RULES FOR LUBRICATION

TABLE OF CONTENTS

1. Recommended tools

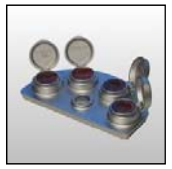
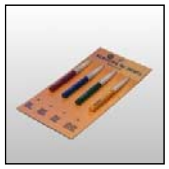
Image	Description	Use / Remarks
	LUBETA V105 (1L) REF. 504 5005	Lubricating the inversion wheels to prevent the lever from sticking inside the wheel
	OIL CUP STAND/4 CONTAINERS REF. 502 230 0100	

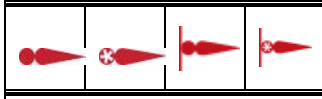
Image	Description	Use / Remarks
	GREINER ACS 900 / 4 BATH (110-220V) REF. 505 400 0040-0041	Cleaning machine equipped with ultrasonic.
	ASSORTMENT OF 4 OILERS REF. 502 230 0011	

2. List with all lubricants required for Omega Service

Oils

Description	Oil	Use	References
	Moebius SYNT-A-LUBE 9010	Fast-moving parts, very low pressure (escape wheel and balance pivots, bearings of oscillating weight)	504 200 0001 2 ml
	Moebius SYNT HP-500	Moderately fast-moving parts, low pressure (second wheel pivot)	504 5012 20 ml
	Moebius SYNT-A-LUBE 9014 Quartz Oil	Quartz movements	504 5009 5 cm3
	**Moebius SYNT HP-1300 Sans Colorant**	Slow-moving parts with high pressure (barrel arbor bearings, minute wheel and setting wheel, calendar mobiles and date jumper) Co-Axial escapement	504 5013 20 ml
	**Moebius SYNT HP-750**	Lubrication of the intermediate escapement wheel	504 200 0018 20 ml

Greases

Description	Oil	Use	References
	Moebius 9415	Swiss lever escapement	504 100 0003 2 ml
	**Moebius 9504**	Diverse mechanism functions, canon pinion, setting wheel, chronograph mechanism	504 5014 10 ml
	Kluber P125	Mainspring with slipping spring on barrel	504 100 0071 5 g
	**Molycote DX**	High friction, chronograph mechanisms, cams	504 100 0052 50g
	**Fomblin UT 18**	NBR[1] gaskets (replaces different silicone varieties), notches of rotating bezels and thread of screwed-in case backs	504 100 0031 20g

Lubricants must be kept in a dark and dry place. Maximum room temperature of 22 ° C.

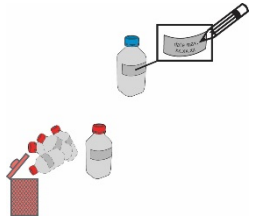
Special

Description	Lubricant	Use	References
	Lubeta V105	Reversing wheels	504 5005 1000 ml

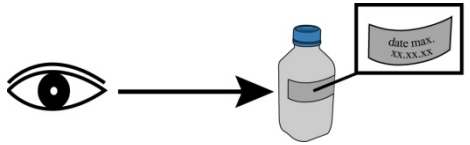
[1]NBR = Nitrile Butadiene Rubber = Synthetic rubber

*	An asterisk sign means: small quantity of lubricant required
	The line means: lubrication of the surface of the component

3. Handling of lubricants

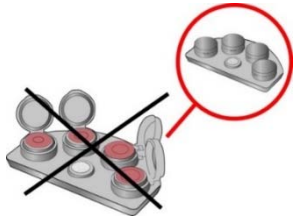


1. Write down the date of receipt of the new lubricants.
2. Change the lubricants every six years.



3. Check the expiry date.

4. Use a small quantity of lubricants.
5. To replace elder wood + lubricants every week.

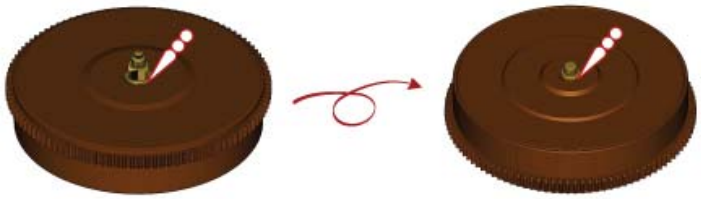


6. Keep the lids closed.

4. Barrels

4.1. The various barrels and their lubrication (see Working Instruction 67)

Lubrication of barrel arbor



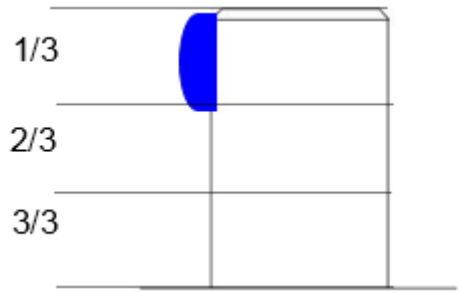
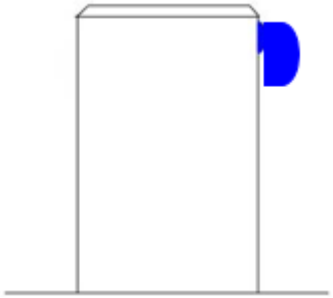
When using a new barrel from stock (blister pack), you should lubricate systematically the arbor between the shaft and the drum/cover. The type of lubricant is indicated in the Technical Guide.

