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It is my hope that you find the file of use to you personally – I know that I would have liked to have found some of these files years ago – they would have saved me a lot of time !

Colin Hinson
In the village of Blunham, Bedfordshire.

SIEMENS

TELEPRINTER 100

Service Manual

A22211-A100-A1-2-7630

valid from

Serial No 300000

Ordering No. D 221/121.30.101

SIEMENS AKTIENGESELLSCHAFT

Allgemeines

General

Généralités

Generalidades

Generalidades

Contents


SIEMENS

This manual contains operating and adjustment instructions, maintenance notes and the parts list for the Model 100 Teleprinter operating at a telegraph speed of 50 bauds.

It covers machines as from serial number (F.-No.) 300 000.

The telex version of the Model 100 Teleprinter is a send/receive teleprinter protected by a Desk Model Cover 130 with governed asynchronous motor.

It also contains:	two-color printing feature built-in remote control unit NL
and if required:	tape punch tape transmitter 86

A detailed description of the Model 100 Teleprinter with the above-mentioned attachments and accessory features is to be found in the manual A22211-A100-A1-*-7618.

Ordering No. D221/121.18.101

Every teleprinter is accompanied by an operator's manual A22211-A100-A1-*-7619.

Ordering No. D221/121.19.101

If required, the above-mentioned manuals may be ordered from:

Siemens AG
D Fs Schrifttum

D-8000 München 70
Postfach 700072
West Germany

Details regarding supplementary features or special versions not contained in this service manual must be taken from special brochures.

The illustrations and text of this service manual may differ slightly from the machine delivered. However, these differences have no bearing on removal and replacement of parts, adjustments and maintenance.

1. Contents of the individual chapters:

Chapter II - Installation servicing

Contains details on connecting the teleprinter, inserting the paper, installing the ink ribbon and adjusting the line spacing. Also details on coding the answerback drum and adjusting the range finder. The meaning of the key symbols is explained and the electrical equipment is described.

Chapter III - Complete teleprinter

Explains the removal and replacement of the major assemblies, the adjustments after installation and the mechanical and electrical functional tests.

Chapter IV - Assemblies

The exploded views show all individual parts and their arrangement in the assemblies.
Adjustments and checks are described.
The spring chart enables springs to be identified after removal and replaced in the correct position.

Chapter V - Circuits

Contains overall circuit diagrams and wiring diagrams for the power circuit and telegraph circuit as well as explanations of the wiring diagrams.
The Ordering Nos. of electric parts not included in the parts list are listed in this chapter.

Chapter VI - Maintenance

Cleaning agents and lubricants are detailed here. Installation servicing and routine maintenance per 1000 maintenance units are described. Recommendations are also made for the general overhaul after 10 000 maintenance units. Illustrations show the oiling and greasing points.

Chapter VII - Parts list

The parts list includes all parts contained in the teleprinter and illustrated in the exploded views. They are arranged according to consecutive Nos. and Ordering Nos. The consecutive Nos. are the same as those given in the exploded views. Electric parts not included in the parts list are listed in Chapter V.

Chapter VIII - Supplements to the service manual

2. Meaning of symbols in text and figures

≈	approx.: 25 % deviations from given value are permissible
>	greater than
≧	equal to or greater than
<	less than
≦	equal to or less than

3. Identification of parts, adjustments and tests in text

Examples:

Lever 445/18
- 18 — No. of Fig in which part is illustrated
- 445 — Consecutive No. of part
- Lever — Designation of part

Lever 445/18, 24, 35
- 24, 35 — Nos. of other Figs. showing the same part (e.g. from another angle).

Lever 445
- (no Fig. No.) — If Fig. No. omitted, last No. given in text applies.

Lever 445 (571, 637)/18
- 571, 637 — Additional consecutive Nos. of parts which in special versions of the machine replace the part first mentioned.

Consecutive Nos. in text and Figs. may not be used for ordering.
Only the Ordering Nos. given in parts list, Chapter VII, are to be used for this purpose.

A18
- A — Consecutive No. of an adjustment

D19
- D — Consecutive No. of a test, which enables either a point of contact or a spring force to be checked as required.

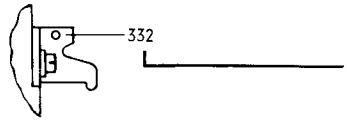
For greater clarity, the adjustments and tests are numbered consecutively and listed in the order in which they are best performed.

4. Identification numbers and symbols in the figures

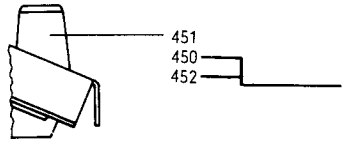
The figures include photographs, exploded views and technical drawings.

4.1. Photographs and technical drawings

Examples:



Consecutive No. of the part

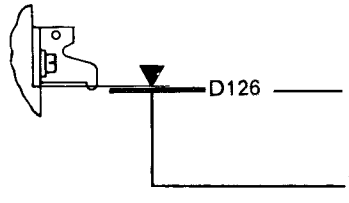


Consecutive Nos. of parts not visible

4.2. Technical drawings

Examples:

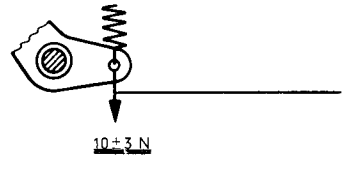
Consecutive No. of an adjustment referring to the explanatory text.



Consecutive No. of a test referring to the explanatory text.

Point of contact. The part must be in contact with the designated point before the adjustment or test described may be performed.

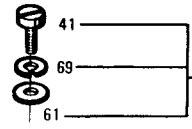
Bending adjustment. Adjustments involving the bending of parts may be performed only at the marked points.



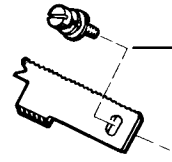
Force, to be measured in the direction of the arrow at the point at which the force is exerted (or at the point of the arrow).

4.3. Exploded views

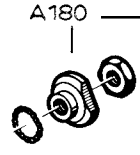
Examples:



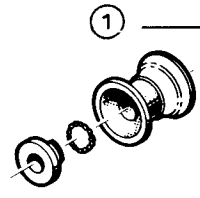
Consecutive numbers, by means of which Ordering Nos. and designations may be traced in the parts list, Chapter VII



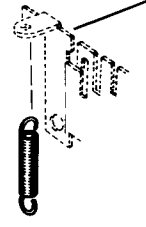
Guide lines show the assignment of individual parts and the order of assembly



Numbers of the adjustments indicate the part to be adjusted and are explained in Chapter IV.



Instructions for installation or removal are on the left-hand page opposite the exploded view.



Parts shown in dotted lines are illustrated and identified with consecutive Nos. in another place or on another page.

5. Unit of force

In this manual forces are given in the SI unit "Newton (N)" of the "Système Internationale d'Unités".

The SI unit "Newton (N)" replaces the previously used unit of force "Kilogram-force (kgf)".

1 Kilogram-force (kgf) $\triangleq$ 9 80665 Newton (N)

Thus the forces given in this manual may be reckoned as follows:

1 Kilogram force (kgf) $\approx$ 10 Newton (N)
100 gram-force (gf) $\approx$ 1 Newton (N)

Screws marked with varnish should not be loosened, as they enable assemblies or individual parts to be removed or replaced without adjustments or indicate adjustments which must be performed with adjusting gauges.

If screws marked in this way are loosened, readjustment is absolutely necessary.

Betrieb

Installation servicing

Fonctionnement

Funcionamiento

Funcionamento

Contents

Meaning of the symbols on the keys

Keyboard:

A...	Letters shift
1...	Figures shift
Unlettered:	Space bar
	Trips answerback unit in called station
	Bell
	Carriage return
	Line feed
	Code combination No. 32 (Since this key is only used in domestic traffic it may be blocked or omitted from the keyboard)

Special function key bank:

....	Run-out (repeat) key
	Trips answerback unit in calling station
	Switches internal illumination on/off

Tape punch attachment:

	Switch on
	Switch off
L	Insert or remove paper tape
R	Backspace paper tape

Tape reader attachment 86:

	Switch on
	Switch off

Built-in remote control unit:

	Calling button
	Clearing button
	Off-line button
	Call signalization cancel button

Placing in service

1. Electric equipment of the teleprinter

The Model 100 teleprinter is equipped with a governed asynchronous motor for 220 V/50 Hz. A contact governor holds the operating speed constant at n = 2500 r/min.

If required, however, a commutator or synchronous motor may be installed.

To protect the windings the motors are fitted with a thermo-contact switch. This switch interrupts the motor circuit when the motor becomes excessively hot and does not close the circuit again until the motor has cooled down.

The coil of the teleprinter selector magnet has a resistance of 75 ohms and an inductance of 1 henry. It is connected in series with an additional inductance coil of 125 ohms and 2.5 henries.

The teleprinter is fitted with a high-grade RF suppressor. RF suppression capability fulfills the requirements for grade "K" as laid down in the German Standard VDE 0875 (VDE = Association of German Electrical Engineers).

The interference voltage is measured in the frequency range 0.15 MHz to 30 MHz. For example, at 10 MHz the voltage is 25 µV. In the VHF range the strength of the interference field is measured, e.g. in the frequency range 30...300 MHz 40 µV/m at a distance of 10 m.

2. Connecting the teleprinter

Before placing the teleprinter in service for the first time, re-oil it as described in Chapter VI, Section 3.1.

Before connecting the equipment to the power line check whether operating voltage and frequency coincide with those of the mains. The data must be taken from the motor rating plate on the mounting frame. Insert the plug of the power cable only in a grounded socket.

If the teleprinter is to be checked before connection to the telegraph network, this may be done with testing equipment whose wiring is shown in Chapter III, Section 4, Fig. 22.

The teleprinter is connected to the telegraph network via the exchange, which also adjusts the telegraph current.

The wiring of the telegraph socket is shown in Chapter III, Section 4, Fig. 23.

3. Inserting the page printer paper

The page printer paper must conform to DIN standard 6720, Page 1. If required, a list of paper suppliers can be supplied.

Lift up the lid of the desk model cover until the lid stays latch on both sides.
Remove paper roll axis 723/1,2.

Fix wire clip 1145/1 in position as follows:

roll width 216	mm in groove B
roll width 209.5	mm in groove B
roll width 199	mm in groove C
roll width 102	mm in groove D
roll width 105	mm in groove D
roll width 145	mm in groove D
fan-fold paper	in groove A

Insert paper roll axle 723 into paper roll as shown in Fig. 2. The paper roll should rest on wire clip 1145.

Fit paper roll axle 723/1 with annular extension E in the groove of the left paper roll support in the desk model cover. If the diameter of the paper roll is 120 to 170 mm the rear groove F (Fig. 3) of the roll support must be used.

Feed the paper over pull relieve rod 1164/3, between paper saddle 567 and rod 364 and forward under the platen. Wind the paper round the platen with knob. Swing lever 223/4 backwards as shown in Fig. 4. Align the paper. Push lever 223 forward again, tear off paper and close lid. The paper runs out of the teleprinter automatically.

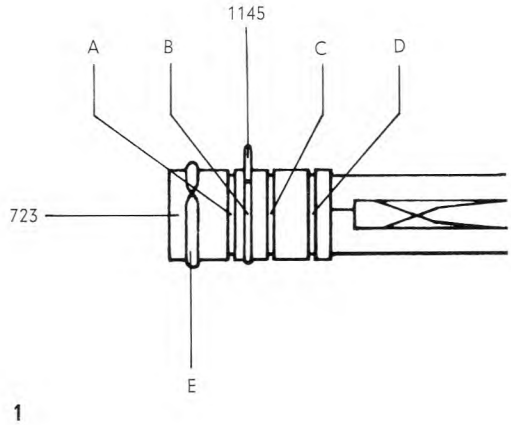
The printing impact has been factory adjusted for single-web paper. If multi-web paper rolls are used, after loosening pan head screw 33/6 and moving lever G the printing impact can be increased.

4. Changing the ink ribbon

Lift up lid of desk model cover. Grasp paper saddle 567/3 from below, press it up until it unlatches and swing it forward.

Push retaining plates 527/4 in the direction of the arrow and pull the two ribbon spools upwards from their axles. Remove ink ribbon from the guides and ribbon lifter 519/5. Attach the end of the new ink ribbon to the empty spool (note direction of winding). Push the two spools onto the axles in such a way that they engage in the driver pins. Return plates 527/4 to the retaining position. Insert the ink ribbon in the guides and the ribbon lifter as shown in Fig. 5. If a two-color ribbon is used, the red part must be at the bottom.

Press paper saddle 567/3 down and latch.



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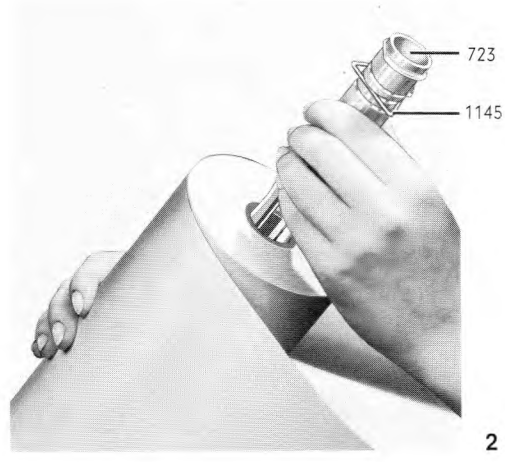

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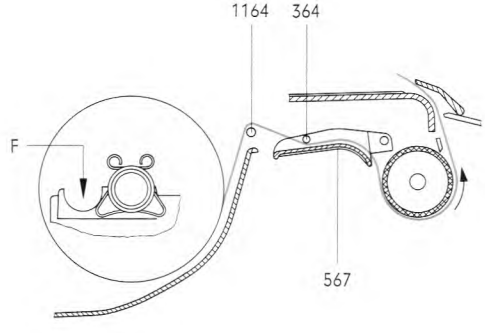

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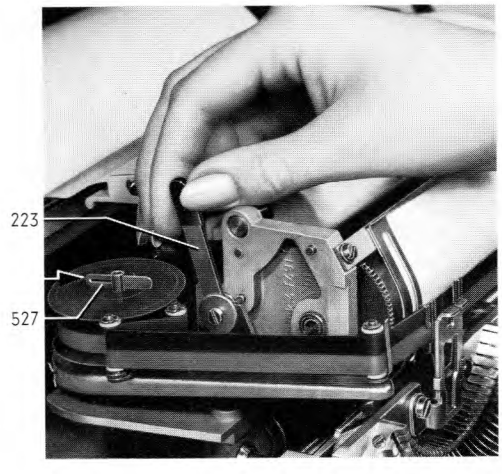

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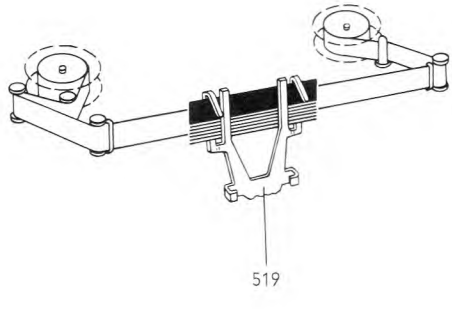

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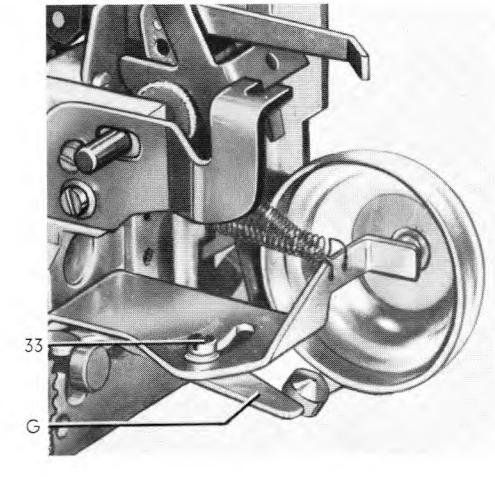

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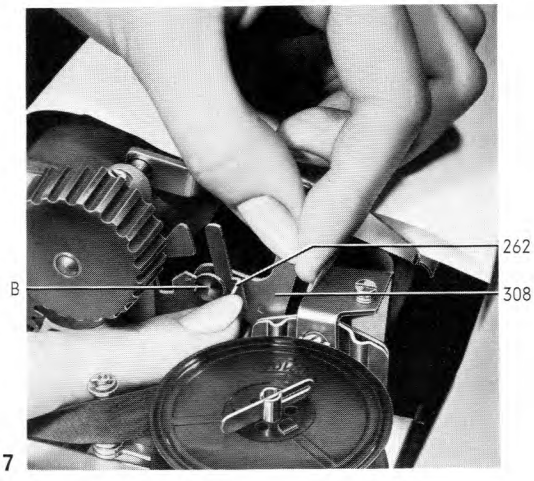

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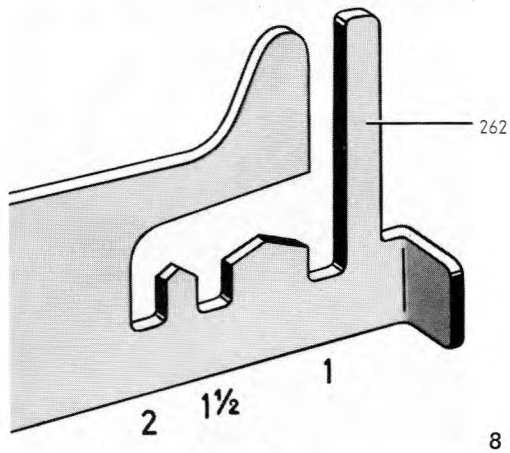

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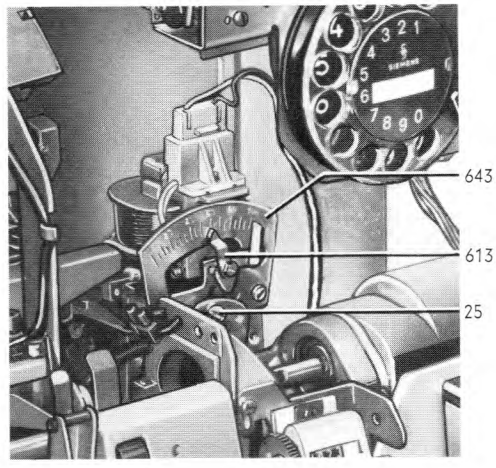


9

5. Adjusting the line spacing

Open the lid of the teleprinter cover. Press control lever 262/7 down. Actuate pull bar 308 to engage pin B in one of the three notches in control lever 262/8.

Notch 1 for single line spacing
1 1/2 for 1 1/2 line spacing
2 for double line spacing

6. Adjusting the range finder

The range finder permits the adjustment of the optimum pulse sampling instant in the case of bias-distorted characters. Pointer 613/9 of the range finder is set in the factory to graduation mark 60 on scale 643.

To adapt the receiver to existing line and circuit conditions, the distant station must be requested to send alternately the undistorted characters R and Y. Then whilst the teleprinter is printing loosen pan head screw 25 and push pointer 613 to one side, then to the other, until a wrong character is just printed. Note the two limits at which reception is still correct.

Example: upper limit scale mark 110
lower limit scale mark 20

range of error-free reception:

$$110 - 20 = 90$$

calculated center of error-free receive margin:

$$\frac{90}{2} + \text{scale marks of lower limit}$$

$$\frac{90}{2} + 20 = 65$$

Set pointer 613 to scale mark 65 and tighten pan head screw 25.

The adjustment of the receiver applies only for lines and circuits with which the receiver is constantly connected. If the teleprinter is connected to a switching network, this adjustment must be made in co-operation with the exchange.

7. Coding the answerback drum

To code the answerback drum as required, proceed as follows:

7.1. Removing answerback drum 871/10

Press lever B, pull the answerback drum to the right and off.

7.2. Answerback code combs

The code combs 914/11,12 on the answerback drum 871 are counted from slot C at the front of the drum in an anti-clockwise direction.

The teeth of the comb 914/13 are counted - starting with 1 at the front of the drum - from left to right in accordance with the code elements of the code combinations of the International Telegraph Alphabet No. 2 (Fig. 14).

To obtain the required character those teeth must be broken out of the comb whose code element represents a current pulse (●).

The teeth may be broken away from the complete answerback drum 871/11. As an example in Fig. 13 the comb for the letter "s", i.e. ●o●oo, is shown

The answerback drum with 20 combs should be coded according to CCITT recommendations as follows:

Comb 1: letters shift (A...) or figures shift (1...)
Comb 2: carriage return (<)
Comb 3: line feed (≡)
Comb 4 to 19: may be freely selected for subscriber's answerback code
Comb 20: letters shift (A...)

The example in Fig 12 shows the comb pattern for the answerback code for the collective-number station of Siemens AG, Telegraph and Data Communications Division, München. In accordance with the Telex directory the answerback code reads: "52471 sie d".

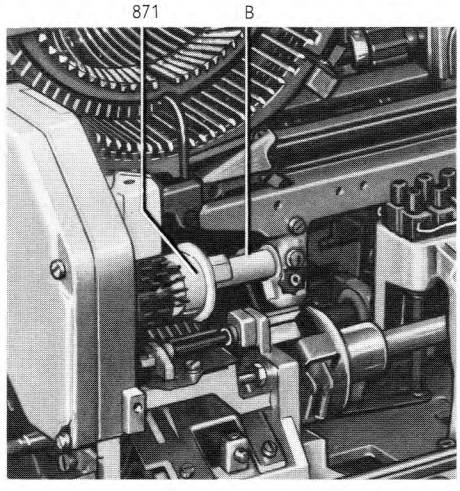
If the teleprinter receives an answerback code in which the series of digits is immediately followed by a letter, this indicates that the station is part of a collective number outlet (in the example in Fig. 12 "a").

7.3. Changing the code combs

To change the combs push guide ring E/11 to the right against the direction of latching. Combs 914 may be removed individually.

7 4. Installing the answerback drum

Slide the front of answerback drum onto the answerback drum shaft of the transmitter and turn until slot C/12 engages with the pin of the drive. The answerback drum is latched in this position with lever B.



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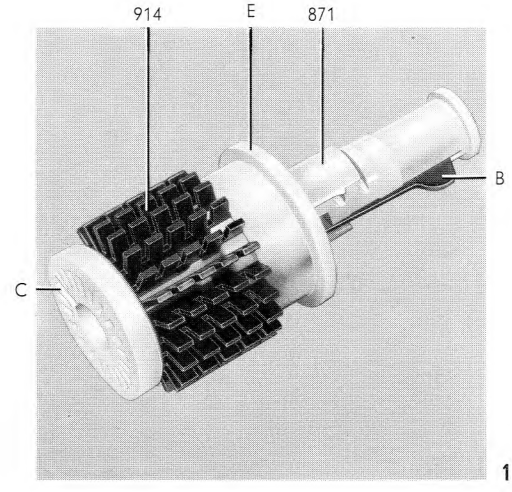

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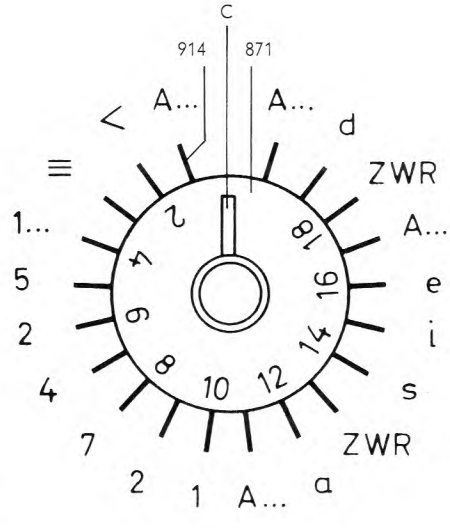

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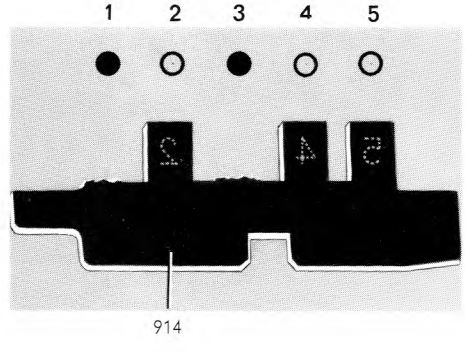


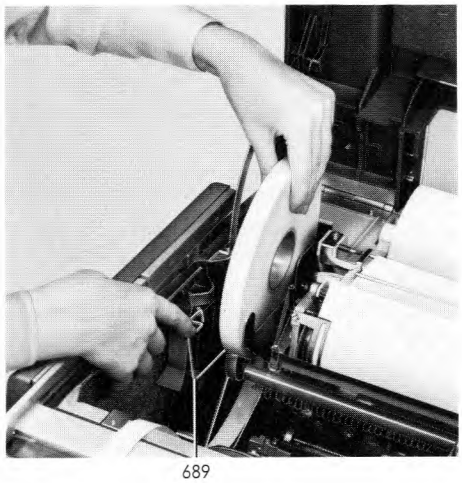
13

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Letters case	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	<	≡	A...	1...	Zwr	
Figures case	-	?	:	✠	3				8	🕭	(	)	.	,	9	0	1	4	'	5	7	=	2	/	6	+						
Start element																																
5-unit Combination 1	●	●		●	●	●				●	●						●		●		●		●	●	●				●	●		
5-unit Combination 2	●		●				●		●	●	●	●			●	●	●				●	●	●					●	●	●		
5-unit Combination 3			●			●		●		●			●	●	●	●			●		●	●		●					●		●	
5-unit Combination 4		●	●	●		●	●			●	●		●	●	●			●			●		●		●		●		●	●	
5-unit Combination 5		●					●	●				●	●		●	●	●			●		●	●	●	●	●			●	●		
1,5-unit stop element	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- No-pulse period
- ● Current pulse
- A... Letters shift
- 1... Figures shift
- Zwr Space
- 🕭 Bell
- < Carriage return
- ≡ Line feed
- ✠ Who-are-you
- reserved for national use

14

15



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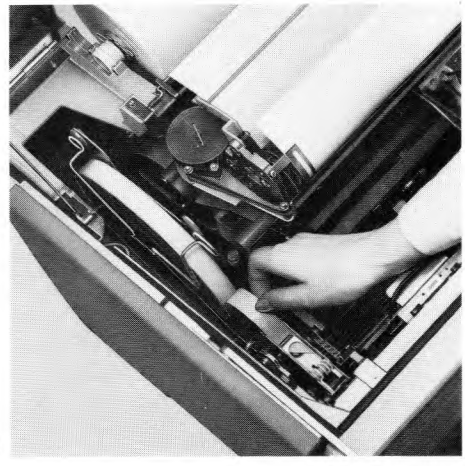
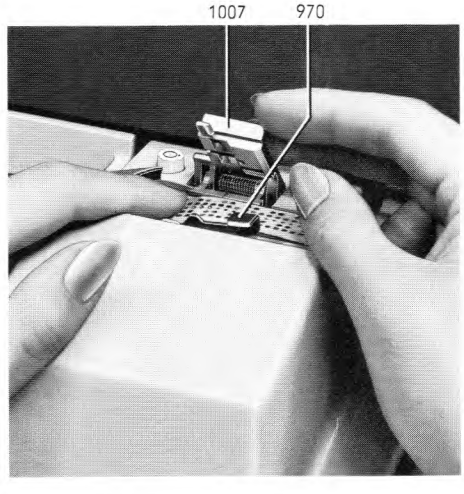


17



8. Inserting the paper tape roll in the tape punch

The paper tape should correspond to Type L1 or L2 as per DIN standard 6720, Page 2. If required, a list of suppliers can be provided.

