

CURTA Mod. II

Servicehandbuch — Service Manual

CONTINA AG. VADUZ FL

To your kind attention!

The newly supplied leaves the latest modifications and thus bring the CURTA Service Manual completely up to date. Changes and additions appear in red print on the new leaves and can thus be easily noticed. The old leaf which is being replaced by a new one can be removed from the manual. However it is advisable to keep the old leaves and file them separately for possible reference purposes.

The design of Curta Model II being in principle very similar to that of Curta Model I, pictures of the service manual Curta Model I have been used for the sake of convenience wherever possible. Consequently some details and particularly size proportions will deviate to some extent from the actual Curta II. We therefore wish to ask the reader to take this fact into account when using the manual.

DEMONTAGE
DISMANTLING

STUFE N
STAGE N

Specification for spare part orders

Step	Sequence of dismantling	Requisite tools	Name	Part No.	Part No. for earlier machines and special remarks	No. off
1	Remove taper pin from back side of crank with 0,9 mm pin punch (sharp tap)	special block No. 109109 pin punch 0,9 mm 1,4 mm	taper pin 1,5 x 12 (1 x 14)	VSM 12770		1
2	Pull crank up and turn backwards		crank complete	10245-2	2548-1 for machine nos. 500'001 to 517830 and 518'101 to 518'140	1
3	Open circlip and remove	circlip pliers A 0	circlip	2168-1		1
4	Retaining bush. Mainshaft in zero position. Remove carriage, covering bearing with palm of hand to avoid losing spring and bush		Retaining bush	2166-1	Machining with lathe to fit into main bearing sleere (see Q 1-a/2)	1
5	Carriage pressure spring		carriage pressure spring	2165-2		1
6	Does not exist for Mod. II					
7	Carriage				Assembly of this part on a machine see chapter " Assembly"	
8	Locking pin can be removed from carriage, unless already fell out when removing carriage		Locking pin (various sizes, see remark)	2122-1	Size a in mm: 8,30 8,32 8,34 8,36 8,38 8,40 8,42 8,44 8,46 8,48 8,50 8,52	1
9	Cyl. screw	screwdriver 1,5 mm	cyl. screw	2110-1		3
10	Pull up collar. Caution! Don't damage ten carry springs (step 9 leaf 0 1-a) with fingers		collar	2113-3		1
11	Countersunk screws	screwdriver 3,5 mm	countersunk screw M 2 x 20/6	VSM 12142		2
12	Base plate		base plate	2537	2120-1 from machine No. 500'001 to 518'814	1
13	Pull housing downward		housing complete	2536-1		1

		Specification for spare part orders				No.
Step	Sequence of dismantling	Requisite tools	Name	Part No.	Part No. for earlier machines and special remarks	off
(14)			base ring		Only complete housing can be supplied - order No. see step 13	1
(15)	Housing		main housing		Remark as for step (14)	1
16	Screw	screwdriver 2 mm	retaining screw	2118-1		1
17	Remove decimal markers		decimal marker	10046-4		3
18	Balls		ball ϕ 1 mm			3
19	Decimal marker springs		decimal marker spring	10047-5		3

STUFE O
STAGE O

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.

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

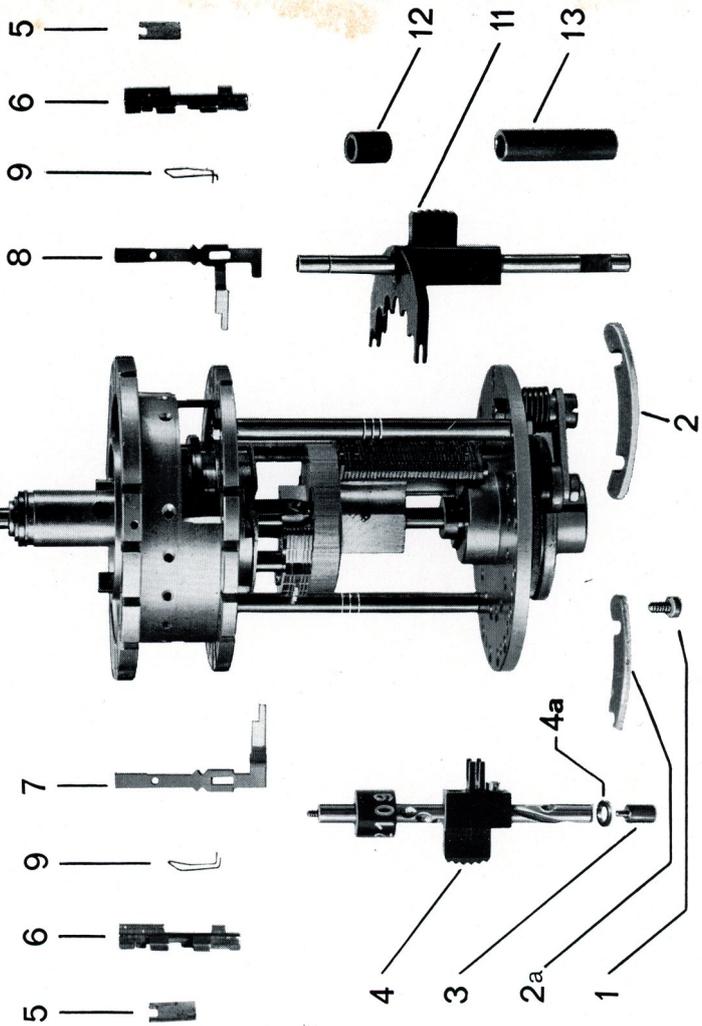
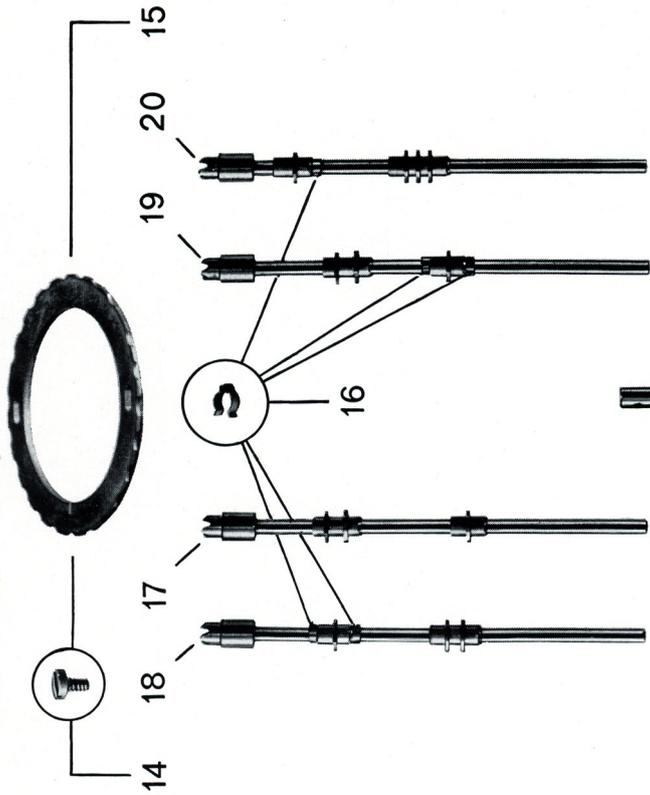
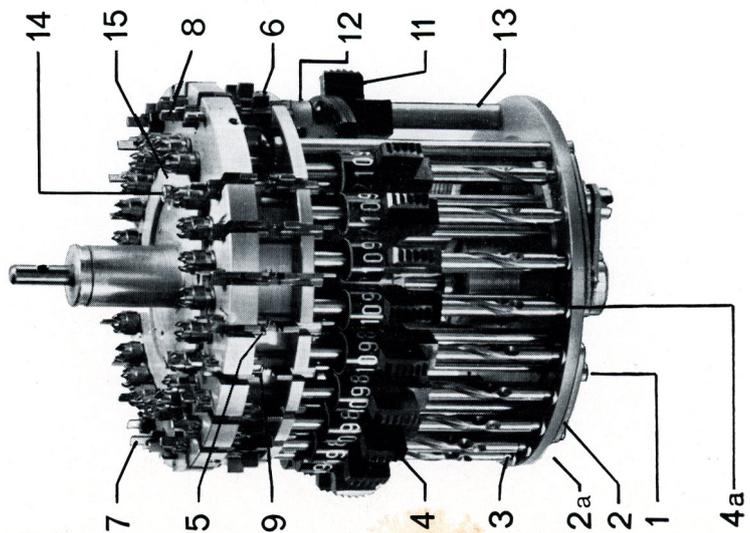
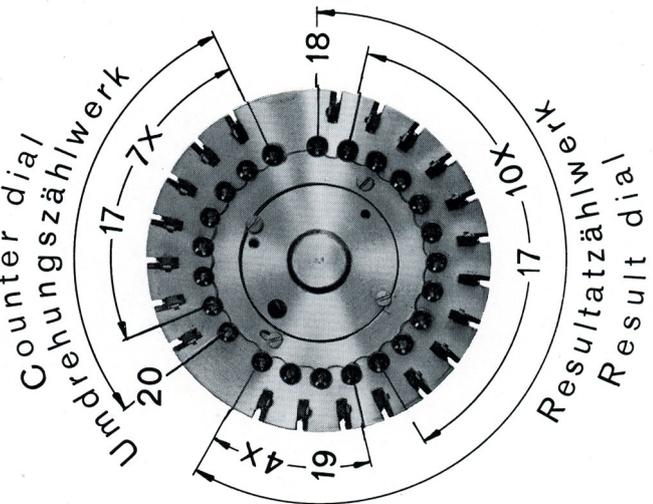
Warning

