
SERVICE – MANUAL

CURTA CALCULATING MACHINE

MODEL I 8x6x11

This Service manual has been issued in autumn 1967.

It replaces the former Service manual CURTA model I. We recommend that you keep the old Service manuals for possible reference purposes, particularly if you have to service machines with very low serial numbers.

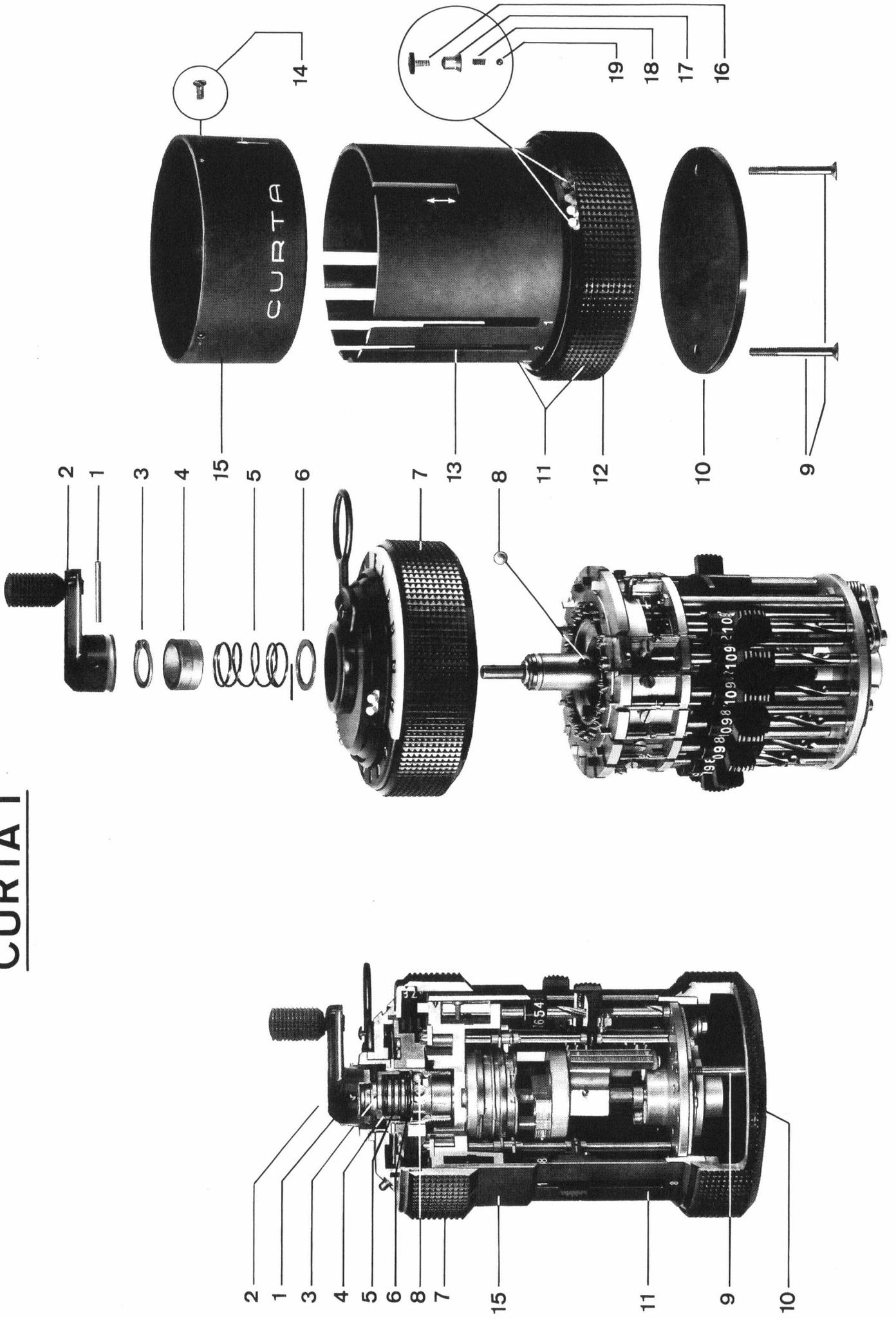
For spare part orders please refer and adhere strictly to the instructions at the beginning of the parts list.

CONTINA AG
MAUREN LIECHTENSTEIN

ADW

CURTA I

A



Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part no. for older machines and special remarks	No off
1	Remove taper pin from back side of crank with 0,9 mm (1,4) pin punch (sharp tap)	special block No. 109109 pin punch 0,9 = old 1,4 = new	taper pin 1 x 14 = old 1,5 x 12 = new	VSM 12770		1
2	Pull crank up and turn backwards	Assembly block No. 109135	crank complete	10'245-2	10'245-1 up to machine No. 46890. Not exchangeable with 10'245-2.	1
3	Open circlip and remove it.	circlip pliers A 0 d = 0,75	circlip	10'036 -5		1
4	Main shaft in zero position. Then press top of main shaft against rim of table and pull off retaining bush and carriage pressure spring.		retaining bush	10'035 --6		1
5	Carriage pressure spring		carriage pressure spring	10'050-3		1
6	Carriage pressure ring		carriage pressure ring	10'129-1		1
7	Take off carriage		carriage			1
8	Extract carriage locking ball (by turning main shaft)		carriage locking ball ϕ 2,5 mm (various diameter see remark)	10'145	For clearance height of carriage various diameters in mm: 2,45 2,46 2,47 2,48 2,49 2,50	1

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
9	Countersunk screws	screw driver 3, 5 mm	countersunk screw M 2 x 18/6	VSM 12142		2
10	Baseplate		baseplate	10'249		1
11	Pull housing downward		housing complete	10'215-4	10'215-2 mach. Nos. 1 to 3246. 10'215 -3 mach. Nos. 3247 to 7178 and Nos. 9321 to 9620	1
12	Base ring		base ring		Only complete housing can be supplied - Order No. see step 11	1
13	Housing		main housing		Remark as for step 12	1
14	Collar fixing screws	screw driver 1, 5 mm	collar fixing screw	10'074-2		3
15	Pull collar upward. Warning! do not damage ten carry lever springs with fingers. Step 9, picture B		collar	10'085 -7	10'085-5 mach. Nos. 1 to 15920 and Nos. 17041 to 17492	1
16	Screw	screw driver 2 mm	retaining screw	2'118-1	10'060 for older machines = M 1 (2'118-1 = M 1, 4)	1
17	Remove decimal markers		decimal marker	10'046-4	Number of decimal markers varies with serial number.	3
18	Decimal marker springs		decimal marker spring	10'047-5		3

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part no. for older machines and special remarks.	No off
19	Balls		ball \varnothing 1 mm			3

Vorsicht

Beim Demontieren von Pos. 6, 7, 8 und 9 ordne man die zusammengehörenden Teile der Reihe nach auf den Tisch, sodass die gleichen Teile beim Montieren ihren ursprünglichen Platz einnehmen.

Warning

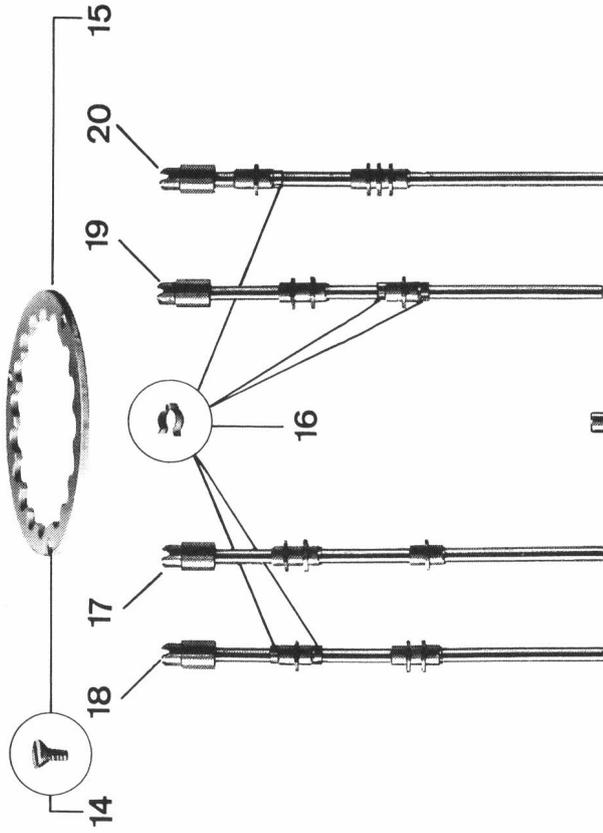
Um ein Verwechseln der Rädchen zu vermeiden, stecke man sie sofort nach dem Herausziehen der Achse auf dieselbe zurück.

When dismantling Steps 6, 7, 8 and 9 all parts belonging together should be placed on the table in order, so that, when reassembling, the same parts are mounted back into their original place.