Lift the lid of the teleprinter cover. Swing lever 689/15 to the left and slide the paper tape roll onto the guide core.
Cut off the end of the tape obliquely. Press button "L" and keeping it pressed push the tape so far into the tape punch (Fig. 16) from the rear until the tape emerges at the tear-off edge at the front.
Close the lid of the teleprinter cover.

9. Inserting the paper tape in the tape reader attachment 86

Press lid latching lever 970/17, lid 1007 springs up.

Insert the paper tape in such a way that it can pass through from right to left. The teeth of the feed wheel must engage in the holes in the paper tape.

There should be two rows of perforations behind the holes and three in front. The first group of perforations to be sent must be directly above the five sensing pins (marked with red).
Close the lid.

Fernschreiber 100

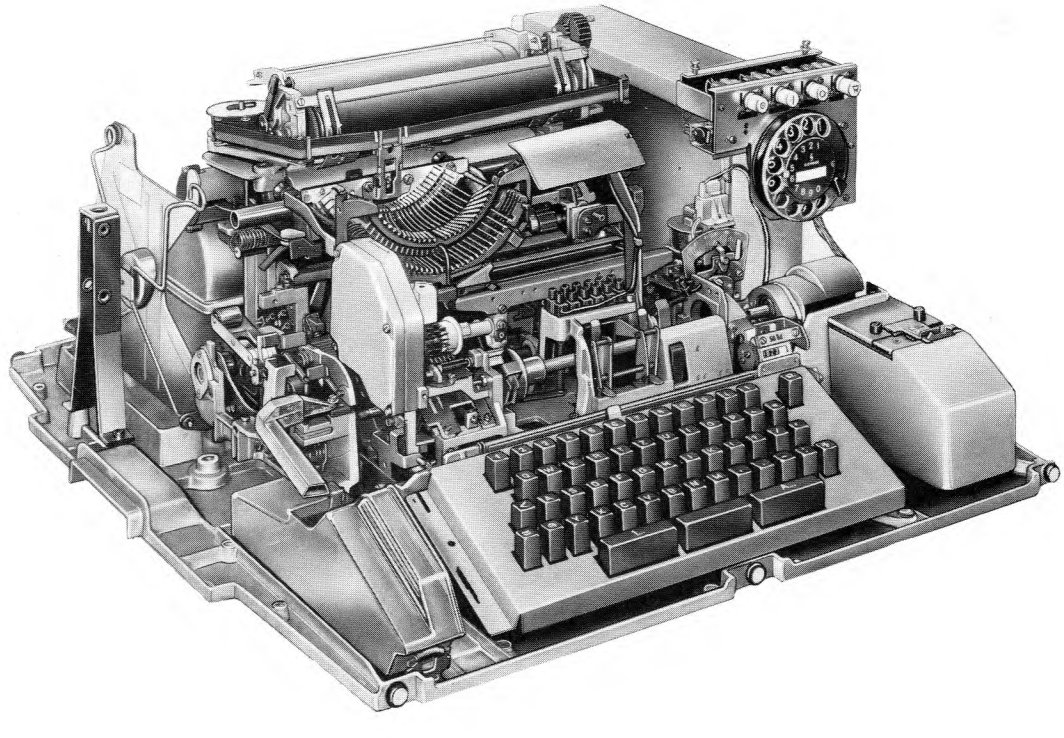
Teleprinter 100

Téléimprimeur 100

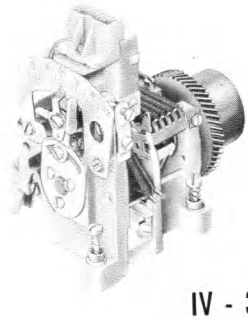
Teleimpresor 100

Teleimpressor 100

Contents



IV - 1



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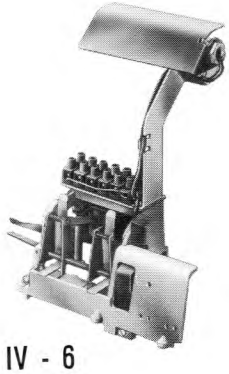

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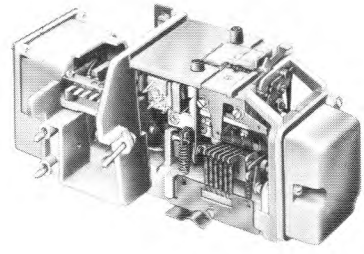

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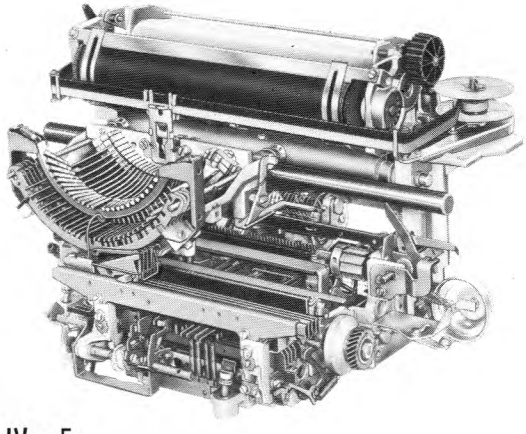

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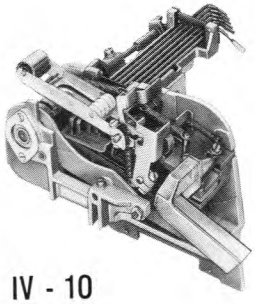
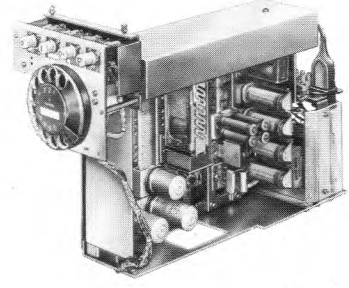
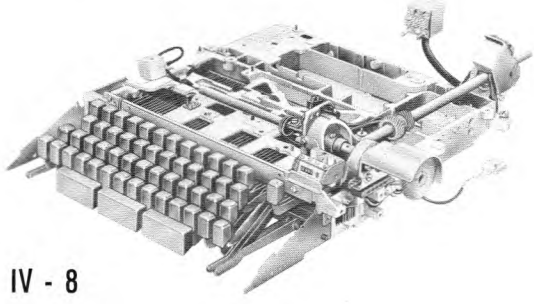


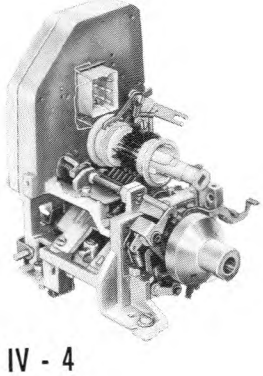
IV - 10



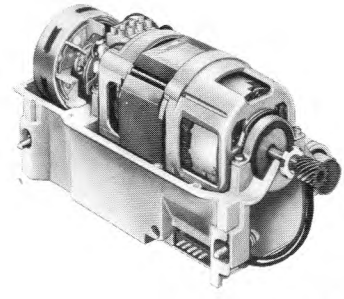
IV - 2



IV - 8



IV - 4



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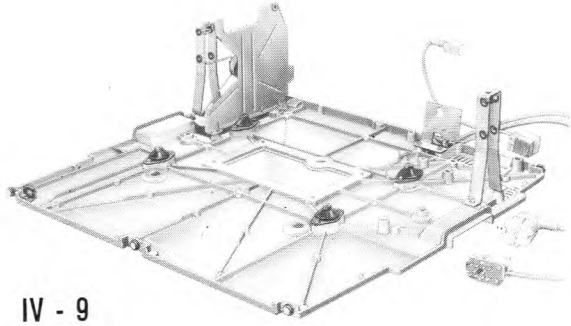


IV - 9

1. General

On page 4 the numbers indicate the chapter and the paragraphs in which the parts and adjustments to the major assemblies are dealt with in detail. Their meaning is as follows:

IV-1	Desk-model cover 130
IV-2	Remote control unit NL
IV-3	Receiver
IV-4	Transmitter
IV-5	Printer
IV-6	Special function key assembly
IV-7	Asynchronous motor
IV-8	Frame with keyboard
IV-9	Base tray
IV-10	Tape punch attachment
IV-11	Tape reader attachment 86

Before starting work remove power- and telegraph-line plugs from the sockets.

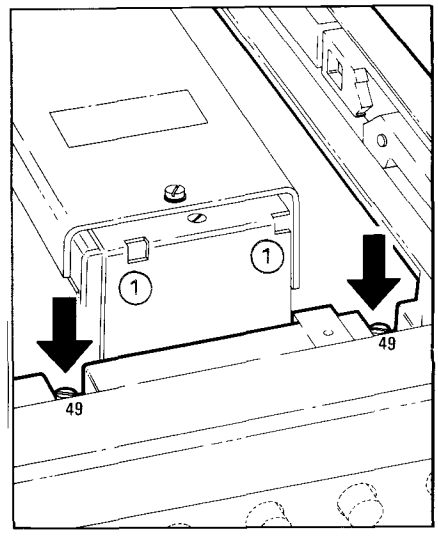
2. Removal or replacement of the assemblies

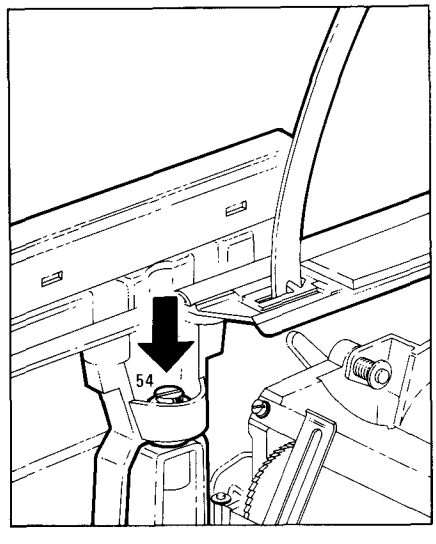
Instructions for removal

(1) Loosen screw 49, install the dial unit in the circuitry of the remote control unit. The cover of the teleprinter should only be removed after screws 54 have been loosened.

Instructions for replacement

In order to place the cover, the surfaces of the keys in special function key assembly 1317, Chap. IV-1, page 11, must be flush with the front of the cover.


1
1
49
49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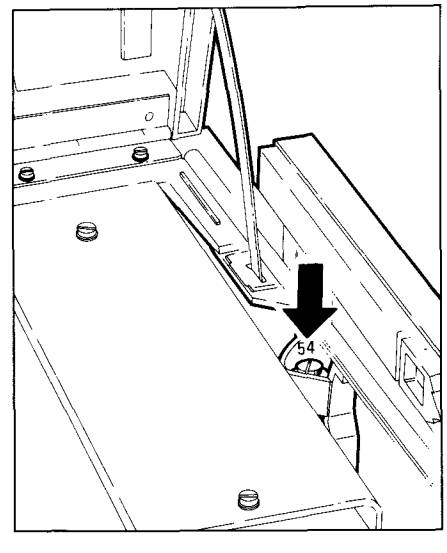
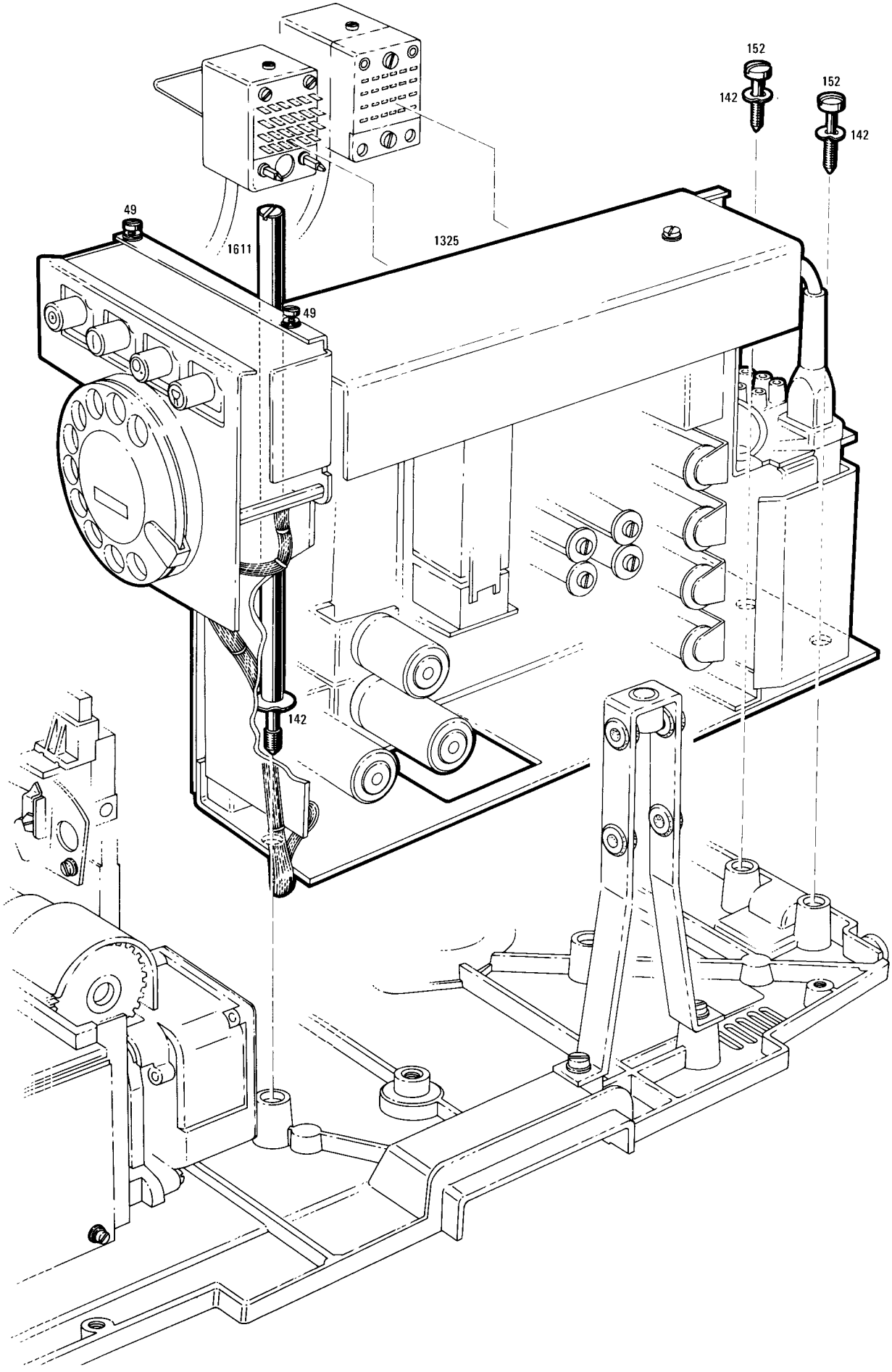

54

Instruction for removal

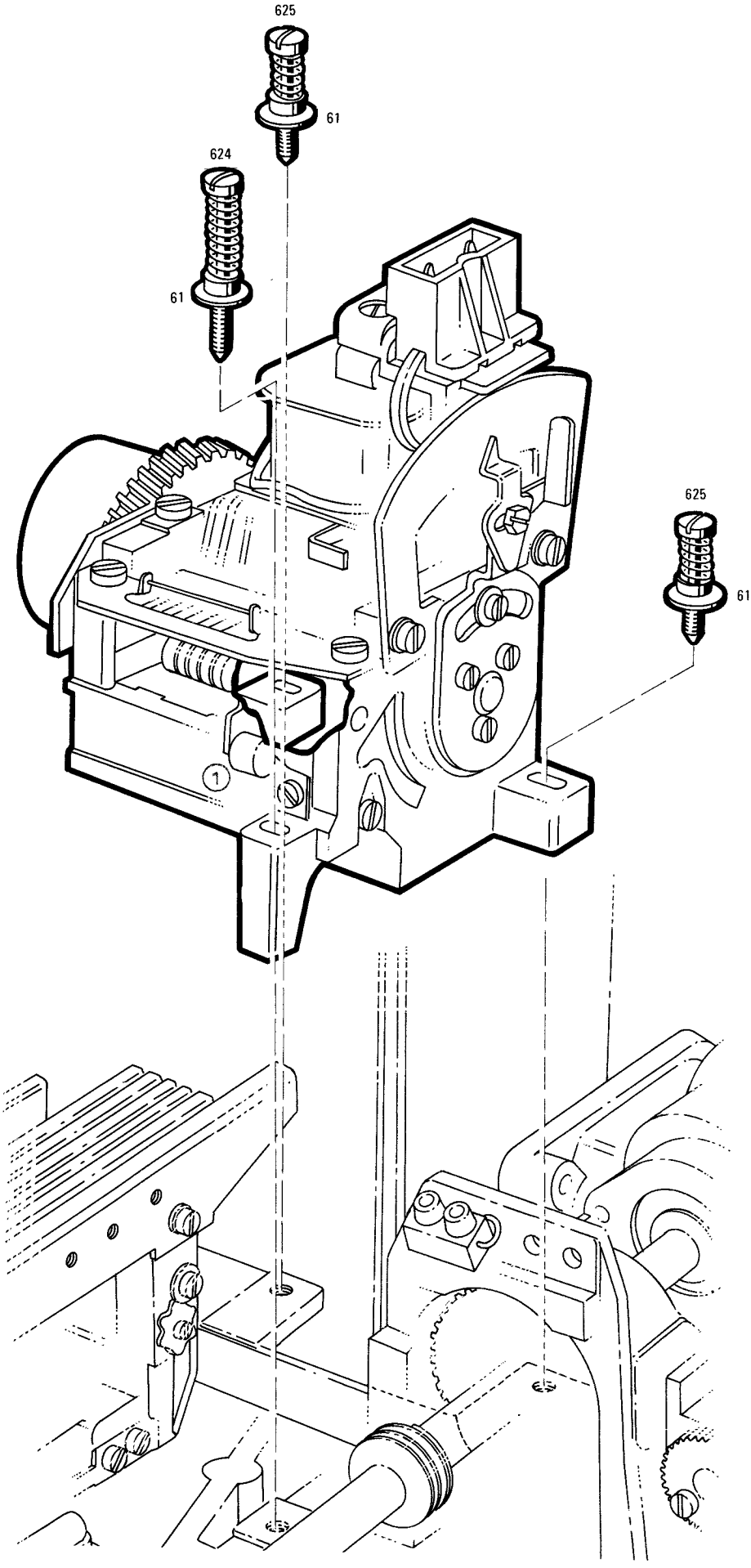
Separate connectors, loosen screws 1611 and 152 and remove remote control unit.

N.B.: Only lay the remote control unit on the components side.


152
142
152
142
49
1611
1325
49
142

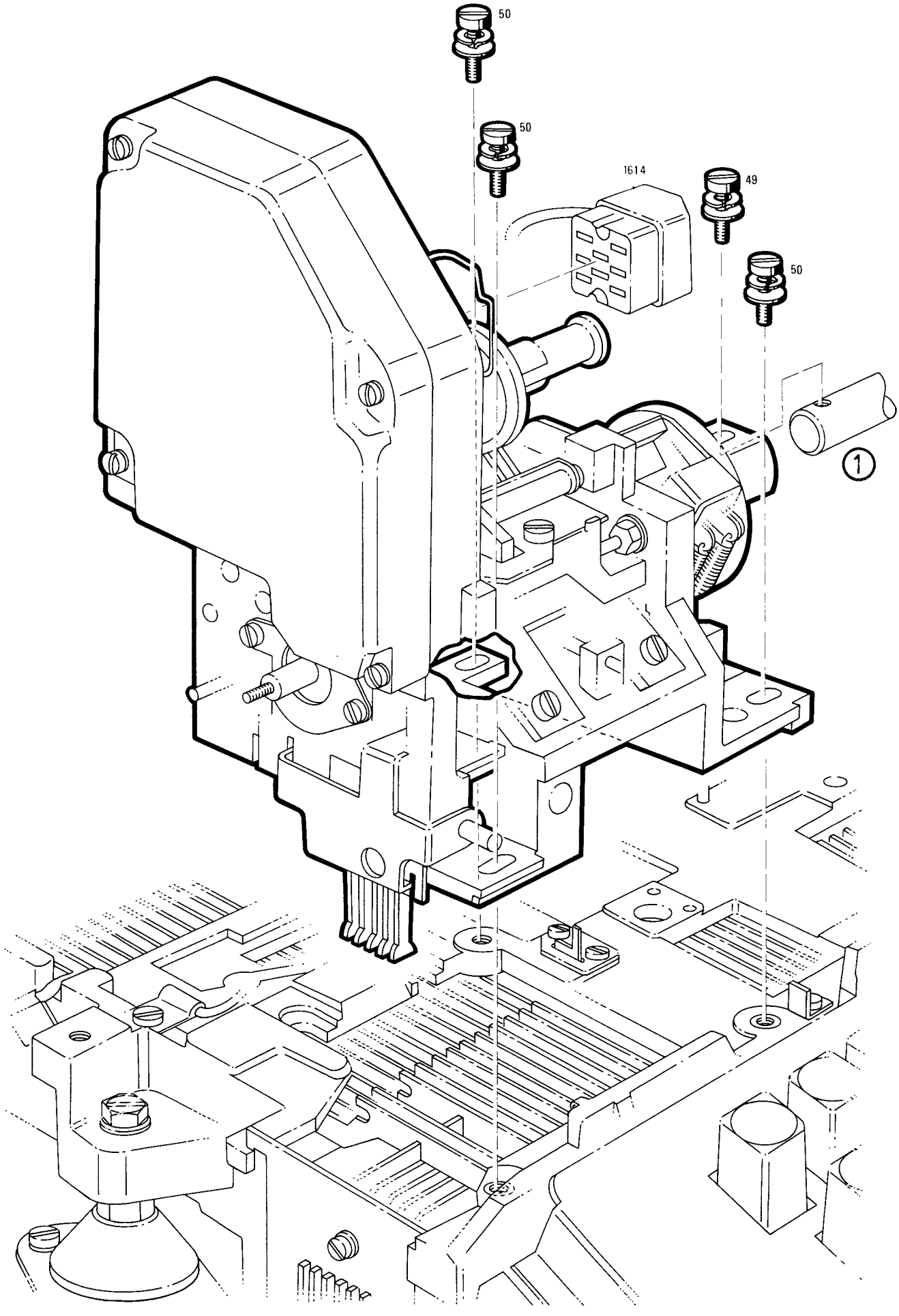
Instructions for replacement

(1) See also D7, page 34.