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.

Arrangement of transmission shafts

Anordnung der Treibelemente



Step	Sequence of dismantling	Requisite tools	Name	Specification for spare part orders		No. off
				Part No.	Part No. for earlier machines and special remarks	
1	Loosen screws only a little, because setting shaft plates have slots and can then be easily removed	screwdriver 2,5 mm	cyl. screw M 1,4 x 3	VAM 12124		6
2	Remove setting shaft plates		setting shaft plate	2101		2
2a	Setting shaft plate (short)		setting shaft plate (short)	2102		1
3	Push down setting shaft bearing pins with shaft and remove them		setting shaft bearing pin (various lengths, see re-mark)	2100-1	Lengths in mm: 3,63 3,69 3,75 3,81 3,66 3,72 3,78 3,84	11
4	Push setting shafts downward and take them out		setting shaft, complete	2533	10240-5 from mach. no. 500'001 to 510'520	11
4a	Washer		washer	2103		11
5	Supporting plate		supporting plate	2105-1		21
6	Take ten carry lever bearing blocks out of slots without tilting them (do not damage springs!)	special tool for tens carry over	ten carry lever bearing block	2106-3		21
7	Remove levers of result dial (RZ) from bearing blocks		ten carry lever RZ	2109-3	2109-1 mach. no. 500'001 to 510'520	14
8	Remove levers of counter dial (UZ) from bearing blocks		ten carry lever UZ	2108-2	2108 mach. no. 500'001 to 510'520	7
9	Take spring out of slot	tweezers	ten carry lever spring	2107-4		21
10	Curta Model II has no nut					
11	Push upward long sleeve step 13, turn apparent part of shaft by 90°; press reversing lever downward and remove in pulling outward	tweezers	reversing lever complete	2531		1

Step	Sequence of dismantling	Requisite tools	Name	Specification for spare part orders Part No. for earlier machines and special remarks	No. off
12	Small sleeve		lower reversing axle sleeve	2092	1
13	Long sleeve		upper reversing axle sleeve	2091	1
14	Only loosen screws lightly (do ^{not} unscrew completely)	screwdriver 1,5 mm	cyl. screw M 1,4 x 3	VSM 12124	4
15	Turn locking ring slightly anticlockwise (do not tilt machine, otherwise transmission shafts will fall out of their bearings)		locking ring for transmission shaft	2065	1
16	Circlip	tweezers	circlip for transmission shaft	10097-5	11
17	Take out transmission shafts (the gears should immediately be put back on their respective shafts)		transmission shaft I, complete	2525	17
18	Transmission shaft (like step 17)		transmission shaft II, complete	2526	1
19	Transmission shaft (like step 17)		transmission shaft III, complete	2527	4
20	Transmission shaft (like step 17)		transmission shaft IV, complete	2528	1

