
Subject: Re: Long service box
Posted by [thesnark17](#) on Thu, 13 May 2021 22:49:37 GMT
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Wind your watch in the morning:

Watches keep their best time at their highest amplitude, because the balance behaves most like a "free spring" (which is a theoretically perfect timekeeper) when at its highest possible amplitude. Watches have lower amplitude on average across all positions when being worn (compared to when sitting on a timing machine) due to the effects of body movement on the (gyroscopic) balance. Winding the watch in the morning allows the overall amplitude to be higher during the day than it would be if wound at night, which means that the watch keeps better time on the wrist. Of course, you could wind your watch back up regularly through the day for even better results, but most people wouldn't do something like that -- unless they're wearing an automatic watch!

(One of the goals behind the development of the automatic watch was to maintain the highest possible amplitude throughout the day, thus improving timekeeping. The other was to get a more constant mainspring force, which also improves timekeeping, largely because the balance amplitude follows the mainspring force linearly. Rewinding a manual watch every hour of the day checks both boxes nicely but is not automatic.)

A watch's timekeeping is consistent over the course of a wind. For instance, sitting on a table, the watch may begin by gaining a second over a few hours, then run perfectly on time for a few hours, then run several seconds slow; and so on, as the mainspring runs down. And, if you left it on the table every day, it would do the same thing every day (assuming temperature and orientation are constant). If rewound at the same time every day, such a watch could be used to find the time extremely reliably (probably to the second over several months, though it might be off by several minutes over that time-frame), due to the known and consistent errors in its timekeeping. This is the principle behind marine chronometers. However, if rewound at irregular intervals (perhaps after 30 hours on one day, and 16 hours the next, only to be wound again 4 hours later), the timekeeping will be more erratic and not predictable. Much more erratic, if the watch is run far past 24 hours since a winding (for watches that are designed with 30-36 hour mainsprings. Watches with longer mainsprings will be more resilient. This is one of the reasons why the best American railroad watches carried 48+ hour mainsprings, even though they were intended to be wound once a day.) All this to say that the watch will keep better time, if wound at the same time every day.

And finally, there are only two times of day at which a regular person would think to wind a watch: when they are putting it on, and when they are taking it off. Given that higher amplitude is more important in the day when the watch is being worn, it makes sense to advise the user to make a habit of winding the watch in the morning, when they are putting it on.