625
61
624
61
625
61
1

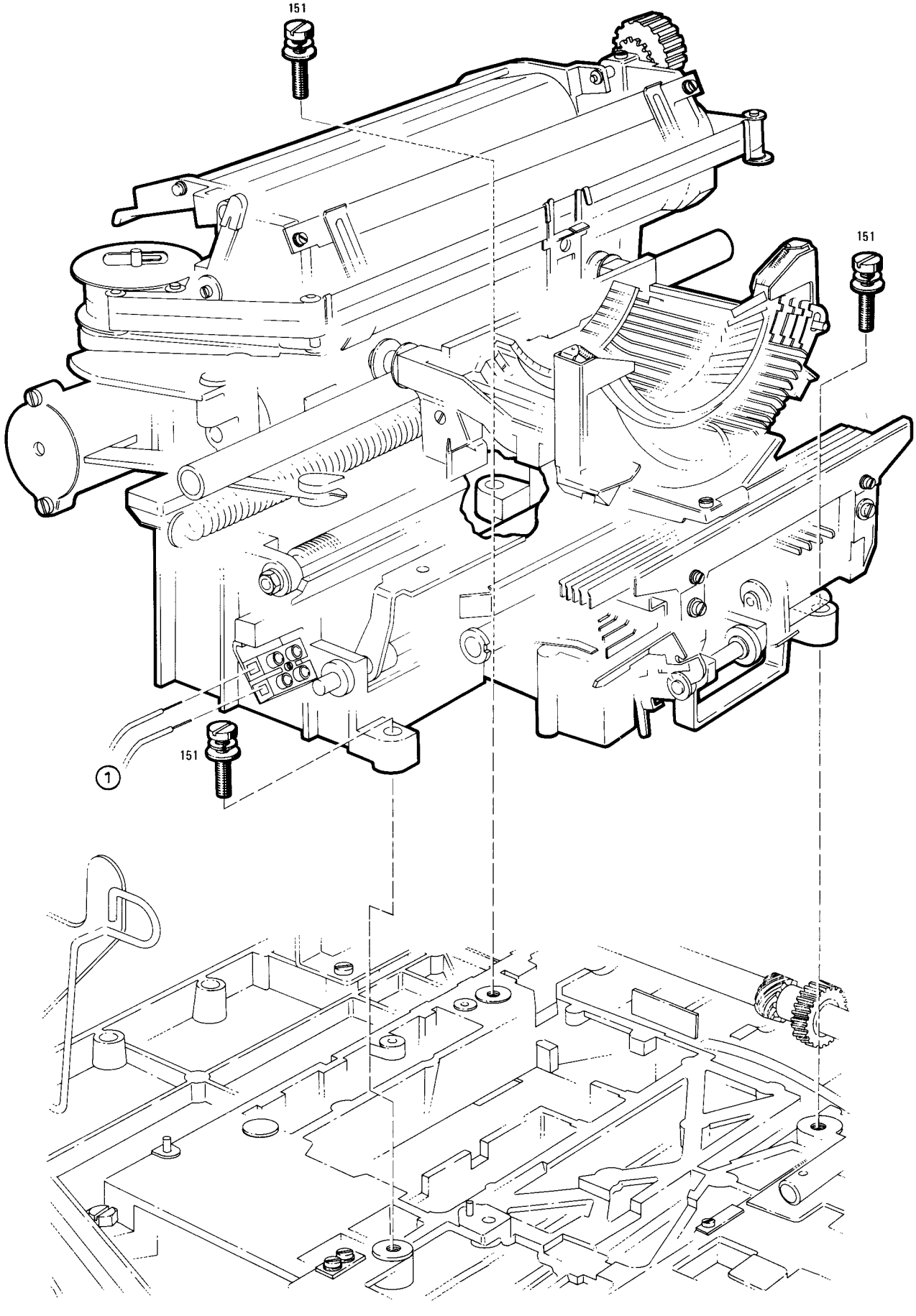
Instructions for removal

(1) Remove panhead screw 49, push drum 1067 onto shaft 759.


50
50
1614
49
50
1

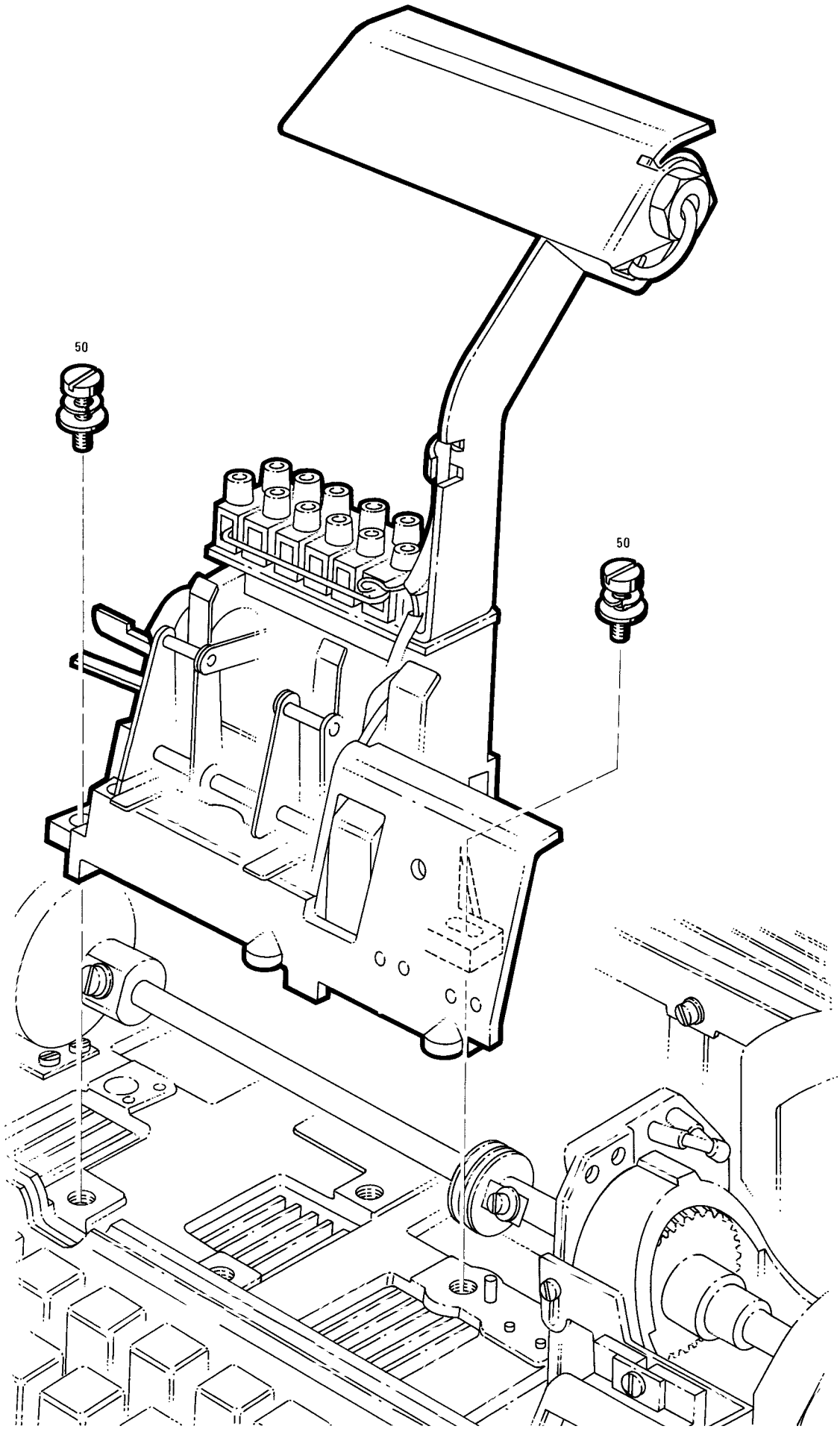
Instructions for removal

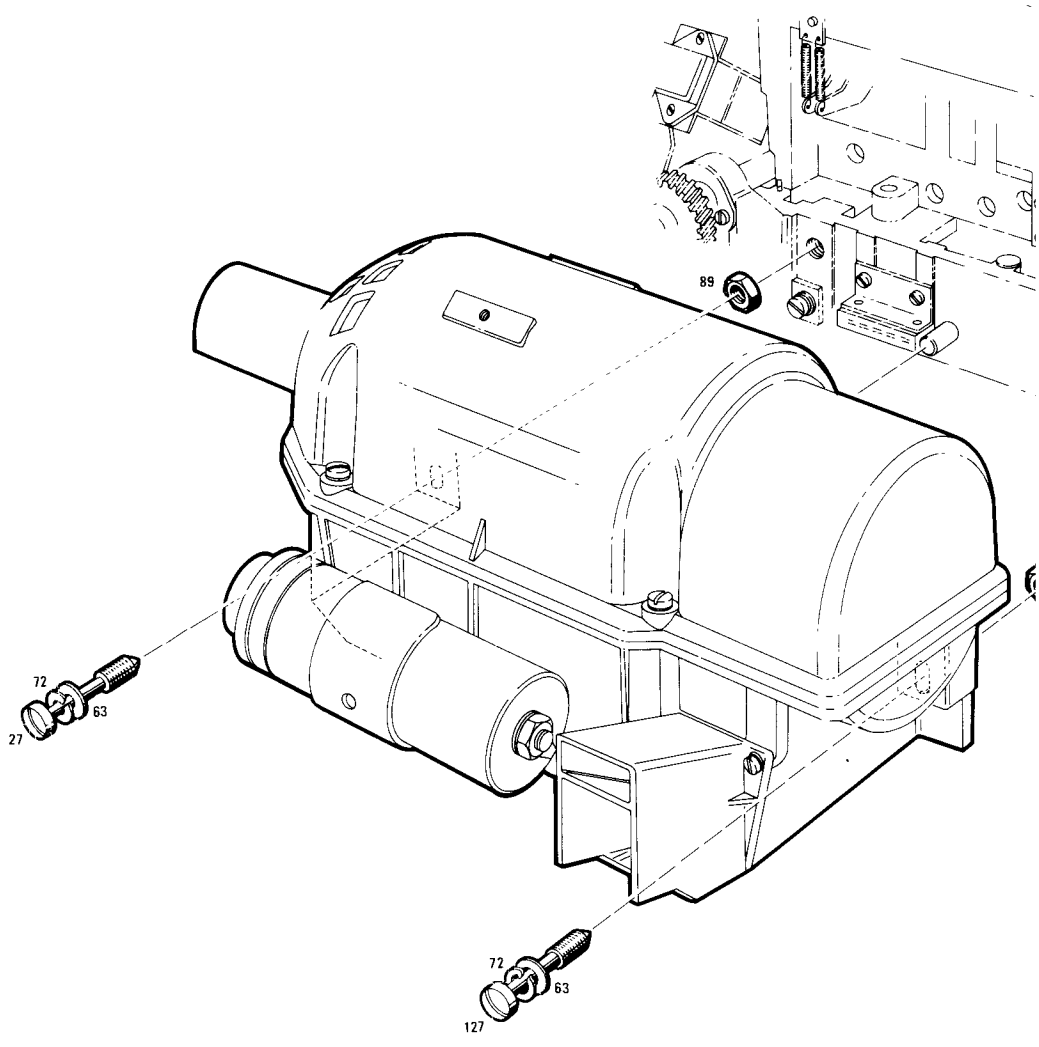
(1) Do not loosen panhead screws 151 until the type basket carriage has been moved to the middle of the line position and the wires disconnected.

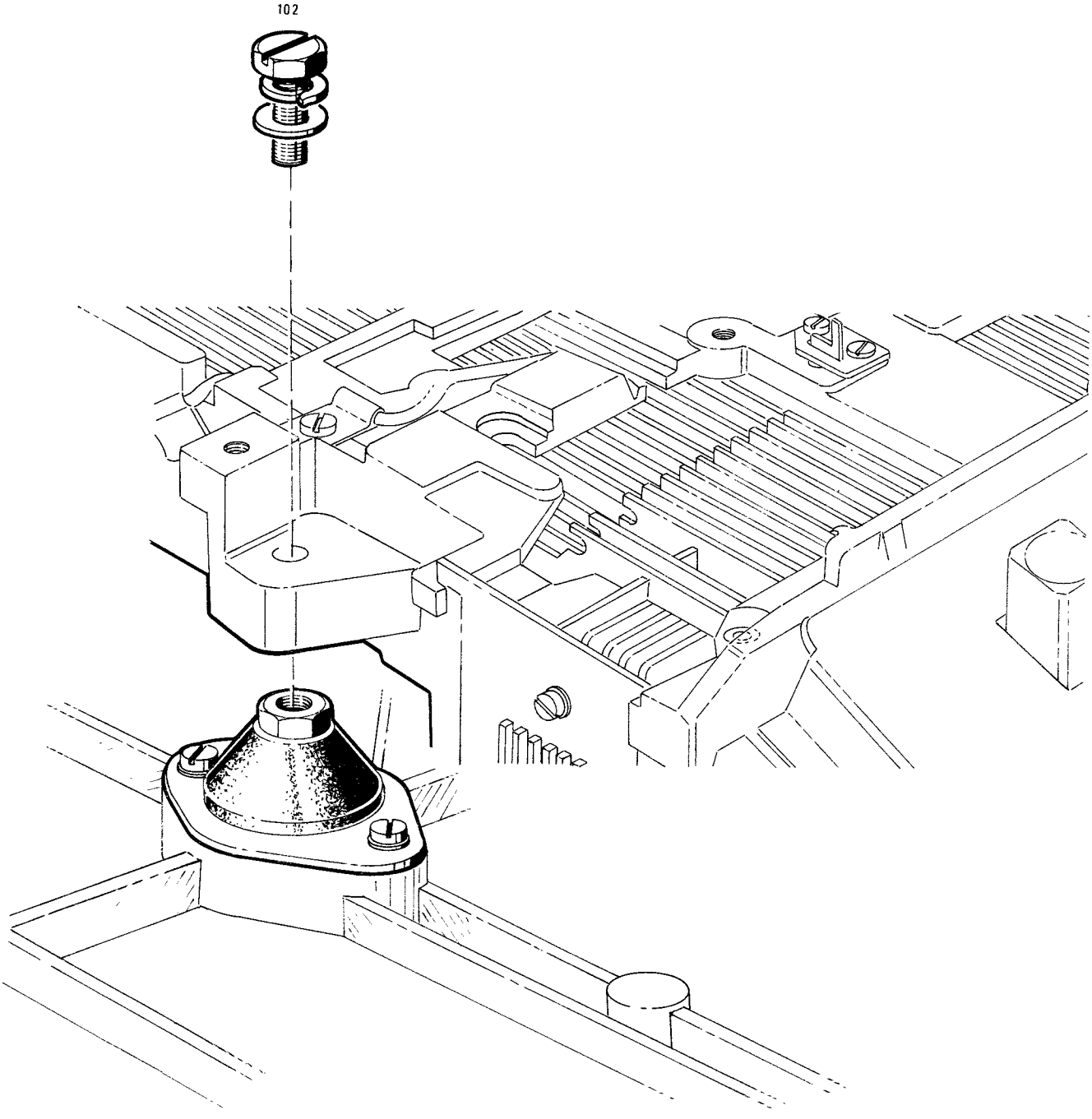

151
151
151
1

Instructions for removal

Do not loosen panhead screws 50 until the wires have been disconnected from the terminal block


50
50


89
72
63
27
72
63
127


102

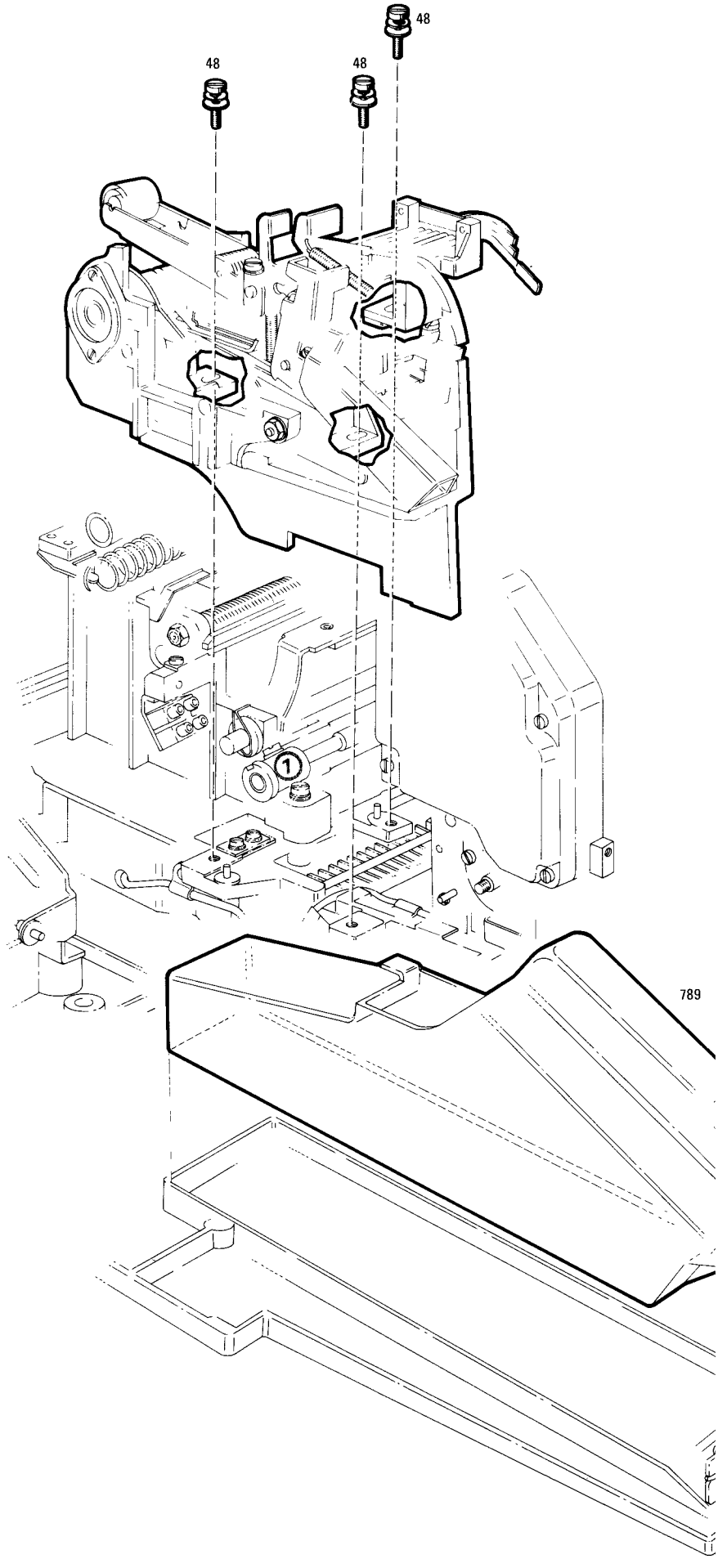
Instructions for removal

Before removing the tape punch take out chad waste bin 789 and empty it.

(1) Loosen panhead screw 41, push sleeve 692 back onto intermediate shaft 694. (See chapter IV-10/257).

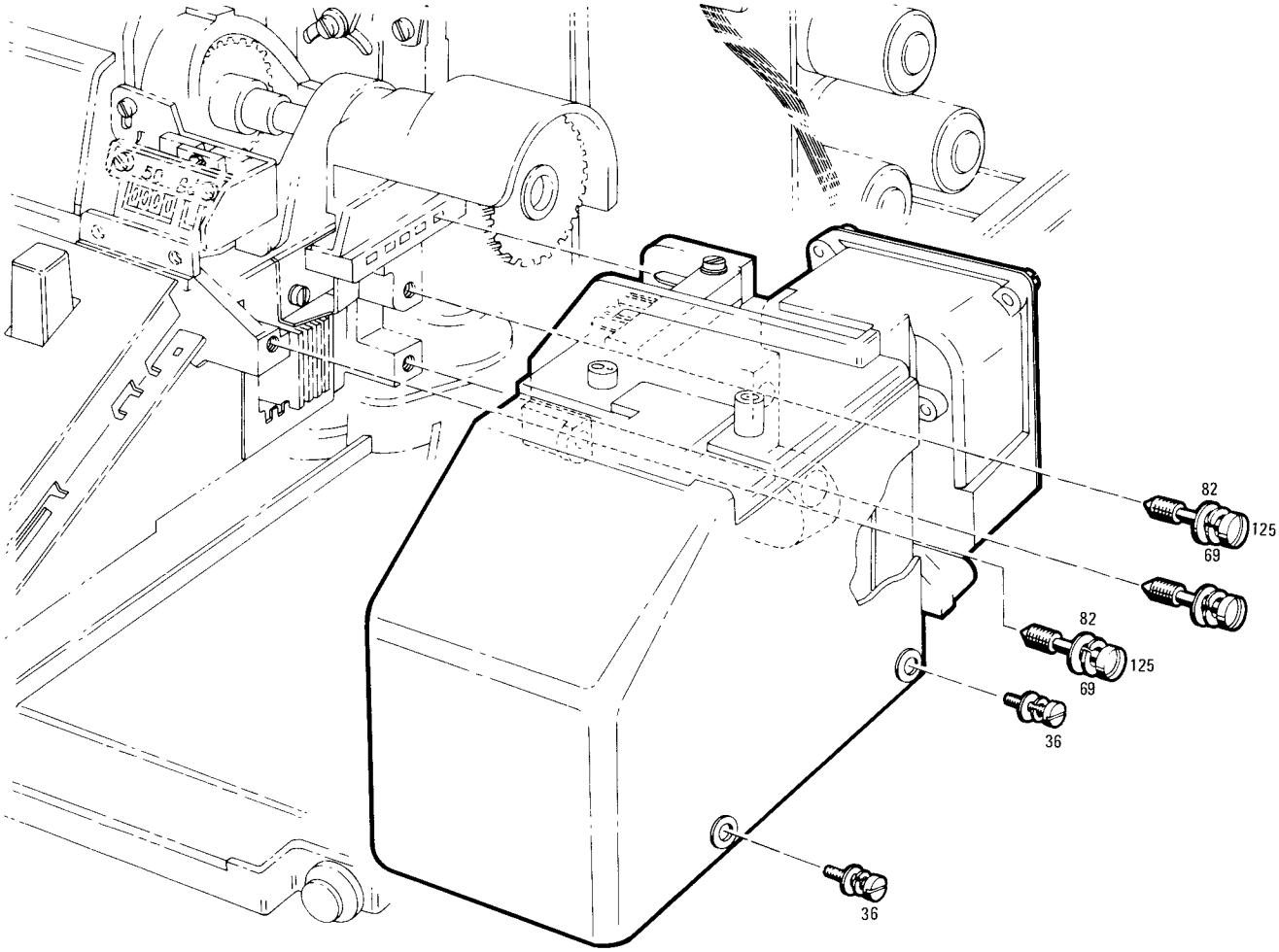
Fernschreiber vollständig
Teleprinter complete
Téléimprimeur complet

Teleimpresor completo
Teleimpressor completo



Instructions for removal

One of the three screws 125 is only accessible if the tape retainer lid of the tape reader attachment is removed first.


82
125
69
82
125
69
36
36

3. Adjustments to the assemblies when in place

D1 Mounting frame 743/1, printer IV-5, transmitter IV-4, receiver IV-3, special function key assembly IV-6, tape punch attachment IV-10 and tape reader attachment IV-11 should be fitted onto mounting frame 1023 in the direction of the arrow.

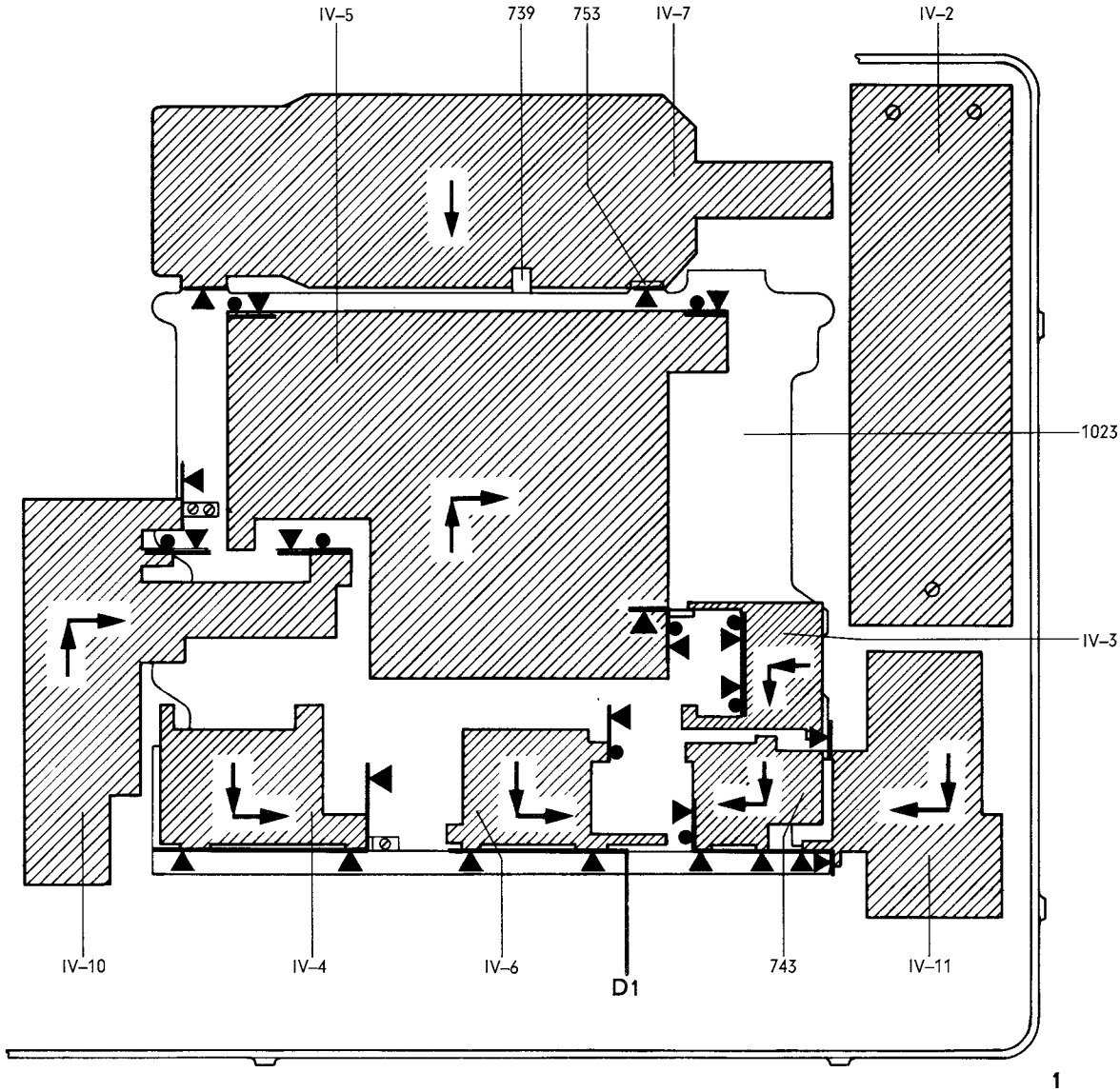
Place motor with casing IV-7 on pivot 739 and move it up to stop 753. Attach remote control unit IV-2.