STUFE P
STAGE P

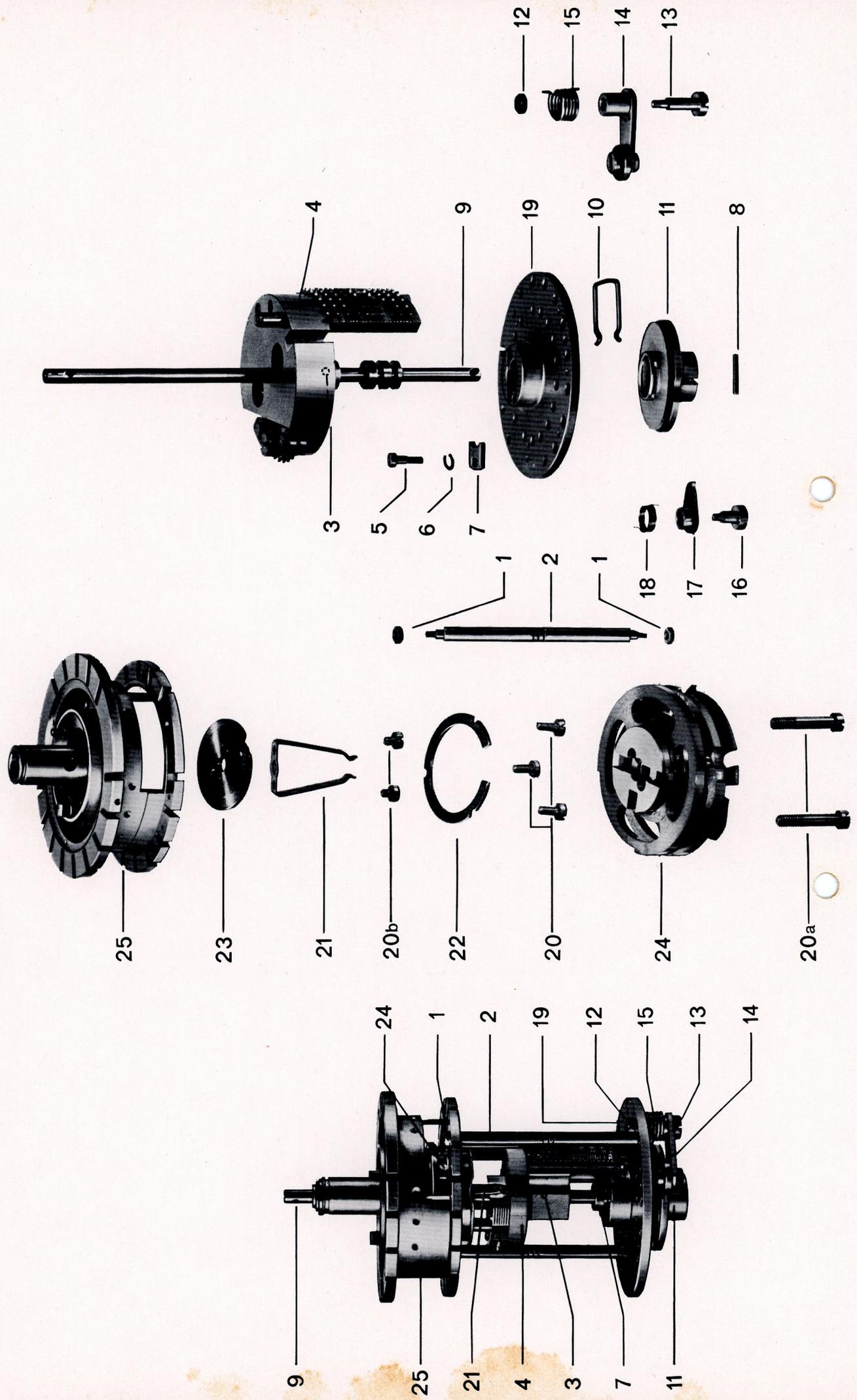
Vorsicht

Die Zahnsegmente der Stufenwalze (Pos.4) dürfen nicht demontiert werden.

Warning

The toothed segments of the step drum (Step 4) should not be dismantled.

P



Step	Sequence of dismantling	Requisite tools	Name	Specification for spare part orders		No. of off
				Part No.	Part No. for earlier machines and special remarks	
1	Nuts	fork spanner 3 mm	hexagon nut	2074	For oldermachines M 1,4	6
2	Support columns; if necessary straighten upper end of main shaft (see repair No. 2) then pull the entire lower part down		support column	2062-1	For older machines 2062 (corresponding to step 1)	3
3	Grooved pin				This pin may not be removed. For repair of the step drum the complete main shaft step 4 is to be sent to the factory	1
4	Complete main shaft with step drum		main shaft, complete	2507-4		1
5	Screw	screwdriver 3 mm	retaining screw for step drum positioning tongue	10015-6		1
6	Spring washer		spring washer	10152-2		1
7	Step drum positioning tongue		step drum positioning tongue	10010-6		1
8	Knock out pin	special block No. 109109; pin punch 0,9 mm	cyl. pin (various diameters, see remark)	2023-2	Diameters in mm: 1,48 1,49 1,50 1,51	1
9	Main shaft				For repair of this part the complete main shaft step 4 is to be sent to the factory	1
10	Push out spring		disc spring clip	10118-2		1
11	Zero positioning disc		zero positioning disc	2031-1		1
12	Nut	fork spanner 3,5 mm	hexagon nut	2074		1
13	Screw		shouldered screw for zero positioning lever	2035		1

St ep	Sequence of dismantling	Requisite tools	Name	Specification for spare part orders		No. off
				Part No.	Part No. for earlier machines and special remarks	
14	Zero positioner		zero positioner, complete	2512		1
15	Spring		zero pos. spring	2038		1
16	Screw for non return pawl	screwdriver 3 mm	shouldered screw for non return pawl	2042		1
17	Non return pawl		non return pawl, complete	2511-1		1
18	Spring		non return spring	10058-1		1
19	Lower main casting		lower main casting	2030-1		1
20	Screw	screwdriver 2,5 mm	cyl. screw M 1,4 x 3	VSM 12124		3
20a	Screw	screwdriver 3 mm	screw retaining	2053		2
20b	Screw	screwdriver 2,5 mm	cyl. screw M 1,4 x 1,6	VSM 12124		2
21	Spring		step drum positioning spring	10070-3		1
22	Retaining ring		retaining ring for tens carry unit	2052		1
23	Locking disc		lower locking disc	2051-4		1
24	Tens carry unit				For repair send to factory this whole part screwed together with steps 23 and 21	1
25	Main casting				For the exchange of this part the whole machine must be sent to the factory	1

STUFE Q
STAGE Q

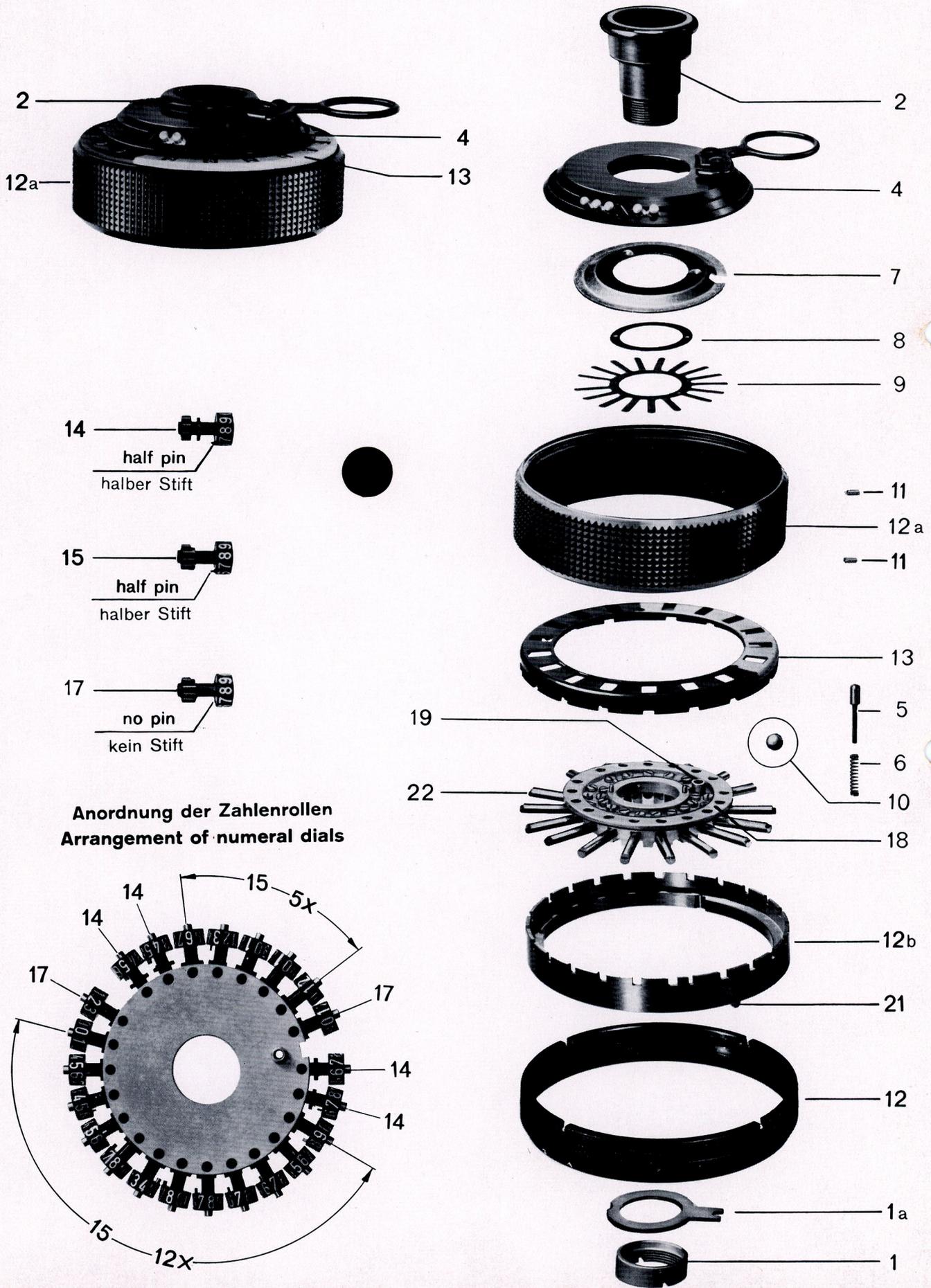
Vorsicht

Zum Ersetzen der Pos. 12a und 13 muss die ganze Maschine in die Fabrik gesandt werden.

