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# Technical Instructions 4120.B

# Specification

# 12 ½'''





## Dimensions and battery

ø Total	28.60 mm
ø Case fitting	28.00 mm
Movement height	4.40 mm
Movement rest	0.60 mm
Height of stem	1.90 mm
Stem: Thread / Distance	0.90 mm / 0.90 mm
Battery / Autonomy	Nr. 395 / 48 Months

## Performances

	Small second (M1): 4.0 - 6.7 μNm
Torque T	Minute hand (M1): 200 - 300 μNm
	Counter (M4): 3.0 - 4.6 μNm
Operating temperature	0°C - 50°C
Res. against magn. fields	18.8 Oe = 1500 A/m
Resistance against shock	NIHS 91 - 10

### **Functions**

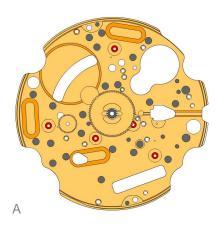
Position I (crown)	Neutral
Position II (crown)	Setting the date (quick mode)
Position III (crown)	Setting Time and reference time
Pusher	Alarm on/off, Setting alarm time

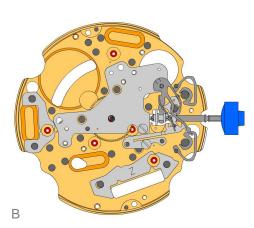


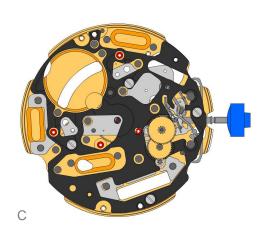


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## Technical Instructions 4120.B

## Assembling

1. <u>2000.574.CO</u> Main plate

2. 3305.290.CO

Cannon pinion with driver (Aig 2 closed)

Moebius 8200 greace must be placed between the steel tube and the brass wheel. The steel tube must be placed into the center hole of the main plate. 0

3. <u>3301.243</u> Hour wheel (counter 24h)

4. 2030.017.CO

Centre bridge
Use one screw 4000.250 to fix the center bridge.

5. <u>3001.041</u> Sliding pinion The sliding ponion must be holded using a tweezers, untill the stem is inserted. 

6. 3000.177.CO

Handsetting stem

Prior to the insertion of the stem, some greace must be placed on the square part of the stem.

Setting lever The cam on the setting lever must be inserted into the cut out on the stem. (the setting lever must be greaced)

8. <u>3905.049</u>

Setting lever jumper (3 positions)

The setting lever jumper (3 positions) must be tensioned and inserted into the setting lever. Use one screw 4000.250 to fix the setting lever.

9. 4000.250 Screw

10. <u>3015.076</u> Yoke (3 positions)

The voke must be inserted below, into the cut out of the sliding pinion.

11. 3905.058

Yoke spring
The yoke spring must be positioned on the yoke. The opposite end of the yoke must be positioned around the pillar of setting lever. Use Moebius 8200 to grease the yoke.

12. 3406.030 Pusher jumper

2 pieces. Use Jismaa 124 to greace the pusher jumper.

13. 3622.040 Stator

14. <u>3622.039</u> Stator (counter 6h and chrono)

15. 3603.079

Plastic bracket Use 4 screws 4000.250

Screw

16. 4000.250

17. <u>3715.094.RK</u> Rotor (centre and chrono) Use an antimagnetic tweezers to place the 2 rotors.

18. 3147.046.CO Intermediate wheel

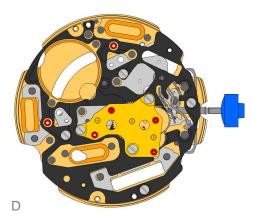
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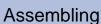
19. <u>3136.142.CO</u> Second wheel (long)

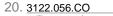


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Third wheel

21. 2020.148

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Train wheel bridge
Attention: Prior to the fastening process of the bridge, all 7 pins of the wheels must be visible in the 7 holes in the bridge. Use 3 screws 4000.250.

22. 3715.095.RK

Rotor (counter 6h and 9h)
Use an antimagnetic tweezers to place the rotor.

23. 3147.048.CO

Intermediate wheel (counter)

24. 3007.055.CO

Minute wheel (counter 24h)





Minute counting wheel (24h)

26. <u>2020.149</u>

Counter train wheel bridge

Attention: Prior to the fastening process of the bridge, all 4 pins of the wheels must be visible in the 4 holes of the bridge. Use 3 screws 4000.250.