Sender IV-4

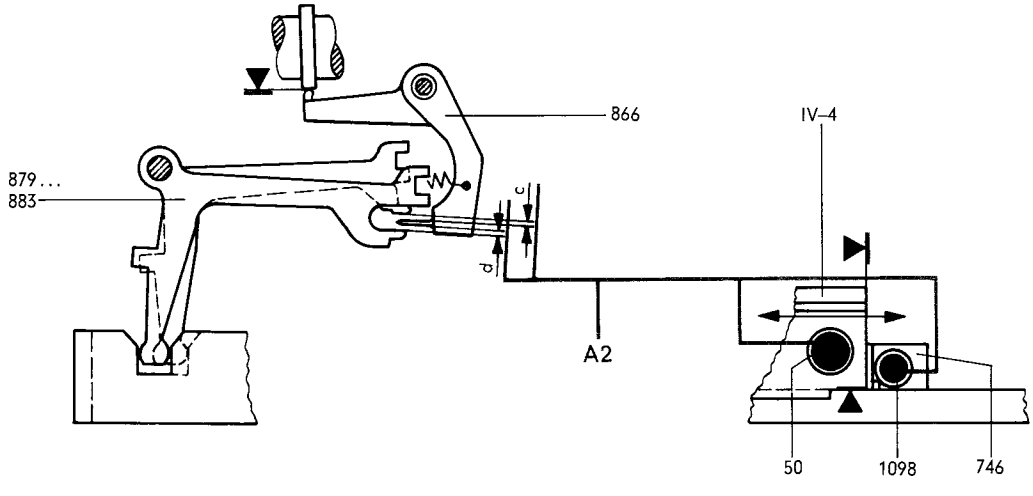
A2 Key R or Y in depressed position. Transmitter in released condition.

Locking lever 866/2 engaged and centered on levers 879 to 883, gap c ≈ d.

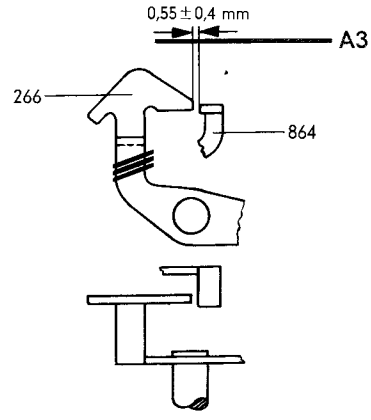
Adjustment: Loosen three panhead screws 50/3 and panhead screw 1098. Shift transmitter. Bracket 746 bears against the transmitter.


IV–5
739
753
IV–7
IV–2
1023
IV–3
IV–10
IV–4
IV–6
D1
743
IV–11

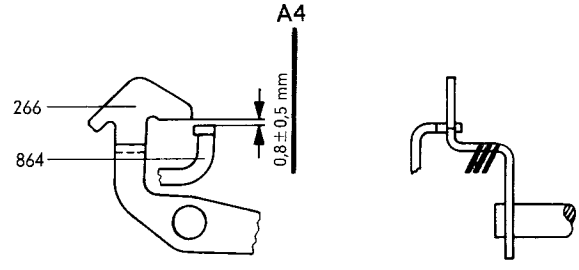
1


866
879...
883
c
b
A2
IV–4
50
1098
746

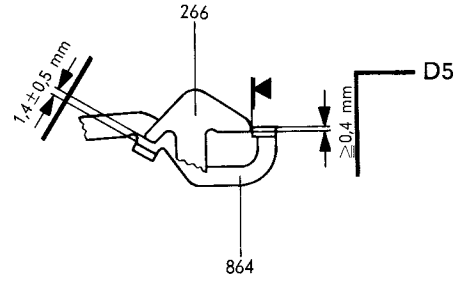
2 3


0,55 ± 0,4 mm
A3
266
864

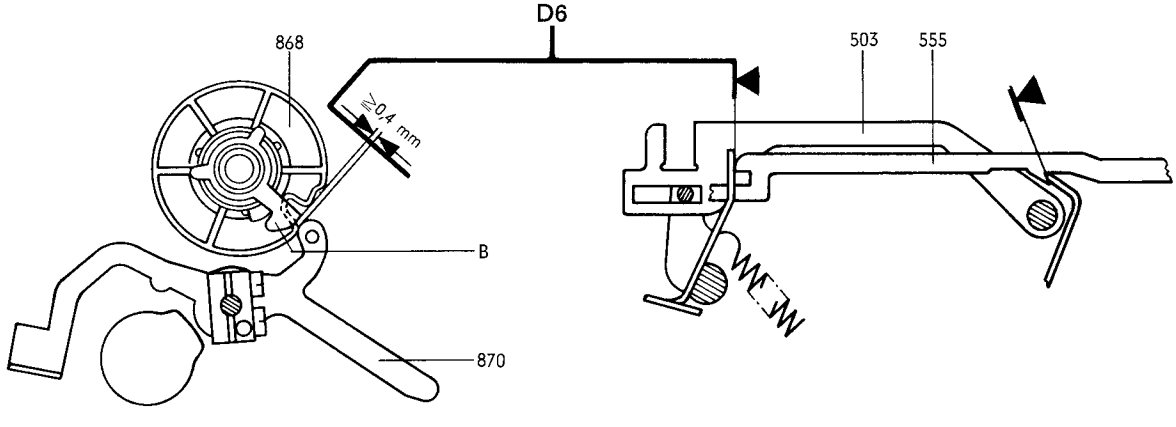
4


A4
266
864
0,8 ± 0,5 mm

5


266
1,4 ± 0,5 mm
D5
≥ 0,4 mm
864

6


D6
868
≥ 0,4 mm
B
870
503
555

7

8

A3 Transmitter in rest position D71. Push rod 503/8 in front position.

Gap between lever 864/4 on transmitter and lever with shaft 266 = 0.55 ± 0.4 mm.

Adjustment: Bend lever with shaft 266.

A4 Panhead screw 49, page 15, on clutch drum of transmitter loosened.
Push rod 503/8 of printer in front position. Turn camshaft of transmitter until lever 864/5 in lowest position.

Gap between lever with shaft 266 and lever 864 = 0.8 ± 0.5 mm.

Adjustment: Bend lever with shaft 266.

D5 Transmitter in rest position D71. Printer in rest position D121.

Gap between lever 864/6 and lever with shaft 266 of printer = 1.4 ± 0.5 mm, overlap ≧ 0.4 mm.

D6 Special functions pull bar "Who are you?" 555/8 in printer engaged and in front position.

Gap between lever 870/7 and locking lever B of drive system 868 ≧ 0.4 mm.

Receiver IV-3

D7 Printer in rest position D121 and transfer bars 290/9 in upper position. All levers with sword 612 in receiver should be in lowest position. Receiver bearing against mounting frame 1023 and printing frame 306.

Pawl 531 of the printer lies between levers 610 and 642 of the receiver.

Special function key assembly IV-6

A8 Special function key assembly with mounting frame 686/10 bears against front edge of mounting frame 1023 and pin C. Lever 696 bears against mounting frame 686. Endplay of lever 696 = 0.01 to 0.2 mm.

Gap between lever 696 and lever 864 on transmitter > 0.5 mm.

Adjustment: Loosen panhead screw 33. Shift axle 704.

A9 Special function key assembly with mounting frame 686/10 bears against front edge of mounting frame 1023 and pin C.

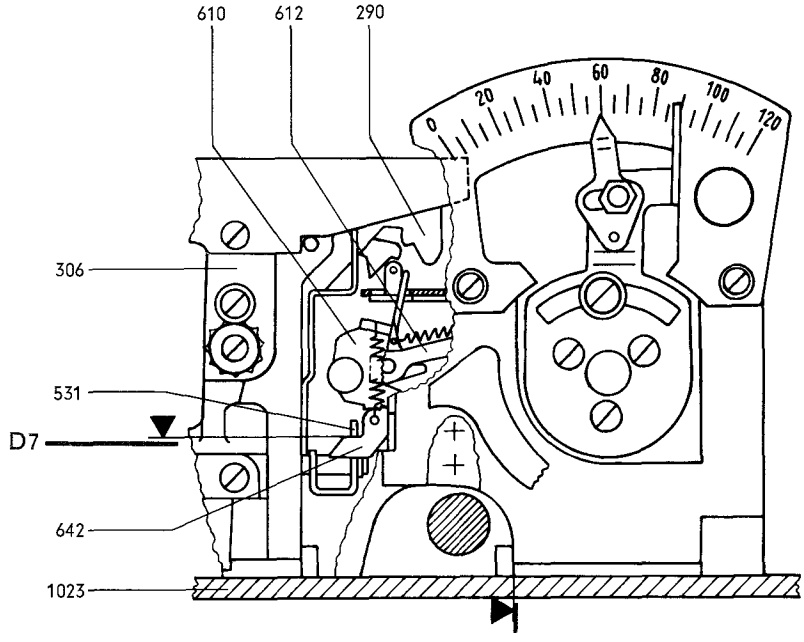
Gap between lever 685 and lever 864 on transmitter = 0.4 ± 0.2 mm.

Adjustment: Bend extension B of lever 699.

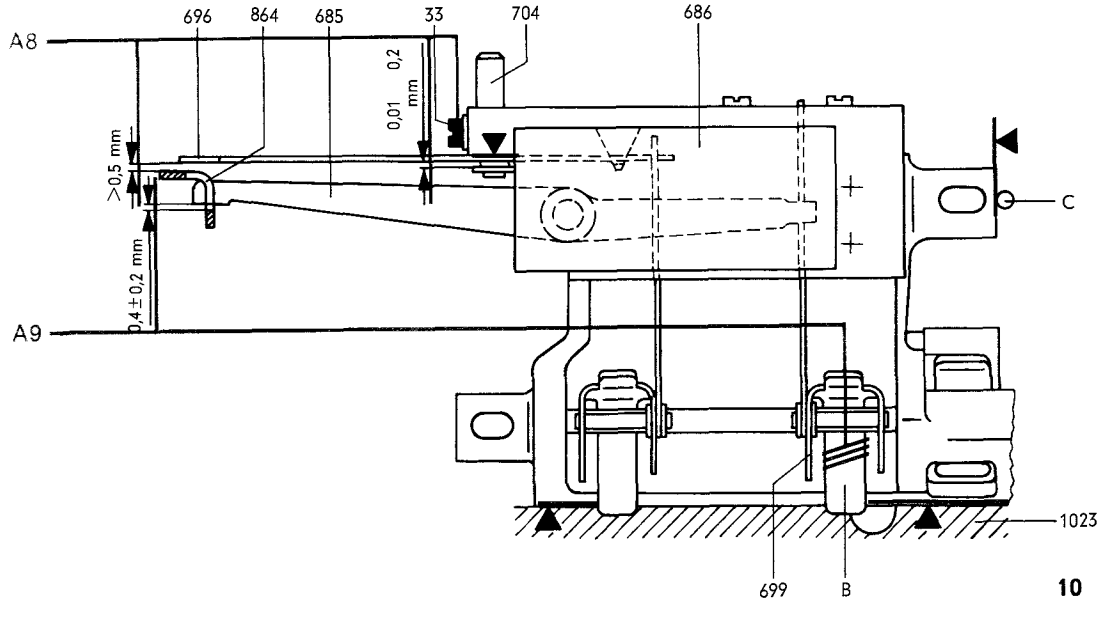
A10 Special function key assembly with mounting frame 686/10 bears against front edge of mounting frame 1023 and pin C.

Gap between lever 696/11 and looking lever 865 on transmitter = 1.5 ± 0.7 mm.

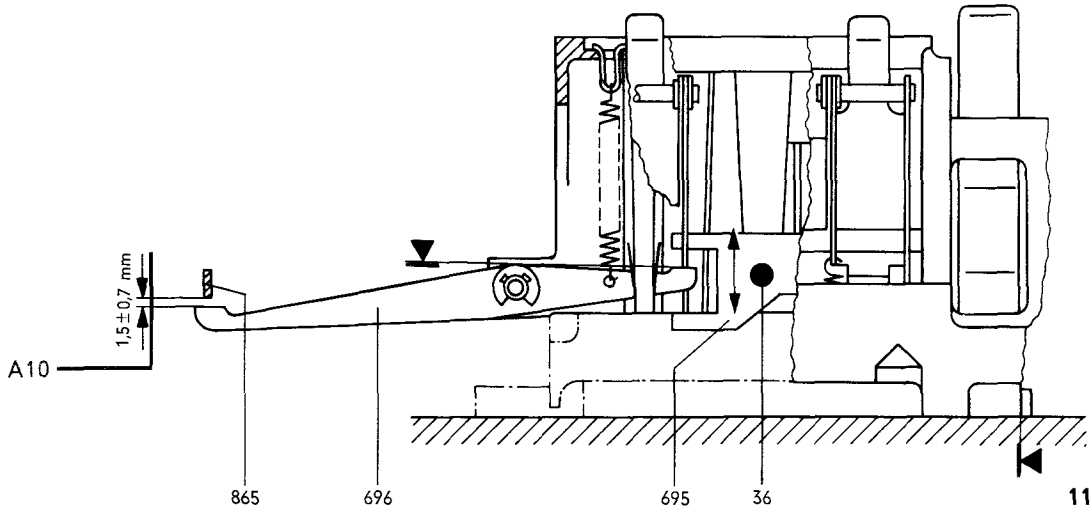
Adjustment: Loosen panhead screws 36 (lacquer-coated), shift plate 695.


610
612
290
0
20
40
60
80
100
120
306
531
D7
642
1023

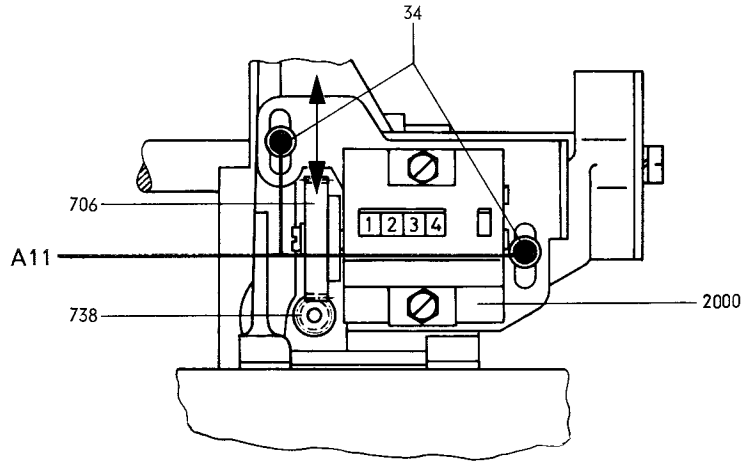
9


A8
696
864
685
33
704
686
0,2
0,01
mm
>0,5 mm
0,4 ± 0,2 mm
A9
C
1023
699
B

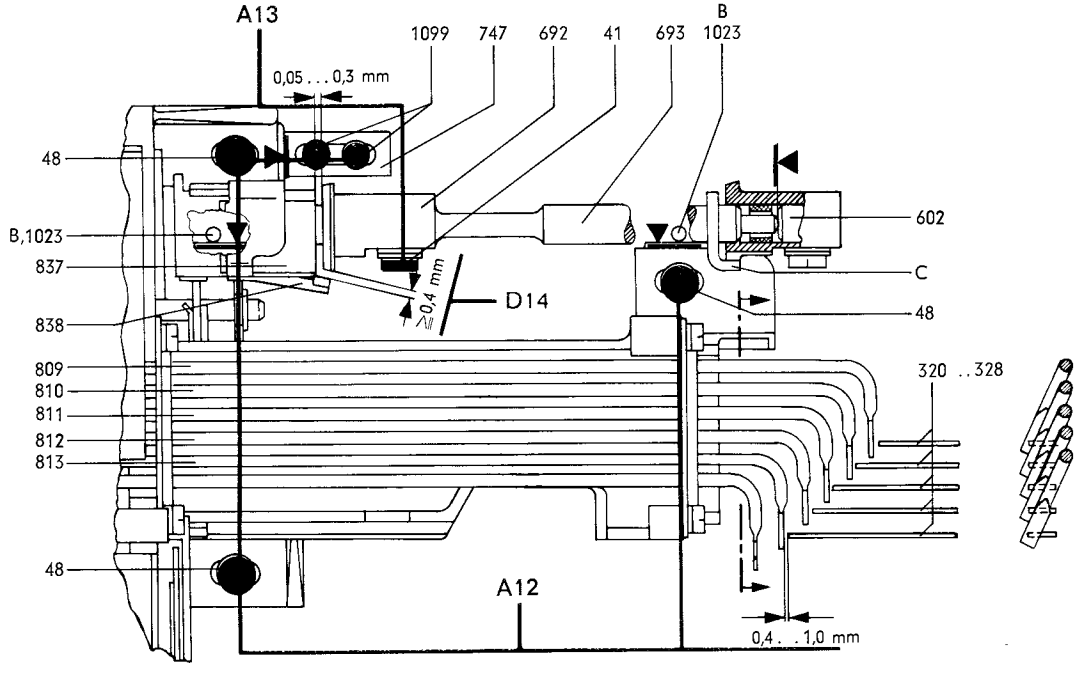
10


1,5 ± 0,7 mm
A10
865
696
695
36

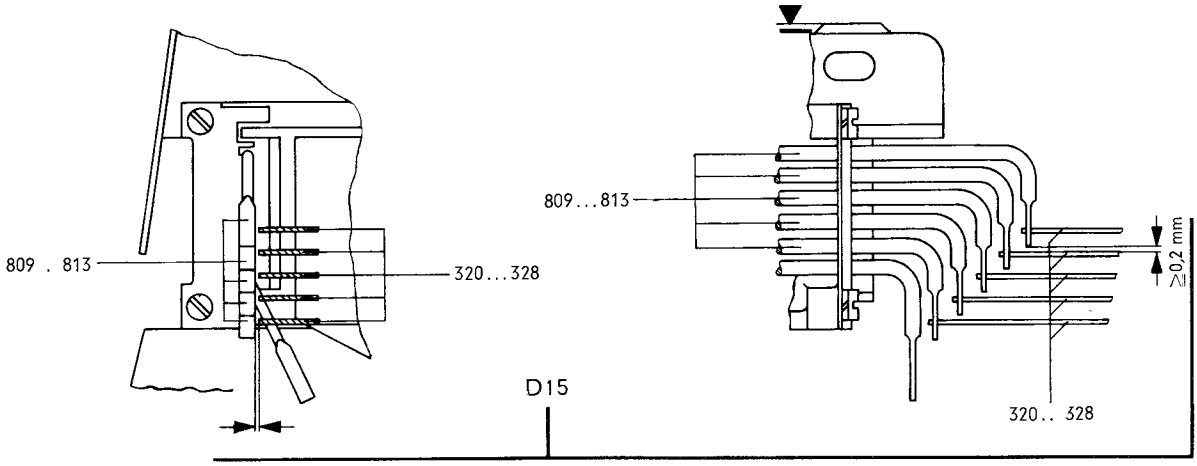
11


34
706
A11
738
2000
1 2 3 4

12


A13
1099
747
692
41
693
B
1023
0,05 . . . 0,3 mm
48
B,1023
837
838
809
810
811
812
813
48
≥0,4 mm
D14
602
C
48
320 . . 328
A12
0,4 . . 1,0 mm

13


809 . 813
320 . . . 328
809 . . . 813
≥0,2 mm
D15
320 . . 328

15

Counter IV-8

A11 There should be a noticeable backlash between helical gear 706/12 of counter 2000 and intermediate shaft 738.

Adjustment: Loosen panhead screws 34. Shift operation time counter 2000.

Tape punch attachment IV-10

A12 Tape punch attachment bears against two pins B of mounting frame 1023/13 and against stop 747. Transfer levers 809...813 in lower position. Code bars 320 to 328 of the printer in position for the Letters code combination.

Gap between code bars 320 to 328 and transfer levers 809 to 813 = 0.4 to 1.0 mm.

Adjustment: Loosen panhead screws 48 on tape punch attachment and panhead screws 1099 on stop 747. Shift tape punch attachment. Stop 747 resting against tape punch attachment.

Check: Code bars in position for code combination no. 32. Transfer bars should lie with their full width on code bars 320...328/15.

A13 Tape punch attached in rest position D304.
Recess in sleeve 692/13 and driver C on shaft 693 lie on the same side (see chap. IV, p. 257).
Shaft 693 bearing against printer camshaft 602.

Gap between sleeve 692 and clutch sleeve 837 = 0.05...0.3 mm.

Adjustment: Loosen panhead screw 41, shift sleeve 692.

D14 Gap between sleeve 692/13 and pawl 838 $\geqq$ 0.4 mm (see A303).

D15 Tape punch attachment in rest position D304.
Code bars 320 to 328/15 in position for code combination no. 32.

Gap between transfer levers 809 to 813 and nearest transfer bars $\geqq$ 0.2 mm horizontally and $\geqq$ 0.1 mm vertically (Fig. 14).

D16 Tape punch attachment switched on. Pawl 838/16 engages in sleeve 692 by ≧ 1 mm.

D17 Code bars 320 to 328/14 of the printer in position for code combination "Who are you?". Tape punch attachment switched on. Teleprinter drive shaft turned.

Gap between lever 491/17 and transfer lever 808 ≧ 0.1 mm (see A164).

Pull bar pulled. Pawl B of feed lever 773 in lower position.
Lever with sleeve 776 against pin C of pawl B.

Gap between pawl B and ratchet 803 ≧ 1.5 mm.

A18 Lever 445/18 and transfer lever (4th element) 812 of tape punch attachment overlap by 0.8 ± 0.6 mm.

Adjustment: Loosen panhead screw 11, shift sleeve 587.

Motor IV-7

A19 There should be noticeable backlash around the whole circumference between helical gear 705/19 and gear body 707.

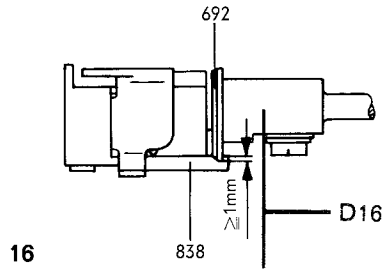
Adjustment: Loosen recessed-neck screw 127 and panhead screw 34. Move motor with cover. Stop 753 should bear against cover 1236.

Cover IV-1

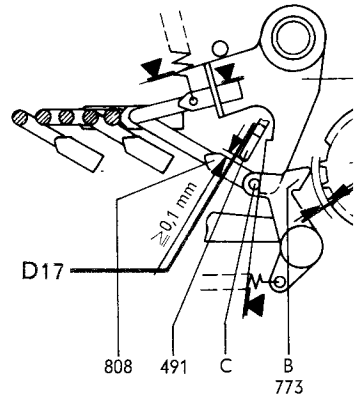
A20 Cover screwed to brackets 736/20, centered on stud E and in alignment with the base tray, so that gap a = b.

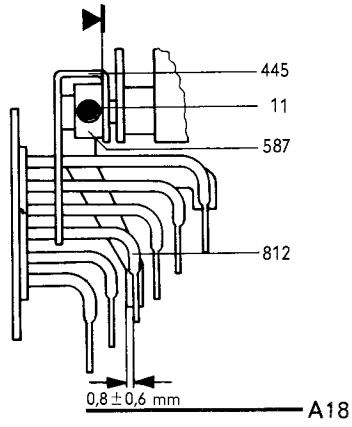
Gap between keyboard cover plate 1051 and front cover plate 1609 should be the same.

Adjustment: Loosen panhead screws 50 on bracket 736 (lacquer-coated). Displace cover.

