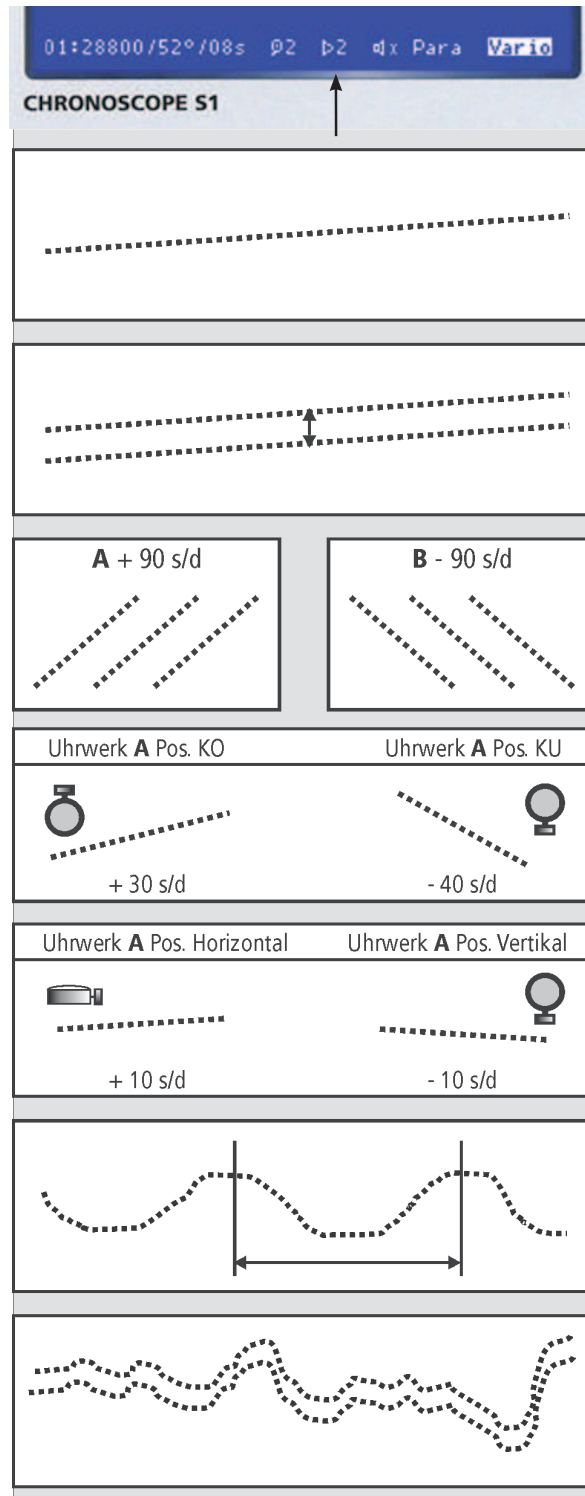


Error detection with graphical charts



Amplification adjustment of the equipment:
2 is standard adjustment. If the chart appearance is disturbed, the signal amplification can be reduced or increased by means of the rotary knob.

Watch movement ok.

Rate: +1 to +15 s/d

Amplitude: H 250 - 330°, V 220 - 270°

Beat error: 0.0 to 0.5 ms.

Watch movement ok.

Beat error: to high (approx. 3 ms)

Action: adjust first the beat error, and then readjust the rate accuracy.

Watch movement ok.

Movement **A**: runs too fast

Movement **B**: runs too slow

Action: readjust the rate, +2 up to 15 s/d.

Watch movement with large rate variations between different vertical test positions.

Action: centering, balancing or replacing of the complete regulating organ.

Watch movement with little rate variations between the horizontal and vertical test positions.

Action: adjust distance of regulator pins, for V - close pins and for V + open pins.