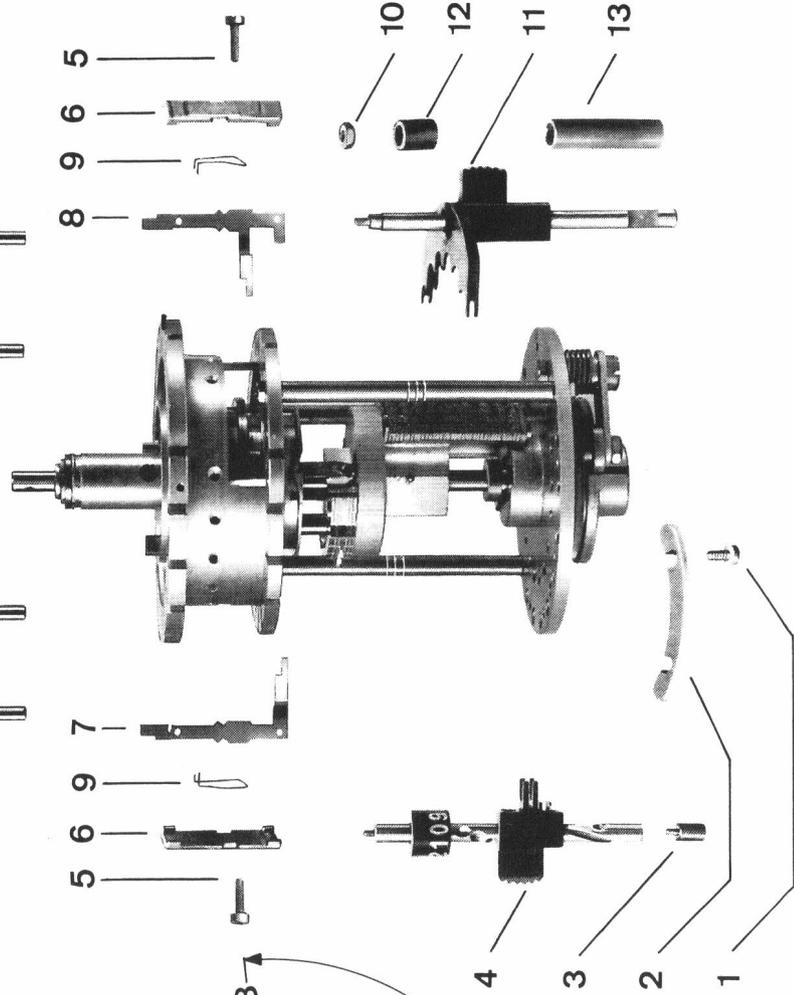
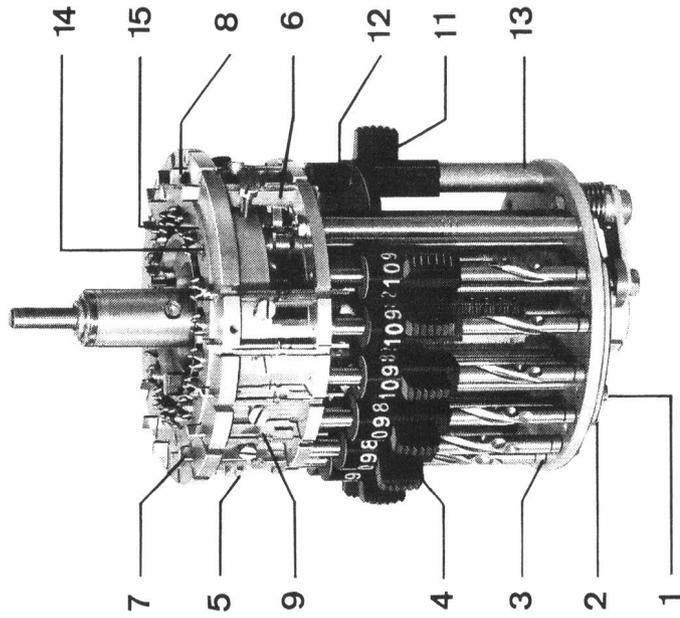
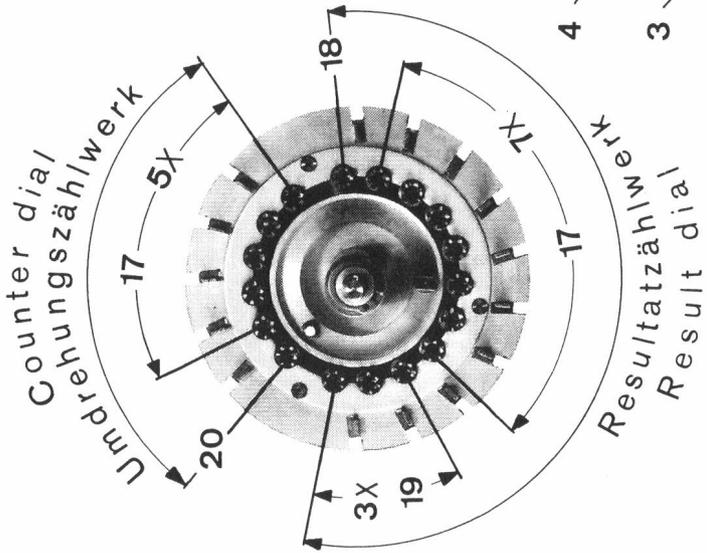
To avoid interchanging the gears, they should immediately be put back on their respective shafts.

CURTA I

B



Arrangement of transmission shafts
Anordnung der Treibelemente



Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks.	No. off
1	Loosen screws only a little, because setting shaft plates have slots and can be easily removed.	screw driver 2, 5 mm	cylindrical screw M 1, 4 x 3	VSM 12124		4
2	Remove setting shaft plates		setting shaft plate	10'136-2		2
3	Push down setting shaft bearing pins with shaft and remove them		setting shaft bearing pin (various lengths see remarks)	10'135-5	For adjusting play of setting shafts: lengths in mm: 3, 38 3, 41 3, 44 3, 47 3, 50 3, 53 3, 56 3, 59	8
4	Push setting shafts downward and take them out		setting shaft complete	10'240-6	10'240 -1 mach. Nos. 1 to 7178 and 9321 to 9620	8
5	Screws	screw driver 2, 5 mm	cylindrical screw M 1, 4 x 5	VSM 12124		15
6	Take ten carry lever bearing blocks out of slots without tilting them (do not damage springs!)	tweezers AA	ten carry lever bearing block	10'018-6		15
7	Remove levers of result dial (RZ) from bearing blocks		ten carry lever RZ	10'005-9	10'005-8 mach. Nos. 1 to 40770 and Nos. 42171 to 42570	10
8	Remove levers of counter dial (UZ) from bearing blocks		ten carry lever UZ	10'006-10	10'006-9 mach. Nos. 1 to 40770 and Nos. 42171 to 42570	5
9	Take spring out of slot	tweezers AA	ten carry lever spring	10'007-4		15

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
10	Nut	fork spanner 3 mm	hexagon nut M 1, 4	VSM 12707		1
11	Reversing lever. Push axle down until it can be taken out through the slot of the lower main casting.		reversing lever complete	10'241-4		1
12	Small sleeve		lower reversing axle sleeve	10'138-3	Must be fitted with 10'211-3. For 10'211 older type reduce 10'138-3 by 0, 15 mm or order 10'138-2	1
13	Long sleeve		upper reversing axle sleeve	10'137-2		1
14	Screws	screw driver 1, 5 mm	cylindrical screw M 1 x 3	VSM 12124	Countersunk screw M 1 x 3 when using 10'071-2 (Step 15) for earlier machines.	3
15	Take off locking ring - Machine must be kept in an upright position, so that the shafts do not fall out.		locking ring	10'071-3		1
16	Circlip	tool No. 109128	circlip	10'097-5	10'097-2 Mach. Nos. 1 to 4500	9
17	Take out transmission shafts (the gears should immediately be put back on their respective shafts)		transmission shaft IV, compl.	10'236		12
18	Transmission shaft (like step 17)		transmission shaft I, compl.	10'237		1

Folio B

Dismantling

Specification and dimensions for spare part orders

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks.	No. of
19	Transmission shaft (like step 17)		transmission shaft II, compl.	10'238		3
20	Transmission shaft (like step 17)		transmission shaft III, compl.	10'239		1

CURTA I

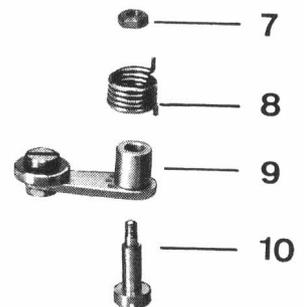
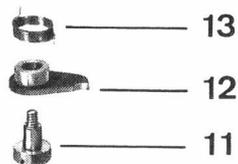
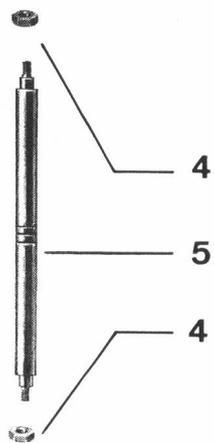
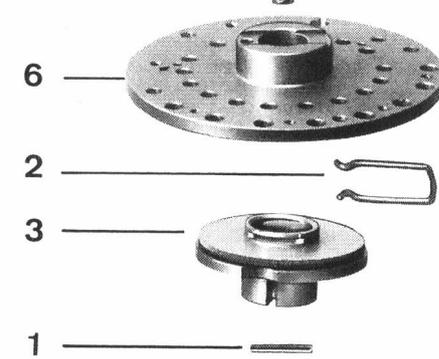
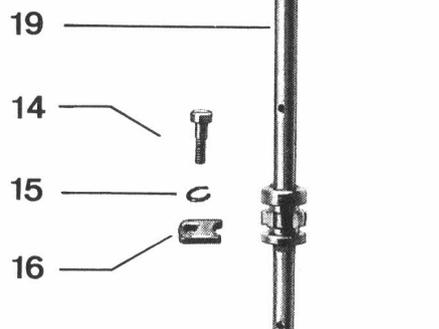
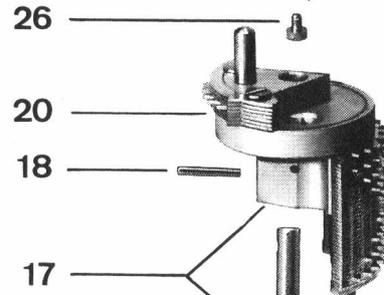
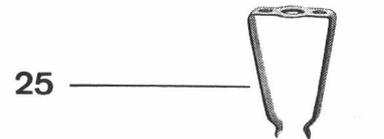
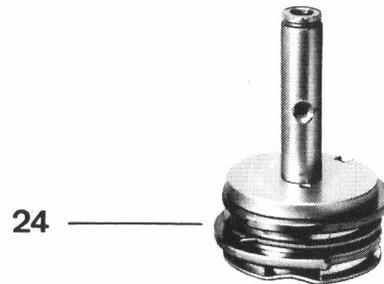
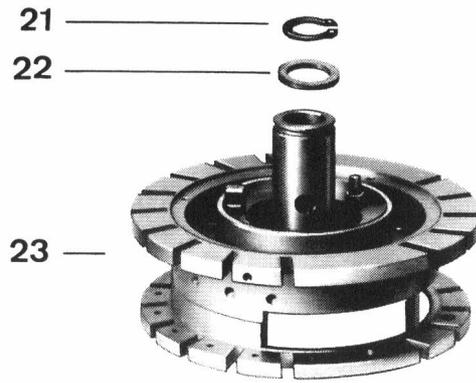
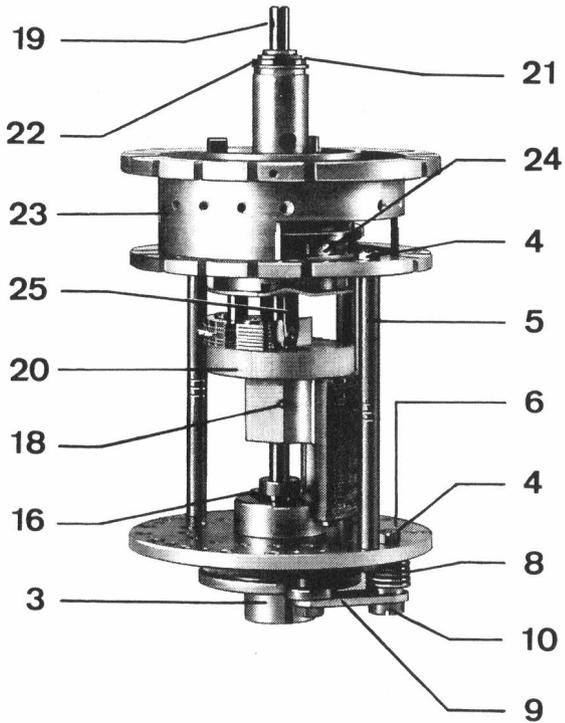
Vorsicht

Pos.18, 19 und 20 dürfen nur komplett (Pos.17) ausgetauscht werden.