This measure applies to all mechanical products.

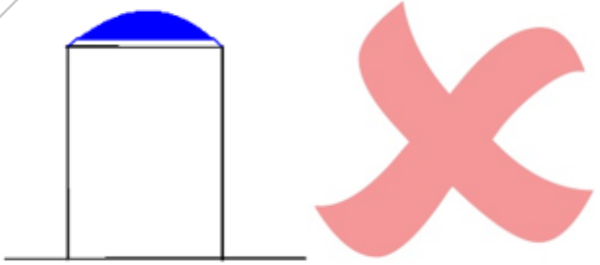
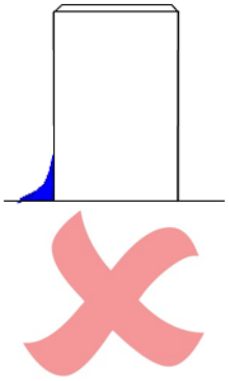
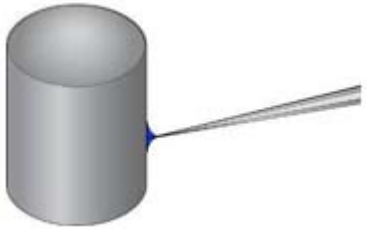
5. Lubricating posts, pins and pivots

5.1. Lubricating tubes and pins

Rough guide to amount of oil to be applied

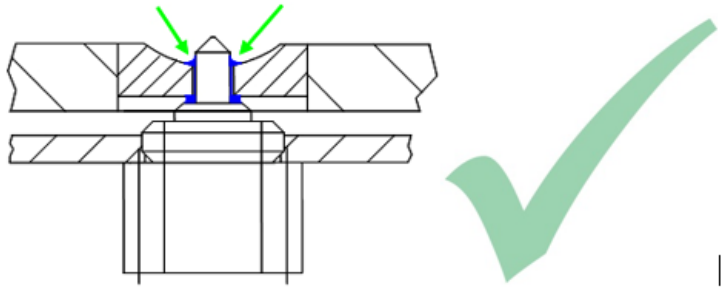
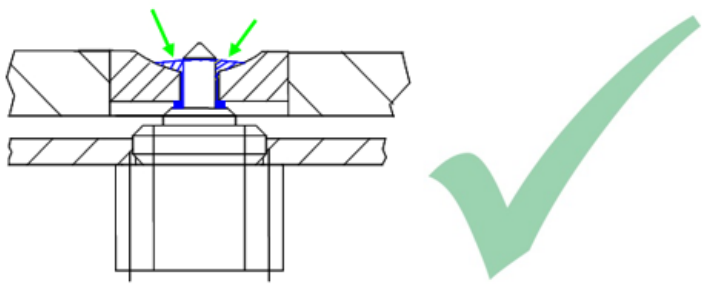
Apply the oil or grease one third of the way up the stud. The lubricant type is defined in the Technical Guide and the amount per functionality.	
	
Maximum (rough guide)	**Minimum (rough guide)**

Incorrect placement of lubricant

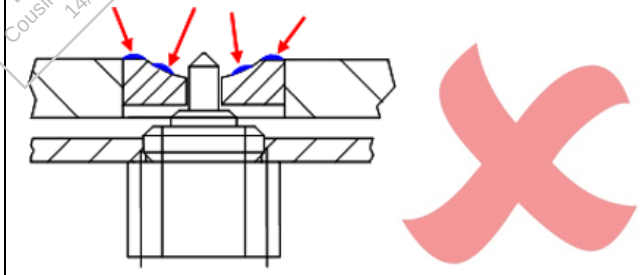
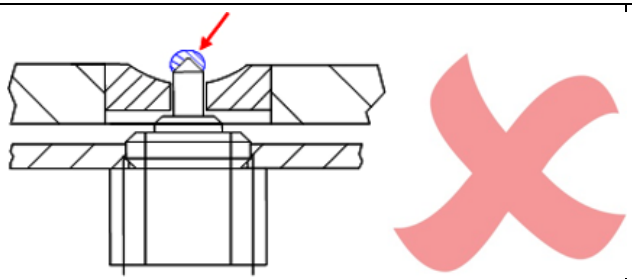
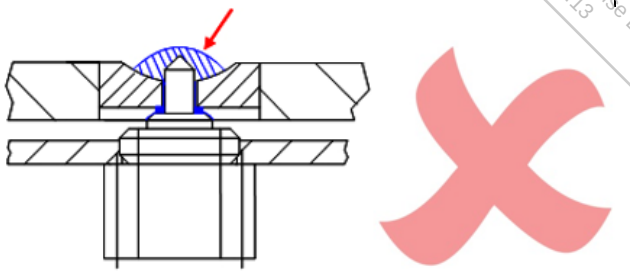
			Slide the oil-pike along the stud. The amount of lubricant must be visible by capillarity effect (see drawing). If not, add lubricant or clean once more.
Wrong place	Wrong place		