27. <u>4000.250</u>

Screw

28. 9014.000

Moebius 9014 Use Moebius 9014 on bearing of all rubis







The wire of the coil (red area) is very sensitiv to mechanical impacts. Hold the coil only ouside the red area. Fix the coil by 1screw 4000.250.

30. 3621.054.RK

Coil (counter 9h and chrono)

The wire of the coil (red area) is very sensitiv to mechanical impacts. Hold the coil only ouside the red area.

31. 4000.250

Screw





Tube





Battery insulator

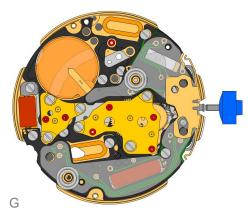


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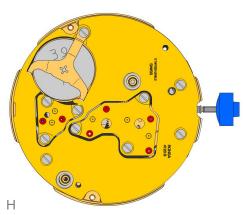
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# Technical Instructions 4120.B

# Assembling

34. <u>3612.176.4120</u>	Electronic module
& Dr	After assembly of the electronic module it is the best time to perform the electrical measurements. Use 5 screws 4000.248 to fix the electronic module.
35. 4000.248	Screw
36. <u>3603.069</u>	Circuit insulator
7	
37. <u>3603.070</u>	Isolation für Kontaktfeder
38. 3601.107	Pusher contact spring
	Make shure, that the pusher contact spring is placed correctly onto the

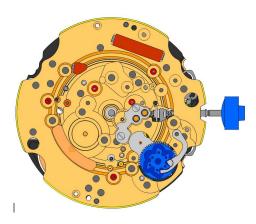


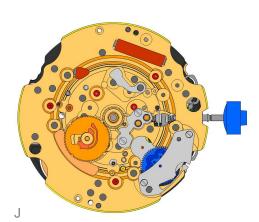
39. 2130.160.4120.B	Electronic module cover (counter 6h)
	Make shure, that the pusher contact spring is not displaced during attachment of the electronic module cover. Use 3 screws 4000.250 to fix the electronic module cover
40. 3600.010	Battery
395 +	Use a plastic tweezers to place the battery (to avoid short circuit of battery).
41. 3601.109	Bridle +
	Insert the two brackets of the battery bridle under the electronic module cover and fasten the battery bridle by 1 screw 4000.250.
42. 4000.250	Screw
T	



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# Technical Instructions 4120.B

# Assembling

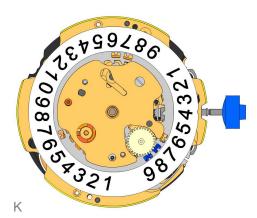
43.	2000.574.CO	Main plate
44.	9014.000	Moebius 9014
		Use Moebius 9014 on bearing of all rubis
45.	3004.164	Setting wheel
	<b>€</b> 00	Use Moebius 9020 on both setting wheels
46.	3007.054.CO	Minute wheel Use Moebius 9020
	•	Use Moebius 9020
47.	2130.143	Minute train bridge Use 2 screws 4000.305
		Use 2 Screws 4000.305
48.	4000.305	Screw
10	3004.181	Topo indicator driving whool
43.	3004.161	Tens indicator driving wheel  The short tooth of the tens indicator driving wheel must point to the
		center of the movement.
50.	3500.059	Tens jumper
	7	Moebius 8200 greace must be placed between the tens jumper and the tens indicator driving wheel.
51.	2130.142	Tens jumper maintaining plate
		Make shure, that the tens indicator driving wheel is not blocked prior to the fastening process. Use 2 screws 4010.306. Place the spring loaded bracket outside of the tens jumper.
52.	4010.306	Screw
53.	3301.242	Hour wheel (Aig 2) Use Moebius 9020
	O.	OSC MOCDIUS 3020
51	3315.016	Hour whool friction opring
J4.	0010.010	Hour wheel friction spring  Must be placed onto the hour wheel
55.	3004.176.CO	Date indicator driving wheel
	•	Moebius 9020 must be used in the center of this wheel
56.	3500.049	Date jumper
		Moebius 8200 greace must be placed between the date jumper and the date jumper spring
	<u> </u>	

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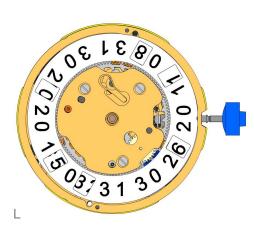
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# Technical Instructions 4120.B