Warning

Pos.18, 19 and 20 can only be exchanged complete (Pos.17)

C



Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
1	Knock out pin	special block No. 109109 pin punch 0,9 mm assembly tool No. 109112	cylindrical pin 1 x 10 (various diameters see remark)	10'148-2	diameters in mm: 0,995 1,005 1,015 1,025	1
2	Push out spring		disc spring clip	10'118-2		1
3	Zero positioning disc		zero positioning disc	10'111-7		1
4	Nuts	fork spanner 3 mm	hexagon nut M 1,4	VSM 12707		6
5	Support columns, if necessary straighten upper end of main shaft then pull the entire lower part down.		support column (various lengths see remark)	10'064-4	In any one machine use only columns with the identical number of marking grooves	3
6	Lower main casting		lower main casting	10'077-13	10'077-6 mach. Nos. 1 to 7070	1
7	Nut	fork spanner 3 mm	hexagon nut M 1,7	2'074		1
8	Spring		zero positioner spring	10'115-4	For machines Nos. 1 to 7520 when replacing either step 8 or 9 it is always necessary to replace both these parts.	1
9	Zero positioner		zero positioner complete	10'246-2	Remark: like step 8	

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
10	Screw	screw driver 4 mm	shouldered screw for zero positioning lever	10'1116-3	10'1116-1 machines Nos. 1 to 7520	1
11	Screw for non return pawl	screw driver 4 mm	shouldered screw for non return pawl	10'059-2		1
12	Non return pawl		non return pawl complete	10'224-4		1
13	Spring		non return spring	10'058-1		1
14	Screw	screw driver 3 mm	retaining screw for positioning tongue	10'015-6	cylindrical screw M 1, 2 x 4 for machines Nos. 1 to 7070	1
15	Spring washer		spring washer	10'152-2	10'152-1 machines Nos. 1 to 7070	1
16	Step drum positioning tongue		step drum positioning tongue	10'010-6	10'010-3 machines Nos. 1 to 7070	1
17	Main shaft, complete		main shaft complete	10'214	May not be disassembled; only complete exchange.	
18	Taper pin may not be removed		taper pin 1 x 8	VSM 12770		1
19	Main shaft		main shaft		For exchange order step 17	
20	Step drum		step drum		For the replacement of this part order step 17	

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
21	Circlip	circlip pliers A 0 d = 0,75	special circlip	10'133-2		1
22	Retaining ring		tens bell retaining ring (various thicknesses see remark)	10'031-3	thicknesses in mm: 0,74 0,76 0,79 0,81 0,83 0,86	1
23	Upper main casting with pins		upper main casting	10'248		1
24	Tens bell		tens bell complete	10'206-5	10'206-2 machines Nos. 3620 to 5100. Mach. Nos. 1 to 3620 must be sent to the factory for the replacement of the tens bell.	1
25	Spring	Adjusting tool No. 109136	step drum positioning spring	10'070-3		1
26	Screw	screw driver 2,5 mm	cylindrical screw M 1,4 x 2	VSM 12124		2

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks.	No. off
1	Nut	special wrench No. 100392	carriage holding nut	10'026		1
2	Push out sleeve (the carriage must be kept in an upright position, so that the balls do not fall out)	expansion reamer Ø 8 mm (only needed when replacing part)	main bearing sleeve, complete	10'229	When replacing adjust the sleeve on upper main casting with reamer (max. clearance = 0,02 mm)	1
3	Distance ring		clearing plate distance ring (various thicknesses see remark)	10'099-2	thicknesses in mm: 1,33 1,35 1,37 1,39 1,41 1,43 1,45 1,47 1,49 1,51	1
4	Clearing plate		clearing plate complete	10'244-2		1
5	Distance ring		distance ring	10'098-1		1
6	Washer		shim washer (various thicknesses see remark)	10'153-1	thicknesses in mm: 0,06 0,08 0,10 0,12 0,14	1
7	Spider spring		spider spring	10'004-3		1
8	Plunger		clearing plate plunger	10'024-4	10'024-2 machines Nos. 1 to 3247	1
9	Clearing plate plunger spring		clearing plate plunger spring	10'086-4		1
10	Balls		ball Ø 2 mm			17

Folio D

Dismantling

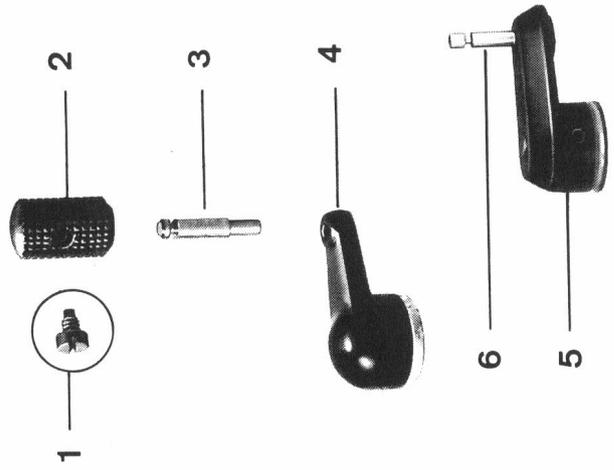
Specification and dimensions for spare part orders

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks.	No. off
11	Knock out taper pin from the inner side	pin punch 0, 5 mm	taper pin 0, 6 x 4	VSM 12770		1
12	Remove cage	special wrench No. 100687 (can only be used for machines above No. 7150 and provided the two fixing holes exist)	cage		For the replacement of this part the entire machine must be sent to the factory.	1
13	Carriage casting		Carriage casting	10'226-5	10'226-4 up to machine No. 63981 the shafts can be removed if damaged.	1
14	Unscrew carriage ring		carriage ring		For the replacement of this part the entire machine must be sent to the factory.	1
15	Remove numeral dials		numeral dial I	10'203-4	10'203-1 machines Nos. 1 to 7149. 10'203 -3 machines Nos. 7150 to 40770 and Nos. 42171 to 42570	4
16	Remove numeral dials (with half pin)		numeral dial IIb	10'205-4	10'205-1 machines Nos. 1 to 7149 10'205-3 machines Nos. 7150 to 40770 and Nos. 42171 to 42570.	4

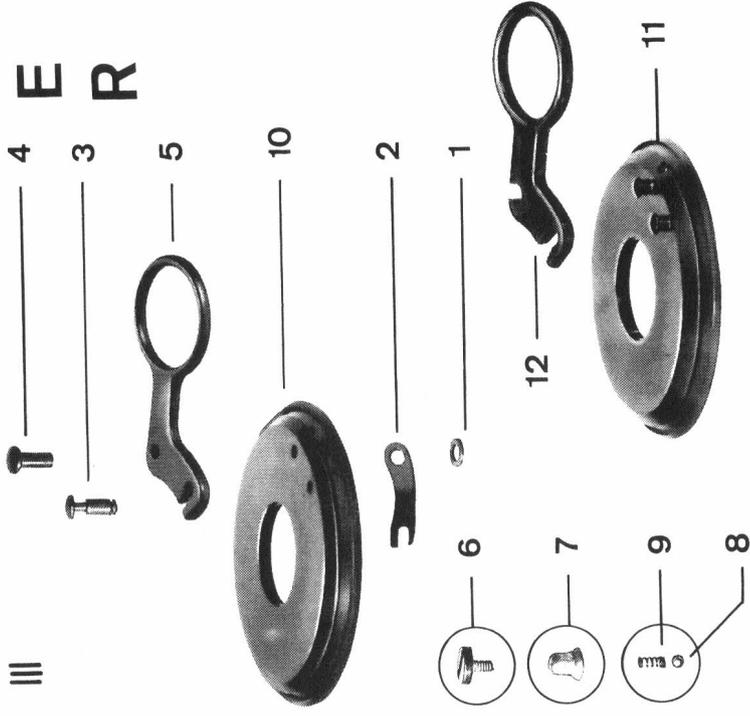
Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
17	Remove numeral dials (with full pin)		numeral dial IIa	10'204-1	Step 16 is adequate for the replacement of Step 16 or 17 and therefore only Step 16 will be supplied. However Step 17 can never take the place of Step 16. 10'204 machines Nos. 1 to 40770 and Nos. 42171 to 42570	7
18	Remove numeral dials (without pin)		numeral dial	10'045-10a	10'045-4 machines Nos. 1 to 7149. 10'045-9 machines Nos. 7150 to 40770 and Nos. 42171 to 42570.	2
19	Pin		cyl. pin 1, 5 x 5	10'150-1		1
20	Pins		cyl. pin 0, 8 x 4	10'149-1		2
21	Knock out spring housing	use pin punch 1, 8 mm special block 109109	spring housing	10'095-2		1

CURTA I/II

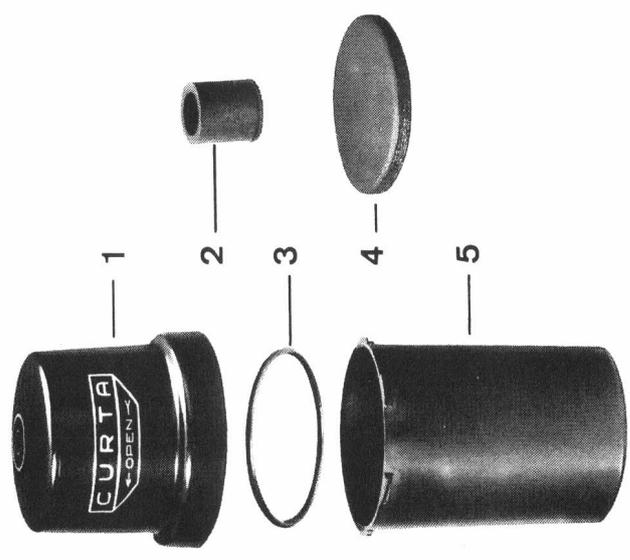
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III