Lubricating pivots

Quantity

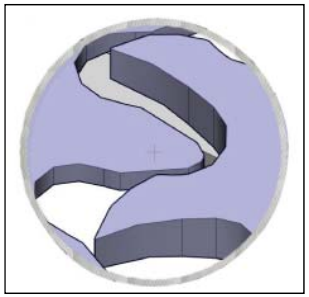
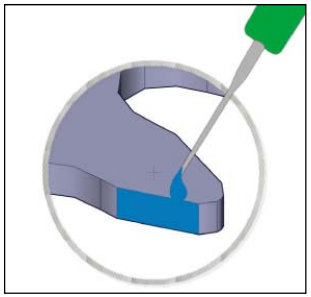
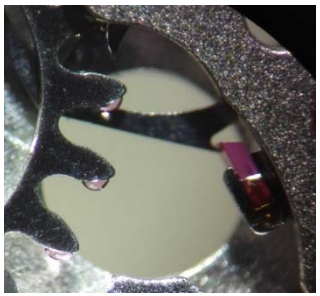
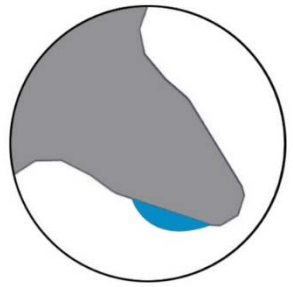
	
Minimum	Maximum

Incorrect placement of lubricant

		
On top of the jewel (risk of lubricant spreading away)	On the pivot end. (No lubrication in the friction areas)	Pivot completely covered. (Risk of lubricant spreading away)

6. Lubrication of the intermediate wheel

6.1. Lubrication of the intermediate wheel by applying Moebius SYNT HP-750. The application should be made under a binocular microscope.

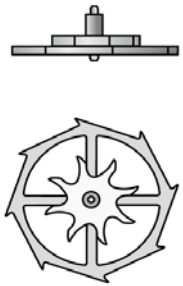
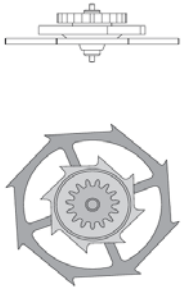
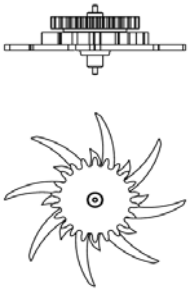
			
Important: Make sure that the intermediate wheel is treated with epilam before lubricating it. Each tooth must be lubricated individually.	Lubrication point for all teeth	Correct quantity	

7. Lubricating and checking the Co-Axial escapement

7.1. Two-level and three-level Co-Axial escapement

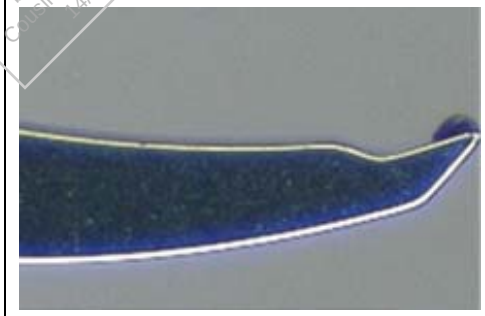
The same lubrication principal is applied to all different versions of Co-Axial escapements.

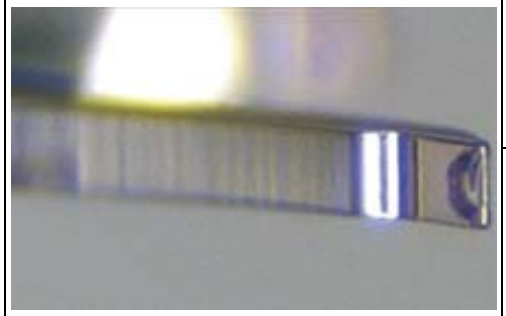
The escapement lubrication process should be completed under the microscope.

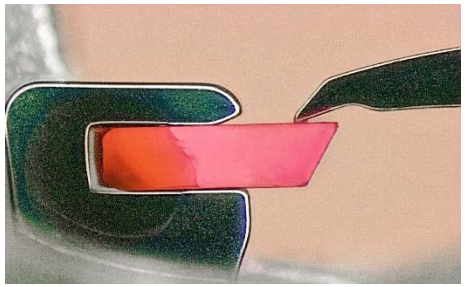
		
2 levels	**3 levels**	**3 levels** Slight differences of the geometry of the teeth are possible on this variation.