Q

Warning

For replacement of Steps 12a and 13 the complete machine must be sent to the factory.

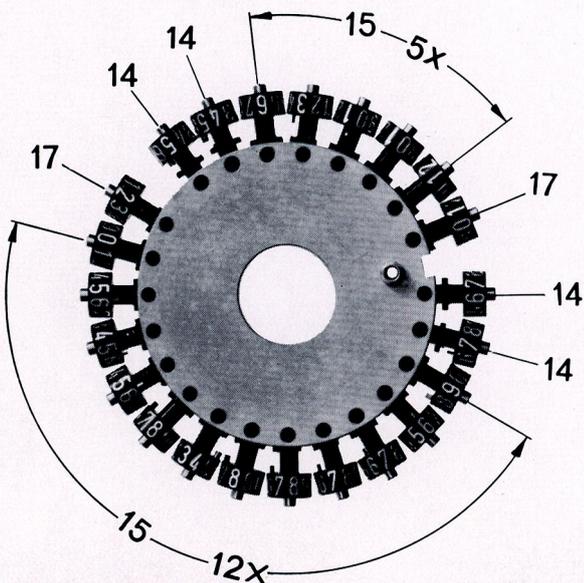


14 — half pin
halber Stift

15 — half pin
halber Stift

17 — no pin
kein Stift

Anordnung der Zahlenrollen
Arrangement of numeral dials

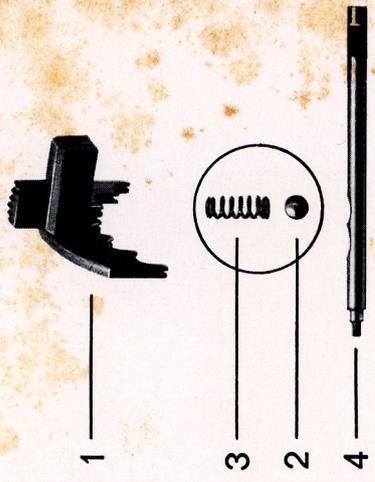


St ep	Sequence of dismantling	Requisite tools	Name	Part No.	Specification for spare part orders Part No. for earlier machines and special remarks	No. off
1	Nut	special key No. 20'2544'05	carriage holding nut	2164		1
1a	Upper carriage locking disc		upper carriage locking disc	2163		1
2	Push out sleeve (the carriage must be kept in an upright position, so that the balls do not fall out).	Expansion reamer Ø 9 mm (only needed for replacement of part)	main bearing sleeve complete	2547	Remark: when replacing adjust the sleeve on upper main casting with reamer (max. clearance = 0.02 mm)	1
3	Does not exist for Mod. II					
4	Clearing plate		clearing plate complete	2546-1	from mach. No. 500.001 to 510.520 part No. 2546	1
5	Plunger		clearing plate plunger	2133		1
6	Spring		clearing plate plunger spring	2132		1
7	Pressure disc		pressure disc (in various thicknesses)	2146-1	thickness in mm: 1,58 1,61 1,64 1,67	1
8	Washer		shim washer (various thicknesses)	2167	thickness in mm: 0,12 0,14 0,16 0,18 0,20 0,22 0,24 0,26 0,28	1
9	Spider spring		spider spring	2162		1
10	Balls		ball Ø 2 mm			23
11	Knock out lower taper pin from the inner side	pin punch 0,9	taper pin	2147	Remark: upper taper pin may not be removed	2
12	Unscrew threaded ring	special key No. 20'2544'05	threaded ring	2145		1
12a	Lift away carriage ring		carriage ring	2542		1
12b	Fixation ring		fixation ring	2543	fixation pin step 21 may not be removed	1

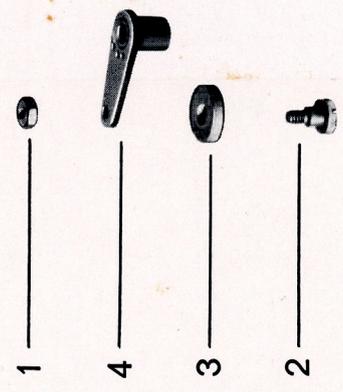
Step	Sequence of dismantling	Requisite tools	Name	Specification for spare part orders		No. of off
				Part No.	Part No. for earlier machines and special remarks	
13	Remove cage		carriage cage	2140-1		1
14	Remove numeral dials		numeral dial I	2540-1	2540 for mach. No. 500'001 to 510'520	4
15	Remove numeral dials (with half pin)		numeral dial II	2541-1	2541 for mach. No. 500'001 to 510'520	17
16	Does not exist for Mod. II					
17	Remove numeral dials (without pin)		numeral dial	2137-3	2137-2 for mach. No. 500'001 to 510'520	2
18	Carriage casting with shafts		carriage casting with shafts		order as " carriage casting with shafts"	1
19	Knock out spring housing	use pin punch # 2.8 and special block 109109	spring housing	2131		1
20	Does not exist for Mod. II					
21	Pin		fixation pin		May not be removed from step 12b	1
22	Numeral dial axles		numeral dial axles		If damaged the complete carriage casting step 18 must be sent to the factory	