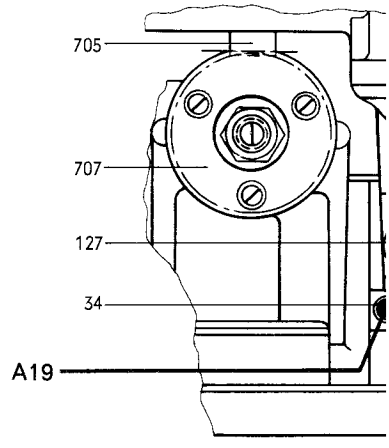

692
≥1mm
D16
838

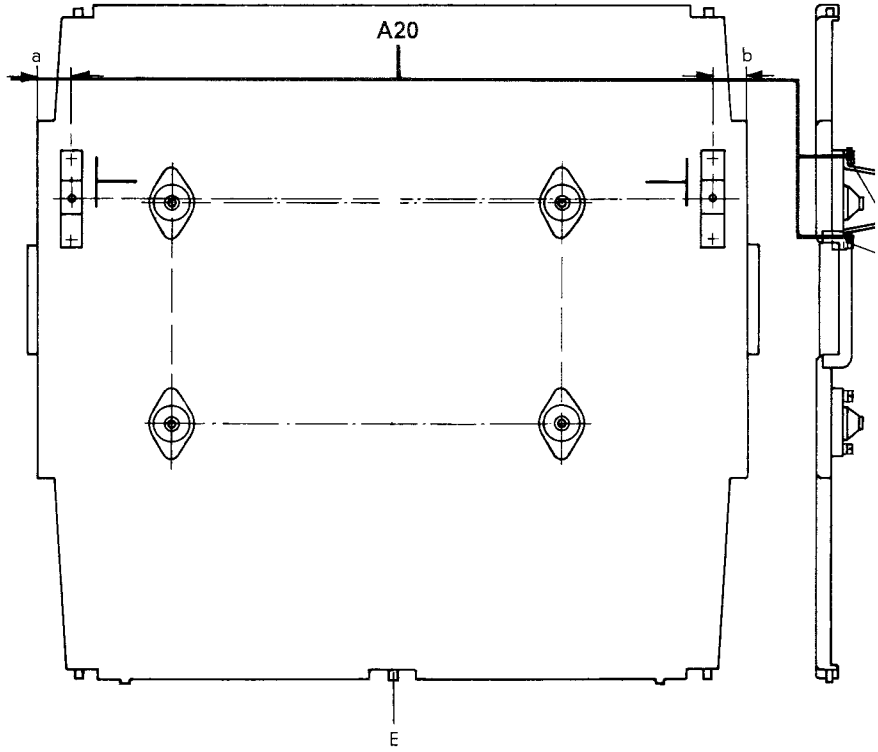
16

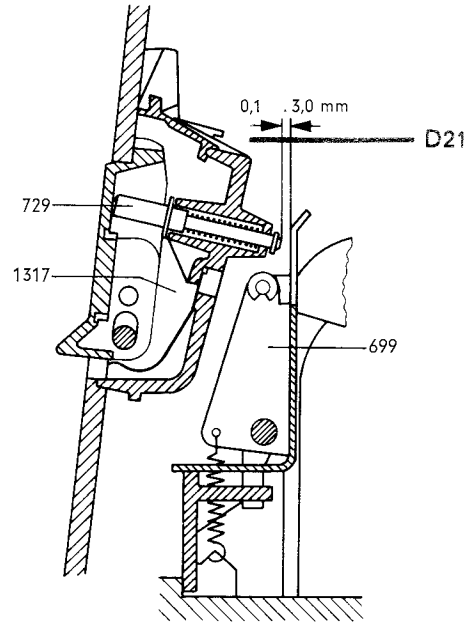

≥0,1 mm
D17
808
491
C
B
773


445
11
587
812
0,8 ± 0,6 mm
A18

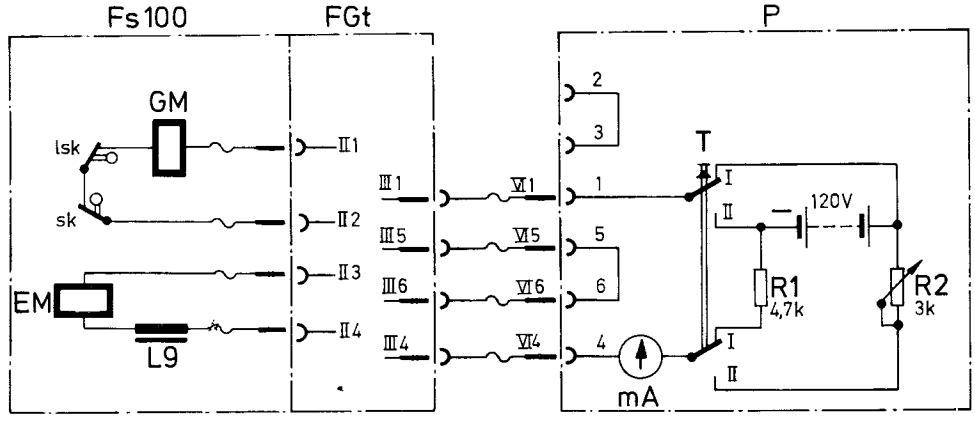
18


705
707
127
34
A19

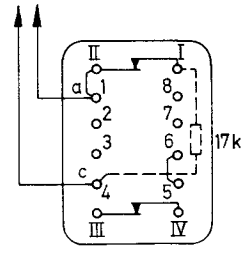

A20
a
b
E


0,1 . 3,0 mm
D21
729
1317
699

21


Fs 100
FGt
P
GM
lsk
sk
EM
L9
II1
II2
II3
II4
III1
III5
III6
III4
VI1
VI5
VI6
VI4
2
3
1
5
6
4
T
I
II
120V
R1
4,7k
R2
3k
mA

22


II
I
a
1
8
2
7
3
6
17k
c
4
5
III
IV

23

D21 Gap between operating pins 729/21 of special function key assembly 1317 and levers 699 = 0.1 to 3.0 mm.

4. Functional checks on the teleprinter

Mechanical check

Power- and telegraph-line plugs removed.
All assemblies correctly adjusted and in rest position.
Slowly turn intermediate shaft 738/Chap. IV, page 215.
Check all movements: these should take place without any mechanical hindrance.

Electrical check

The teleprinter is checked with the remote control unit in place.

WARNING. When the cover is removed, live parts are accessible.
Observe special safety precautions.

Test circuit

A dc voltage of 120 V is required as a current source. The test circuit should be set up according to Fig. 22. Check polarity of power source (if necessary use connecting unit 13, S22229-P31-A1. Switch T should be in position I; a closed circuit current of approx. 5 mA flows. The telegraph circuit should be 40 mA in position II and can be modified with resistor R2 (up to 5 W).

Abbreviations in Fig. 22:

Fs 100	= Teleprinter 100	EM	= selector magnet
FGt	= remote control unit	GM	= break magnet
P	= test circuit	L	= choke
		sk	= send contact
		lsk	= tape reader send

Fig. 23 shows the wiring of a telegraph socket for a telex connection.

Off line tape preparation

Press button L "Ⓛ " in the remote control unit, lamp L lights up. The teleprinter can be checked using the local power supply in the remote control unit. Off line tape preparation started by pressing button S "○·".

A22 Checking the speed of the regulated asynchronous motor with 125 Hz tuning fork. Observe stroboscopic fields on governor cover R/24 using the tuning fork with the motor running and the run-out key pressed.

Rated speed	- stroboscopic fields are apparently stationary
Speed too high	- stroboscopic fields move in direction of rotation
Speed too low	- stroboscopic fields move in opposite direction to that of rotation

Adjustment: Speed too high: Turn adjusting screw B anticlockwise
Speed too low: Turn adjusting screw B clockwise

Note: Do not operate motor without governor in position. If, however, this is not possible, short the ends of the two free leads brought out in parallel with the motor shaft before turning on the motor. If this precaution

Installation of a new governor:
After installation of the governor, screw in adjusting screw B until it is approximately flush with plate C.

Switch on the teleprinter. Adjust the speed.

A23 Torque of the receiver clutch
Five tension springs 647/Chapt. IV-3, Fig. 14 and tension spring 635/Chapt. IV-3, Fig. 15 unhooked. Secure clamping lever K/26 on camshaft 672. Type basket carriage in end-of-line position. Switch on teleprinter. While measuring clamping lever should be vertical.

After running for 10 min. the force exerted on the 100 mm arm should be 1 + 0.1 N.

Adjustment: Remove receiver. Remove friction clutch 614/25.
Loosen screw 651. Turn threaded washer 660.

A24 Adjustment of the print
Insert an almost worn out ribbon. Type the test text several times.

Print must be easily legible.

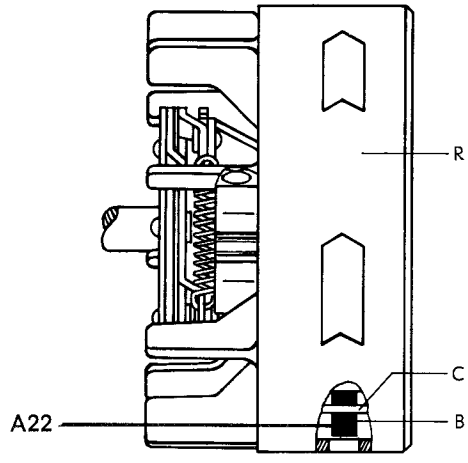
Adjustment: Loosen panhead screw 33/27 on impact adjuster 233. Adjust lever C.

D25 Check two-color printing device.
Ribbon inserted with red half below.
When transmitting red is printed and when receiving black.

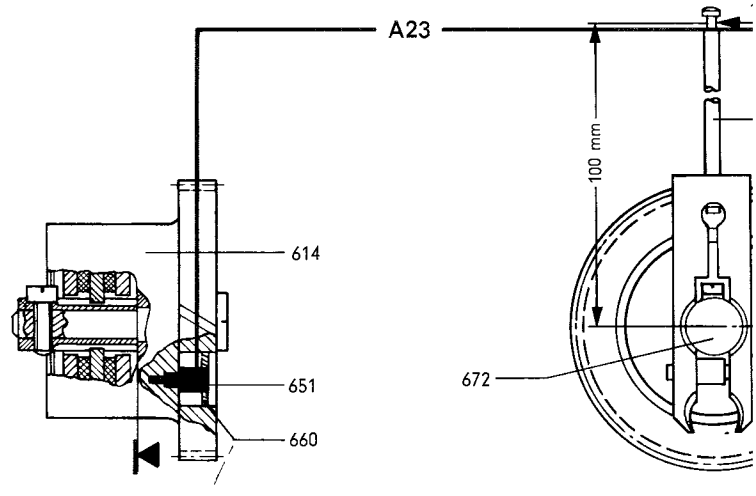
Series of printed characters: 3 4 5 6 7 9 / " , ( ) f g h j y
The upper half of the last possible character in the line may be printed black.
The last character transmitted by the tape reader attachment may be printed black.

D26 Checking the code pitch alignment
Switch on the tape punch attachment. Key in code combination "R" several times. Backspace tape E by one character. Key in code combination "Letters".

The code holes should be in line (Fig. 28).



24



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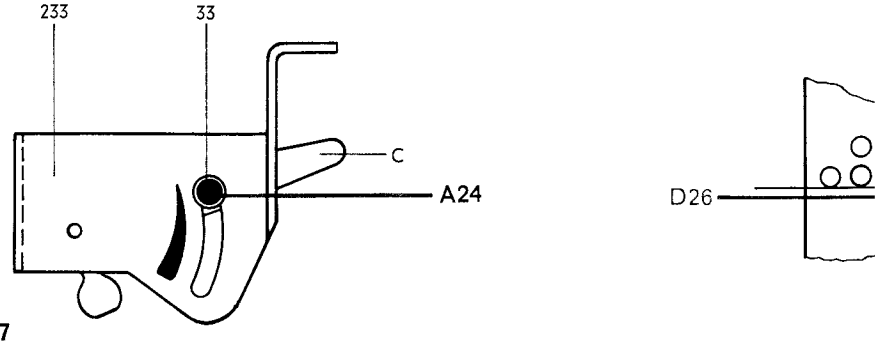
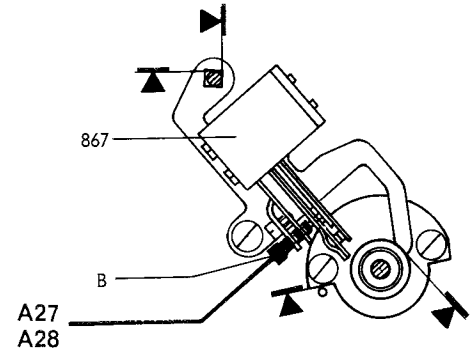


27



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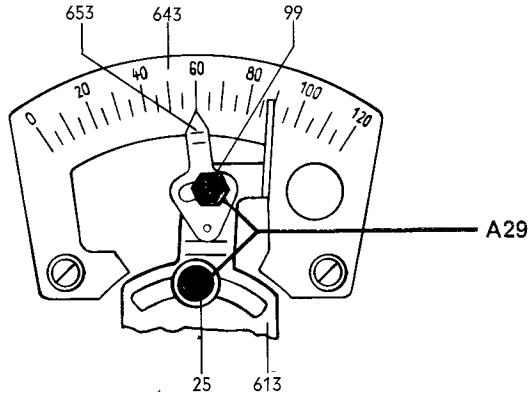


30

A27 Adjustment of the send contact on the transmitter

Plug connector on transmitter pulled out. Start-stop distortion meter connected to the plug connector of the transmitter at terminals 3 and 6. Key in characters "R" and "Y" alternately.

Start-stop distortion $\leqq$ 5 %

Adjustment: Remove lid 903/Chap. IV, p. 55 of the transmitter.
Turn adjusting screw B/29 on contact spring set 867 until the minimum value is reached.
Measuring equipment: telegraph signal analyzer 125 (S22562-H33-A1) or distortionmeter 2H3 (S22562-H103-A1).

A28 Adjustment of the send contact on tape punch attachment 86

Lid 948/Chap. IV, p. 279 removed. Lead removed from terminal. Start-stop distortion meter connected. Insert tape with code combinations "R" and "Y" and transmit.

Start-stop distortion $\leqq$ 5 %

Adjustment: Turn adjusting screw B/29 on contact spring set 867 until minimum value reached.
Measuring equipment: telegraph signal analyzer 125 (S22562-H33-A1) or distortionmeter 2H3 (S22562-H103-A1)

A29 Receive margin

The optimal margin for characters affected by bias distortion is adjusted by means of the range finder.
The receive margin can be simply determined by using the range finder as measuring equipment.
The optimal margin of the receiver can only be measured using a telegraph signal distorter (e.g. 124/200: S22565-H21-A1 or data signalgeber 7H2 (S22567-H102-A1).

Loosen hexagon screw 99/30, move plate 653 to the left, till about 1/3 of the way from the end of the slot, tighten hex screw 99 and loosen panhead screw 25. Transmit code combinations "R" and "Y" continuously. Move pointer 613 on scale 643 in direction of 0 and ascertain lower limit value of the receive margin. Move pointer 613 on the scale in direction 120 and measure the upper limit value.

Adjustment: Pointer 613 at calculated center point of the receive margin.
Loosen hexagon screw 99 and set plate 653 to graduation mark 60.
Example: Upper limit 100, lower limit 10,
receive margin = 100 - 10 = 90,
calculated average value = $\frac{100 - 10}{2}$ + 10 = 55

D30 Suppression of punching of "Who-are-you" code combination group

Switch on tape punch. Key in character sequence R, Y, Figures, "Who are you", 6.

Only the sequence R, Y, Figures, 6 may be punched on the tape, the "Who-are-you" code combination is not allowed to appear. The tape feed too is stopped for one character.

D31 Teleprinter operation with test circuit

Switch T/22 should be moved from position I to position II. A line current of 40 mA flows (adjust with resistor R2). Lamp S in the remote control unit lights up.

Note: The negative potential of the power source is applied to terminal 1 of the 8 point telegraph-line socket.

The teleprinter is put into closed-circuit operation via the line output. The teleprinter is stopped by putting switch T into position I.

If switch T is put into position II during off-line tape preparation, the buzzer in the remote control unit sounds and the teleprinter is switched back to the line automatically.