RULES FOR LUBRICATION

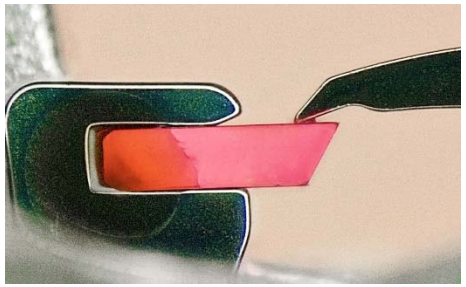
Escapement wheel :



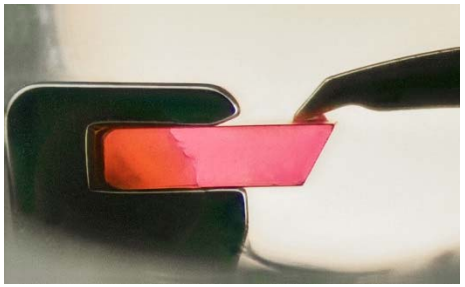




Mini



Target



Maxi

Method:

Deposit one drop of oil HP-1300 on the point of each tooth on the escape wheel.
The diameter of the drop should be between 1/3 and 1/4 of the thickness of the tooth.

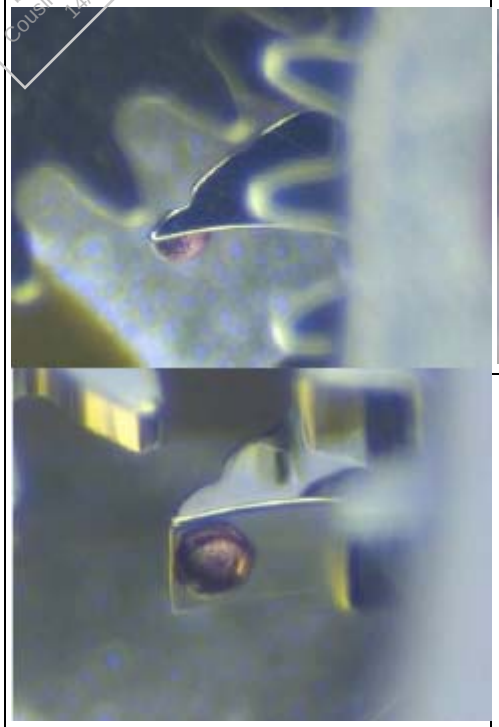
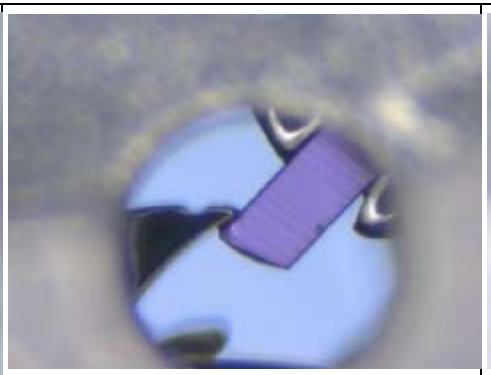
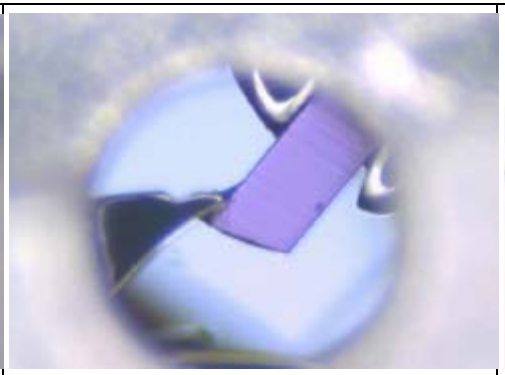
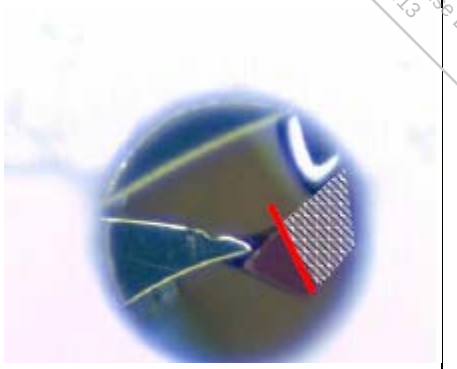
Quantity:

The control of the quantity of oil added is only done after 5 minutes of functioning of the movement. With this we can ensure a good distribution of the oil when functioning.

The operation needs to be repeated, if there is not enough oil to guarantee an optimal quantity.

RULES FOR LUBRICATION

Escapement wheel pinion :

			
	Mini	**Target**	**Maxi**

Method:

Deposit one drop of oil HP-1300 on one tooth, allow 3 teeth to pass and then lubricate the second tooth.

The diameter of the drop should be between 1/3 and 1/4 of the thickness of the tooth.

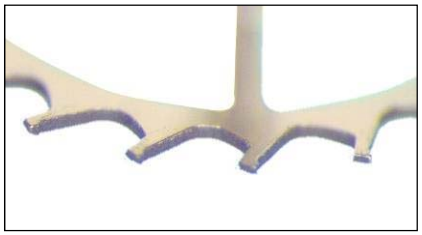
Quantity:

The control of the quantity of oil added is only done after 5 minutes of functioning of the movement. With this we can ensure a good distribution of the oil when functioning.

