
Subject: Gruen Autowind Bumper 462SS
Posted by [klevay](#) on Fri, 24 Jan 2025 03:06:21 GMT
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Hello,
Are Gruen Autowind bumper movements known for escapement problems?

I was gifted a Gruen Autowind "bumper" wristwatch with a 462ss movement in non-running but otherwise pristine condition. The balance oscillates fine after a light puff of air, so I decided to give it a proper cleaning.

I discovered that the mainspring was set, but I managed to source a vintage blue steel replacement mainspring in its factory package. Despite its age, it was not set (considering its shape). After wiping and relubricating, I installed it directly into the barrel. All parts were cleaned, and the movement was reassembled.

However, the balance amplitude is very weak. It ticks but stops frequently. The pallet fork drop test is also poor—very anemic. It almost feels like there is no power transmission at all. All jewels and pivots look good.

Any suggestions on how to troubleshoot this?

Subject: Re: Gruen Autowind Bumper 462SS
Posted by [Jenneke](#) on Fri, 24 Jan 2025 15:51:24 GMT
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Do you have a timegrapher and/or you test it in all positions? Dial up, dial down, crown down?

Does the train run freely without the pallet fork (with at the end a little turning back by the escape wheel)?

Did you measure the mainspring? Check the barrel shake?

Almost forgot, welcome on this forum! Feel free to post some pictures of your watch.

Subject: Re: Gruen Autowind Bumper 462SS
Posted by [JackW](#) on Fri, 24 Jan 2025 16:50:46 GMT
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Hello Klevay,

Welcome to the forum!

Blue steel springs can suffer from hydrogen embrittlement. This isn't rust but where, over time, the elastic aspects of the steel are weakened. They lose their driving strength. That blue steel spring

is likely 70 years old and who knows how it was stored.
https://en.wikipedia.org/wiki/Hydrogen_embrittlement

I'd say that this may be why you are getting low amplitude after cleaning. Since I don't know your skill-level, my thought is to suggest that you double check that the pivots on the balance are good, that the jewels are clean and undamaged, and that the end shake for the barrel and arbor are good. If you want a NOS/OEM white alloy 460 spring and/or a staff for the balance, let me know I do have them.

Subject: Re: Gruen Autowind Bumper 462SS
Posted by [klevay](#) on Sat, 25 Jan 2025 01:41:31 GMT
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Hi Jenneke,
I have all the necessary equipment, but there's no point in using a timegrapher when the watch balance is barely moving. The mainspring was in unopened, sealed wrapping. I didn't measure it, but I tend to agree with the suggestion that the vintage blue spring might have lost its strength because I can't find any other reason for such behavior. The train runs freely as far as I can tell, with several backward revolutions of the escape wheel at the end. All side shakes and end shakes appear to be within acceptable range.

Thank you for welcoming me to this forum.

Subject: Re: Gruen Autowind Bumper 462SS
Posted by [klevay](#) on Sat, 25 Jan 2025 01:50:26 GMT
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Hi JackW,
Thank you for your suggestion and information about blue steel mainsprings. I've seen many set mainsprings, including the one removed from this watch. When I opened the replacement mainspring package and saw it had the typical shape of a new mainspring (e.g., the S-curve, etc.), I assumed it would be fine. I agree that might have been a wrong assumption. I just ordered a newer white alloy mainspring as a replacement. Hopefully, this will solve the problem. I promise to report back here on my progress—or lack thereof.

Thanks again!

Subject: Re: Gruen Autowind Bumper 462SS
Posted by [JackW](#) on Sat, 25 Jan 2025 03:16:16 GMT
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Hello Klevay!

Glad to hear of your progress and will always be interested. Part of the mission here is to help support each other with the recovery and restoration efforts we take. The 460 and the closely related 462 are neat movements; they were developed in house and everything I have seen points to being developed/designed by Theibaud. Now that I think about it... has someone found the patent documents?

Anyways... hope we can continue to share ideas in this realm.