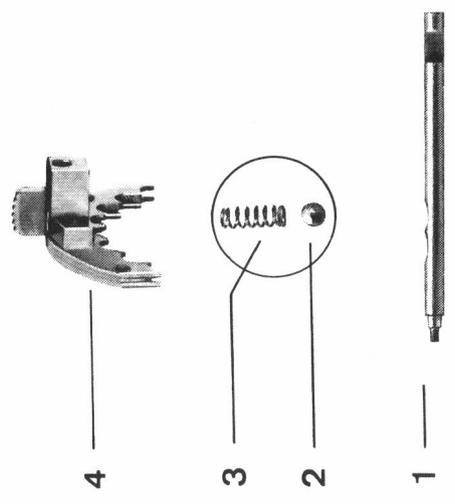
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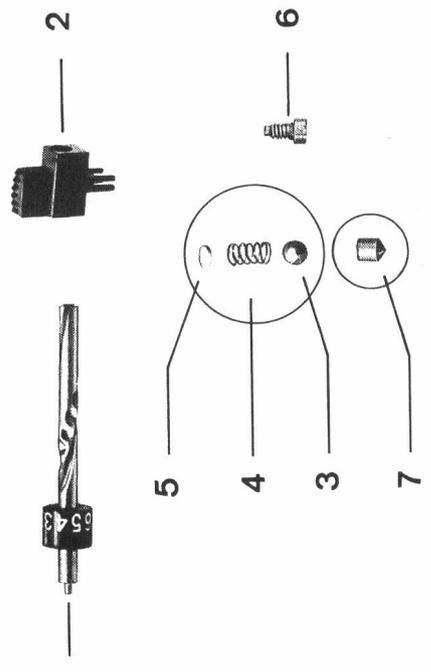
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VI



IV



Folio E

Dismantling

Specification and dimensions for spare part orders

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
	GROUP I (complete container)		container compl.	10'228-7		1
1	Lid, without rubber cushion		lid complete		lid alone not supplied. Order complete container	1
2	Rubber cushion		rubber cushion small	10'131-5	Supplied seperately	1
3	Tightening ring		container tighten - ing ring	10'124-1	Supplied seperately	1
4	Rubber cushion		rubber cushion large	10'130-3	Supplied seperately	1
5	Base, without rubber cushion		container base		Container base alone not supplied. See step 1	1
	GROUP II (complete crank)		crank complete	10'245-2	10'245-1 up to machine Nr. 46890	1
1	Screw	screw driver 2, 5 mm	trunnion screw	10'109-2		1
2	Handle		crank handle	10'012-7	10'012 -4 up to machine Nr. 46890	1
3	Remove older type pin only if damaged (by first drilling out from below)	drill ϕ 2 mm pin punch 1, 8 mm	crank handle pin	10'022-3		1

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
4	Crank arm without pin (older type)		Crank arm without pin	10'013-8	10'013 -8 from machine No. 46891 onward cannot be removed; can be replaced by step 5.	1
5	Plastic crank complete (with pin)		crank complete	10'242		1
6	Pin		pin		From machine number 46891 onward pin cannot be removed.	1
	GROUP III (complete clearing plate)		clearing plate complete	10'244-2		1
1	Remove washer (drill out the rivet from the inside)	drill ϕ 2 mm	rivet washer	10'094-2		1
2	Spring		flat spring	10'033-6		1
3	Plunger		clearing lever positioning plunger	10'039-3		1
4	Rivet	pin punch ϕ 1, 8	clearing lever rivet	10'093-2		1
5	Take off clearing lever		clearing lever	10'034-3		1
6	Screw	screw driver 2 mm	retaining screw	2'118-1	10'060 for older type.	1
7	Take out decimal marker (mind ball and spring!)		decimal marker	10'046-4		5

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
8	Ball		ball ϕ 1 mm			5
9	Spring		decimal marker spring	10'047-5		5
10	Clearing plate old type (with toothed segments)		clearing plate	10'247		1
11	Clearing plate, new type		clearing plate	10'247-1	Clearing plate can be supplied only with toothed segments and riveted pin.	1
12	Clearing lever, new type (plastic)		Clearing lever	10'034-4		1
	GROUP IV (complete setting knob) Warning! Do not interchange parts amongst different knobs.		setting knob complete	10'240-6	10'240-1 machines Nos. 1 to 7178 and Nos. 9321 to 9620. 10'240-5 machines Nos. 9621 to 68181 (available only in black)	8
1	Shaft		setting shaft complete	10'212-6	Only complete setting knob can be supplied	1
2	Setting knob		setting knob	10'057-8	Only complete setting knob can be supplied	1
3	Ball		ball ϕ 1, 8 mm		Ball 2 mm up to machine No. 61581	1
4	Spring		setting knob spring	10'073-6	When using pin (step 7) order No. 10'073 - 7	1

Folio E

Dismantling

Specification and dimensions for spare part orders

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
5	Disc (this disc is used to adjust the pressure of the spring)		compensation disc	10'146-1	10'146 up to machine No. 61581	1
6	Screw (new type)	screw driver 2 mm	guiding screw	10'075-4		1
7	Setting knob positioning pin		setting knob	10'063	This positioning pin replaces old type ball.	1
	GROUP V (complete zero positioner)		zero positioner complete	10'246-2		1
1	Nut	fork spanner 3 mm	hexagon nut	2'074		1
2	Screw	screw driver 3, 5 mm	shouldered screw for zero positioner roller	2'037-2	10'117 for older type	1
3	Roller		zero positioner roller	10'112-4		1
4	Lever		zero positioner lever	10'225-3		1
	GROUP VI (complete reversing lever)		reversing lever complete	10'241-4		1
1	Axle		reversing lever axle	10'065-6	10'065-4 machines Nos. 1 to 7178 and Nos. 9321 to 9620. 10'065-5 mach. nos. 9621-61581	1

Step	Sequence of dismantling	Requisite tools	Name	Part No.	For orders part No. for older machines and special remarks	No. off
2	Ball		ball ϕ 1, 8 mm		Ball ϕ 2 mm up to machine no. 61581	1
3	Spring		reversing lever spring	10'023-5	10'023-4 machines nos. 900 to 61581	1
4	Reversing lever		reversing lever	10'211-3	10'211-1 machines Nos. 1 to 7178 and Nos. 9321 to 9620. 10'211-1 must be fitted with 10'138-3. For earlier machines order 10'138-2 or use 10'138-3 shortened by 0, 15 mm.	1

Reparaturen & Reinigung
Repairs & Cleaning

Instructions for Reassembling

Picture A

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling:

tapered reamer ϕ 1, 5 for complete crank see step 2
tapered reamer ϕ 1, 27

Assembly tool No. 109.134 for retaining sleeve, see step 4

Remarks:

The clearance of the ball lock will first be adjusted with the ball itself (step 8). Should the largest ball not be sufficient, a thicker shim washer (picture D step 6) has to be mounted; in the same way adjust the clearance of the clearing plate with shim washer (picture D step 3)

Mount carriage (step 7) so that one of the six first digits of the result dial stands above the front indication arrow of the collar.

Clearing plate and main shaft have to be in zero position.

After mounting circlip (step 3) check whether it is really in the groove.

Picture B

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling:

Magnetic assembly tool No. 109.128 for circlip 10'097-5, see step 16.

Remarks:

Before mounting the transmission shafts check whether the gears on them slide freely (if necessary clean shafts, but do not oil). Arrangements of shafts can be seen on illustration to picture B.

Check that mounted shafts run true.

The center gear of the first shaft (step 20) of the counter dial must be engaged by the yoke.

Oil reversing lever axle according to oiling chart.

The lower gear of the first shaft (step 18) of the result dial must be engaged by the setting knob.

Picture B

Mounting of ten carry levers.

Push ten carry gear SR, Fig. 1, into the correct position (locking pawl SP at level with locking disc SS, see Fig. 1). Lay spring and lever into the block and with the help of tweezers set all these parts together into the slot of the upper main casting MK and the ten carry gear SR (be careful to introduce them dead straight). Set the screws so that they only just grip the bearing block.

The distance "a", Fig. 1, between the spring and the tip of the lever in its upper position should be approx. the thickness of a ten carry spring (i. e. 0, 2 mm). For adjusting the distance "a", position the reset cam just under the lever, press lever down on highest point of cam and tighten block in this position.

Clearance S (0, 05 - 0, 10 mm), Fig. 2, is indispensable between the lever Sch and the ten carry gear SR, so that the lever will slide perfectly free and snap into its positions.

While the ten carry lever is being pushed upward by the reset cam RK, this lever must be in contact with the ten carry gear; if not, the lever will bear too hard in the bearing block.

Since the shafts might be untrue, rotate them to control the clearance at the highest point and the contact of the lever with the ten carry gear at the lowest point. The maximum clearance is 0, 1 mm.

Warning! With the ten carry levers mounted, never turn the tens bell without the shafts being in the machine. Also never turn anticlockwise when the levers are in their lower position, or else they would get bent.

Control: Set all levers into lower position. Turn tens bell slowly, check each lever during the reset movement and note whether they snap into their correct position. Also check once more the distance "a", Fig. 1, (between the spring and the tip) and clearance S, Fig. 2, (between the lever and the gear).