The operation needs to be repeated, if there is not enough oil to guarantee an optimal quantity.

8. Lubricating the Swiss-lever escapement

8.1. Escapement wheel treated with Lubrifar



Recommendation:

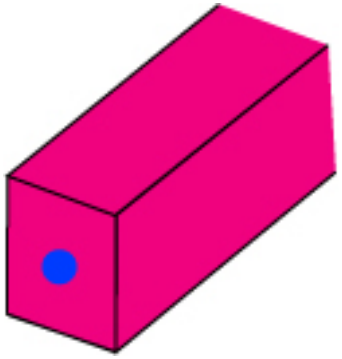
To ensure stable amplitude in the long term, it is advisable to use a new escapement wheel treated with LUBRIFAR. (The traditional method - cleaning + lubrication - remains valid).

Information:

The escapement wheels are factory-treated and available in pre-lubricated version only. (With LUBRIFAR)

Lubrication

Take a small quantity of lubricant (Moebius 9415) with the oiler.



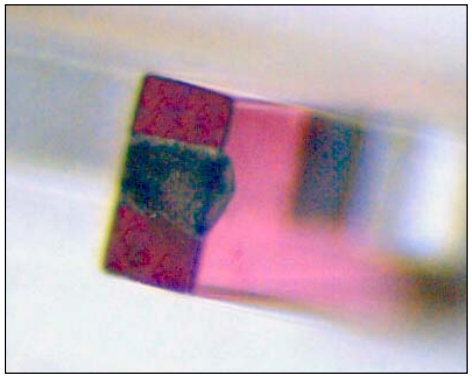
Gently place a very small drop of lubricant in the middle of the exit pallet impulse face.

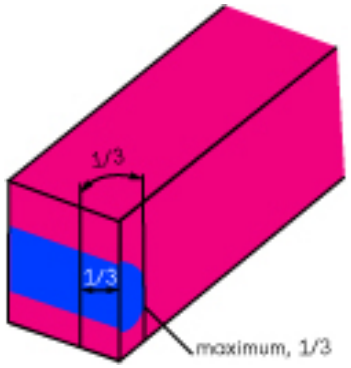
This activates the LUBRIFAR

After 24 hours, add again a small quantity of lubricant on the exit pallet's impulse face.
Check quantity

RULES FOR LUBRICATION

Checking the lubrication

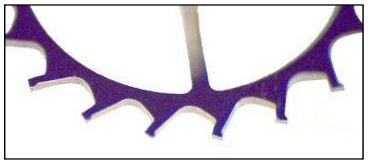




The escapement is lubricated traditionally with the lubricant Moebius 9415. The operation is repeated 24 hours later. A microscope is used for the check after the second lubrication. (Min. 40x enlargement)

A "damp" effect must be seen clearly on the impulse plane and the quiescent plane (See diagram for the quantity).

Cleaning a wheel with LUBRIFAR

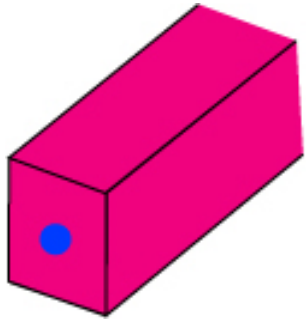


Cleaning

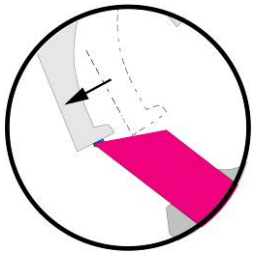
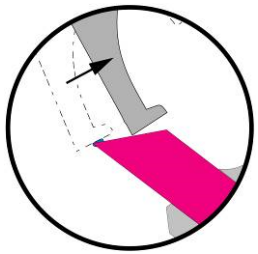
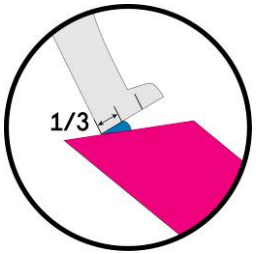
When cleaning an escapement wheel treated with LUBRIFAR, in a cleaning machine or in a solvent container, the black granulation is eliminated. A cleaned escapement wheel (free of LUBRIFAR) is then lubricated traditionally (Moebius 9415).

8.2. Escapement wheel without Lubrifar

Traditional lubrication

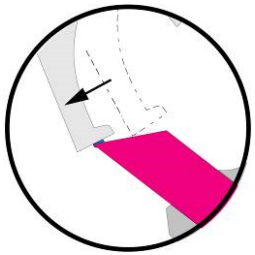
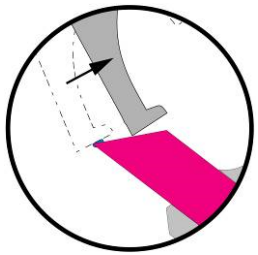
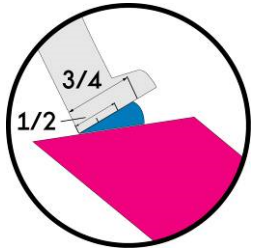
		