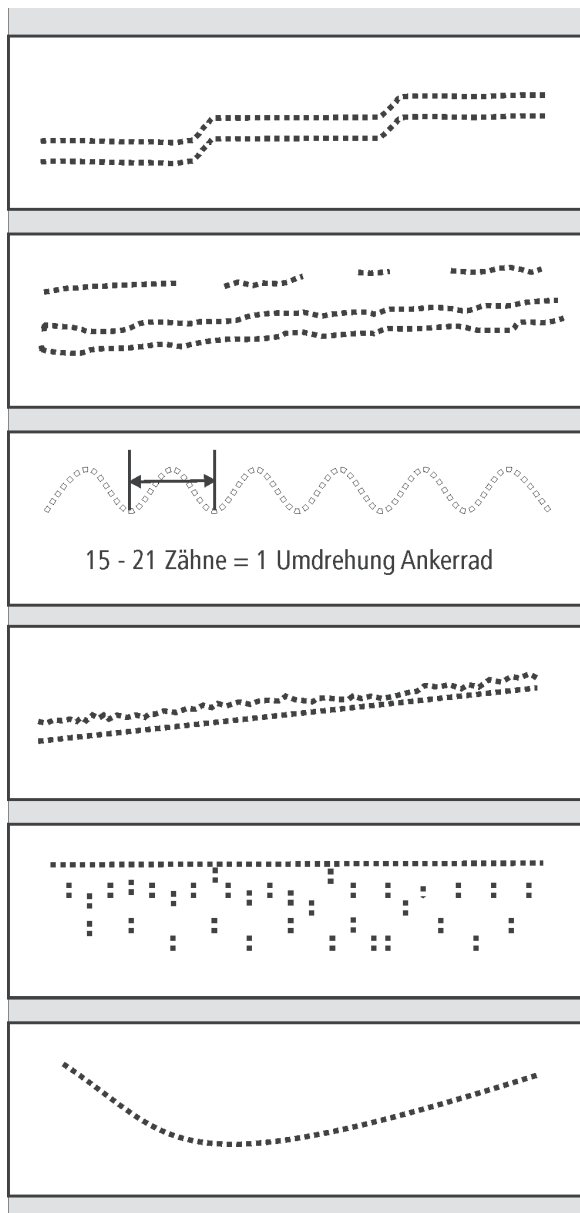
Watch movement with large, but regular rate variations: defects in the gear train

Action: revision and eventually replacement of some gear train spare parts.

Watch movement with irregular rate and defects. Usually the amplitude is insufficient.

Action: overhaul.

Error detection with graphical charts



Balance wheel "knocks" occasionally. The cause is a too high amplitude ($<330^\circ$). Audibly in the loudspeaker as double "tic-tac".

Action: replace mainspring, pallet-stone and/or escape-wheel.

Balance wheel "knocks" continuously. The cause is a too high amplitude ($<330^\circ$). Audibly in the loudspeaker as double "tic-tac".

Action: replace mainspring, pallet-stone and/or escape-wheel.

Escape-wheel runs untrue.

Action: replace escape-wheel.

Entry pallet clips poorly or is smeared.

Action: clean the escapement or replace escape-wheel.

Hair spring touches. Usually the hair spring touches the regulator pins or the stud (audibly scratch noises in the loudspeaker).

Action: centre hair spring, adjust rate.

Slow oscillating of the balance wheel after changing a position. Bearing for balance wheel and gear train are badly or not lubricated.

Action: clean and lubricate, ev. overhaul.

Watch type	Rate in s/d	Amplitude H *	Amplitude V *	Beat error
Gent's watch	-5 to +15	250° to 330°	250° to 270°	0.0 to 0.5 ms
Lady's watch	-5 to +25	250° to 330°	250° to 270°	0.0 to 0.5 ms
Chronometer	-2 to +6	250° to 330°	250° to 270°	0.0 to 0.5 ms
Chronograph	-5 to +15	250° to 330°	250° to 270°	0.0 to 0.5 ms

* Values when movement is winded up. Decrease of the values after 24 h: approx -10% to -15% is ok.