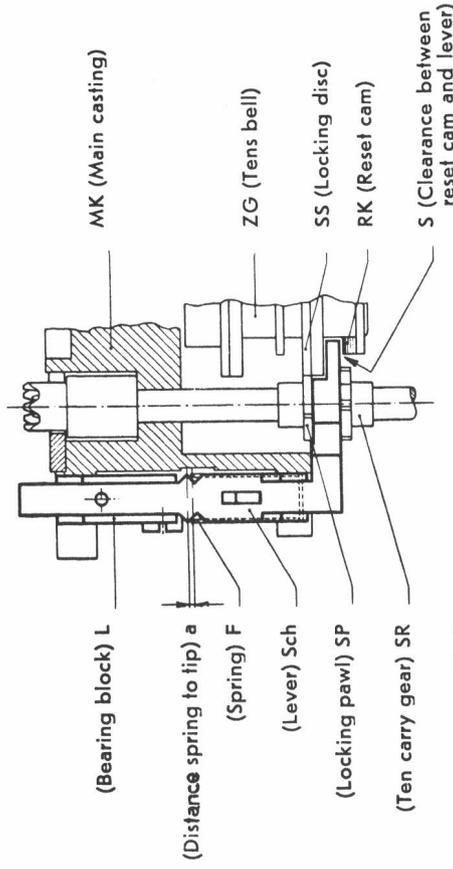


Fig. 1

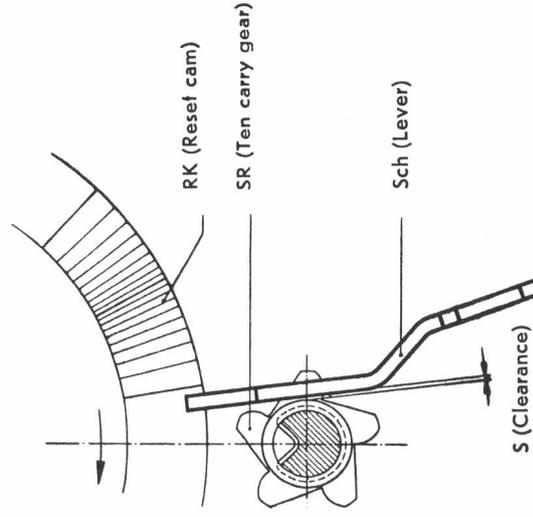


Fig. 2

Picture C

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling:

Assembly tool No. 109.112 for cylindrical pin ϕ 1 x 10, see step 1

Remarks:

Oil tens bell (step 24). Clearance to be adjusted with shim (step 22). Maximum clearance = 0,02 mm.

For mounting cylindrical pin 1 x 10 (step 1), main shaft (step 19) and non return disc (step 3) must be in zero position. Use special block No. 109.109 and special tool No. 109.112. When replacing support columns (step 5) use only columns with identical number of marking grooves.

Picture D

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling:

pin punch No. 109.111 for tapered pin ϕ 0,6 x 4, see step 11

tapered reamer ϕ 0,6 for carriage ring, carriage cage, see step 11

Remarks:

Screw in cage (step 12) into the ring (step 14) until the two holes for tapered pin (step 11) are in line. Always mount shims above the spider spring (step 9), the thicker one (step 7) above the thinner one (step 8).

Oil clearing plate plunger according to chart.

Warning! Be sure that the bearing sleeve fits on the two locating pins and mount the sleeve in its original position. The six marks of the locking ball in the inside of the sleeve must be turned towards the first six digits of the result dial.

Do not strain the nut (step 1).

Picture E

Group II (complete crank)

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling:

Vice jaw filling piece No. 109.115 for crank handle pin, see step 3 (old type)

Group III (complete clearing plate)

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling:

Riveting tool No. 109.108 for clearing lever rivet, see step 4.

Remarks:

Rivet in such a manner that the lever (step 5) is free but still gripping lightly.

When riveting, the riveting disc (step 1) must be pressed down with countersink on top side (use riveting tool No. 109.108).

Check that the positioning plunger snaps into the hole of the lever.

Group IV (complete setting knob)

Reassemble in the reverse order to dismantling.

Requisite auxiliary tool:

cylindrical shaft ϕ 1, 8 mm x 50 (for retaining ball or pin when introducing setting shaft)

Remarks:

Disc (step 5) serves for adjusting the pressure of the spring. There should be no perceptible difference in the setting of the knob in the same machine.

When using pin (step 7) order setting knob spring 10'073-7.

Group V (complete zero positioner)

Reassemble in the reverse order to dismantling.

Group VI (complete reversing lever)

Reassemble in the reverse order to dismantling.

Requisite auxiliary tool:

cylindrical shaft ϕ 1, 8 mm x 50 (for retaining ball when introducing reversing lever shaft).

Repairs

1. Crank handle pin broken

Put machine on special block No. 109 109. Knock out taper pin from crank with pin punch 0, 9 mm (1, 4 mm for Curta II) The remaining part of the broken pin must be drilled out from below (countersink side) with drill ϕ 2 mm and knocked out with a pin punch smaller than 2 mm. Mount new pin, place into chuck ϕ 2, 5 mm and rivet. (If chuck ϕ 2, 5 not available, use our special vice jaw No. 109 115.) The pin of the new crank is not replaceable.

2. Crank with main shaft bent

Take off crank and carriage. Main shaft in lower position (addition). Place upper end of shaft into chuck ϕ 3 mm and straighten. (If chuck ϕ 3 mm not available, use our special vice jaw No. 109 115)

Warning! To straighten shaft, hold machine by upper part of collar to avoid bending the support columns.

Control: Main shaft must snap freely into upper and lower position.

3. Clearing lever broken

Take off crank, carriage, main sleeve and clearing plate.

Drill rivet from below (countersink side) with drill ϕ 2 mm and knock out with pin punch smaller than 2 mm. At the new type the clearing lever is replaceable.

Mount clearing lever, rivet, flat spring and rivet washer, and rivet them. Press down rivet washer while riveting. Tool No. 109 108.

4. Clearing disc does not snap into rest position or sticks in rest position

Cause: A dropping of the machine or a blow on the clearing lever has bent the plunger and possibly damaged the spring housing, causing the plunger to jam in the housing.

Repair: Replace clearing plate plunger (if necessary also spring housing). (Use block No. 109 113)

Warning! The spring housing must on no account protrude underneath.

5. Clearing plate binds

Cause: Clearing plate dirty

Repair: Clean clearing plate, sleeve and shim in benzine (gasoline) bath and oil according to chart.

6. Setting knobs sticking

Cause: Setting shafts and possibly transmission shafts dirty.

Repair: See chapter cleaning "a".

7. Cylindrical pin in non return disc broken

Repair: Remove housing. Place machine on special block No. 109 109, knock out remainder of pin with pin punch 0, 9 mm (1, 4 mm for Curta II). Measure diameter of pin with micrometer and use same diameter for replacement. (Use tool No. 109 112)

Control: Move main shaft up and down (the pin must be free)
Check ten carry over! (Possibly the ten carry levers have been damaged by anticlockwise rotation)

8. Miscalculations

First determine nature of error; that is whether the dials indicate too much or too little. 3 cases can be distinguished:

a) The dials indicate too much

Clear dials - set a one (1) in the first column of setting unit - reversing lever up. One negative turn. Both dials ought to show nines (9). If zeros (0) appear somewhere, the ten carry lever immediately before the first zero has made an unauthorized transfer, which means that this lever has remained in the lower position.

b) The dials indicate too little

Clear dials. Set a one (1) in the first column of setting unit. Reversing lever up. One negative turn. Both dials showing nines (9) make a positive turn to bring both dials back to zero. If nines (9) appear somewhere, the ten carry lever immediately in front of the first nine has missed the transfer - this lever has remained in the upper position.

c) Faulty transfer of a number

When a number set in the setting unit is not transferred correctly to the result dial, the reason may be incorrect positioning of the setting knobs. This can be caused either by dirty setting shafts (these can be cleaned and oiled) (see chapter cleaning) or by the fork of the knobs being bent.

Cause and repair of defects under a and b:

a) dials indicate too much

The corresponding lever has to be checked according to instructions for reassembling (mounting of ten carry levers)

Possible causes: Ten carry lever spring broken; ten carry gears stick with dirt; no clearance between ten carry lever and ten carry gear; transmission shaft bent and untrue; reset cam is too low and cannot lift lever high enough. (This latter case occurs mainly in machines No. 1 to 9320.) Specially check the clearance between the highest point of the cam and the lever in its upper position. If the clearance is fairly big, increase height of reset cam to impede the passage of the ten carry levers.

b) The dials indicate too little

Possible causes: Ten carry lever spring broken; ten gears stick with dirt; bad adjustment of ten carry lever spring.

Check distance "a" Fig. 1, also check all other instructions and effect repair accordingly.

Cleaning

a) Setting unit

Dismount the complete setting shafts (leave knobs on shafts). Clean the complete setting shafts (with their knobs) with a rough brush in a benzine (gasoline) bath. Work knobs up and down several times to remove the dirt. Dry cleaned shafts with compressed air.

Should dirt deposits impede the counter gears in sliding on the transmission shafts, these shafts have to be cleaned mounted as they are with a paint brush and benzine. This cleaning must be carried out with great care. For this purpose always hold machine upright, so that the dirty benzine cannot penetrate into the upper part of the machine (ten carry gears and ten carry levers). Work counter gears up and down to remove dirt. Also when drying hold machine upright and blow air downwards.

Reassemble the whole setting unit and oil according to chart.

Through this cleaning and blowing out of the setting unit the oil has been washed away from the various lubricated parts in the bottom of the machine; therefore do not forget to oil zero positioner roller, non return disc and main shaft bearing.

b) Complete carriage

The carriage must be cleaned and oiled periodically. If the numeral dials and the clearing plate are dirty, the carriage must be dismantled completely and all parts washed in benzine. (Take out numeral dials and brush numeral dial axles well) Reassemble and oil according to chart.

c) Transmission shafts

Should dirt impede the movement of the ten carry gears, the shafts have to be dismounted for cleaning in a benzine bath (do not interchange the gears).