STUFER
STAGER

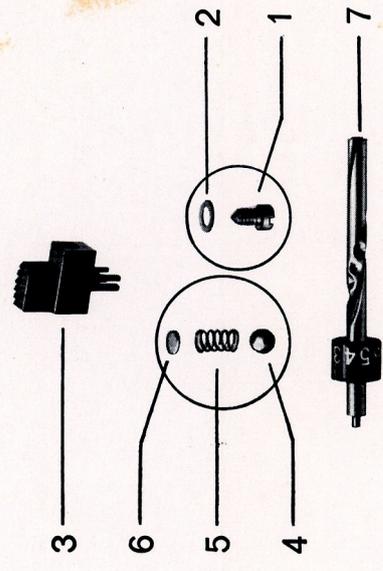
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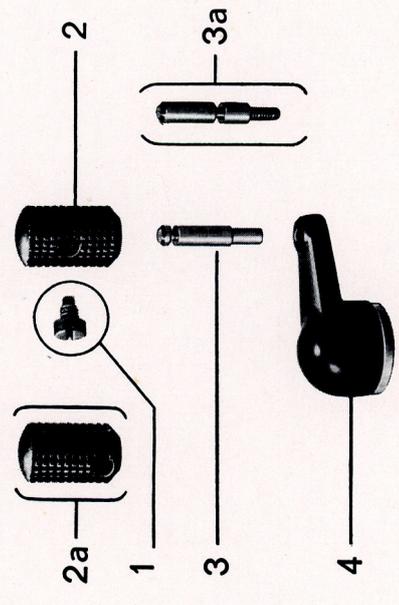
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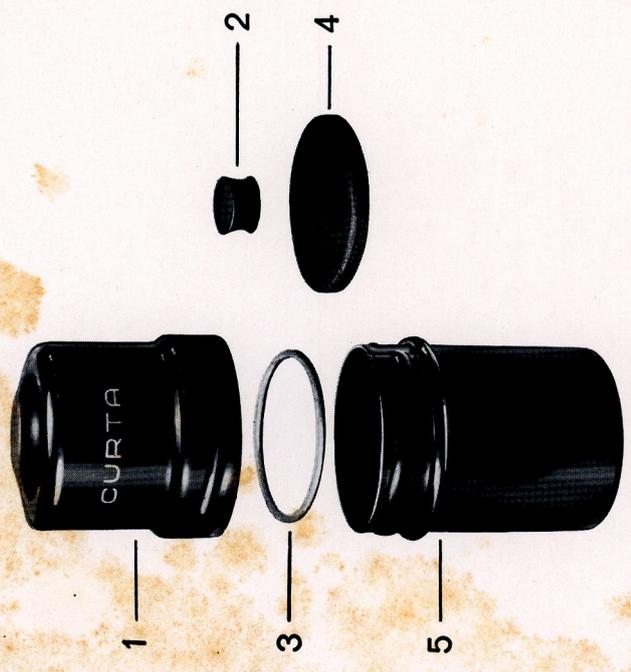
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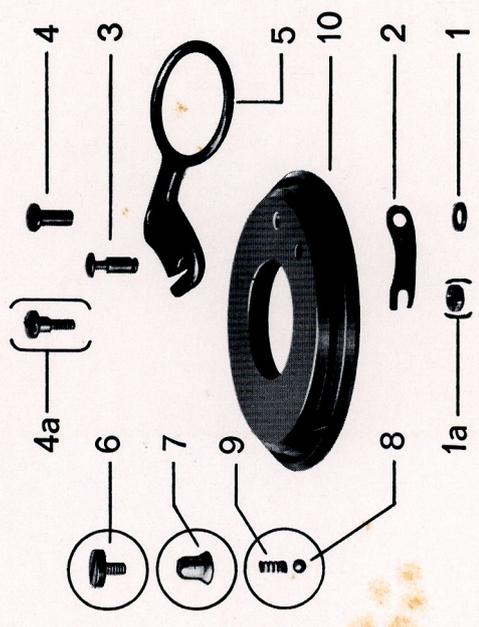
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I



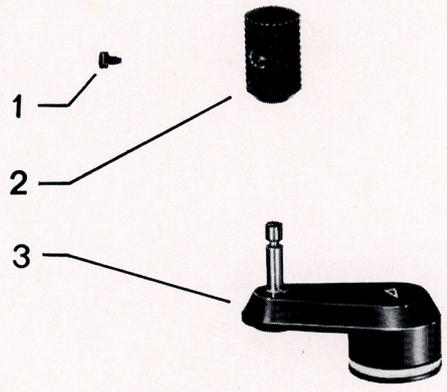
IV



STUFE R
STAGE R

Va

R



Step	Sequence of dismantling	Requisite tools	Name	Part No.	Specification for spare part orders Part No. for earlier machines and special remarks	No. off
	<u>Group I</u> (compl. container)		container compl.	2550-2		1
1	Lid		lid compl.	2551-3		1
2	Rubber cushion		rubber cushion, small	10131-4		1
3	Tightening ring		container tightening ring	2185		1
4	Rubber cushion		rubber cushion, large	2183		1
5	Base		container base	2180-2		1
	<u>Group II</u> (compl. setting knob) Warning: do not interchange parts amongst different setting knobs		setting knob compl.	2533	10240-5 for mach. No. 500'001 to 510'520	11
1	Screw	screwdriver 2 mm	guiding screw	10075-3		1
2	Shim		guiding screw shim (in various thicknesses)	10139	Thicknesses in mm: 0,6 0,8 0,10 0,12 0,14 0,16 0,18 0,20	1
3	Setting knob		setting knob		only complete setting knob No. 2533 can be supplied	1
4	Ball		ball ϕ 2 mm			1
5	Spring		setting knob spring	10073-5		1
6	Disc (this disc is used to adjust the pressure of the spring)		compensation disc (various thicknesses)	10146	Thicknesses in mm: 0,3 0,5 0,7	1
7	Shaft		setting shaft compl.		only complete setting knob No. 2533 can be supplied	1

Step	Sequence of dismantling	Requisite tools	Name	Part No.	Specification for spare part orders Part No. for earlier machines and special remarks	No. off
	<u>Group III</u> (compl. reversing lever)		reversing lever compl.	2531		1
1	Reversing lever		reversing lever	2532-1		1
2	Ball		ball ϕ 2 mm			1
3	Spring		reversing lever spring	10023-4		1
4	Axle		reversing lever axle	2086		1
	<u>Group IV</u> (compl. clearing plate)		clearing plate compl.	2546-1		1
1	Remove washer (drill out the rivet from the inside)	drill ϕ 2 mm	rivet washer	10094-2		1
2	Spring		flat spring	10033-6		1
3	Plunger		clearing lever posi- tioning plunger	2158-2		1
4	Rivet	pin punch ϕ 1,8	clearing lever rivet	2153		1
5	Take off clearing lever		clearing lever	2154		1
6	Screw	screwdriver 2 mm	retaining screw	2118-1		1
7	Take out decimal marker (mind ball and spring)		decimal marker	10046-4		6
8	Ball		ball ϕ 1 mm			6
9	Spring		decimal marker spring	10047-5		6
10	Clearing plate		clearing plate	2545-1	2545 for mach. No. 500'001 to 510'520	1

Step	Sequence of dismantling	Requisite tools	Name	Specification for spare part orders		No. off
				Part No.	Part No. for earlier machines and special remarks	
	<u>Group V</u> (compl. crank)		crank compl.	10245-2	2548 for mach. No. 500'001 to 517'872	
1	Screw	screwdriver 2,5 mm	crank handle fixing screw	10109-2		1
2	Handle		crank handle	10012-6	10012-5 for mach. No. 500'001 to 517'872. New type can replace old type, but not vice-versa.	1
3	Crank with pin	pin punch 1,8 mm (see remark)	crank with pin	10242	For mach. Nos. 500'001 to 517'872 pin replaceable; order crank without pin under No. 2170-4; order No. for pin 2171. Pin pressed into crank	1
	<u>Group VI</u> (complete zero positioner)		zero positioner compl.	2512-1		1
1	Nut	fork spanner 3,5 mm	hexagon nut	2074		1
2	Screw	screwdriver 3 mm	shouldered screw for zero positioner roller	2037-2		1
3	Roller		zero positioner roller	10112-4		1
4	Lever		zero positioner lever	2510		1

MONTAGE
REASSEMBLY

ASSEMBLY INSTRUCTIONS

Step N

Assembly in reverse order to dismantling.

Requisite tools which can be used o n l y for assembling:

tapered reamer ϕ 1,5
tapered reamer ϕ 1,27

for compl. crank see
also N 1-a/2

Remark:

The vertical play (carriage lock) of the carriage when the crank is out of zero position can be adjusted by choosing a suitable locking pin (N 1-a/8) which is supplied in various lengths.

Assembling the carriage:

Clearing plate in one of its two zero positions.
Pull out crank into minus position and turn to the right by approx. 20°. Now place the locking pin (broader rim downward) into the hole of the main casting until its stop. Place carriage so as to have the engraved numbering 13 to correspond approx with the backside arrow of the collar. Then the carriage must be turned to the left (= anticlockwise, when seen from above) and a slight stop will be felt (when the backside arrow points to numbering 15) - however the carriage must still be turned further, until the numbering 1 on the carriage edge corresponds to the first setting column.