Baugruppen

Assemblies

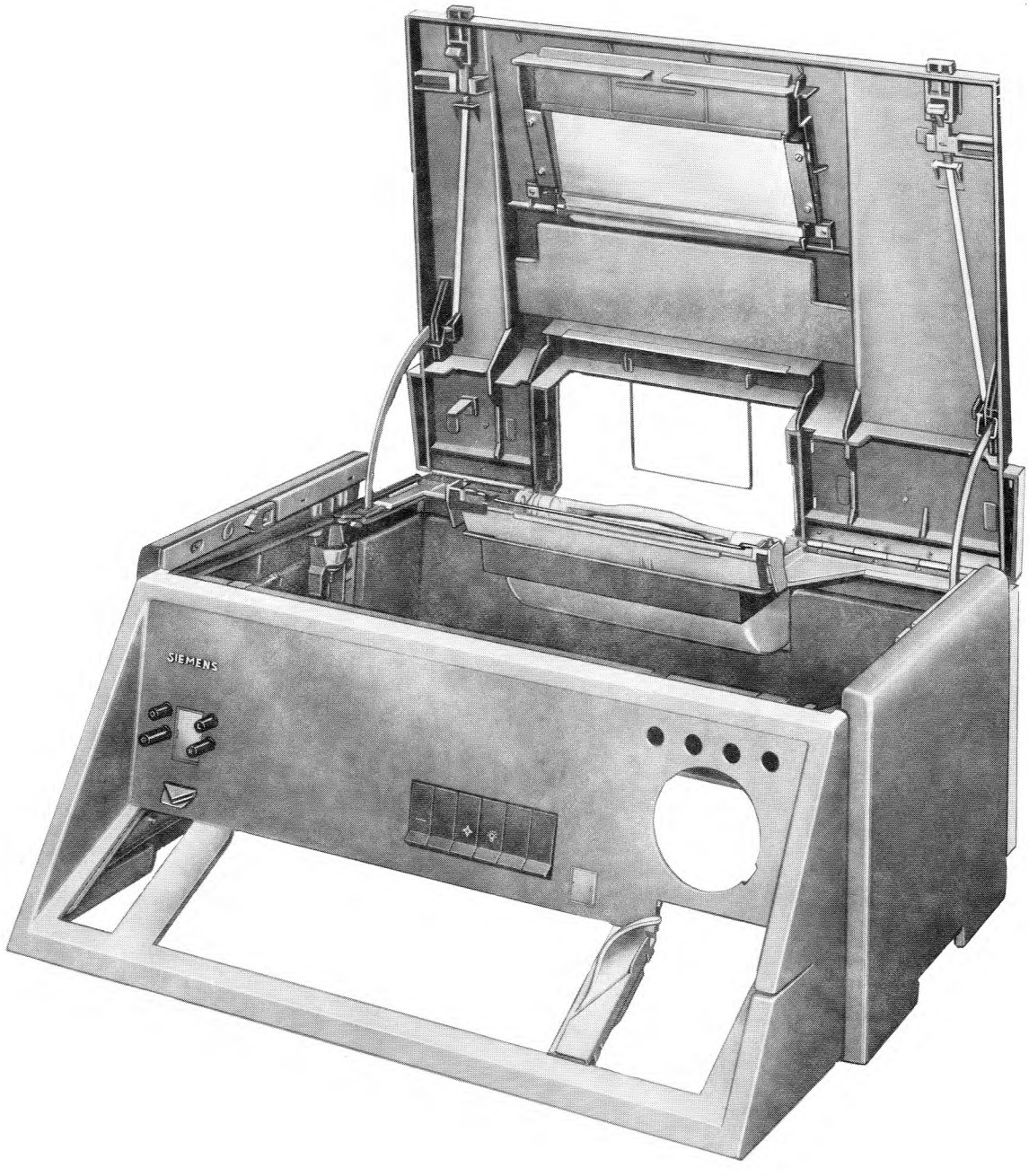
Modules

Módulos

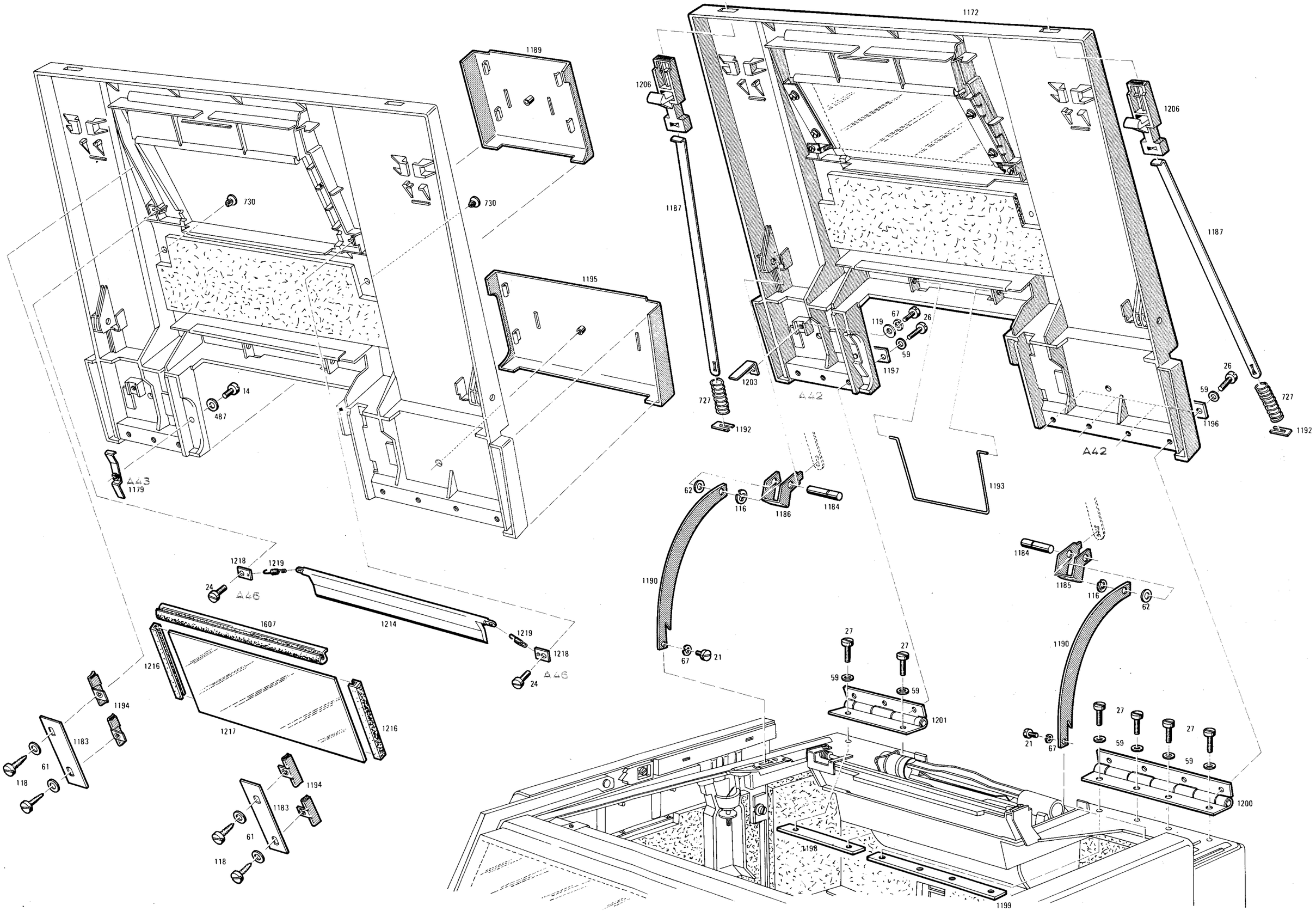
Módulos

Contents

Contents


SIEMENS

Components of desk-model cover


1189
730
730
1195
14
487
A43
1179
1172
1206
1206
1187
1187
119
67
26
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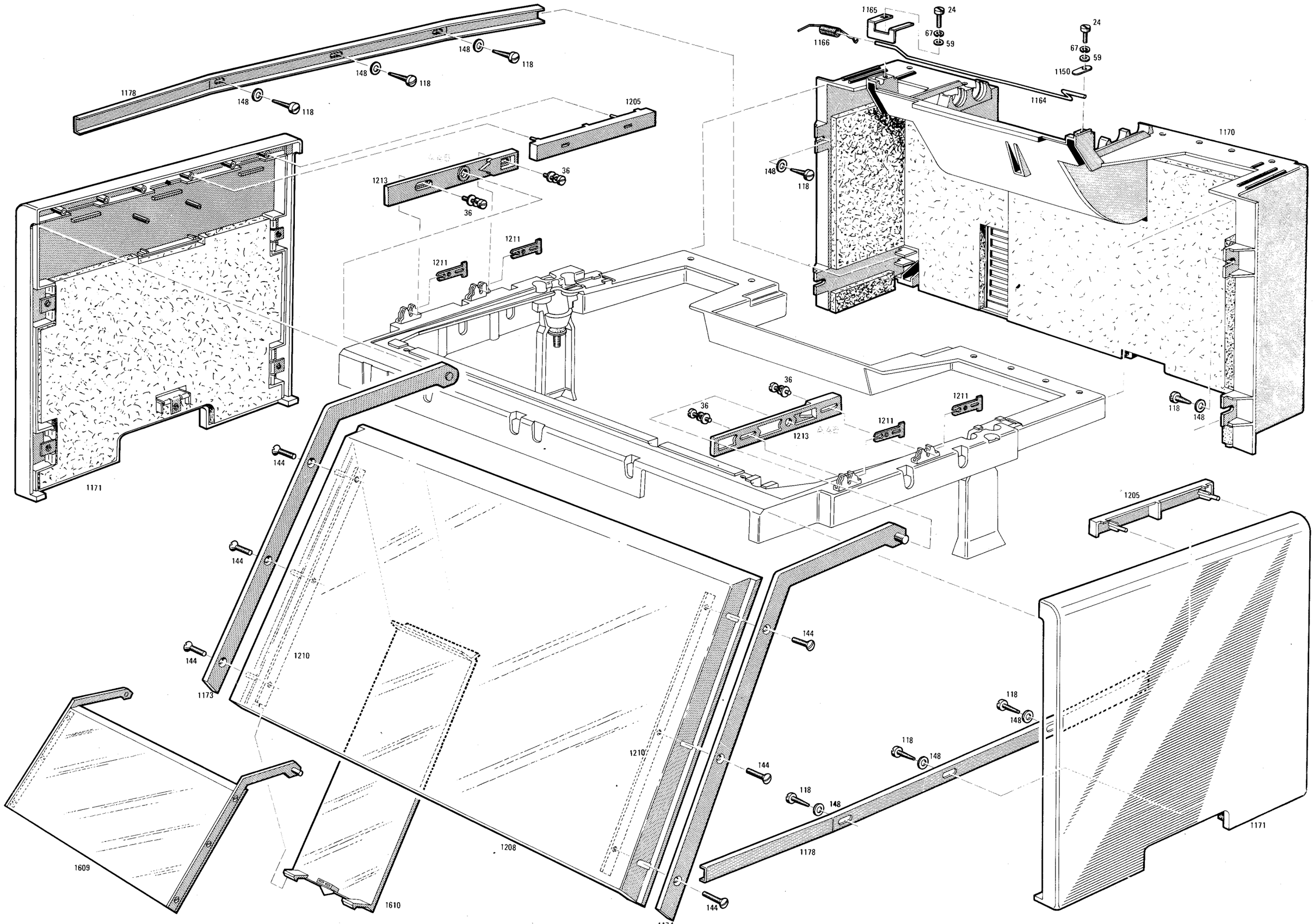
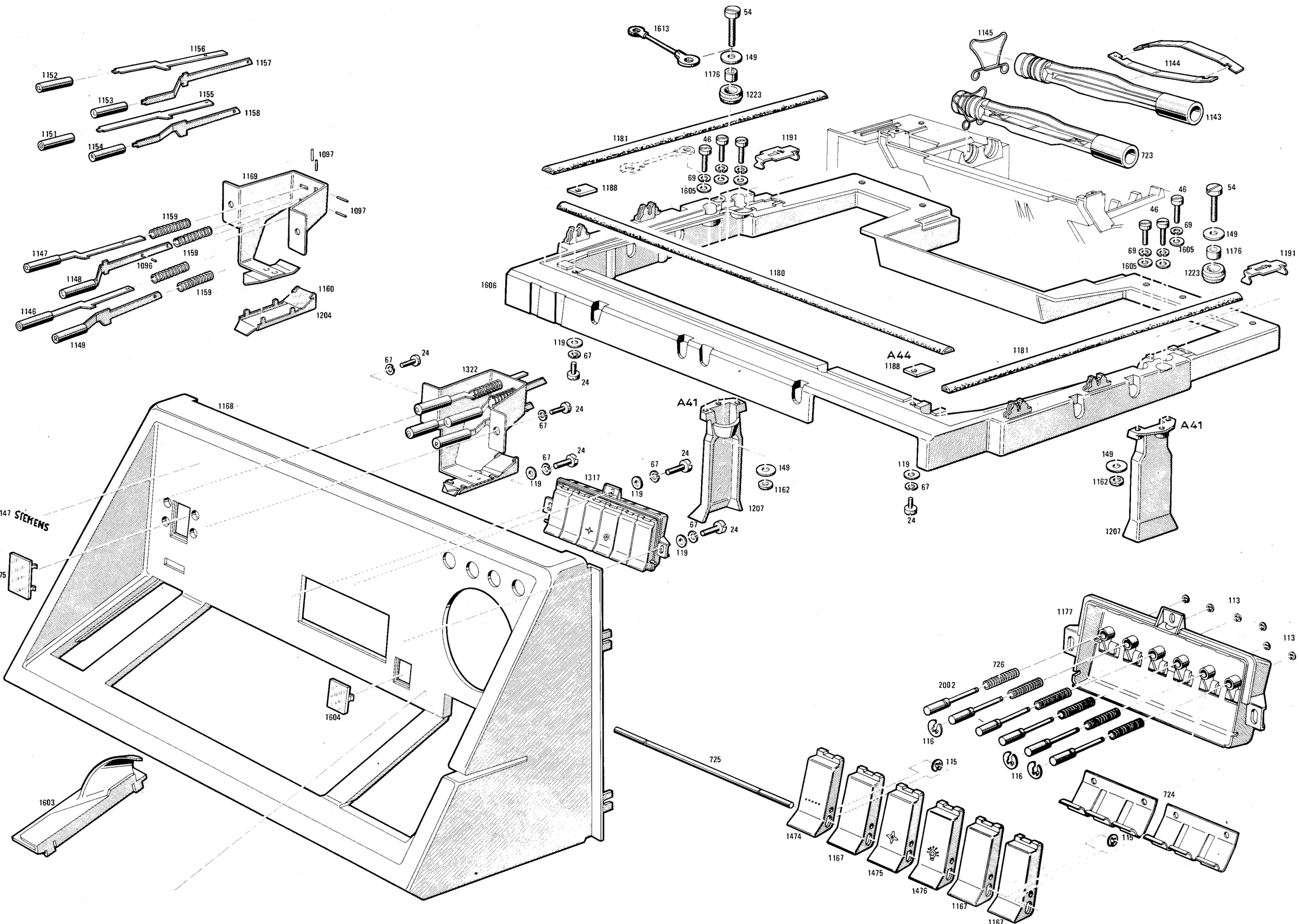
1197
1203
727
1192
A42
26
59
727
1196
1192
A42
1193
62
116
1186
1184
1190
67
21
1184
1185
116
62
1190
27
27
59
59
1201
21
67
27
27
59
59
1200
1198
1199
1218
1219
24
A46
1214
1607
1219
1218
24
A46
1216
1216
1217
1194
1183
61
118
1194
1183
61
118


1178
148
118
1205
1213
36
1211
1165
24
67
59
1166
1150
1164
1170
1171
144
1210
1173
1609
1610
1208
1178


1156
1157
1152
1153
1155
1158
1151
1154
1097
1169
1097
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1147
1096
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1148
1159
1160
1146
1204
1149
54
1613
149
1176
1223
1145
1144
1143
1181
46
1191
723
69
1605
1188
46
54
46
69
149
69
1605
1176
1605
1191
1223
1606
1180
119
67
24
A44
1188
1181
1322
67
24
24
67
67
24
1168
A41
A41
67
24
149
119
1317
119
1162
67
1207
119
67
24
24
149
119
1162
1207
147 SIEMENS
1175
1604
1603
725
1177
113
113
726
2002
116
116
115
724
115
1474
1167
1475
1476
1167
1167

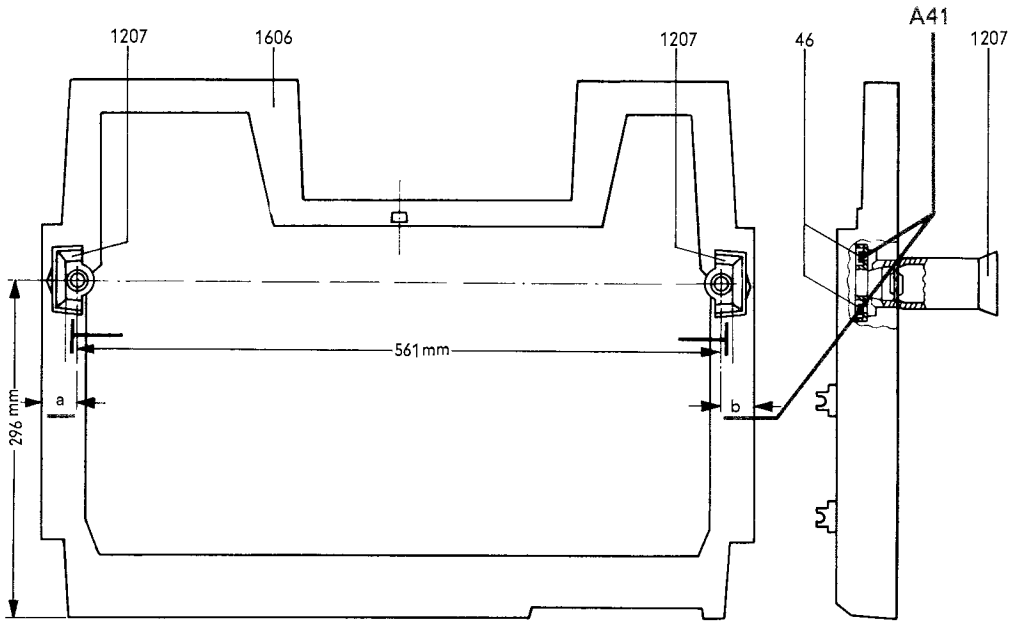
Adjustments and checks

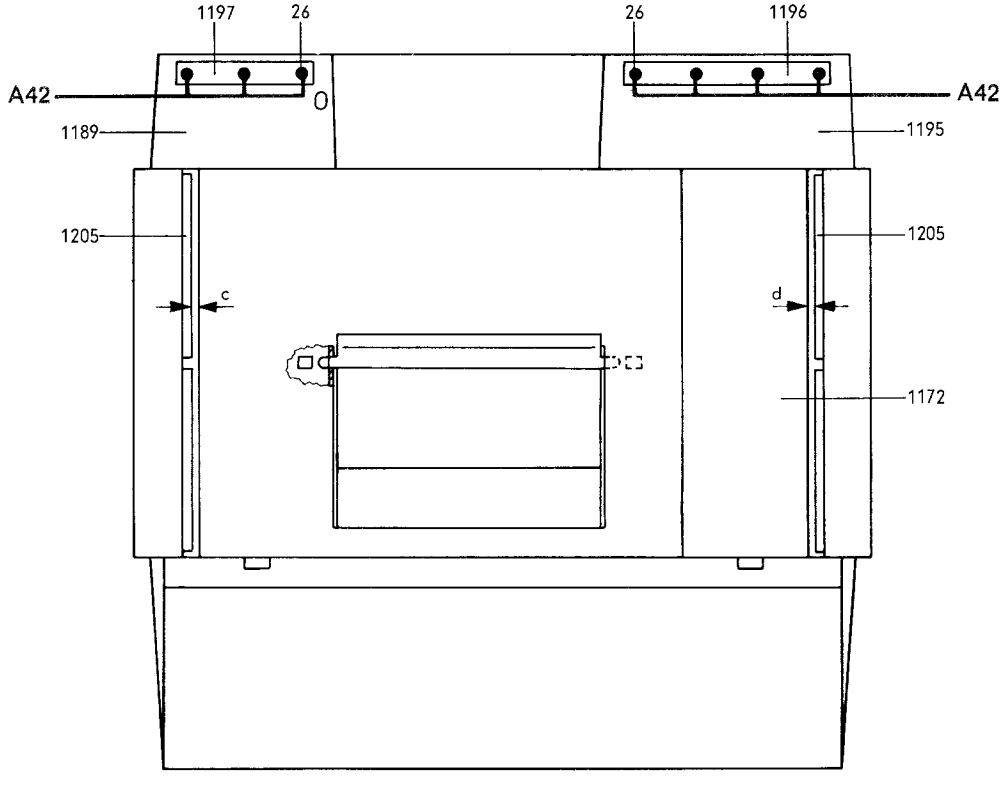
A41 Two guides 1207/1 are secured to frame 1606 according to the dimensions specified.
Gap a = b.

Adjustment: loosen 3 panhead screws 46 (lacquer-coated, only two visible) from each guide and align guides 1207.

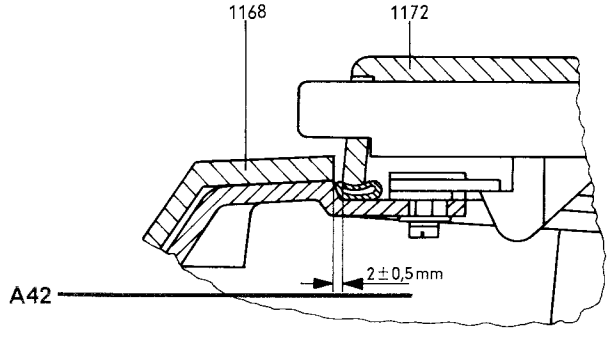
A42 Between front covers 1205/2 and lid 1172 there is a gap c = d.
Gap between lid 1172/3 and front section 1168 = 2 $\pm$ 0.5 mm.

Adjustment: remove front covers 1189/2 and 1195 (not shown). Loosen panhead screws 26 on plate 1197 and panhead screws 26 on plate 1196 and align lid 1172.

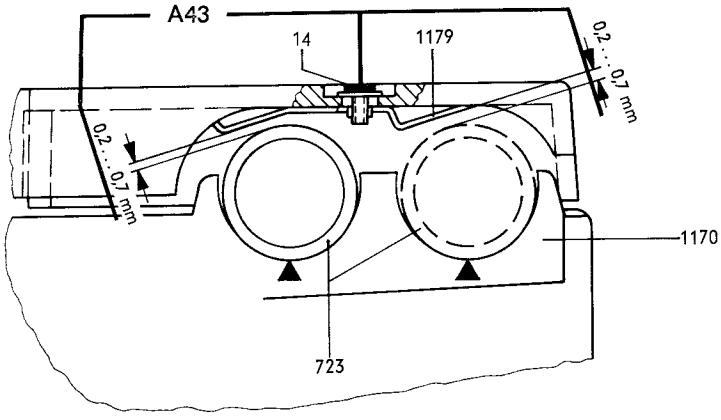

1207
1606
1207
46
A41
1207
561 mm
296 mm
a
b


1197
26
26
1196
A42
A42
1189
1195
1205
1205
c
d
1172

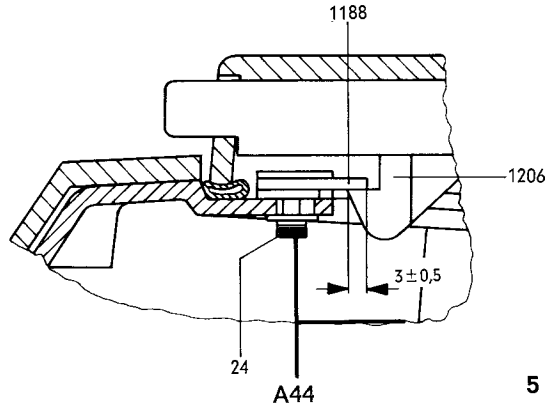
2


1168
1172
2±0,5 mm
A42

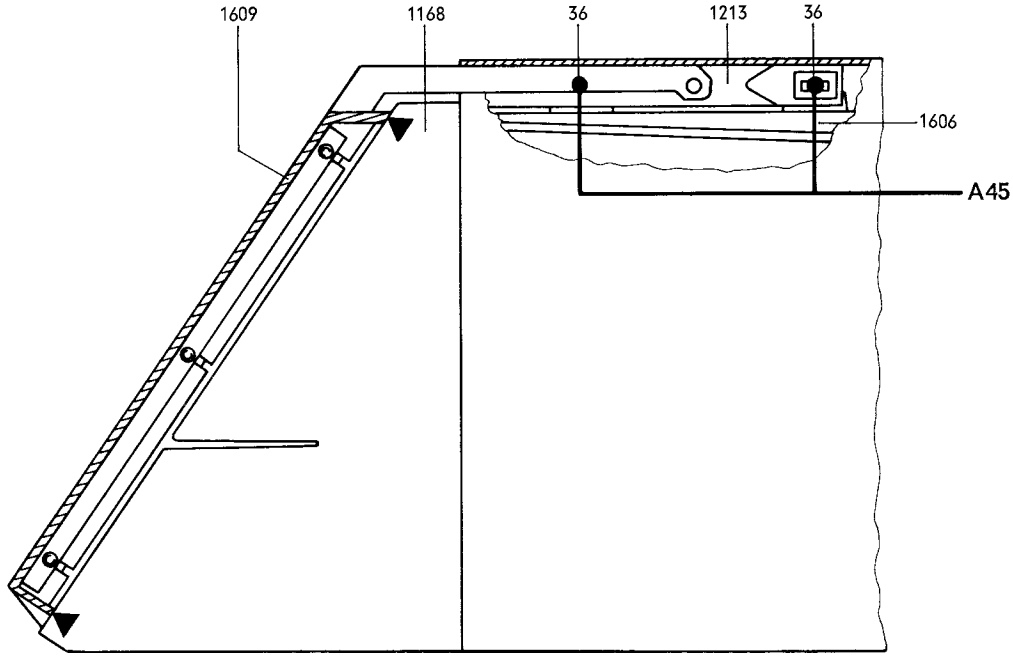
3


A43
14
1179
0,2 ... 0,7 mm
0,2 ... 0,7 mm
1170
723

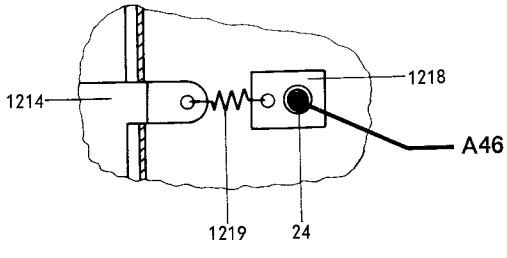
4


1188
1206
3±0,5
24
A44

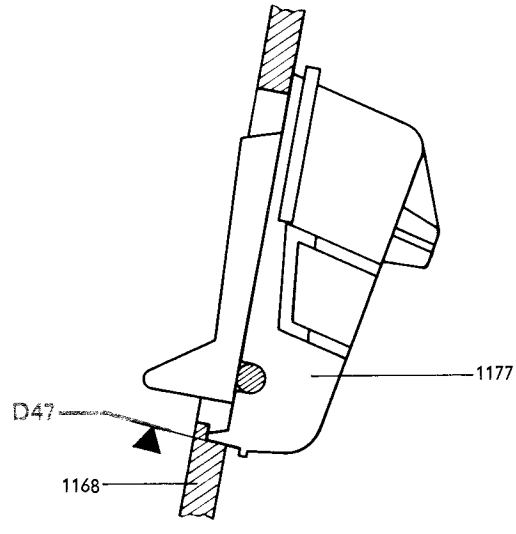
5


1609
1168
36
1213
36
1606
A45

6


1214
1218
A46
1219
24

7


1177
D47
1168

8

A43 Paper roll axle 723/4 inserted in rear section 1170, front cover 1189/2 removed.

Gap between paper roll axle 723/4 and stop 1179 = 0.2...0.7 mm.

Adjustment: loosen panhead screw 14, shift stop 1179.

A44 Latch nose of button 1206/5 overlaps plate 1188 by 3 ± 0.5 mm.

Adjustment: loosen panhead screw 24, shift plate 1188.

A45 Front cover plate 1609/6 parallel to the upper edge of front section 1168 and makes contact with front section 1168 on both sides.

Adjustment: loosen two panhead screws 36 each on both sides of frame 1606 and shift bearing plate 1213.

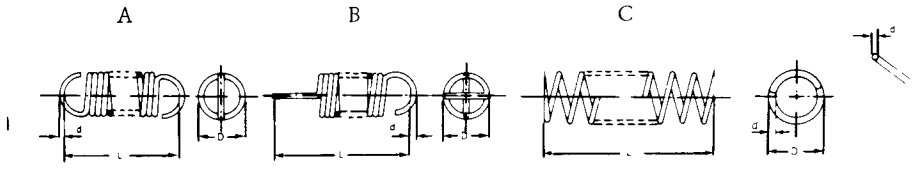
A46 Two tensions springs 1219/7 hooked to tape retainer lid 1214 and plate 1218.

Tape retainer lid 1214 exerts pressure on both sides of lid 1172.

Adjustment: loosen panhead screws 24, turn plate 1218 with tension spring 1219 through 180^{o} axially (tension spring acts simultaneously as torsion spring).

D47 Special function key assembly casing 1177/8 bears against front section 1168.

Table of springs



Type of spring

A	tension spring	d	wire diameter	1) cor
B	tension spring	D	spring diameter	par
C	pressure spring	L	length in normal	eng
F	torsion spring		condition	

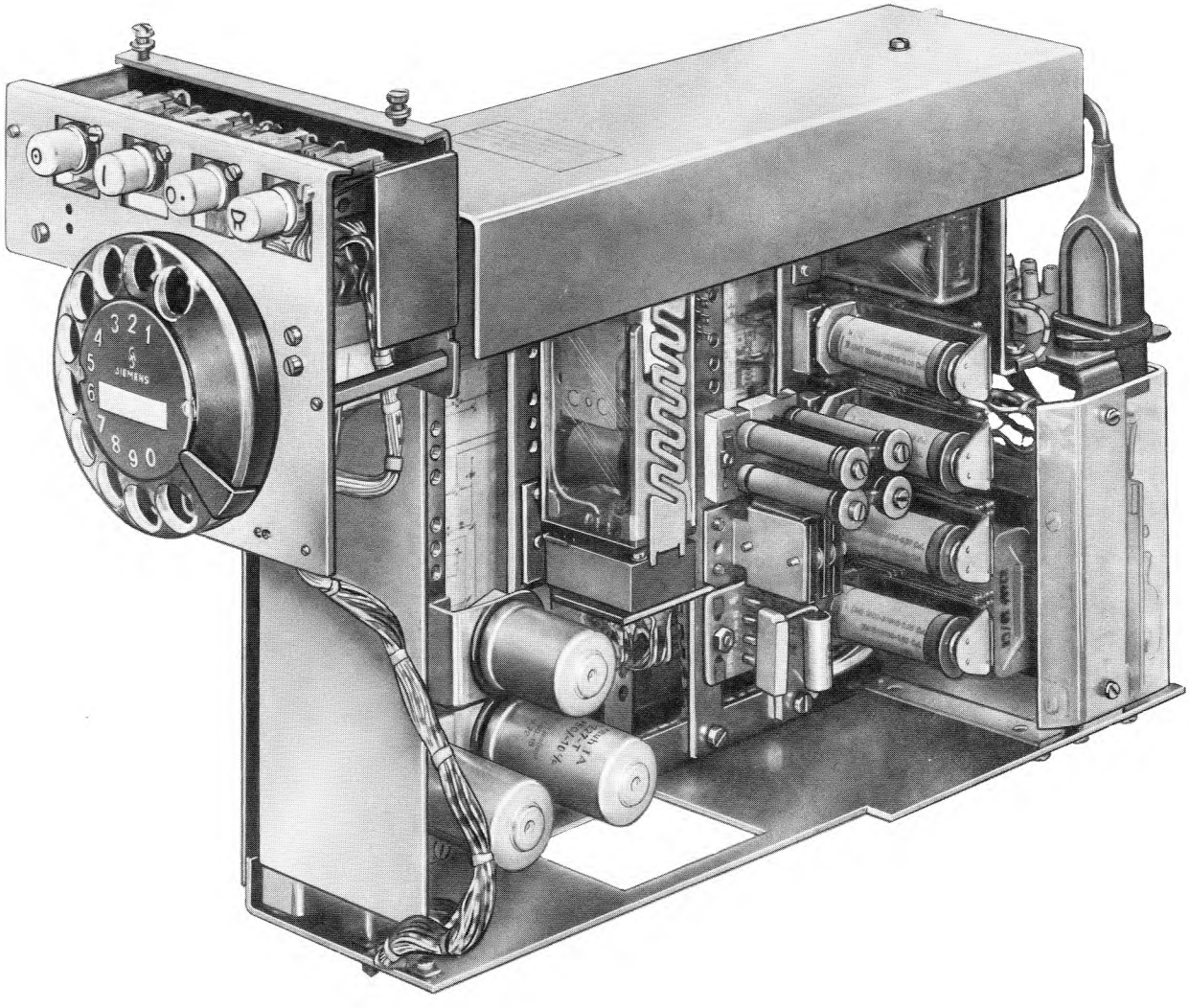
Type of spring	d mm	D mm	L mm	Ordering number
A	0.32	3.84	13.24	C22165-A150-C135
C	0.32	4.32	20.7	C20165-A175-C24
	0.56	7.72	40.4	C22165-A76-C94
	0.7	7.7	18.6	C20165-A175-C64
F	0.7	5.6	11.5	C22165-A76-C242

Built-in remote control unit NL, version S22311-D9-A100, is incorporated in 100 teleprinter for telex operation.