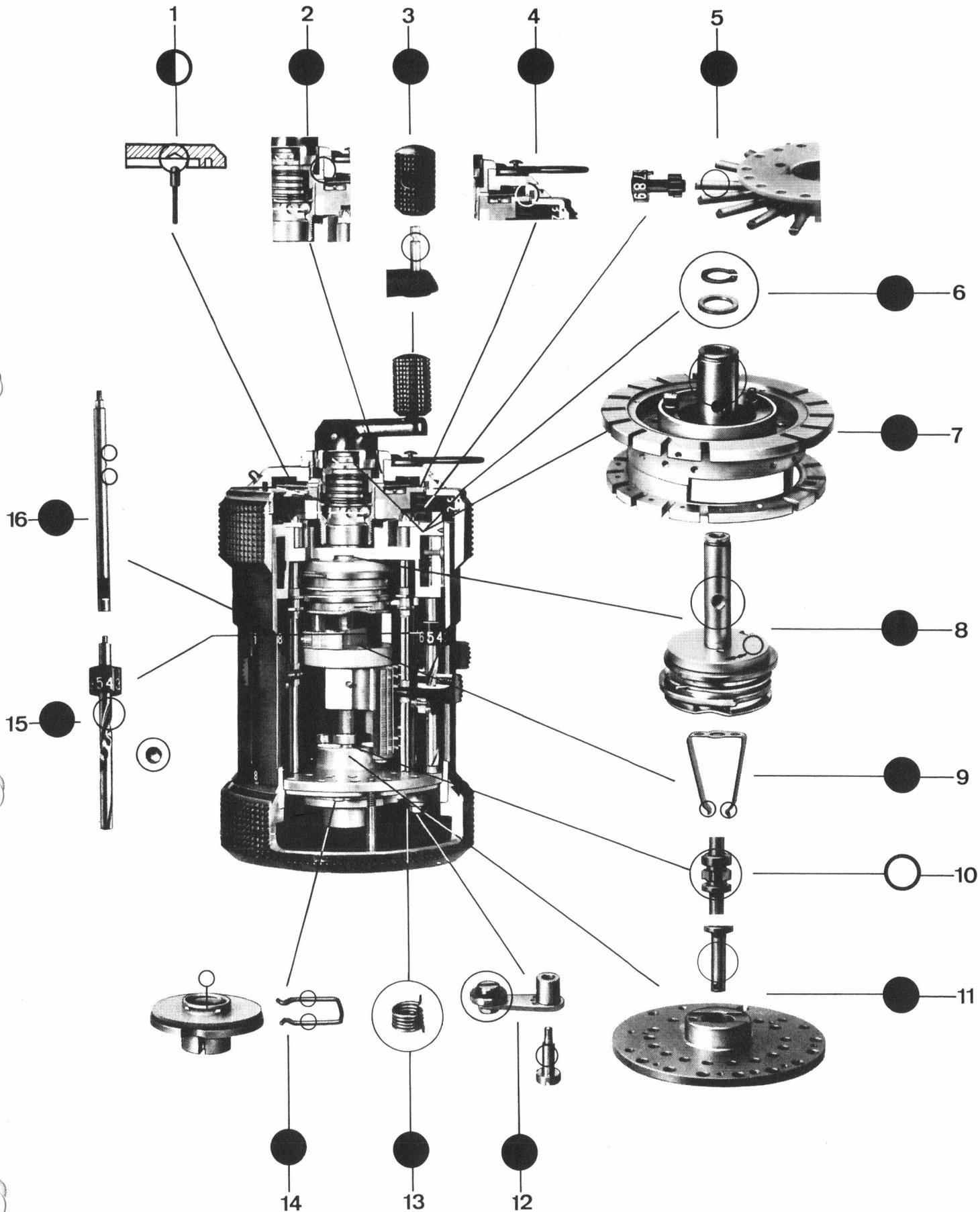
d) Zero positioner roller and non return disc

Dismount housing. Dip bottom of machine till lower main casting is just and only covered by benzine bath, clean with paint brush and turn crank several times. Dry and oil according to chart.

e) Complete machine

Should the machine be excessively dirty owing to neglect, it must be dismantled completely and all parts thoroughly cleaned.

Schmierplan Curta I Oiling Chart



General instructions

The lubricants Moebius No. 4 and Molymagus paste U can be supplied by us in the original bottle respectively tube.

Moebius No. 4 oil should be applied using a needle of approx. 0,5 mm thickness and with utmost care.

In the following a "small drop" means an immersion to a depth of the needle of 2 - 3 mm, a "big drop" means an immersion to a depth of 7 - 10 mm.

Warning! After oiling, the machine should on no account be blown out with compressed air.

Lubricants : Explanation of signes

-  Moebius No. 4 (bottle)
-  Molymagus paste U (tube)
-  Ball bearing grease

Lubrication points (see picture)

1. Rest positions of clearing plate plunger
Lubricant: ball bearing grease
2. Bearing surface of main bearing sleeve and of clearing plate
Lubricant: Moebius No. 4 (small drop)
3. Crank handle pin
Lubricant: Moebius No. 4 (small drop)
4. Clearing plate friction surface
Lubricant: Moebius No. 4 (small drop)
5. Numeral dial axles
Lubricant: Moebius No. 4 (medium drop)

6. Tens bell shim - large circlip
Lubricant: Moebius No. 4 (medium drop)
7. Collar of upper main casting
Lubricant: Moebius No. 4 (medium drop)
8. Friction surface of tens bell in upper main casting
Lubricant: Moebius No. 4 (small drop)
9. Step drum positioning spring
Lubricant: Moebius No. 4 (small drop)
10. Step drum positioning ring on main shaft
Lubricant: Molymagus paste U (medium quantity)
11. Main shaft bearings in upper and lower main casting
Lubricant: Moebius No. 4 (small drop)
12. Zero positioner roller and shouldered screw
Lubricant: Moebius No. 4 (small drop)
13. Zero positioner spring
Lubricant: Moebius No. 4 (small drop)
14. Zero positioner disc and fixation ring
Lubricant: Moebius No. 4 (small drop)
15. Complete setting shaft
Oil ball or pin slightly before assembly
Small drop into groove, move knob up and down several times
Lubricant: Moebius No. 4 (small drop)
16. Reversing lever shaft in the positioning stops
Lubricant: Moebius No. 4 (medium drop)

Inspection

1. Setting unit

Add and subtract all figures to each setting column, Ex.:

$1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45$. Leave 45 in the result dial and subtract in reverse order: $45 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 = 0$. The setting knobs must rest clearly in each position.

When repairing the setting unit, it is important to check the engagement of the counter gears with the step drum.

2. Clearing plate numeral dials.

The clearing plate must snap into its positions. Clear to the right and to the left. Lift clearing lever slightly and clear slowly; if in this manner any numeral dials are not cleared completely to zero, the clearance of the clearing plate is too big. Positioning plunger must snap into position. Clearing lever must move freely but still be gripping lightly. Check snapping in of numeral dials while clearing slowly.

3. Carriage

Check light displacement and easy positioning of carriage.

4. Carriage lock (Curta I), locking pin (Curta II)

Check whether ball (pin) is mounted: half a turn with the crank, then press carriage upward. In the same manner also check clearance of locking ball (locking pin) (max. clearance 0,05 mm).

5. Circlip (large)

With crank in zero position, press carriage upward to check whether the circlip is correctly mounted.

6. Non return pawl

Check correct function of the pawl.

7. Zero positioner

In zero position the pull measured on the crank handle (at right angles to the crank arm) is 240-400 grams. Easy snapping of the crank in the rest position. Light action of roller.

8. Positioning of main shaft

Main shaft must snap correctly in the position. Pull 200-350 grams.

9. Running of machine.

While turning crank, tilt carriage with thumb and forefinger alternately downward, backward and forward.

10. Tens carry mechanism

To test the margin of the tens carry mechanism, try to raise the carriage pressing it up and anticlockwise with the thumb, while the numeral dial is turning from 9 to 0 (exert effort in an angle of 45 degrees). In this way you attempt to lift the pin of the numeral dial off the lever during its downward movement. If in spite of this strain a tens carry over takes place, this is called the "margin". Of course the opposite case should not occur, that is when the pin of the numeral dial sticks on the lever while the carriage is pressed downward, which would cause the blocking of the machine.

Carry out the control as follows:

a) Counter dial

Place carriage in position one. Clear both dials. Reversing lever up. One negative turn. Turn crank (positive) just a little out of zero position, so that the carriage is locked.

Place thumb under the first numeral dial of counter dial with forefinger opposite. Rotate handle slowly with thumb

pressing the carriage up and anticlockwise, while forefinger opposite is pressing downward. While rotating handle slowly, observe each single ten carry over. Check successive numeral dials in displacing thumb digit by digit. Repeat same tests with carriage in positions 2, 3, 4, 5, 6, respectively.

b) Result dial

Place carriage in position one. Clear both dials. Reversing lever up. Two negative turns, then set a 1 (one) in the first setting column and make one negative turn. Turn crank (positive) just a little out of zero position, so that the carriage is locked. Place thumb under the first numeral dial of result dial with forefinger opposite and repeat exactly the same tests as for counter dial.

After this test do a negative turn in pressing carriage downward, to check whether the pin of the numeral dial does not stick on the ten carry lever.

Should the tests reveal any defects, the corresponding repair instructions should be followed.

Werkzeugsortiment CURTA I und II

Special Tools assortment CURTA I and II

Bezeichnung Designation	Best.Nr.	Verwendung für Use for		Einzelpreis Price per piece in		
		Curta I Stck.	Curta II Stck.	sfr.	cts.	
Dreikantschaber Triangular scraper	100.381	1	1	6	--	
Flachschaber Flat scraper	100.578	1	1	6	50	
Vierkantroibahle Square reamer	100.602	1	1	17	50	
Gabelschlüssel Fork spanner s = 3 x 3,5	109.045	1	1	1	10	
Montageunterlage Assembly block	109.075	1	1	16	80	
Vierkantroibahle Square reamer	109.106	1	1	17	50	
Nietwerkzeug Riveting tool	109.108	1	1	23	70	
Spezialauflageblock Special block	109.109	1	1	46	--	
Durchschlag Pin punch	109.111	1	1	4	20	
Schraubstockeinlage Vice jaw filling piece	109.115	1	1	32	40	
Montagewerkzeug magn. Magnetic assembly tool	109.128	1	1	3	60	
Montageklotz für Kurbel Assembly block for crank	109.133	1	1	7	50	
Montagewerkzeug Assembly tool	109.134	1	1	16	35	
Richtwerkzeug Adjusting tool	109.136	1	1	1	40	
Fünzfzackschlüssel Transmission shaft key	109.145	1	1	6	50	
Durchschlaghalter Pin punch holder	1000.636	1	1	12	50	