By turning the main shaft into its zero position and simultaneously pressing the carriage downwards it will click into its correct position. Subsequently the carriage pressure spring (N 1-a/5) and the other parts can be assembled.

Step O

Assembly in reverse order to dismantling.

Requisite tools which can be used o n l y for assembling:

magnetic assembly tool for circlip 10'097-5, see
also O 2-a/16

Remark:

Same as for Curta Mod. I, however in place of the screw for tightening the tens carry lever bearing there is a supporting plate (O 1-a/5). Further more it is not necessary to adjust the distance "a" as shown for Curta Mod. I. (For reference purposes leaf F 2-a from the Curta Mod. I service manual is being joined to this leaf).

Step P

Assembly in reverse order to disassembling:

Requisite tools which can be used o n l y for assembling:

Assembly tool No. 109.114 for cyl. pin ϕ 1,5 x 10, see also P 1-a/8

Remarks:

When inserting cyl. pin ϕ 1,5 x 10 (step 8) the main shaft (step 4 and the zero positioning disc (step 11) must be in zero position. Use special block 109.109.

Step Q

Assembly in reverse order to disassembling.

Requisite tools which can be used o n l y for assembling.

Remarks:

Place into fixation ring (step 12b) the carriage casting with shafts (step 18) and mounted numeral dials; then put carriage cage (step 13) on it (c a u t i o n: knob of carriage cage must be placed into slot of the fixation ring). Now position carriage ring (step 12a) from above, so that the upper tapered pin fits into the same slot of the fixation ring as the knob of the carriage cage.

Carriage ring (step 12a) and threaded ring (step 12) to be screwed together until the two holes for the tapered pin (step 11) coincide.

STAGE R

Group II (complete setting knob)

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling.

Remarks:

The clearance of the guiding screw in the groove must be adjusted with the shim (Step 2). Leave very little play.

Disc (Step 6) serves for adjusting the pressure of the spring. There should be no perceptible difference in the setting of the knobs in the same machine.

Group III (complete reversing lever)

Reassemble in the reverse order to dismantling.

Group IV (complete clearing plate)

Reassemble in the reverse order to dismantling.

Requisite tools which can be used only for assembling.

Riveting tool No. 109108 for clearing lever rivet, see also R 2-a/IV/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. 109108)

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

Group V (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 also R 3-a/V/3.

Group VI (complete zero positioner)

Reassemble in the reverse order to dismantling.

For the other servicing operations please refer to chapters "Repairs, Cleaning, Oiling Chart, Inspection and Miscellaneous" of the service manual for Curta Model I. The trained service mechanic will have no difficulty in adapting the instructions contained therein to the slightly different design of Curta Model II.

STAGE B (continuation)
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, 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).

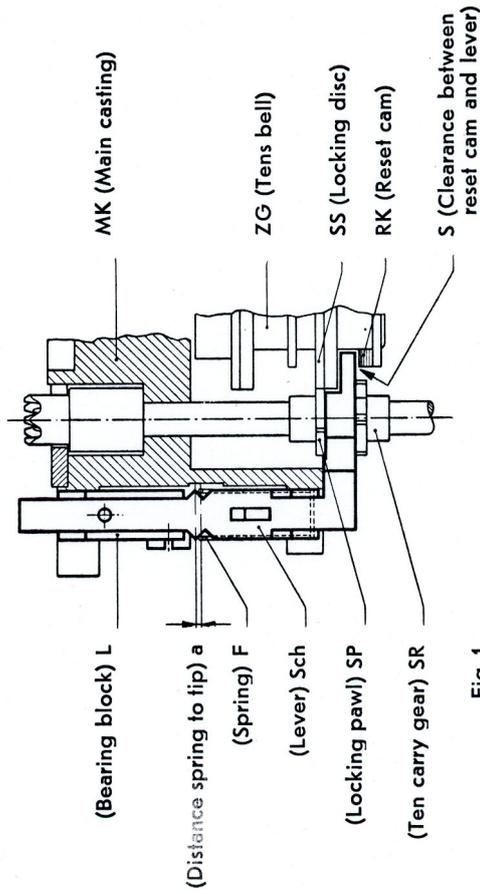


Fig. 1

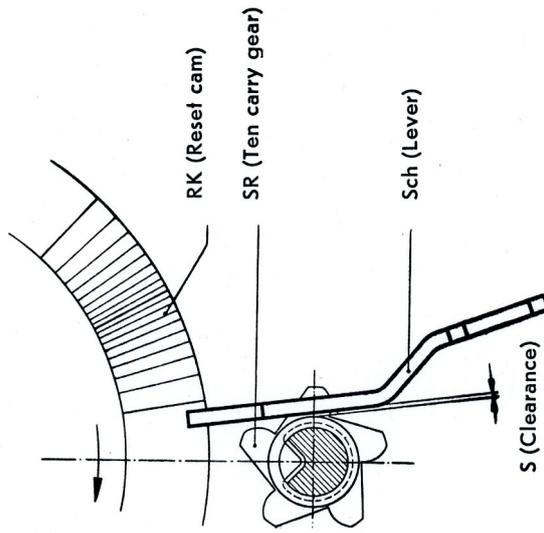


Fig. 2

REPARATUREN
REPAIRS

Special Tools - Assortment A II

for lighter repair work

Pie- ces	N a m e	Order No.	P r i c e Sw. Francs		U s e
			ea	total	
*1	Circlip pliers A 0	-		6.--	For circlip as under N 1-a/3
*1	Special block	109.109		12.--	Various jobs as under N1-a/1, P 1-a/8 and Q 2-a/19
*1	Riveting tool	109.108		12.--	Assembly of clearing lever rivet as under S 3-a/R/IV
*1	Vice jaw filling piece	109.115		8.--	Assembly of crank handle pin as under S 3-a/R/V
*1	Fork spanner 3 x 3,5	-		2.--	Nut 1,4 as under P 1-a/12, R 3-a/VI/1
*1	Pin punch holder	-		2.50	
*5	Pin punch inserts ϕ 0,9	-	-0.10	-0.50	Dismantling of crank as under N 1-a/1, P 1-a/8 and Q 1-a/11
*1	Pin punch ϕ 1,8	-		1.20	Removal of clearing lever rivet as under R 2-a/IV/4 and R 3-a/V/3
*1	Tapered reamer ϕ 1,5	-		0.50	Assembly complete crank as under S 1-a/N
*1	Tapered reamer ϕ 1,27	-			
*2	Drills ϕ 2	-	1.20	2.40	Hole for clearing lever rivet as under R 2-a/IV/1
*1	Oiler needle	-		0.80	Oiling of various parts
*1	small bottle special oil (Möbius No. 4)	-		3.--	
*1	Pin punch ϕ 1,4	-		1.20	Dismantling of crank as under N 1-a/1
1	Special key	20'2544'05		1.80	Dismantling counting mechanism as under Q 1-a/1 and Q 1-a/12
	Total			53.90	

*) These tools are already
in the special tools
assortment A which is
supplied for Curta
model I.