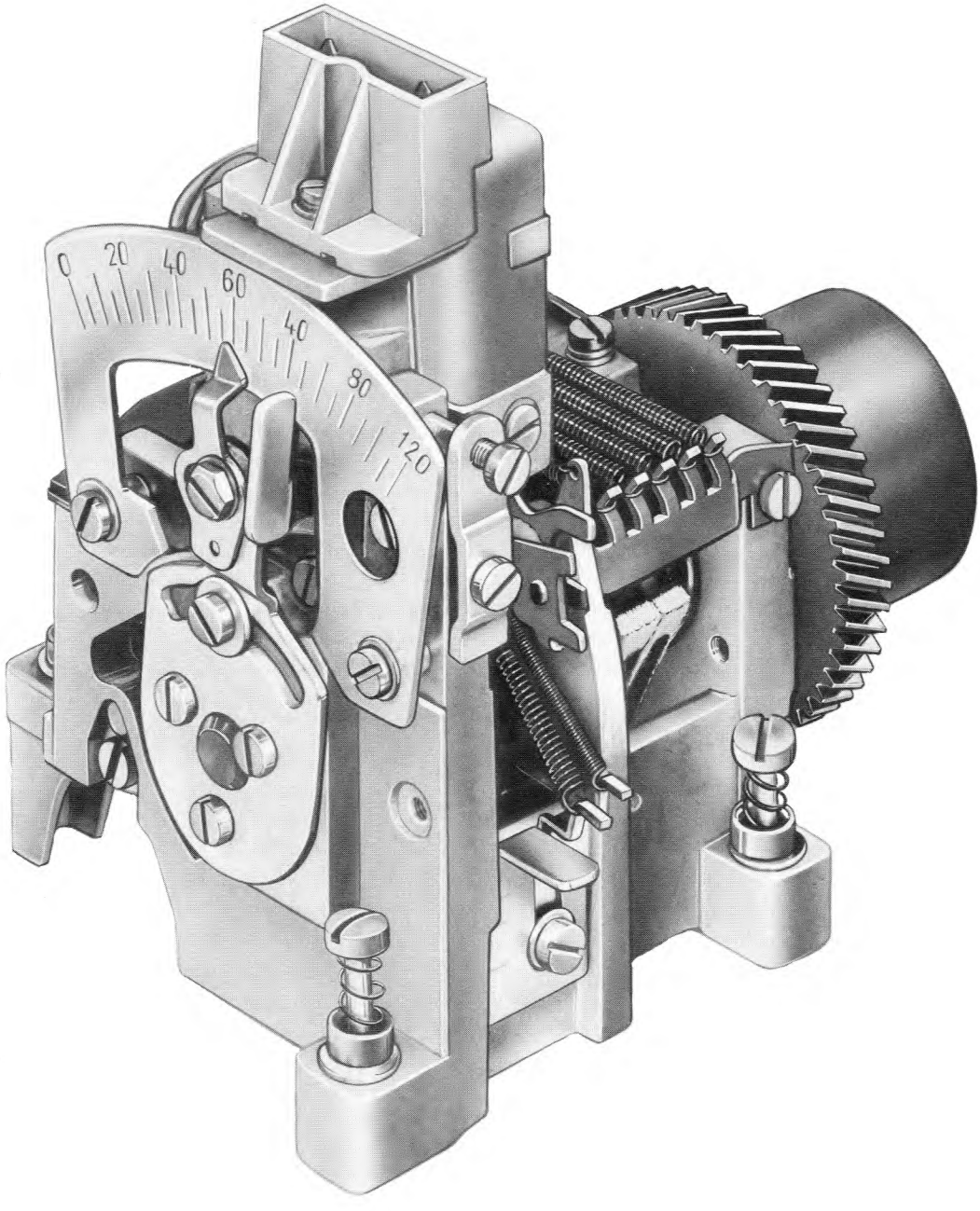
For a description of the built-in remote control unit (picture on the next page circuit and wiring diagrams please see manual

Built-in remote control unit for model
100 teleprinter
A22311-D9-A100-*-7618
ordering number D231/150.18.101

Adjustments to the built-in remote control unit are not required.


SIEMENS

Contents


0
20
40
60
40
80
120

Component parts of Module

Instructions for removal or replacement

Observe points of contact as per D52 on page 35.

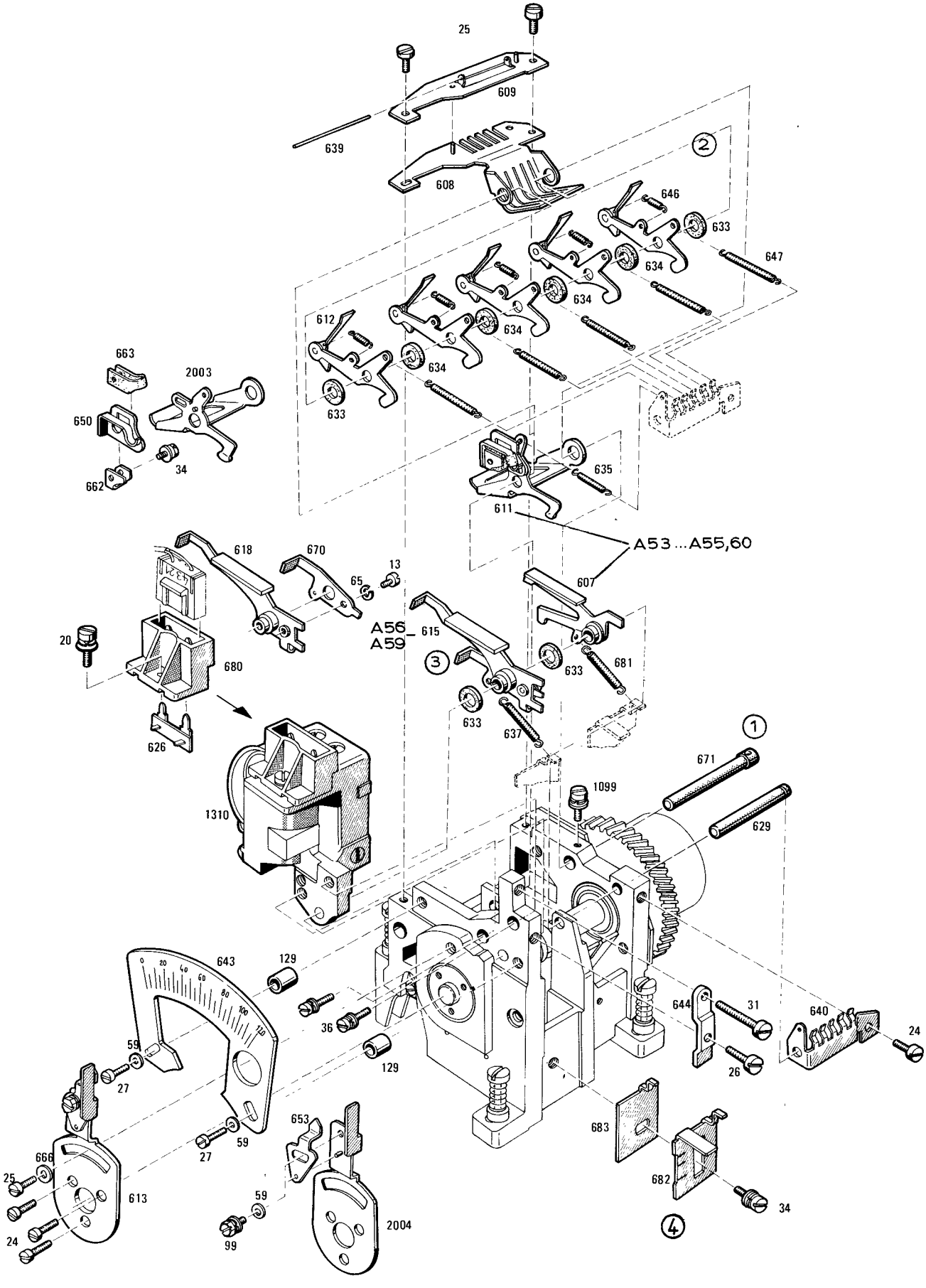
(1) Before removing axle 671, remove friction clutch 614 (Fig. 31), bushing 638 and plate 628.

(2) Hook five levers with sword 612, each with a tension spring 646 mounted correctly onto guide plate 608, and insert four lubricating washers 634 and two lubricating washers 633.

Insert guide plate 608 with five levers with sword 612 and six lubricating washers 634, 633 into selector lever 611. Lower this assembly onto mounting frame 674 (Fig. 31) and secure all the components with axle 671.

(3) The lower angled lobe of start-stop armature 615 must lie above release lever 675 (Fig. 31).

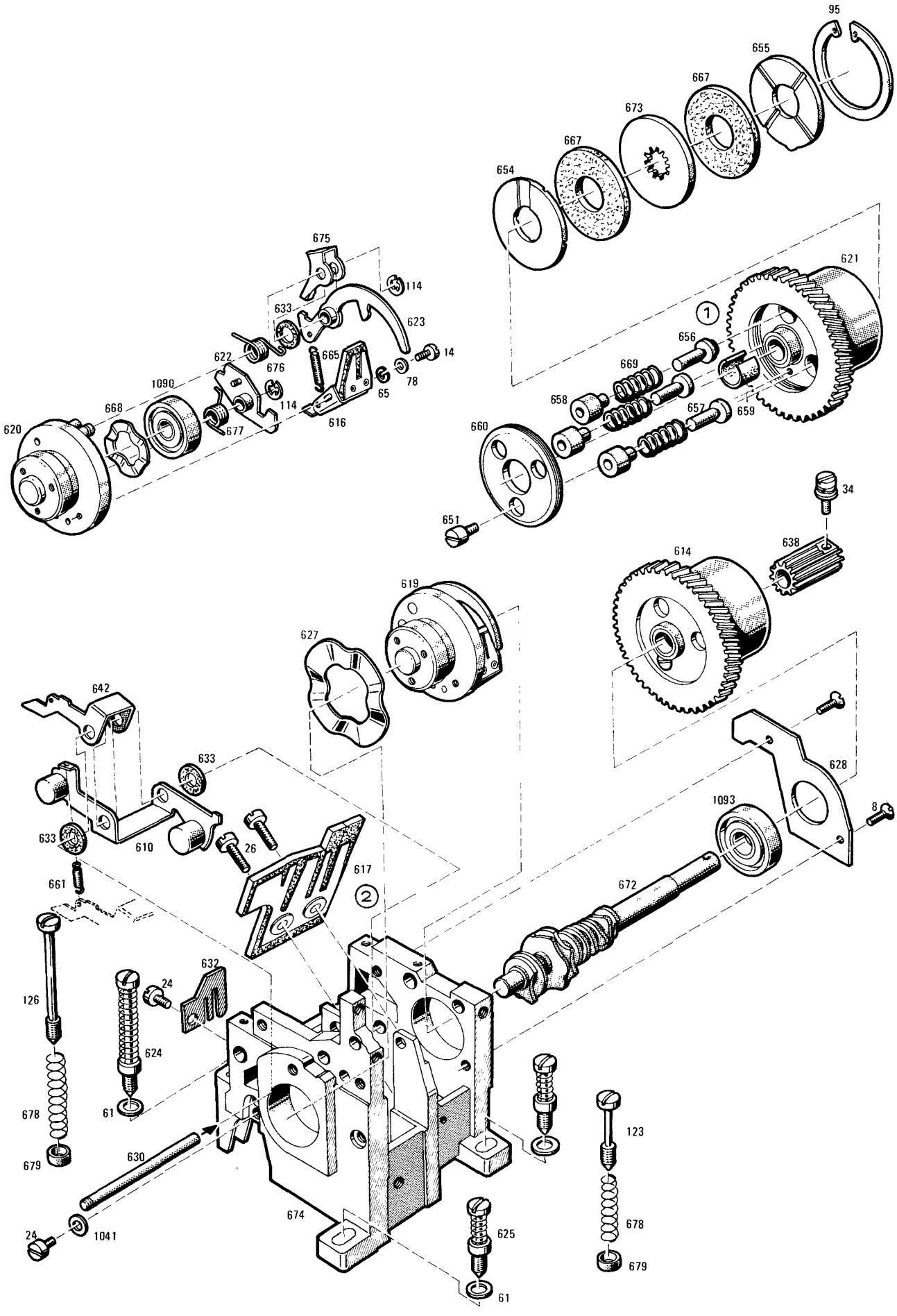
(4) Lower graduation mark for 50 bauds
Middle graduation mark for 75 bauds
Upper graduation mark for 100 bauds


25
609
639
608
646
633
647
634
612
634
634
633
663
2003
650
34
662
635
611
A53 ...A55,60
618
670
13
65
607
20
A56_ 615
A59
680
633
681
633
637
626
1310
671
1099
629
643
129
644
31
640
24
36
129
59
27
26
59
27
653
683
666
25
613
682
59
34
24
99
2004

Instructions for removal or replacement

(1) The shoulder of bolt 656 must engage the groove of disk 654.

(2) Insert lubricating assembly 617 after replacement of adjusting disk 619, but before replacing camshaft 672.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655
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673
667
654
675
114
633
623
622
676
665
14
78
65
1090
668
114
620
677
616
621
1
656
669
658
657
659
660
651
34
638
614
619
627
642
633
633
610
26
617
2
661
628
1093
8
672
632
24
126
624
61
678
679
630
24
1041
674
625
61
123
678
679

Adjustments and checks

D51 Rest position

Locking lever 62/1 of adjusting disk 619 rests against the locking cam of camshaft 672, start-stop armature 615 against residual plate B.

D52 Guide plate 632/2, stop plate 609, guide plate 608 and bushing 638 make contact at the points marked. Comb 640 secures axle 629.

A53 Selector armature 607/3 on the highest of the five cam lobes.

Visible gap between selector armature 607 and residual plate B $\leqq$ 0.03 mm.

Adjustment: Tighten pan head screw 26 so that pan head screw 31 has a torque Md $\geqq$ 30 Nem.

Loosen two pan head screws 36. Turn magnet 1310 with adjustment screw 31.

A54 Move selector armature 607/4 against residual plate B by hand.
Selector lever 611 on lowest point of the cam.

Distance between selector armature 607 and selector lever 611 = 0.1 + 0.1 mm.

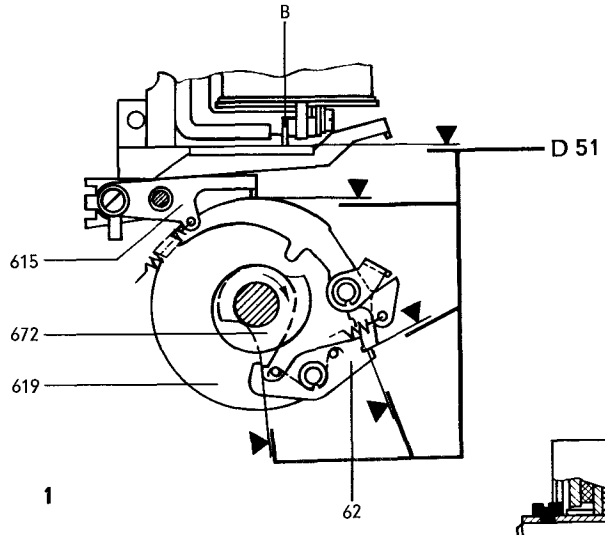
Adjustment: Bend adjusting plate 650 through window C.

A55 Camshaft in rest position D51

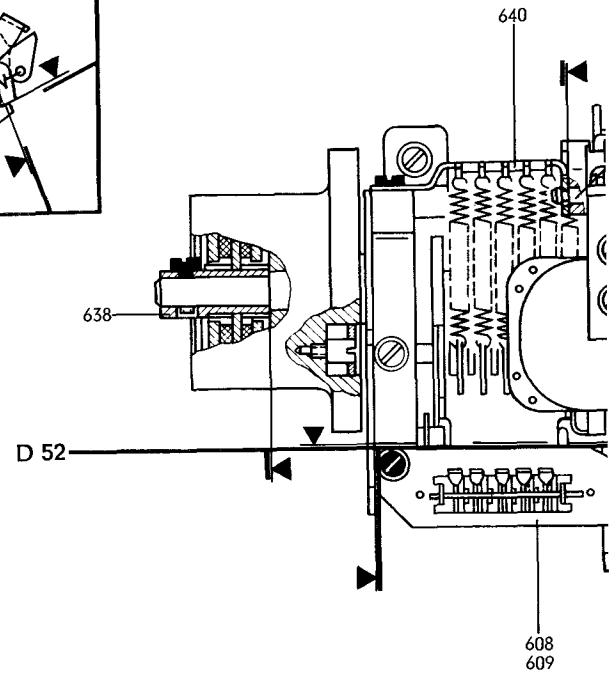
Distance between selector armature 607/5 and selector lever 611 = 0.25 + 0.1 mm.

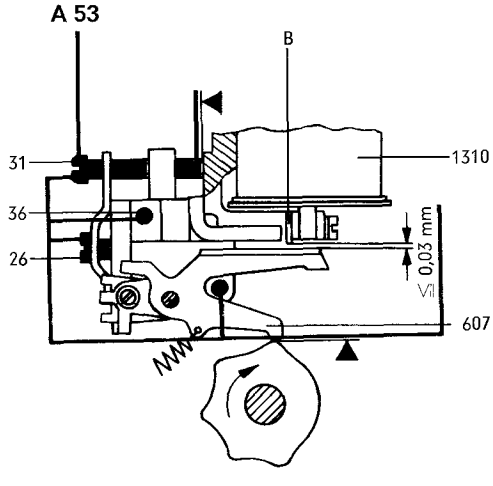
Adjustment: Loosen pan head screw 19 and displace adjusting plate 650.

Check A54.

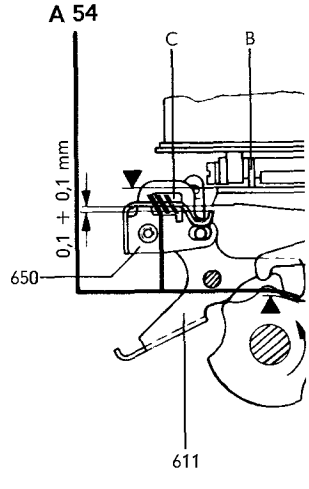

B
D 51
615
672
619
62

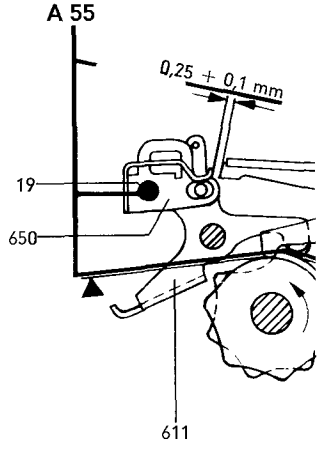
1

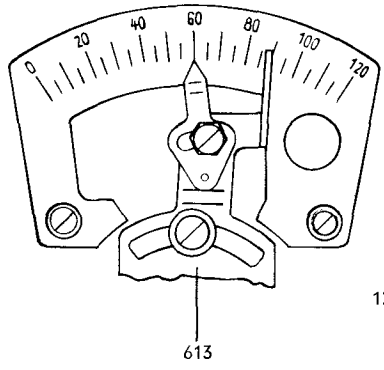

640
638
D 52
608
609


A 53
B
31
36
26
1310
0,03 mm
607

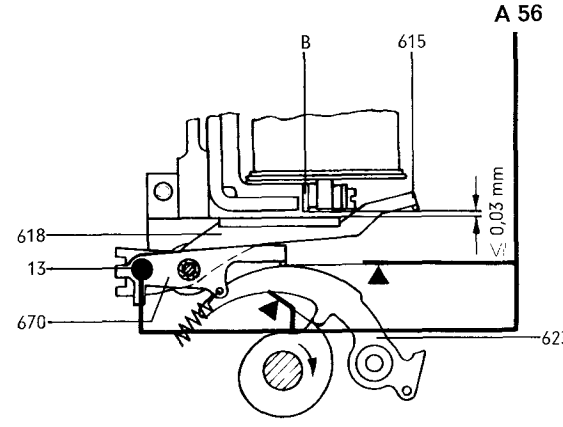
3


A 54
C
B
0,1 + 0,1 mm
650
611

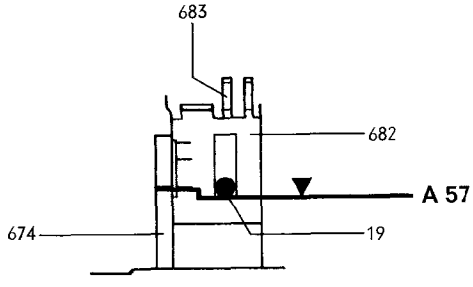

A 55
0,25 + 0,1 mm
19
650
611


0
20
40
60
80
100
120
613
122

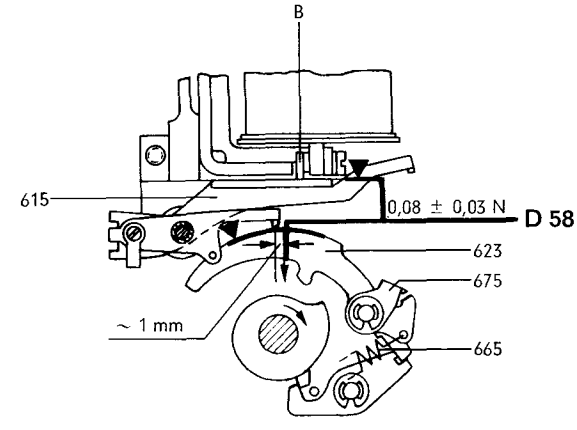
6


A 56
B
615
618
13
670
623
≤ 0,03 mm

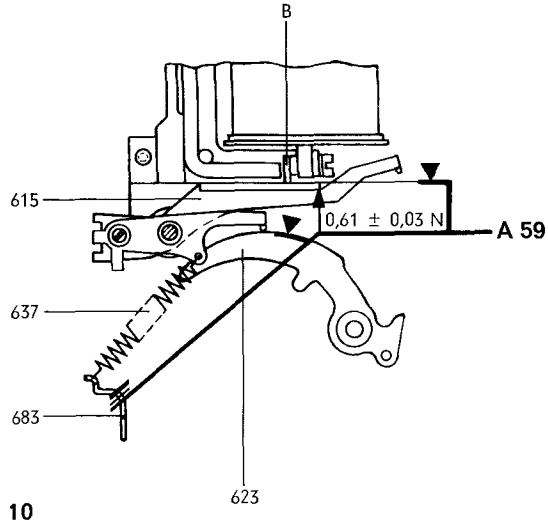
7


683
682
A 57
674
19

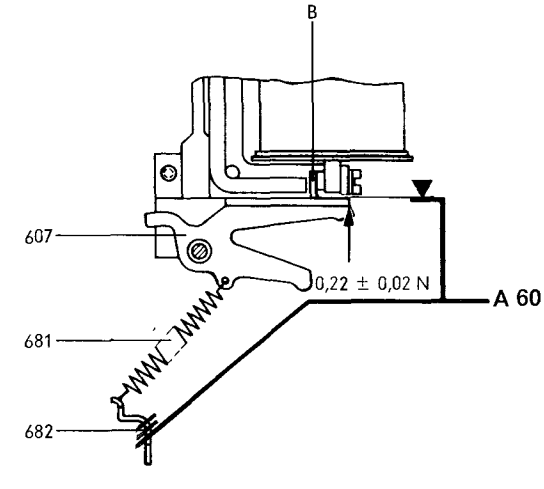
8


B
615
0,08 ± 0,03 N
D 58
623
675
~ 1 mm
665

9


B
615
0,61 ± 0,03 N
A 59
637
683
623

10


B
607
0,22 ± 0,02 N
A 60
681
682

11

A56 Lever 623/7 at highest point of the cam. Pointer 613/6 at the middle of the scale.

Visible gap between start-stop armature 615/7 and residual plate B ≦ 0.03 mm.

Adjustment: Loosen pan head screw 13. Displace start-stop armature 618 and lever 670 with respect to each other.

A57 Lowest graduation mark on plate 682/8 coincides with mark on mounting frame 674.

Adjustment: Move plate 682 up against pan head screw 19.

Spring forces:

D58 Lever 623/9 with tension spring 665.

Start-stop armature 615 against residual plate B, pointer 613/6 at middle of the scale. Visible gap between lever 623/9 and release lever 675.

Force of 0.08 ± 0.03 N required to move lever 623.
Test point at approx. 1.0 mm from start-stop armature 615.

A59 Tension spring 637/10 on start-stop armature 615.

Lever 623/9 against start-stop armature 615.

Start-stop armature 615/10 against residual plate B. Force 0.61 ± 0.03 N.

Adjustment: Bend extension on plate 683.

A60 Tension spring 681/11 on start-stop armature 607.

Selector armature 607 against residual plate B. Force 0.22 ± 0.02 N.

Adjustment: Bend extension on plate 682.

D61 Release lever 675/12 with torsion spring 676

Lever 623 on highest point of cam. Locking lever 622 against pin E.

Release lever 675 raised with force of 0.19 ± 0.05 N.

D62 Locking lever 622/13 with torsion spring 677

Start-stop armature 615 in released condition. Camshaft 672 shortly after rest position D51. Locking lever 622 against pin E.

Locking lever 622 raised from pin E with force of 0.18 ± 0.06 N.

D63 Five levers with sword 612/14 with a tension spring 647 and 646 each.

Selector armature 607/11 against residual plate B. Turn camshaft 672/14 until five levers with sword 612 in highest position.

Swords C raised with force of 0.25 ± 0.05 N.
Levers with sword 612 raised with force of 1.15 ± 0.17 N.

D64 Selector lever 611/15 with tension spring 635.

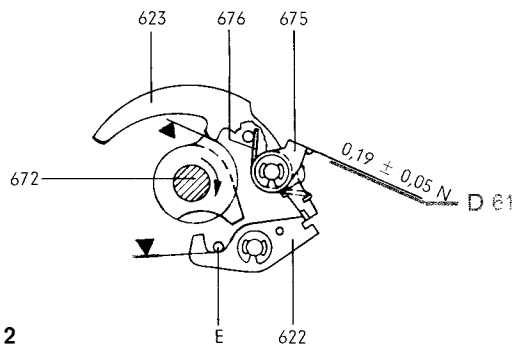
Camshaft in rest position D51.