Werkzeugsortiment CURTA I und II

Special Tools assortment CURTA I and II

Bezeichnung Designation	Best.Nr.	Verwendung für Use for		Einzelpreis Price per piece in		
		Curta I Stck.	Curta II Stck.	sfr.	cts.	
Durchschlageinsätze Pin punch inserts ϕ 0,5	10	5	5	-	75	
Durchschlageinsätze Pin punch inserts ϕ 1,8	12	1	1	2	60	
Durchschlag Pin punch ϕ 1,4	13	1	1	2	60	
Konische Reibahle Tapered reamer ϕ 1,27	14	1	1	5	10	
Konische Reibahle Tapered reamer ϕ 1,5	15	1	1	5	10	
Spiralbohrer Drill ϕ 2	16	1	1	-	70	
Schraubenzieher Screw driver	17	1	1	3	90	
Schraubenzieher Screw driver	18	1	1	1	55	
Schraubenzieher Screw driver	19	1	1	1	35	
Reibahle Reamer ϕ 3	20	1	1	4	50	
Flachfeile Flat file	21	1	1	1	90	
Vierkantfeile Four edged file	22	1	1	1	90	
Rundfeile Round file	23	1	1	1	90	
Zugwaage Traction dynamometer	24	1	1	20	--	
Flachzange Pliers	25	1	1	6	20	
Pinzette AA Tweezers AA	26	1	1	1	85	
Schmiernadel Nr. 1934 Oiler needel No. 1934	27	1	1	1	--	
Orig. Oelflasche Small bottle special oil	28	1	1	3	--	
Tastlehre Caliber gauge 0,1	29	1	1	-	85	

Werkzeugsortiment CURTA I und II

Special Tools assortment CURTA I and II

Bezeichnung Designation	Best.Nr.	Verwendung für Use for		Einzelpreis Price per piece in		
		Curta I Stck.	Curta II Stck.	sfr.	cts.	
Tastlehre Caliber gauge 0,05	30	1	1	-	85	
Steckschlüssel Special wrench	100.392	1		31	25	
Steckschlüssel Special wrench	100.687	1		35	20	
Montagewerkzeug Assembly tool	109.112	1		4	60	
Auflage Block	109.113	1		23	75	
Durchschlag flach Flat punch	109.139	1		4	--	
Stemmer Crowbar	109.142	1		6	10	
Maschinenreibahle Machine reamer ϕ 2,03	31	1		4	50	
Expansionsreibahle Expansion reamer ϕ 8	32	1		13	80	
Seegerzange Circlip pliers $d = 0,75$	33	1		9	60	
Konische Reibahle Tapered reamer ϕ 0,6	34	1		5	70	
Montagewerkzeug Assembly tool	109.114		1	4	60	
Kontrollring Control ring	109.118		1	23	10	

Supply of Spare Parts

Important!

In order to avoid misunderstandings and delays in delivery please adhere strictly to the following instructions when ordering spare parts.

Always indicate correct name, order number and quantity of part ordered. Indicate also, if known to you, the serial number of the machine to be repaired. If this number is in the column "for orders part number for older machines and special remarks" of the dismantling instructions you must add on to the order number the corresponding index number. Any additional remarks should also be accounted for.

Parts marked ■ in the succeeding parts list cannot be supplied as spare parts; such parts have also been left with a blank at the place of the order number in the dismantling instructions.

Examples for parts orders

1. Simple order

Spider spring No. 2'162 pieces, mach.No. ★

2. Order taking into account a special remark

Shim washer No. 2'167, thickness 0,12, pieces,
mach. No. ★

3. Order taking into account a modification

Compensation disc No. 10'146, pieces, mach.No. ★
Compensation disc No. 10'146 - 1, pieces,
mach. No. ★

★ if known

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung	Einzel-	
		Item	preis	
		■ als Ersatzteil nicht lieferbar	price per	
		■ not supplied as spare part	piece in	sfr.
10'001		■ Stufenwalzenkörper Step drum body		
10'002		■ Gehäuseoberteil Upper main housing		
10'003		■ Hauptachse Main shaft		
10'004	<input type="checkbox"/>	Federstern Spider spring	-	07
10'005	<input type="checkbox"/>	Zehnerschieber Resultatwerk Ten carry lever RZ	-	13
10'006	<input type="checkbox"/>	Zehnerschieber Quotientenseite Ten carry lever UZ	-	13
10'007	<input type="checkbox"/>	Zehnerschaltfeder Ten carry spring	-	05
10'008		■ Zählwerksachse Numeral dial axle		
10'009		■ Zehnerglockenkörper Tens bell body		
10'010	<input type="checkbox"/>	Umsteuerungsnase Step drum positioning tongue	-	05
10'011		■ Maschinenkörper Upper main casting		
10'012	<input type="checkbox"/>	Kurbelgriff Crank handle	-	50
10'013	<input type="checkbox"/>	Kurbel Metall Metal crank	1	60
10'014		■ Fünzfackachse Transmission shaft		
10'015	<input type="checkbox"/>	Anpassschraube für Umsteuerungsnase Retaining screw for 10'010	-	05

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> <input checked="" type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr.	
10'016		■ Zählwerksfixierstift Carriage positioning pin		
10'018	<input type="checkbox"/>	Zehnerschieberlager Ten carry lever bearing block	-	20
10'019		■ Zahlenrollenstift (rund) Numeral dial pin (round)		
10'020		■ Führungshülse Guiding sleeve		
10'021		■ Zahlenrollenstift Numeral dial pin		
10'022	<input type="checkbox"/>	Kurbelbolzen Crank handle pin	-	03
10'023	<input type="checkbox"/>	Quotienteneinstellfeder Reversing lever spring	-	02
10'024	<input type="checkbox"/>	Löscherfixierstift Clearing plate plunger	-	30
10'025		■ Zählwerkshülse Main bearing sleeve		
10'026	<input checked="" type="checkbox"/>	Zählwerkshülsenmutter Carriage holding nut	-	30
10'027		■ Zählwerksfixierstift Carriage locating pin		
10'028		■ Abschlusscheibe Base plate		
10'029		■ Ziffernrolle Numeral roll		
10'030		■ Löscherkappenkörper Clearing plate body		
10'031	<input type="checkbox"/>	Haltering für Zehnerglocke Tens bell shim	-	05

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis	
			price per piece in sfr.	
10'032		■ Führungshülse Guiding sleeve		
10'033	<input type="checkbox"/>	Blattfeder Flat spring	-	06
10'034	<input type="checkbox"/>	Löscherhebel neu, Kunststoff Clearing lever new, plastic	-	55
10'035	<input type="checkbox"/>	Federhülse Retaining bush	-	10
10'036	<input type="checkbox"/>	Spez. Seegerring Large circlip	-	06
10'038		■ Schaltrad I Transmissing gear I		
10'039	<input type="checkbox"/>	Auslösebolzen Clearing lever pos. plunger	-	09
10'040		■ Zählwerkskörper Carriage casting		
10'041		■ Presshülse Pressure sleeve		
10'042		■ Distanzhülse Compensation sleeve		
10'043		■ Zahlenrolle I Numeral dial I		
10'045	<input type="checkbox"/>	Zahlenrolle II Numeral Dial II	-	55
10'046	<input type="checkbox"/>	Kommaschieber Decimal marker	-	07
10'047	<input type="checkbox"/>	Kommaschieberfeder Decimal marker spring	-	02
10'048		■ Zylinderschraube Cylindrical screw		

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> <input checked="" type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr.		
10'049		■ Sperrad Locking gear			
10'050	<input type="checkbox"/>	Zählwerksfeder Carriage pressure spring	-	05	
10'051		■ Distanzhülse Compensation sleeve			
10'052		■ Fünzfack Five toothed gear			
10'053		■ Schaltrad II Tens carry gear II			
10'054		■ Presshülse Pressure sleeve			
10'055		■ Führungshülse Guiding sleeve			
10'056		■ Führungshülse Guiding sleeve			
10'057		■ Einstellgriff Setting knob			
10'058	<input type="checkbox"/>	Sperrfeder Non return spring	-	07	
10'059	<input type="checkbox"/>	Anpasschraube Shouldered screw for 10'224	-	03	
10'061		■ Einstellachse Setting shaft			
10'062		■ Gehäuseunterteil Base ring			
10'063	<input checked="" type="checkbox"/>	Rastungsbolzen neu Positioning pin	-	10	
10'064	<input type="checkbox"/>	Befestigungssäule Support column	-	30	

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis	
			price per piece in sfr.	
10'065	<input type="checkbox"/>	Quotienteneinstellsäule Reversing lever shaft	-	70
10'066		■ Umschaltgriff Reversing knob		
10'067		■ Rädchenhalter Reversing fork		
10'068		■ Umsteuerungsring Step drum positioning ring		
10'069		■ Schwerspannstift Tension pin		
10'070	<input type="checkbox"/>	Umsteuerungsfeder zu Zehnerglocke Step drum positioning spring	-	15
10'071	<input type="checkbox"/>	Abdeckring Locking ring	-	17
10'072		■ Mitnehmerstift Step drum engagement pin		
10'073	<input type="checkbox"/>	Einstellgriffeder Setting knob spring	-	02
10'074	<input type="checkbox"/>	Senkschraube Collar fixing screw	-	02
10'075	<input type="checkbox"/>	Führungsschraube Setting knob guiding screw	-	02
10'076		■ Zahnsegment (10 Zähne) für RW Toothed segment (10 teeth) for RW		
10'077	<input type="checkbox"/>	Lagerplatte Lower main casting	5	30
10'078		■ Zahnsegment (1 Zahn) für RW Toothed segment (1 tooth) for RW		
10'079		■ Zahnsegment (9 Zähne) für RW Toothed segment (9 teeth) for RW		

CURTA I Teilleiste

CURTA I Parts list

Zn.Nr.	Index ja/nein	Bezeichnung ■ als Ersatzteil nicht lieferbar	Einzel- preis	
Part No.	yes/no <input type="checkbox"/> * <input type="checkbox"/>	Item ■ not supplied as spare part	price per piece in sfr.	
10'080		■ Zahnsegment (2 Zähne) für RW Toothed segment (2 teeth) for RW		
10'081		■ Zahnsegment (8 Zähne) für RW Toothed segment (8 teeth) for RW		
10'082		■ Zahnsegment (3 Zähne) für RW Toothed segment (3 teeth) for RW		
10'083		■ Zahnsegment (7 Zähne) für RW Toothed segment (7 teeth) for RW		
10'084		■ Zahnsegment (4 Zähne) für RW Toothed segment (4 teeth) for RW		
10'085	<input type="checkbox"/>	Manschette Collar	2	05
10'086	<input type="checkbox"/>	Löscherfixierstiftfeder Clearing plate plunger spring	-	03
10'087		■ Zahnsegment (6 Zähne) für RW Toothed segment (6 teeth) for RW		
10'088		■ Zählwerksring Carriage ring		
10'089		■ Zählwerksskappe Cage		
10'090		■ Zahnsegment (5 Zähne) für RW Toothed segment (5 teeth) for RW		
10'091		■ Zahnsegment (1 Zahn) für UW Toothed segment (1 tooth) for UW		
10'093	<input type="checkbox"/>	Löschergriffbolzen Clearing lever rivet	-	10
10'094	<input type="checkbox"/>	Nietscheibe Rivet washer	-	02
10'095	<input type="checkbox"/>	Löscherfixierstiftbüchse Spring housing for 10'024	-	06

