

Operating Instruction for the VM II Cleaning Machine

The fully automatic VM II is particularly suitable for cleaning non-dismantled watch movements by a vibratory process. During this operation a diaphragm pump generates a vacuum within the cleaning chamber which consists of high-grade special steel. A vacuum is also applied to draw, in accordance with the disc valve setting, the various cleaning, rinsing or lubricating liquids into the chamber. The program is so designed as to ensure that only a part of the liquid in each storage glass is sucked into the cleaning chamber, the residue remaining in the glass. The dirt from the preceding cleaning operation can settle and is not drawn into the system again at a later stage since the suction tube does not reach the bottom of the glass. Following each liquid cleaning stage the watch movements are centrifuged and dried with the aid of a strip heater placed about the cleaning chamber. A rocker switch will stop the machine automatically after the third glass or only after drawing in all four liquids and completion of the heating process (setting 3 or 4). If the switch is set to 4 cleaning proceeds in the usual manner. However, if prior to cleaning the switch is set to 3 only the ELMA-WF cleaning solutions and the two Suprol-Special rinsing solutions (first, second and third glass) are sucked in turn into the cleaning chamber. Once the third liquid has been removed by centrifuging and prior to drawing in the UNIMIX lubricant solution the machine is switched off automatically.

At this stage the workholder with the hitherto non-lubricated watch movements can be withdrawn from the cleaning chamber, in order to check the movements for defects such as rust, faulty stones etc. In addition, the balance wheel with spiral or pallet fork (with very flat movements) can be removed, so as to avoid subsequent degreasing in SPIROL. Following removal the movements are again clamped to the workholder, the latter is inserted into the vibratory drive in the cleaning chamber the cover of which is then closed. Depression of the starter switch (for about 5 seconds) restarts the machine and causes the last liquid - UNIMIX lubricant - to be drawn in. The movements having been automatically lubricated are dried by centrifuging them at high speeds.

The machine also comprises a drying chamber with a hot air blower which can be switched on by means of a rocker switch, at any stage of the process.

This chamber enables, for instance, the drying of relatively large movements or other parts cleaned in an ultrasonic apparatus. In addition, it is possible to dry, by means of hot air, movements which after automatic switching off after the third liquid have been withdrawn from the cleaning chamber together with the workholder, and the balance wheels or pallet forks of which are to be taken out prior to lubrication.

The machine is provided with internal lighting, which facilitates renewal of the liquids and connection of the disc valve hoses to the glasses. The light is controlled with a rocker switch which also doubles as the starter. The light may be switched on or off as required provided that the main switch of the machine is switched on and that the machine lead is connected to a mains socket. Should it ever be necessary for any reason whatever to release the vacuum during an operation so as to enable the cover of the cleaning chamber to be removed, this can be done by unscrewing the knurled screw on the cover by several turns. The pump and the cleaning chamber are then continuously supplied with ambient air thus preventing any further vacuum.

Screws or minute wheels dislodged from the movements during cleaning drop into a safety screen. To remove the latter open the plexiglass door of the machine, pulling the door forward and upward by the handle and laying it to one side. A knurled nut can be seen on the underside of the disc valve, between the hoses leading to the various glasses. Unscrew this knurled nut and pull it, together with the attached screen, downward out of the valve. Having emptied the screen insert it again into the centre bore of the valve and reassemble the knurled nut. Oil the two black sealing rings below the screen to facilitate insertion. Periodically clean the screen in order to remove any foreign bodies, which are particularly prone to settle there after cleaning the movements of alarm clocks.

Operation of the machine

Prior to filling the storage glasses please study and carefully observe the following

VERY IMPORTANT NOTES.

This will contribute greatly to satisfactory cleaning.

In the VM II only

anhydrous cleaning solutions

may be used. The machine is provided with hoses consisting of Viton, a material which resists almost all conventional anhydrous cleaning and rinsing solutions. We guarantee perfect cleaning if use is made of our cleaning and rinsing solutions. On no account use corrosive or explosive liquids (such as petrol).