Take a small quantity of lubricant (Moebius 9415) with the oiler.		Gently place a very small drop of lubricant in the middle of the exit pallet impulse face. Move several teeth through the impulse face and repeat the operation until the desired quantity is achieved

Checking the lubrication without epilam

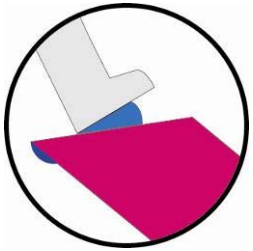
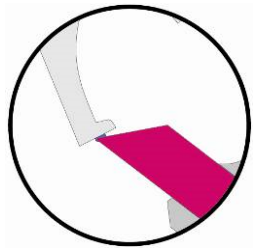
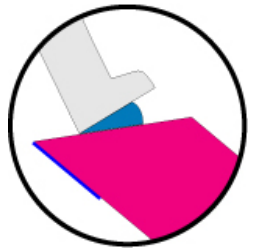
		
Move the pallet-stone backwards until the tooth is in place according to the diagram above.	Check the lubrication whilst resetting the pallet-stone as per the diagram above.	Check that the drop corresponds approximately on 1/3 of the tooth length.

RULES FOR LUBRICATION

Checking the lubrication with epilam

		
Move the pallet-stone backwards until the tooth is in place according to the diagram above.	Check the lubrication whilst resetting the pallet-stone as per the diagram above.	Check that the drop corresponds approximately between 1/2 and 3/4 of the tooth length.

Checking the epilam coating on the pallet-stone

		
A drop of lubricant can form on the back of the pallet-stone through action by the epilam treatment.	When the escapement is working, the constant movement of teeth on the pallet-stone and the capillary properties of the lubricant spread the oil reserve uniformly over the entire passage band.	If no drop of oil forms and it spreads along the back of the pallet-stone, this means that there is insufficient epilam treatment. The pallet fork must then be treated again according to Working Instruction 27 or replaced. New pallet forks for some calibres are factory-treated.

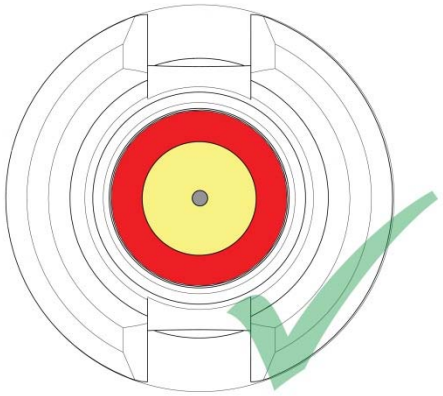
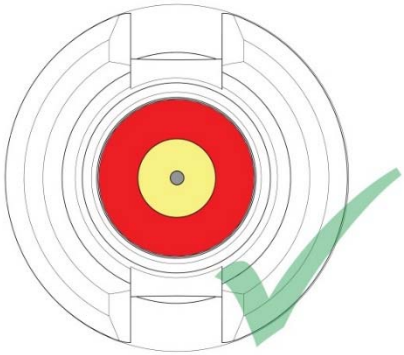
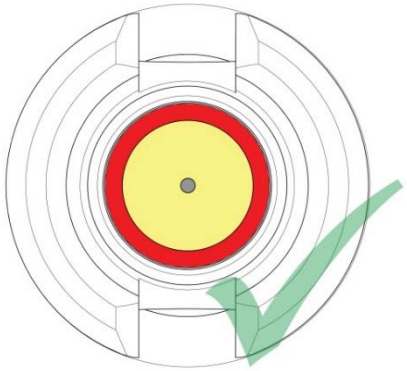
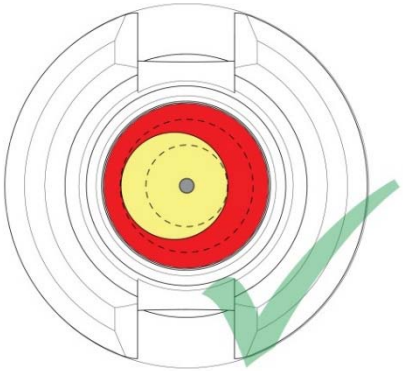
9. Checking and lubricating shocks-absorbers

9.1. Lubricants to be used

The shock-absorbers in the following calibres are lubricated with Moebius SYNT HP-500. Families 8500, 8520, 9300 (87XX, 88XX, 89XX and 99XX).
For all other calibres, please lubricate with Moebius SYNT-A-LUBE 9010.

9.2. Checking the quantity of lubricant in shock-absorbers

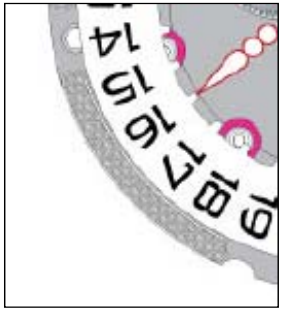
The optimum dimension of the drop of oil is defined according to the diameter of the jewel within the in-setting. This diameter is always smaller than the cap jewel.