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> <input checked="" type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr.	
10'096		■ Zahnsegment (9 Zähne) für UW Toothed segment (9 teeth) for UW		
10'097	<input type="checkbox"/>	Federring für Fünzfackachse Circlip for transmission shaft	-	03
10'098	<input type="checkbox"/>	Beilagscheibe klein Small distance ring	-	03
10'099	<input type="checkbox"/>	Beilagscheibe gross (Pos. 1 - 10) in verschiedenen Stärken Clearing plate distance ring, various thicknesses (step 1 - 10)	-	17
10'100		■ Zehnerzahnscheibe für UW Tens carry disc for UW		
10'101		■ Zehnerzahnscheibe für RW Tens carry disc for RW		
10'102		■ Beilagering Distance disc		
10'103		■ Beilagering Distance disc		
10'104		■ Sperrscheibe für UW Locking disc for UW		
10'105		■ Zehnersperrscheibe für UW Ten carry locking disc for UW		
10'106		■ Sperrscheibe für RW Locking disc for RW		
10'107		■ Zehnersperrscheibe für RW Ten carry locking disc for RW		
10'109	<input type="checkbox"/>	Zapfenschraube Handle fixing screw	-	02
10'110		■ Distanzhülse Compensation sleeve		

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis	
			price per piece in sfr.	
10'111	<input type="checkbox"/>	Nullpufferscheibe Zero positioner disc	1	70
10'112	<input type="checkbox"/>	Nullpufferrolle Zero positioner roller	-	15
10'113		■ Sperrklinke Non return pawl		
10'114		■ Nullpufferhebel Zero positioner lever		
10'115	<input type="checkbox"/>	Nullpufferfeder Zero positioner spring	-	07
10'116	<input type="checkbox"/>	Anpasschraube zu Nullpufferhebel Zero positioner shoulder screw	-	03
10'118	<input type="checkbox"/>	Sicherungsfeder Disc spring clip	-	16
10'119		■ Abschlusselement Fastening segment		
10'120		■ Abstützscheibe Supporting disc		
10'121		■ Büchse zu Sperrklinke Non return bush		
10'124	<input type="checkbox"/>	Dichtungsring Packing ring	-	60
10'125		■ Büchse zu Nullpufferhebel Zero positioner arm bush		
10'126		■ Zierdeckel Ornamental disc		
10'129	<input type="checkbox"/>	Druckring Carriage pressure ring	-	06
10'130	<input type="checkbox"/>	Gummieinlage gross Large rubber cushion	-	16

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> <input checked="" type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr.	
10'131	<input type="checkbox"/>	Gummieinlage klein Small rubber cushion	-	16
10'133	<input type="checkbox"/>	Spez. Seegerring Small circlip	-	06
10'134		■ Anschlagstift für Zählwerk Carriage stop pin		
10'135	<input type="checkbox"/>	Lagerbolzen Setting shaft bearing pin	-	05
10'136	<input type="checkbox"/>	Halteplatte Setting shaft plate	-	05
10'137	<input type="checkbox"/>	Anschlagbüchse gross Low. reversing shaft sleeve	-	03
10'138	<input type="checkbox"/>	Anschlagbüchse klein Upper reversing shaft sleeve	-	06
10'140		■ Führungshülse Guiding sleeve		
10'141		■ Presshülse Pressure sleeve		
10'142		■ Zahnsegment für Löscherkappe Toothed clearing segment		
10'143		■ Zwischenlage zu Löscherkappe Shim for clearing plate		
10'145	<input checked="" type="checkbox"/>	Stahlkugel ϕ 2,5 (Pos. 1 - 6 in verschied. Stärken) Carriage locking ball ϕ 2,5 mm (step 1 - 6, various thicknesses)	-	03
10'146	<input type="checkbox"/>	Ausgleichsscheibe Compensation ring	-	08
10'147		■ Lagerbüchse Bearing bush	-	02

CURTA I Teileliste

CURTA I Part list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr	
10'148	<input type="checkbox"/>	Zyl. Stift 1 x 10 (versch. Pos.) Cyl. pin 1 x 10 for zero pos. disc (various steps)	-	19
10'149	<input type="checkbox"/>	Zylindrischer Stift 0,8 x 4 Cyl. pin 0,8 x 4 for spider spring	-	06
10'150	<input type="checkbox"/>	Zylindrischer Stift 1,5 x 5 Cylindrical pin 1,5 x 5	-	10
10'152	<input type="checkbox"/>	Federring Spring washer	-	02
10'153	<input type="checkbox"/>	Ausgleichsring (Pos. 1 - 5 in ver- schiedenen Stärken Shim washer (step 1 - 5, various thicknesses)	-	07
10'154		■ Nummernschild Number label		
10'155		■ Dichtungsring Container tightening ring		
10'156		■ Schutzhülsenschild Container label		
10'158		■ Schild zu Abschlusscheibe Base plate label disc		
10'160		■ Abschlusscheibe II Base plate II		
10'161		■ Halteschraube Retaining screw		
10'162		■ Unterlagscheibe Washer		
10'163		■ Lasche Clip		
10'203	<input type="checkbox"/>	Komplette Zahlenrolle I Numeral dial I complete	1	05

CURTA I Teileliste

CURTA I Parts list

Zn.Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> <input checked="" type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis		
				price per piece in sfr	
10'204	<input type="checkbox"/>	Komplette Zahlenrolle IIa Numeral dial IIa complete	-	70	
10'205	<input type="checkbox"/>	Komplette Zahlenrolle IIb Numeral dial IIb complete	-	95	
10'206	<input type="checkbox"/>	Komplette Zehnerglocke Tens bell complete	8	40	
10'207		■ Komplette Fünzfackachse Transmission shaft complete			
10'208		■ Komplette Fünzfackachse Transmission shaft complete			
10'209		■ Komplette Fünzfackachse Transmission shaft complete			
10'211	<input type="checkbox"/>	Kompletter Umschaltgriff Reversing lever complete	1	05	
10'212	<input type="checkbox"/>	Komplette Einstellachse Setting shaft complete			
10'213		■ Komplette Stufenwalze Step drum complete			
10'214	<input checked="" type="checkbox"/>	Komplette Hauptachse Main shaft complete	18	80	
10'215	<input type="checkbox"/>	Komplettes Gehäuse Housing complete	6	80	
10'216		■ Komplette Fünzfackachse Transmission shaft complete			
10'218		■ Quotienteneinstellrad Reversing gear			
10'219		■ Doppel-Einstellrad Double setting gear			
10'220		■ Komplettes Zehnerschaltrad Tens carry gear, complete			

CURTA I Teileliste

CURTA I Parts list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr.	
10'221		■ Produkt Einersperrad Products units locking gear		
10'222		■ Quotienten Einersperrad Quotient units locking gear		
10'223		■ Komplette Hauptachse Main shaft complete		
10'224	<input type="checkbox"/>	Komplette Sperrklinke Non return pawl complete	-	75
10'225	<input type="checkbox"/>	Kompletter Nullpufferhebel Zero positioning lever, complete	-	60
10'226	<input type="checkbox"/>	Kompletter Zählwerkskörper Carriage casting complete	6	35
10'227		■ Kpl. Maschinenkörper mit kpl. Zehner- glocke Complete upper main casting with complete tens bell		
10'228	<input type="checkbox"/>	Komplette Schutzhülse Container complete	4	50
10'228	<input type="checkbox"/>	Ober- und Unterteil ohne Gummieinlagen Container lid and bottom without rubber cushions	3	50
10'229	* <input type="checkbox"/>	Komplette Zählwerkshülse Main bearing sleeve complete	1	80
10'230		■ Komplettes Schaltrad Transmission gear complete		
10'231		■ Komplette Lagerplatte Lower main casting complete		
10'232		■ Grundkörper Stufe I Main assembly step I		
10'233		■ Grundkörper Stufe II Main assembly step II		

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CURTA I Teileliste

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> * <input type="checkbox"/>	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel - preis price per piece in sfr.	
10'234		■ Grundkörper Stufe III Main assembly step III		
10'236	*	Komplettes Treibelement IV Transmission shaft IV complete	1	25
10'237	*	Komplettes Treibelement I Transmission shaft I complete	1	40
10'238	*	Komplettes Treibelement II Transmission shaft II complete	1	50
10'239	*	Komplettes Treibelement III Transmission shaft III complete	1	45
10'240	<input type="checkbox"/>	Kompletter Einstellgriff Setting knob complete	2	20
10'241	<input type="checkbox"/>	Kompletter Quotienteneinsteller Reversing lever complete with shaft	1	90
10'242	*	Kurbel mit Bolzen Crank, plastic, with pin	-	85
10'243		■ Zählwerk Stufe I Carriage assembly step I		
10'244	<input type="checkbox"/>	Komplette Löscherkappe Clearing plate complete	7	15
10'245	<input type="checkbox"/>	Komplette Kurbel Crank complete	1	65
10'246	<input type="checkbox"/>	Kompletter Nullpuffer Zero positioner complete	-	80
10'247	<input type="checkbox"/>	Löscherkappe alt mit eingep. Segmenten Clearing plate, old, with toothed segments	4	20
10'247-1	<input type="checkbox"/>	Löscherkappe neu mit eingep. Segmenten Clearing plate, new, with toothed segments	4	50
10'248	*	Maschinenkörper mit eingep. Stiften Upper main casting with pins	9	--

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CURTA I Parts list

Zn. Nr. Part No.	Index ja/nein yes/no <input type="checkbox"/> *	Bezeichnung ■ als Ersatzteil nicht lieferbar Item ■ not supplied as spare part	Einzel- preis	
			price per piece in sfr.	
10'249	*	Komplette Abschlusscheibe Base plate complete	2	50
10'250		■ Einstellgriff mit Führungsschraube Setting knob with guiding screw		
10'260		■ Komplette Abschlusscheibe II Base plate II complete		
2'118	<input type="checkbox"/>	Verschlusschraube Retaining screw	-	07
2'037	<input type="checkbox"/>	Anpasschraube zu Nullpufferrolle Zero pos. roller screw	-	13
2'074	*	Sechskantmutter Hexagon nut	-	02

