venturing a further look into the near future.

#### **Stones – Colorful and Big**

A glance at the trends in precious stones and pearls: the red spinel has emerged as trend stone No. 1. A further trend is evident in the use of mandarin garnet, with these particular stones generally having a classic cut. Engraving on precious stones is also gaining importance, while cameos and engraved banded agate in signet rings are making a comeback. Another trend is colored pearls, including ones in shades of gold and brown. And the bigger the finished pieces of jewelry are, the greater the need for big pearls and stones.

#### **A Networking Platform – Exclusive to Basel**

In addition to providing its visitors with an overview of the latest trends, BASELWORLD offers them an excellent networking platform. The opportunity to meet face-to-face with the CEOs and owners of the most

important brands in person is truly unique. Leaving aside all the external factors that cannot be influenced, Sylvie Ritter, Director of BASEL-WORLD states with certainty that "preparations are in full swing, we'll have all the big brands on board again and we'll be staging an unforgettable event for exhibitors and visitors alike."

#### **BASELWORLD 2009**

World Watch and Jewellery Show

Date: March 26 to April 2, 2009

Place: Exhibition Center Basel

Opening hours: Daily 9 am to 6 pm

9 am to 4 pm on the last day

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Operations Director  
1-866-367-2924 ext. 311  
tpack@awci.com

Thomas D. Schomaker, CMW21  
Watchmaking Instructor/Certification  
Coordinator  
1-866-367-2924 ext. 309  
tschomaker@awci.com

Laurie Penman  
Clock Instructor  
1-866-367-2924 ext. 318  
lpenman@awci.com

Donna K. Baas  
Managing Editor/Advertising Manager  
1-866-367-2924 ext. 307  
dbaas@awci.com

Nancy L. Wellmann  
Education Coordinator  
1-866-367-2924 ext. 303  
nwellmann@awci.com

Sharon McManus  
Membership Coordinator  
1-866-367-2924 ext. 302  
smcmanus@awci.com

Daniela Ott  
Receptionist/Technical Support  
1-866-367-2924 ext. 301  
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