Special Tools - Assortment B II

for lighter and heavier repair work

Pie- ces	N a m e	Order No.	P r i c e		U s e
				Sw. Francs	
*1	Circlip pliers A 0	-		6.--	For circlips as under N 1-a/3
*1	Special block	109.109		12.--	Various jobs as under N 1-a/1, P 1-a/8 and Q 2-a/19
*1	Riveting tool	109.108		12.--	Assembly of clearing lever rivet as under S 3-a/R/IV
*1	Vice jaw filling piece	109.115		8.--	Assembly of crank handle pin as under S 3-a/R/V. Straightening of main shaft
*1	Fork spanner 3 x 3,5	-		2.--	Nut 1,4 as under P 1-a/12, R 3-a/VI/1
*1	Pin punch holder	-		2.50	
*5	Pin punch inserts ϕ 0,9	-	- .10	- .50	Dismantling of crank as under N 1-a/1, P 1-a/8 and Q 1-a/11
*1	Pin punch ϕ 1,8	-		1.20	Removal of clearing lever rivet as under R 2-a/IV/4, R 3-a/V/3
*1	Tapered reamer ϕ 1,5	-		- .50	Assembly complete crank as under S 1-a/N
*1	Tapered reamer ϕ 1,27	-		- .50	
*1	Oiler needle	-		- .80	Oiling of various parts
*1	Small bottle special oil (Möbius No. 4)			3.--	
*1	Pin punch ϕ 1,4	-		1.20	Dismantling of crank as under N 1-a/1
*1	Machine reamer ϕ 2.02	-		4.--	Reaming of various holes ϕ
*1	Magnetic assembly tool	109.128		1.--	For circlip 10097-5 as under S 1-a/0
1	Assembly tool	109.114		1.20	For cyl. pin ϕ 1,5 x 10 as under S 2-a/P
1	Expansion reamer ϕ 9	-		13.--	Main bearing sleeve as under Q 1-a/2
1	Dismantling tool for tens carry over	-		2.--	Ten carry lever bearing block as under Q 1-a/6
2	Drills ϕ 2	-	1.20	2.40	Hole for clearing lever rivet as under R 2-a/IV/1
1	Special key	20°2544°05		1.80	Dismantling counting mechanism as under Q 1-a/1 and Q 1-a/12
1	Dressing tool for revolu- tion counter		1.50	1.50	
1	Dressing tool for result counter		3.--	3.--	reset cam
	Forward			80.10	

Special Tools - Assortment B II
for lighter and heavier repair work

Pie- ces	N a m e	Order No.	P r i c e Sw. Francs		U s e
			ea	total	
	Forward			80.10	
1	caliber gauge 0.10		-.50	-.50	play between tens carry lever and tens carry gear
1	caliber gauge 0.05		-.50	-.50	
	Total			81.10	
<p>* These tools are already included in the special tools assortment B which is supplied for CURTA model I.</p>					

CURTA MODEL II - SPARE PARTS - ASSORTMENT A

for lighter repair work

For orders it is essential to refer to the order numbers in the service manual, because the remarks under heading "Specification for spare part orders" must be taken into account.

Part No.	Item	Quantity	Price p. piece		Total price		Refer to service manual pages:
			Sw.	Frs.	Sw.	Frs.	
2°037	shouldered screw for zero positioner roller	10	-	15	1.	50	R 3-a/VI/2
2°042	shouldered screw for non return pawl	2	-	05	-	10	P 2-a/16
2°100	setting shaft bearing pin	5	-	05	-	25	O 1-a/3
2°103	washer	5	-	05	-	25	O 1-a/4a
2°110	cyl. screw for collar	5	-	05	-	25	N 1-a/9
2°122	locking pin (various sizes)	8	-	30	2.	40	N 1-a/8
2°131	spring housing	3	-	05	-	15	Q 2-a/19
2°132	clearing plate plunger spring	5	-	05	-	25	Q 1-a/6
2°133	clearing plate plunger	5	-	25	1.	25	Q 1-a/5
2°153	clearing lever rivet	5	-	05	-	25	R 2-a/IV/4
2°154	clearing lever	5	-	60	3.	—	R 2-a/IV/5
2°158	clearing lever positioning plunger	5	-	05	-	25	R 2-a/IV/3
2°162	spider spring	5	-	15	-	75	Q 1-a/9
2°165	carriage pressure spring	3	-	10	-	30	N 1-a/5
2°168	circlip	5	-	15	-	75	N 1-a/3
2°170	crank (old type)	2	1.	30	3.	60	R 3-a/V/3
2°183	rubber cushion, large	2	-	35	-	70	R 1-a/I/4
2°185	container tightening ring	5	-	30	1.	50	R 1-a/I/3
10°012	crank handle	3	-	60	1.	80	R 3-a/V/2
10°023	reversing lever spring	5	-	05	-	25	R 2-a/III/3
10°033	flat spring	5	-	05	-	25	R 2-a/IV/2
10°046	decimal marker	11	-	05	-	55	R 2-a/IV/7
10°047	decimal marker spring	11	-	05	-	55	R 2-a/IV/9
10°058	non return spring	2	-	10	-	20	P 2-a/18
10°073	setting knob spring	10	-	05	-	50	R 1-a/II/5
10°094	rivet washer	5	-	05	-	25	R 2-a/IV/1
10°097	circlip for transmission shaft	20	-	05	1.	—	O 2-a/16
10°109	crank handle fixing screw	3	-	05	-	15	R 3-a/V/1
10°112	zero positioner roller	3	-	15	-	45	R 3-a/VI/3
10°131	rubber cushion, small	5	-	10	-	50	R 1-a/I/2
	forward balance				23.	95	

CURTA MODEL II - SPARE PARTS - ASSORTMENT A

Part No.	Item	Quantity	Price p. piece		Total price		Refer to service manual pages:
			Sw.	Frs.	Sw.	Frs.	
	forward balance				23.	95	
10'242	crank with pin	4	quotation upon request				R 3-a/V/3
	cyl. screw M 1,4 x 3	5	-.	02	-.	10	O 1-a/1, O 2-a/14
	countersunk screw M 2 x 20/6	10	-.	02	-.	20	N 1-a/11
	ball ϕ 1 mm	11	-.	05	-.	55	N 2-a/18, R 2-a/IV/8 R 2-a/III/2
	ball ϕ 2 mm	20	-.	05	1.	--	R 2-a/III/2, R 1-a/II/4 Q 1-a/10
2'533	setting shaft, complete	5	2.	20	11.	--	O 1-a/4
	T o t a l				36.	80	without crank

CURTA MODEL II - SPARE PARTS - ASSORTMENT B

for heavier repair work

For orders it is essential to refer to the order numbers in the service manual, because the remarks under heading "Specification for spare part orders" must be taken into account.