OUR COMPANY CANNOT ACCEPT ANY LIABILITY OF WHATEVER KIND IF CLEANING OR RINSING AGENTS SUCH AS THESE ARE USED.

It is essential for the rinsing liquid in the last storage glass to be sufficiently clean. This cannot be assessed by the appearance of the liquid. Hence it is essential to replace the rinsing liquid in the last glass after 20 but not more than 25 cleaning operations.

As a rule, the cleaning and pre-rinsing solutions can be used 25 to 30 times. Filtration of rinsing solutions used in conjunction with anhydrous cleaning solutions is unfortunately not yet possible. We therefore recommend clamping as many movements as possible to the workholder in order to make the best and most economical use of the liquids.

If the machine is frequently used for cleaning alarm clocks it is advisable, in view of the larger amounts of dirt involved, to acquire an additional complete set of glasses which should then be used only for the cleaning of alarm clocks.

Filling of glasses

The plexiglass door at the front of the machine is pulled forward and upward by its handle and laid aside. Introduce the anhydrous cleaning solution into the first storage glass marked red, up to the top of the round mark on the glass, closing it with the red-marked cover. Check this liquid level from time to time in all glasses to avoid air being

drawn through the suction tube instead of liquid. Pour rinsing solution into the second, blue-marked glass up to the mark and close it with the blue-marked cover. The third glass - this is marked green - should also be filled with rinsing solution and then covered with the appropriate (green-marked) cover. The same process is repeated with the fourth, unmarked glass. If use is made of UNIMIX lubricant, pour the latter into the fourth glass. With 2-baths-lubricants put lubricant No. 1 into the third, green-marked glass and lubricant No. 2 into the fourth glass. Please refer to the operating instructions for the various lubricants.

Connecting the glasses to the appropriate hoses

Enter the red-marked glass with the anhydrous cleaning solution into the left-hand rear base recess of the machine. Screw the union nut of the hose marked red to the inclined glass cover socket. During this operation make certain that the black sealing ring inside the union is in position. If liquids are replaced at a later stage this sealing ring must always be located between the union nut and the cover socket since otherwise the machine will not be able to draw in all the liquid and cleaning will not be faultless. Insert the second glass marked blue into the right-hand rear base recess of the machine and connect it with the hose marked blue by means of the union nut. In this case too look out for the sealing ring. Put the third glass marked green into the right-hand front recess and connect it with the union nut of the hose marked green. Check that the sealing ring is in position. Insert the fourth, unmarked glass into the left-hand front base recess of the machine and connect the union nut with the last, unmarked hose. Make certain that the sealing ring is present. Now replace the plexiglass door by locating it first on the two bottom spigots and then pressing them against the magnet on top with the aid of the handle.

Preparation of movements for cleaning

The movements are withdrawn from their housings and the hands and dials removed. It is advisable to remove the date discs of calendar watches since in many cases it is not known whether they resist the liquids employed. Make certain to tighten the dial and setting lever screws, as applicable, again and to withdraw all loose components such as minute wheels from the movements. It does not matter very much if some components are overlooked for the disc valve screen collects such components or they

remain on the bottom of the cleaning chamber. In case of watches with automatic winding mechanism it is advisable to remove the barrel with the spring prior to cleaning, since after cleaning the brake spring would otherwise be devoid of grease. Also with watches wound by hand it is a good idea to remove the barrel in advance since a relatively large amount of liquid collects in this component and cannot be completely removed by centrifuging. Even after heating moist patches may remain where rinsing solutions are slow to evaporate. All watches should be demagnetised prior to mounting on the workholder.

Charging the workholder

The workholder, part of the standard equipment, is capable of retaining 10 wrist watches between its clamping springs. Make certain that the balance wheel is exposed and that the movements are safely located in the workholder.

Special workholders can accommodate up to 20 wrist watches, and we can supply an optional workholder for four small travelling alarm clocks, which can also be used for four pocket watches. For individual components or dismantled movements not suitable for vibratory cleaning a screen basket is available with a special receiving flange. The operating instruction for this basket is contained in a separate leaflet.