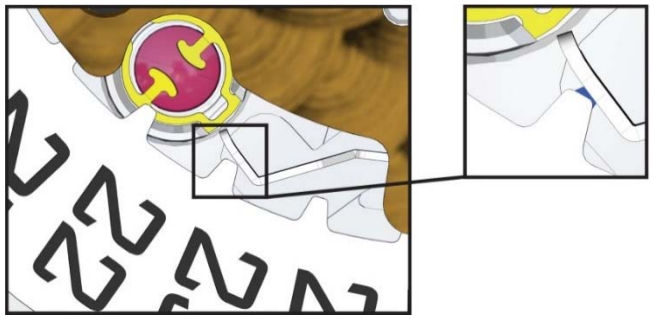
			
Ideal diameter: Drop = 65% of the diameter of the jewel within the in-setting	Minimum diameter: Drop = 50% of the diameter of the jewel within the in-setting	Maximum diameter: Drop = 80% of the diameter of the jewel within the in-setting	Drop decentring tolerance: included in the minimum and maximum dimensions

10. Lubricating the date indicator

The choice of application method and type of oil is defined by the Technical Guide or the movement construction.

10.1. Lubricating the date indicator teeth





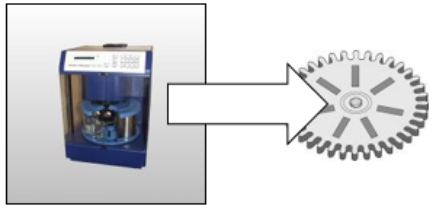
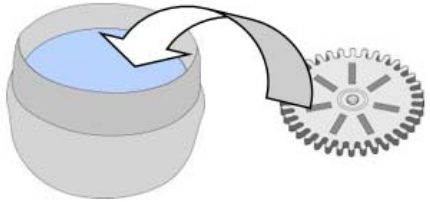
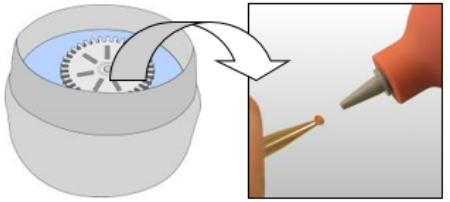
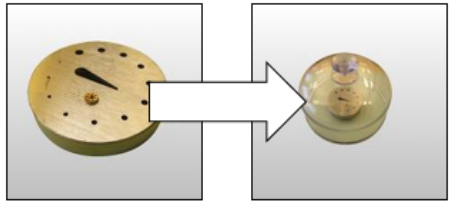
1. Apply a drop of oil (according to the Technical Guide) to the tip of a date indicator **tooth**.
2. Advance the date indicator by ten teeth in fast date correction.
3. Repeat the previous steps twice to coat the indicator teeth uniformly with oil.
4. Check the quantity according to the attached drawing and start again if necessary.

10.2. Lubricating the date indicator jumper

1. Apply a drop of oil (according to the Technical Guide) to the date indicator **jumper**.
2. Advance the date indicator by ten teeth in fast date correction.
3. Repeat the previous steps twice to coat the indicator teeth uniformly with oil.
4. Check the quantity and start again if necessary.

11. Lubricating the reversing wheel with click system

11.1. Procedure in Customer Service for lubrication of reversing wheel

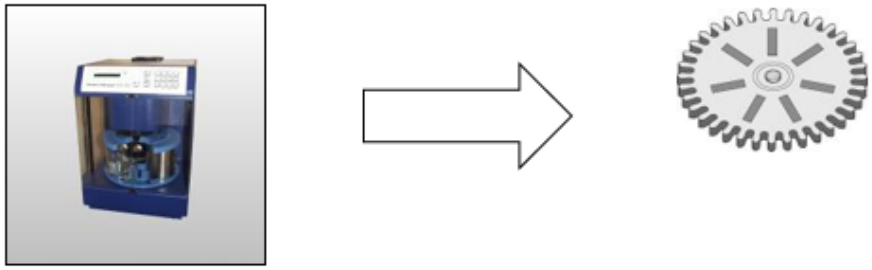
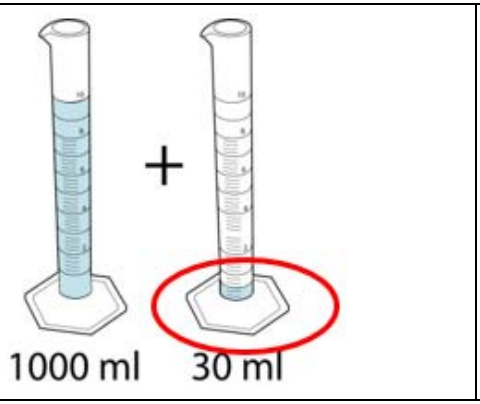
			
The wheel is firstly cleaned in the cleaning machine.	The cleaned wheel is dipped (immersion time: 10 seconds) in a container (solvent container) containing LUBETA V105.	The wheel is removed from this solution and the excess solution is evaporated using a blower.	The wheel is then dried underneath a bell cover for 15 minutes. Avoid any contact between the wheel and a solvent-sensitive material (plastics, etc.)