Part No.	Item	Quantity	Price p. piece Sw. Frs.	Total price Sw. Frs.	Refer to service manual pages:
2'023	cylindrical pin	20	-. 10	2. --	P 1-a/8
2'031	zero positioning disc	10	1. 35	13. 50	P 1-a/11
2'035	shouldered screw for zero positioning lever	5	-. 10	-. 50	P 1-a/13
2'037	shouldered screw for zero positioner roller	10	-. 15	1. 50	R 3-a/VI/2
2'038	zero pos. spring	10	-. 15	1. 50	P 2-a/15
2'042	shouldered screw for non return pawl	5	-. 05	-. 25	P 2-a/16
2'053	screw retaining	5	-. 05	-. 25	P 2-a/20a
2'062	support column	10	-. 25	2. 50	P 1-a/2
2'065	locking ring for transmission shaft	3	-. 15	-. 45	O 2-a/15
2'100	setting shaft bearing pin	20	-. 05	1. --	O 1-a/3
2'101	setting shaft plate	3	-. 05	-. 15	O 1-a/2
2'102	setting shaft plate (short)	3	-. 10	-. 30	O 1-a/2
2'103	washer	20	-. 05	1. --	O 1-a/4a
2'105	supporting plate (ten carry lever)	50	-. 05	2. 50	O 1-a/5
2'106	ten carry lever bearing block	20	-. 45	9. --	O 1-a/6
2'107	ten carry lever springs	100	-. 10	10. --	O 1-a/9
2'108	ten carry lever UZ	20	-. 30	6. --	O 1-a/8
2'109	ten carry lever RZ	40	-. 30	12. --	O 1-a/7
2'110	cylindrical screw (collar)	30	-. 05	1. 50	N 1-a/9
2'111	collar	1	2. 60	2. 60	N 1-a/10
2'118	retaining screw (anodized)	10	-. 05	-. 50	N 2-a/16
2'122	locking pin (various sizes)	20	-. 30	6. --	N 1-a/8
2'131	spring housing	10	-. 05	-. 50	Q 2-a/19
2'132	clearing plate plunger spring	20	-. 05	1. --	Q 1-a/6
2'133	clearing plate plunger	20	-. 25	5. --	Q 1-a/5
2'137	numeral dial	10	-. 90	9. --	Q 2-a/17
2'147	taper pin	20	-. 05	1. --	Q 1-a/11
2'153	clearing lever rivet	50	-. 05	2. 50	R 2-a/IV/4
2'154	clearing lever	40	-. 60	24. --	R 2-a/IV/5
	forward balance			118. --	

CURTA MODEL II - SPARE PARTS - ASSORTMENT B

Part No.	Item	Qu- an- tity	Price		Total		Refer to service manual pages:
			p. Piece	Sw. Frs.	price	Sw. Frs.	
	forward balance				118.	--	
2'158	clearing lever positioning plunger	20	-	05	1.	--	R 2-a/IV/3
2'162	spider spring	20	-	15	3.	--	Q 1-a/9
2'163	upper carriage locking disc	3	-	10	-	30	Q 1-a/1a
2'164	carriage holding nut	4	-	25	1.	--	Q 1-a/1
2'165	carriage pressure spring	10	-	10	1.	--	N 1-a/5
2'166	retaining bush (for fitting see section "dismantling" N 1-a/4) description in service manual	5	-	15	-	75	N 1-a/4
2'167	shim washer (various thick- nesses)	10	-	05	-	50	Q 1-a/8
2'168	circlip	20	-	15	3.	--	N 1-a/3
2'171	crank handle pin (for older type)	40	-	05	2.	--	
2'183	rubber cushion, large	5	-	35	1.	75	R 1-a/I/4
2'185	container tightening ring	10	-	30	3.	--	R 1-a/I/3
10'010	step drum positioning tongue	3	-	10	-	30	P 1-a/7
10'012	crank handle	8	-	60	1.	80	R 3-a/V/2
10'015	retaining screw for step drum positioning tongue	5	-	05	-	25	P 1-a/5
10'023	reversing lever spring	5	-	05	-	25	R 2-a/III/3
10'033	flat spring	5	-	05	-	25	R 2-a/IV/2
10'046	decimal marker	11	-	05	-	55	N 2-a/17, R 2-a/IV/7
10'047	decimal marker spring	11	-	05	-	55	N 2-a/19, R 2-a/IV/9
10'058	non return spring	2	-	10	-	20	P 2-a/18
10'070	step drum positioning spring	2	-	10	-	20	P 2-a/21
10'073	setting knob spring	10	-	05	-	50	R 1-a/II/5
10'094	rivet washer	5	-	05	-	25	R 2-a/IV/1
10'097	circlip for transmission shaft	20	-	05	1.	--	O 2-a/16
10'109	crank handle fixing screw	3	-	05	-	15	R 3-a/V/1
10'112	zero positioner roller	3	-	15	-	45	R 3-a/VI/3
10'118	disc spring clip	3	-	15	-	45	P 1-a/10
10'131	rubber cushion, small	5	-	10	-	50	R 1-a/I/2
10'152	spring washer for step drum tongue	5	-	05	-	25	P 1-a/6
*10'156	container shield	5	-	15	-	75	
	forward balance				143.	95	
	* fixing instructions: see separate leaf						

CURTA MODEL II - SPARE PARTS - ASSORTMENT B

Part No.	Item	Quantity	Price p. piece Sw. Frs.	Total price Sw. Frs.	Refer to service manual pages:
	forward balance			143. 95	
10'242	crank with pin	4	quotation upon request		R 3-a/V/3
10'245	crank complete	4	quotation upon request		N 1-a/2, R 3-a/V
	cyl. screw M 1,4 x 1,6	50	-. 02	1. --	P 2-a/20b
	cyl. screw M 1,4 x 3	30	-. 02	-. 60	O 1-a/1, O 2-a/14
	countersunk screw M 2 x 20/6	50	-. 02	1. --	N 1-a/11
	hexagon nut M 1,4 (older type) (support columns)	20	. 02	-. 40	P 1-a/1
	hexagon nut M 2 (older type) (reversing lever)	50	-. 02	1. --	
	taper pin 1 x 14	10	-. 02	-. 20	N 1-a/1
	taper pin 1,5 x 12	50	-. 02	1. --	N 1-a/1
	ball ϕ 1 mm	30	-. 05	1. --	N 2-a/18, R 2-a/IV/8
	ball ϕ 2 mm	20	-. 05	1. --	Q 1-a/10, R 1-a/II/4, R 2-a/III/2
2'507	complete main shaft	2	9. --	18. --	P 1-a/4
2'511	non return pawl, complete	5	-. 50	2. 50	P 2-a/17
2'512	zero positioner complete	5	1. --	5. --	P 2-a/14
2'513	tens carry unit, complete	2	9. --	18. --	
2'525	transmission shaft I, complete	10	2. --	20. --	O 2-a/17
2'526	transmission shaft II, compl.	5	2. --	10. --	O 2-a/18
2'527	transmission shaft III, compl.	5	2. --	10. --	O 2-a/19
2'528	transmission shaft IV, compl.	5	2. --	10. --	O 2-a/20
2'531	reversing lever, complete with axle	3	2. 25	6. 75	O 1-a/11, R 2-a/III
2'532	reversing lever, complete without axle	2	quotation upon request		
2'533	setting shaft, complete	5	2. 20	11. --	O 1-a/4
2'536	housing, complete	1	12. --	12. --	N 1-a/13
2'540	numerial dial I	10	1. 50	15. --	Q 2-a/14
2'541	numerial dial II	10	1. --	10. --	Q 2-a/15
2'546	clearing plate, complete	2	9. --	18. --	Q 1-a/4, R 2-a/IV
2'547	main bearing sleeve, complete	2	1. 80	3. 60	Q 1-a/2
2'548	complete crank (old type)	4	4. --	16. --	
2'550	container, complete	1	9. --	9. --	R 1-a/I
	Total			346. --	without crank and reversing lever

Fixing instructions for container metal-cal shield part no. 10156

Preparation:

1. Dip metal-cal shield 6 seconds or a bit longer into tepid water or place 3 minutes on wet blotting paper.
2. Wipe off excessive water preferably with blotting paper.
3. Remove transparent protective leaf from back side without touching adhesive surface.

Fixation:

1. Place immediately on container lid surface which must be smooth, clean and dry.
2. Exert strong pressure with finger or a rubber roll. Be careful to avoid air bubbles under the shield.

Metal-cal cannot be removed without seriously damaging container lid.