# Assembling

57. 3504.214.AD	Units indicator
11.50	Teaths must be greaced using Moebius 8200. The "half moon" cut out on the unit indicator must point to the stem (position 3h).
58. <u>3147.054</u>	Tens intermediate wheel
Section of the sectio	
59. 2130.141	Date indicator maintaining plate
	use 1 screw 4000.250
60. <u>3905.050</u>	Date jumper spring
	Insert the spring into the opening of the date indicator maintaining plate



61. 3504.215.AD	Tens indicator (T3/G12)
0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	The "half moon" cut out on the tens indicator must point to the stem (position 3h).
62. 2130.140	Date mechanism maintaining plate
	Assure that the tens intermediate wheel is not blocked, prior to the fastening process. Use 2 screws 4000.250 to fix the date indicator maintaining plate
63. 3506.072	Dial support
64. 4000.250	Screw
T	
65. 9010.000	Moebius 8200
0	Microgliss D5 can be used
66. 9018.000	Jismaa 124
000	Greace Moebius or Microgliss D5 an be used
67. 9020.000	Moebius 9020

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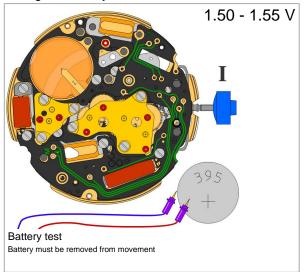
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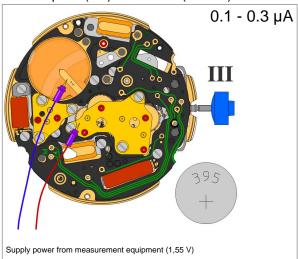
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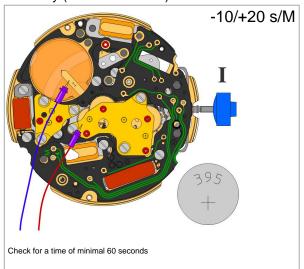
## Voltage of battery



## Consumption (M1) of movem. (Pos. III)



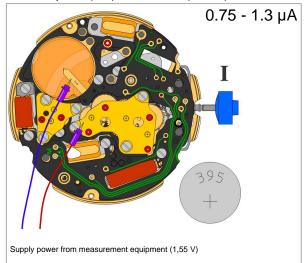
## Accuracy (seconds / month)



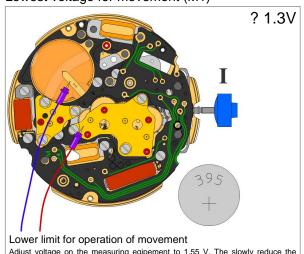
## Technical Instructions 4120.B

## Electrical checking

## Consumption (M1) of movem. (Pos. I)

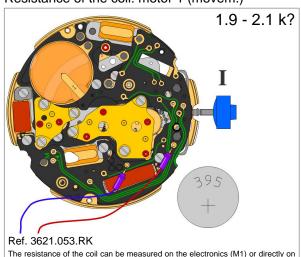


## Lowest voltage for movement (M1)



Adjust voltage on the measuring eqipement to 1.55 V. The slowly reduce the tension untill the movement stops

### Resistance of the coil: motor 1 (movem.)



The resistance of the coil can be measured on the electronics (M1) or directly on the coils (electronic module must be removed).



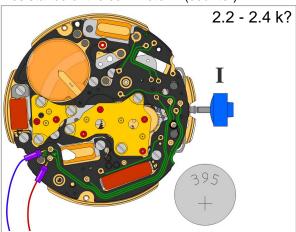
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## Resistance of the coil: motor 4 (counter)

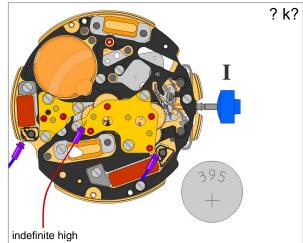


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# Electrical checking

## Coil insulation: motor 1 and 4



The resistance between each coil and +pole must be measured (electronic module must be removed)

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## Accelerated test of movement (M1)

# 1.55 V 395

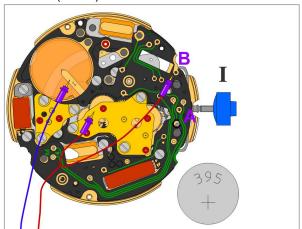
#### 8 steps / sec.

To activate this test mode, the corresponding test point must be connected to the -Pole

# Technical Instructions 4120.B

## Test of the motors

## Test M4 (Alarm)



Motor runs during connection between +pol and Point B Reduce the supply voltage to 1.3V to check the function of M4. Connect point B to the +pole. After 2 seconds the motor starts turning.

1.3 V