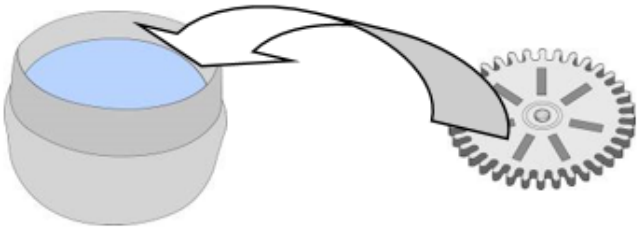
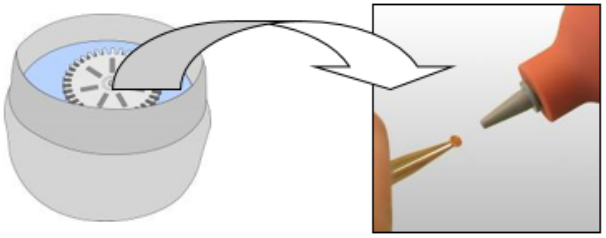
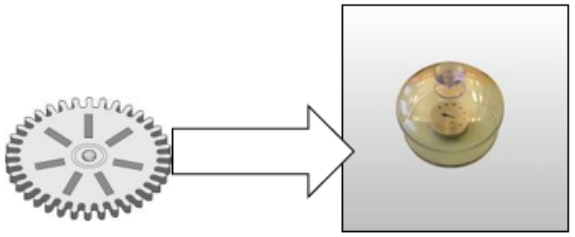
Important:

The inversion wheels supplied by Omega are treated with LUBETA V105 and can be stored for four years. They change color over time but this does not affect the function. This is caused by the lubricant skin. Any wheel stored for more than 4 years should be cleaned and treated before use as described above.

11.2. Substitute method

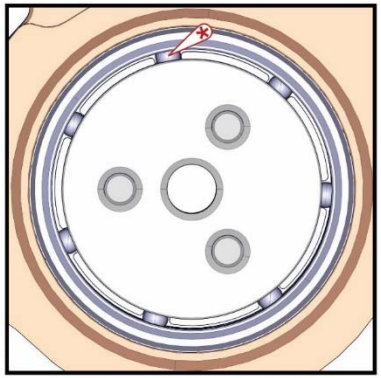
This replacement method can only be used in markets where LUBETA V105 cannot be imported.

		**Important:** The mix is very volatile. Store in closed, leak tight containers.
The wheel is firstly cleaned in the cleaning machine.	**Dilute before use: Benzine (100-125) or similar product + lubricant Moebius 9010; 30/1000 proportion.** **Example :** **Mix as follows : 1 litre of benzine or similar product for 30 ml of Moebius 9010.**	

		
The cleaned wheel is dipped (immersion time: 10 seconds) in a container (solvent container) with the benzine (or similar) + lubricant mix.	The wheel is removed from this solution and the excess solution is evaporated using a blower.	The wheel is then dried underneath a bell cover for 15 minutes.

12. Lubricating the ball bearing or the pivoting on bearing

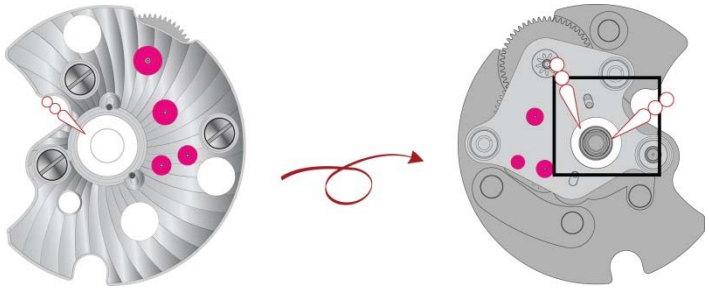
12.1. Lubricating the bearing with stainless steel balls

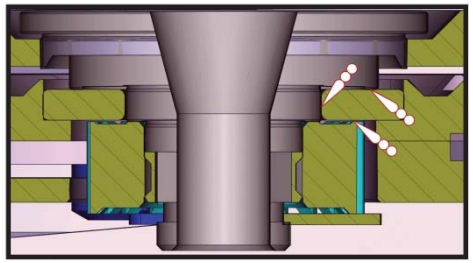


A small drop of fluid Moebius SYNT-A-LUBE 9010 must be applied to one.

This measure applies only to the bearing with steel balls. Ceramic balls must not be lubricated.

12.2. Pivoting on bearing





The oil must be in the functional zones. On the bearing flat, at the pivoting between the pin and the jewel and underneath the weight pinion.

13. History of modifications

CHANGES OF THE DOCUMENT		
Date	Made	Modifications
28.07.2017	selrom	The contents of Working Instruction No. 3 have been integrated into this instruction. Replacement of the pictures on page 11 concerning the lubrication of the Co-Axial wheel (mini, maxi and target). The document has been adapted to the new layout.