

Mechanical Watch Repair Notes

Provided by Hairspring Vibrating Co. (1953).

(I chose to include these notes because of the emphasis on attention to detail. However, you need to understand the horological terms and vocabulary to benefit from these notes! When repairing clocks with balance wheels, such as carriage clocks, you must pay the same attention to detail, as if you were working on a wristwatch. Be sure to read the warning at the end!)

1 - Check for magnetism

2 - Observe freedom of second hand, hour hand, balance wheel, pallet and escape wheel. This will determine the cause of mechanical difficulty before assembly which can be corrected before cleaning.

3 - Clean and Assemble, checking the following in the order listed:

4 - Check endshake of each train wheel.

5 - Spin center wheel, observe smooth stop of escape wheel. Repeat in four positions.

6 - Mainspring should fill approximately one third of barrel and reach barrel cover ledge. Oil.

7 - Check arbor endshake between barrel and cover. Oil bearings.

8 - Check arbor endshake between plate and barrel bridge. Oil bearings.

9 - Twist square of arbor by 20°, observe freedom of snapback.

10 - Wind half a turn only, observe backlash of escape wheel. Repeat in four positions.

11 - Holding watch vertically, lift pallet to upper banking pin, pallet must drop to lower pin. Do not oil pallet pivot jewels.

12 - Wind five half turns only. Test lock and slide of receiving stone on every escape tooth. Repeat with leaving stone. If adjusting is necessary, step 16 must first be checked and adjusted.

13 - Oil balance jewels. Replace balance and bridge. Check level

and freedom of balance, spring, bottom of stud and bottom of regulator key. Adjust movement of spring in regulator pins, adjust pins' height.

14 - Check beat. Stop watch by placing screwdriver against both bridge and train wheel. Pallet should come to rest in center of banking pins.

15 - From side view observe level at which:

a) guard pin meets safety roller.

b) pallet horn meets roller jewel. See clearance between guard pin and end of roller jewel.

16 - Hold balance with pallet in dead center of banking pins. Test freedom of roller jewel in pallet horn slot.

a) Turn balance 10° beyond point where pallet hits banking pin, test freedom of pallet horn between roller jewel and banking pin.

b) Turn balance 45° from (a) (same direction); test freedom of the guard pin between safety roller and banking pin.

c) Apply (a) and (b) on both receiving and leaving sides.

17 - Lightly oil impulse face of each pallet stone. Check motion in four positions with the original winding of only five half turns which represents approximate mainspring power after 24 hours.

18 - Timing Machine. Take four position rates with the same five half turns, wind fully, checking for racing, repeat same four rates, compare for isochronism, adjust accordingly.

19 - Oil jewels. Use heavy grease between winding and clutch pinions.

20 - Check for bent minute wheel teeth.

21 - Rotate minute and intermediate wheels in each direction, observing freedom.

22 - Replace cannon pinion half way, synchronize minute wheel teeth, press pinion. Check drag, be sure that pinion does not rise on center post while being rotated.

23 - Lift hour hand. Dial washer or weight of hour wheel should return hand to original position.

24 - Lift second hand to check space between second hand post and fourth wheel jewel.

25 - Wind and set watch. Place into an envelope in stem down, stem up, dial up and dial down for approximately four hours each, recording on the envelope each position rate. Adjust accordingly. Reset and repeat four positions for longer intervals.

Achtung!

Alles touristen and vouldbee technischen lookens peepers das clockenspiel control ist nicht fur gerfingerpoken und mittengrabben. Oderwise is easy schnappen der spriggenwerk, blownfuse, und poppencorken mit spitzensparken. Der vatchverks is diggen by experten only. Is nicht fer gerverken by das dumnkopfen. Das rubberneken sightseenen keepen das cottenpicken hands in das pockets. So relaxen und watchen das dingin dongin.

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