Inserting the workholder into the machine

As soon as the workholder has been charged with movements it may be inserted into the vibratory drive of the machine. This drive can be seen on the bottom of the cleaning chamber after removing the cover. Care should be taken to ensure that the workholder platen rests fully on the plane face of the drive.

Replace the cover on the cleaning chamber and see to it that the knurled vent screw on the cover is tight since it is otherwise impossible to generate a vacuum in the cleaning chamber.

Now plug the VM II lead into an appropriate mains socket.

Starting the machine program

A control panel with rocker switches, indicating lamps and a time switch extends along the front over the entire width of the machine cover.

The rocker switches are operated in the following sequence:

1. Press the light/main switch (extreme left) in the direction of the a.c. symbol. The switch lights up and the machine is now ready for operation. By pressing the main switch in the "STOP" direction the machine can be switched off at every stage of the program. As soon as it is switched on again the interrupted program continues.

I M P O R T A N T !

The main switch should be used for switching off the machine only in exceptional cases. For if the machine is at the stage of drawing in liquid, switching off will cause also the pump to stop so that the liquid flows back into its storage glass. Although, when the machine comes on again, liquid is again drawn into the cleaning chamber during the remaining suction time, it is no longer sufficient in amount so that the movements on the workholder are not entirely immersed.

However, if the main switch is used to stop the machine during the centrifuging stage or while the workholder is operative in the liquid this will not impair the quality of the cleaning process.

2. Press the rocker switch "3"/"4" towards the required number of stages, which will cause the machine either to switch off automatically after the third glass or to complete the standard cleaning process with four liquids and subsequent hot air drying.
3. If the cleaning time (first liquid) is to be extended, set the knurled timer knob (extreme right) to the appropriate point of its minute scale. The fixed cleaning time of 3 minutes will then be lengthened by the time selected. As regards watches which are to be repaired set the knurled knob to the longest available extension of 15 minutes. The first bath normally takes 3 minutes, without turning the knurled knob. This time is adequate for cleaning stock watches.
4. Immediately afterwards press the second switch from the left for about 5 seconds to "Start". The switch will then return automatically to its initial position. The machine becomes operative and the arrow-shaped green indicating lamp lights up. This lamp goes out again once the machine has been automatically switched off. Pressing of the said switch in the direction of the lamp symbol causes the internal light of the machine to come on. In the central position of the switch this light goes out.

5. To start the supplementary heating press the second switch to the left of the arrow shaped red indicating lamp in the direction of the blower symbol. This causes the arrow-shaped red lamp to come on at the same time. Prior to this operation the cover should be removed from the drying chamber to the right of the cleaning chamber and laid aside. Place the components to be dried on the bottom of the drying chamber. The hot air blower will operate until the switch is again actuated in the opposite direction. At the same time the arrow-shaped red indicating lamp goes out. As already mentioned the supplementary heater can be started at any stage of the program provided that the main switch is on. After switching off the supplementary heater close the drying chamber again with the cover.

When the supplementary heater is switched on the drying chamber cover must not be closed.

Renewing the liquids

This subject has already been discussed in the section on "Filling the glasses". We would recall once again that the rinsing solution in the last glass must be replaced as instructed. With a view to further reducing the liquid consumption always replace the liquid in the glass following upon the cleaning bath. After cleaning and refilling locate this glass in the position of the last rinsing glass moving every other rinsing glass back by one position.

Prior to cleaning the glasses remove the soiled solution with hot water to which a conventional detergent has been added. Obstinate dirt deposits should be removed with a brush. Allow the glasses to drip off until they are dry. The drying process can be accelerated with the aid of a hand-held hot air blower or wiping with fluff-free tissue paper. Make certain to ensure that the liquid in the storage glasses always reaches up to the round mark on the glass. If the amount of liquid in the glass is too small, insufficient liquid is drawn into the cleaning compartment during the firmly programmed suction time. This in turn means that the movements are not entirely immersed in liquid and that cleaning and rinsing cannot be carried out in a faultless manner.

Also make certain that every hose union nut contains its black sealing ring.