Selector lever 611 raised with force of 1.95 + 0.3 N.

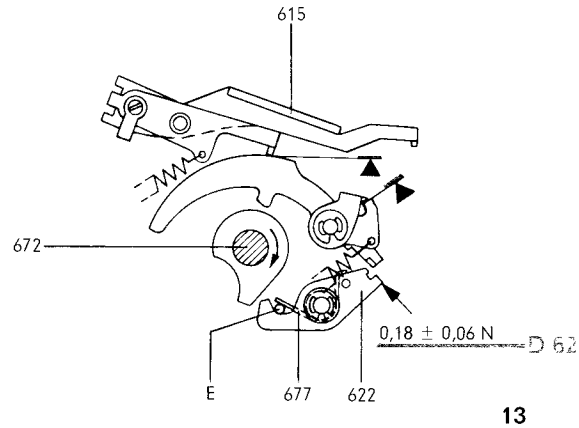
D65 Lever 610/16 with tension spring 661

Lever 610 on highest point of cam.

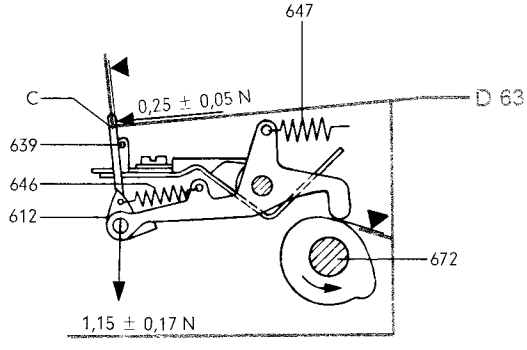
Lever 610 raised with force of 0.65 + 0.1 N.


623
676
675
672
0,19 ± 0,05 N
D 61
E
622

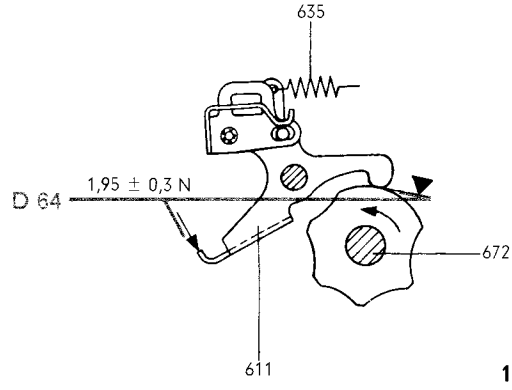
12


615
672
0,18 ± 0,06 N
D 62
E
677
622

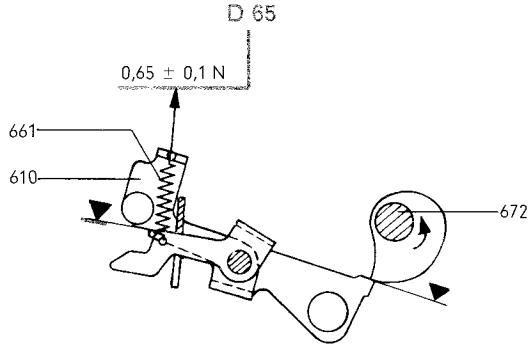
13


647
C
0,25 ± 0,05 N
D 63
639
646
612
672
1,15 ± 0,17 N

14

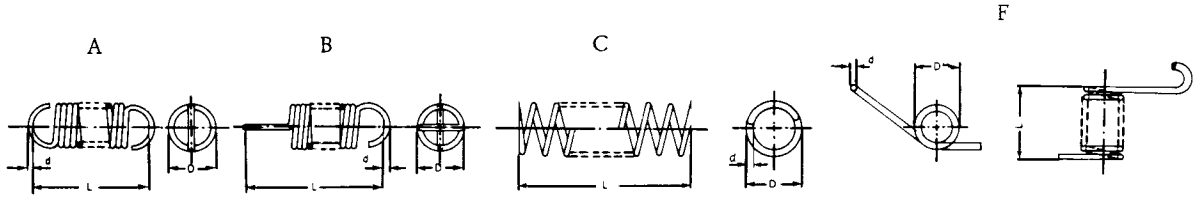

635
D 64
1,95 ± 0,3 N
672
611

15


D 65
0,65 ± 0,1 N
661
610
672

16

Table of springs



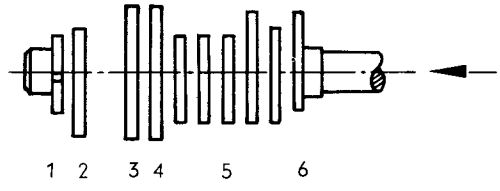
Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

1) consecutive number of part in which the spring engages

Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No. of part 1)	figure page
A	0.22	2.44	7.1	C20145-A43-C133	646	612	29
	0.22	2.94	7.7	C20145-A43-C191	661	610	31
	0.28	2.44	17.5	C20145-A43-C356	681	607	29
	0.32	3.04	13.3	C20145-A43-C64	637	670, 615	29
	0.36	3.5	17.6	C20145-A43-C137	647	612	29
	0.36	3.52	17.0	C20145-A43-C60	635	611	29
B	0.22	2.55	19.8	C20145-A43-C266	665	623	31
C	0.25	4.5	20.0	C20145-A43-C349	678	625	31
	0.8	6.3	11.2	C20145-A43-C285	669	656	31
F	0.32	6.24	2.8	C20145-A43-C347	676	623	31
	0.36	5.82	2.2	C20145-A43-C348	677	622	31

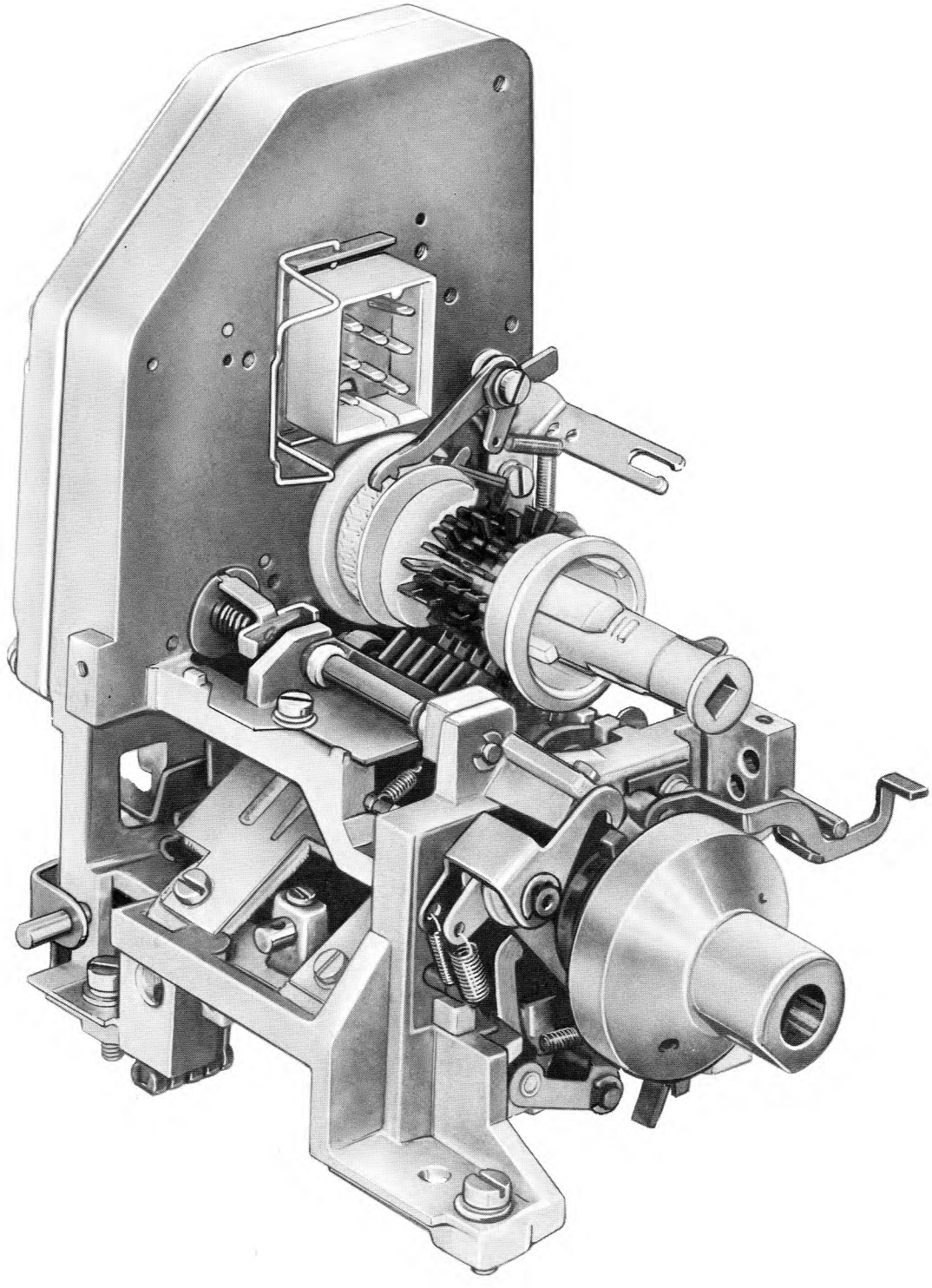
Arrangement of cams on receiver shaft



1 Locking lever
2 Armature restoring lever
3 Selector armature
4 Selector lever
5 Code elements (code levers)
6 Starting the printer

← Drive side

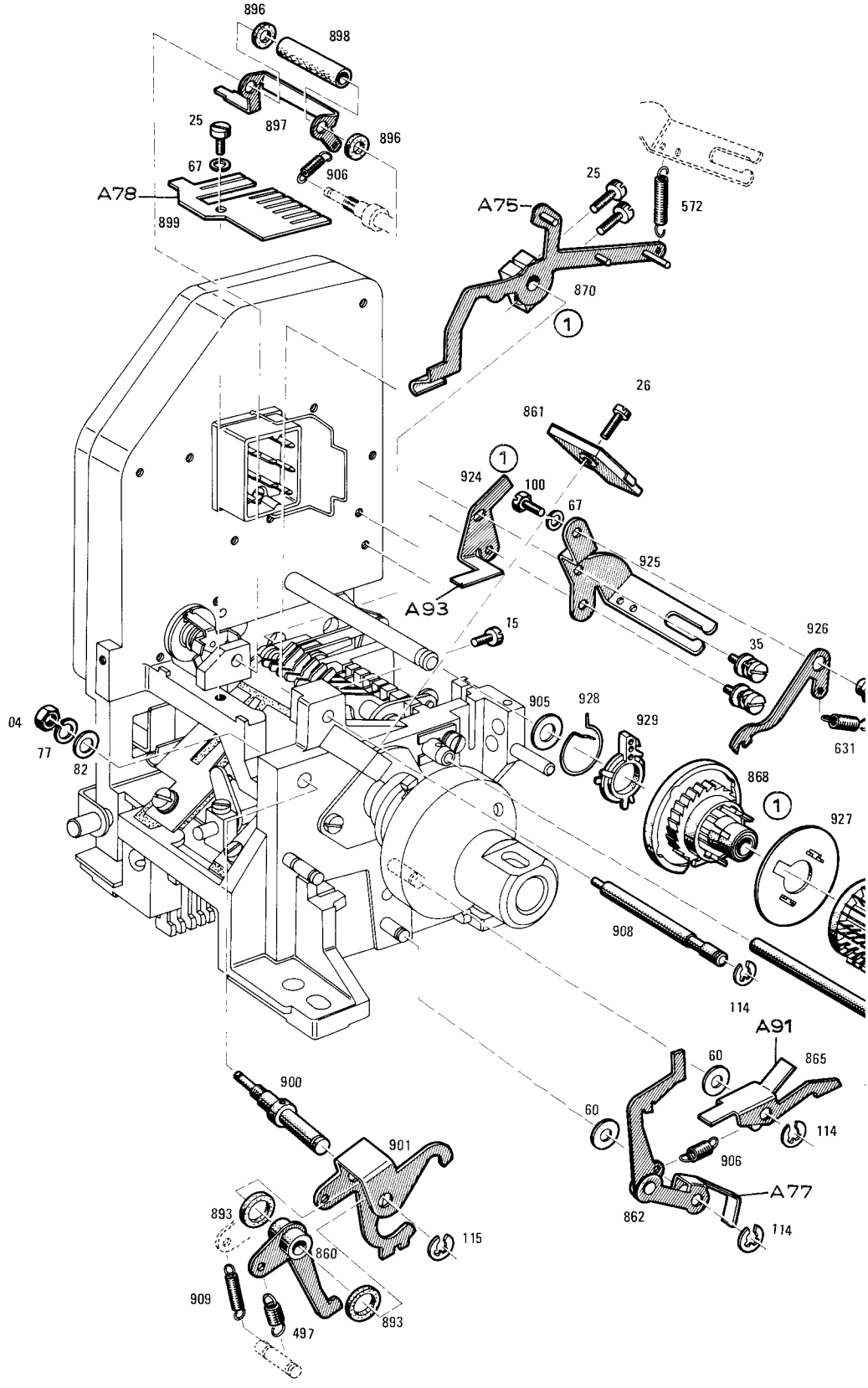
Contents



Component parts of module

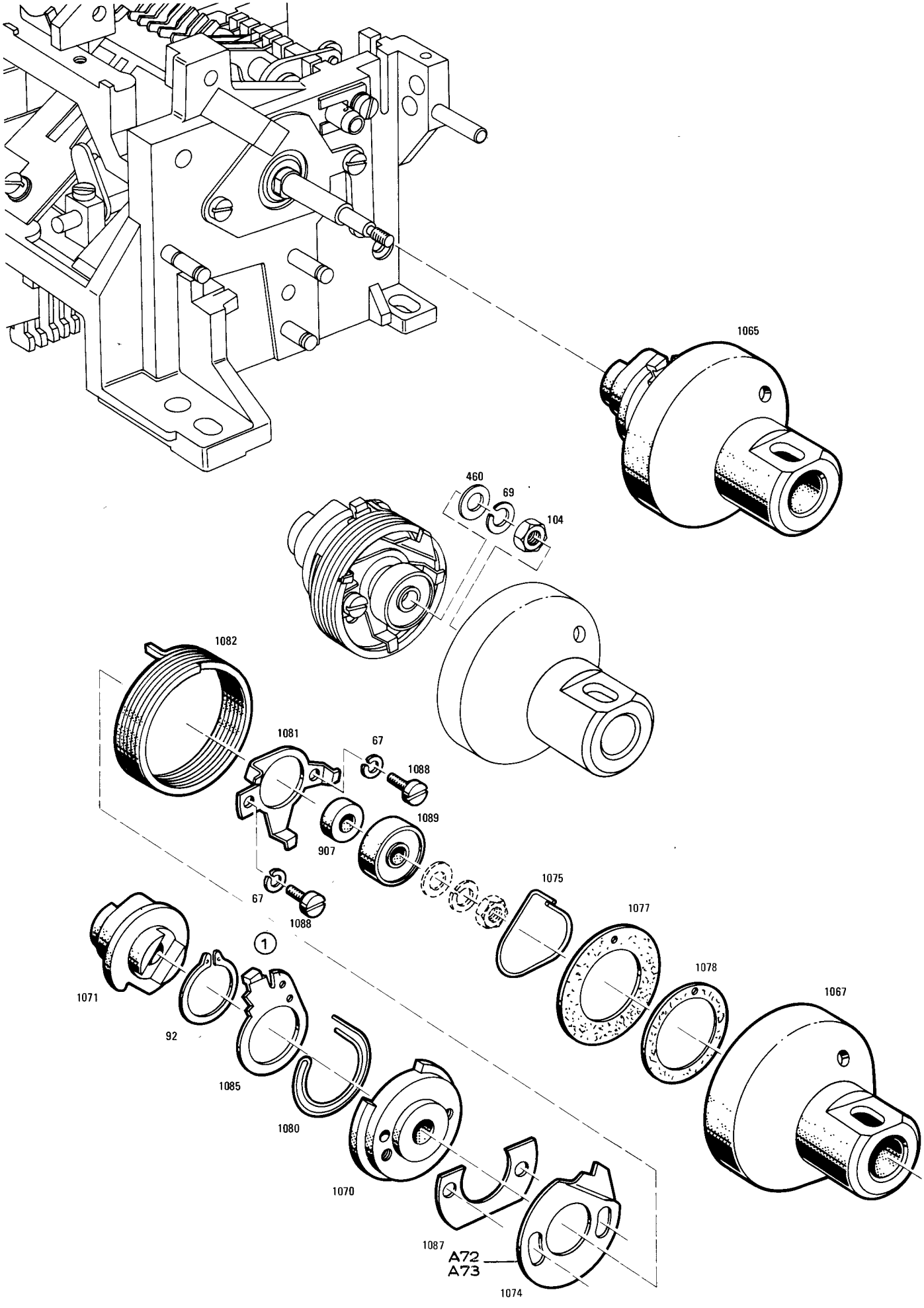
Instructions for removal or replacement

(1) Install lever 870 before mounting drive system 868 and stop 924.


896
898
897
25
896
67
906
A78
899
A75
25
572
870
1
26
861
924
1
100
67
925
A93
15
926
35
631
905
928
929
868
1
927
908
114
A91
60
865
114
906
A77
862
114
900
60
901
115
893
860
909
893
497
04
77
82

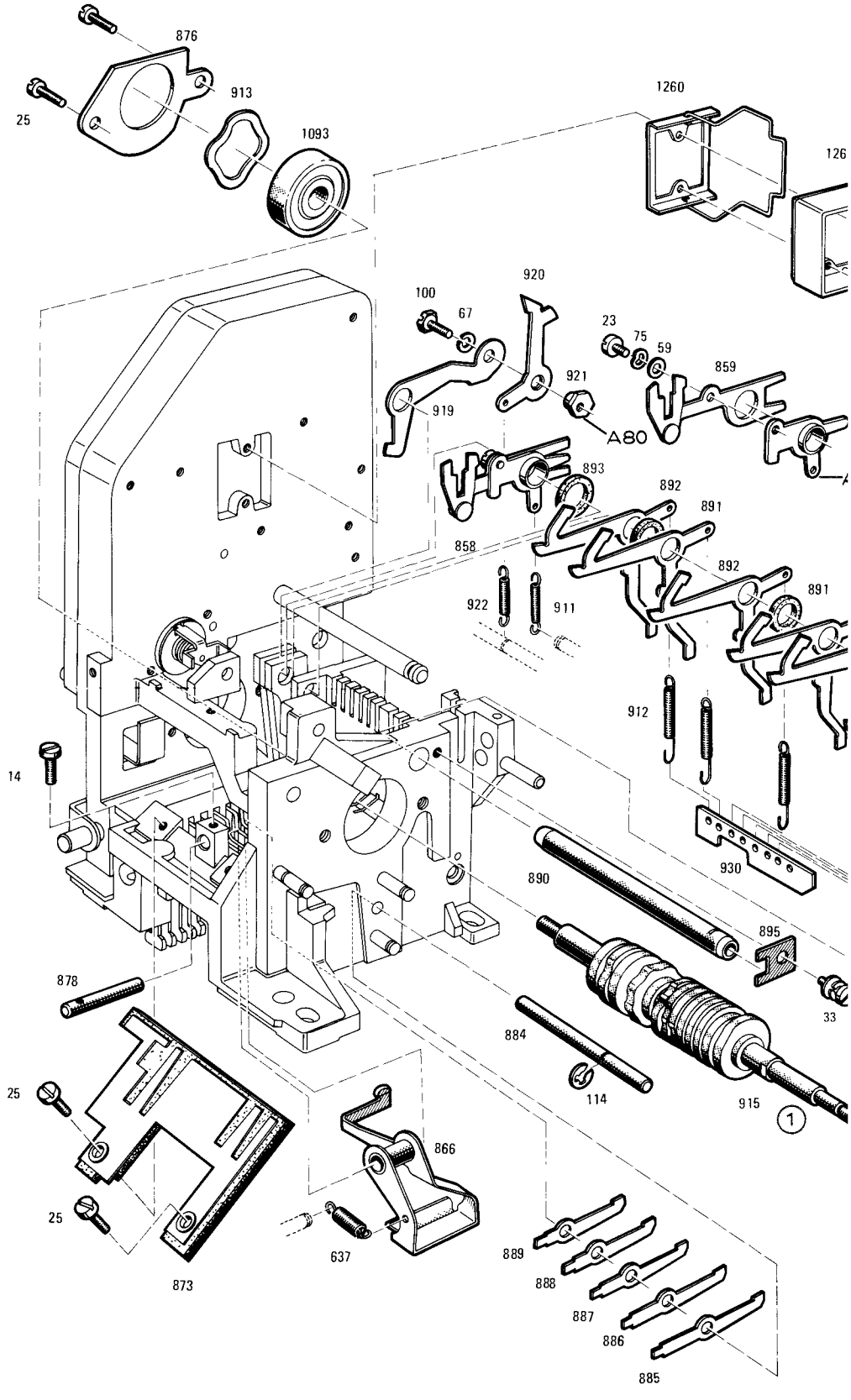
Instructions for removal or replacement

(1) Driver lug of spring 1082 must latch up in the slot of lever 1085.


1065
460
69
104
1082
1081
67
1088
1089
907
67
1088
1075
1077
1078
1067
1071
92
1085
1080
1070
1087
A72
A73
1074

Instructions for removal or replacement

(1) Position of camshaft 915 shown is identical with the mounting position.


876
913
25
1093
1260
126
100
67
920
23
75
59
859
921
919
A80
893
892
891
858
892
891
922
911
912
14
930
890
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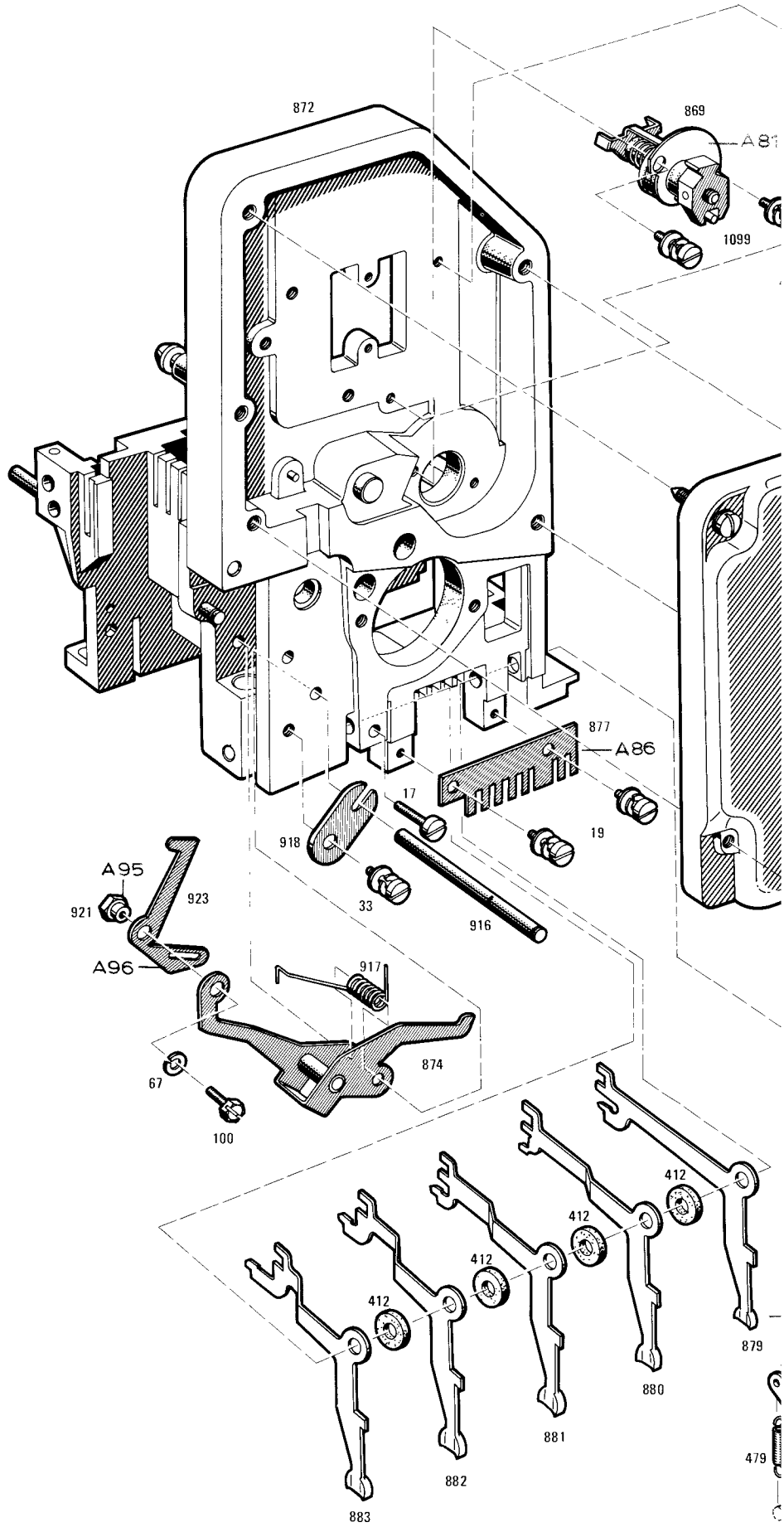
878
33
884
114
915
1
25
866
25
637
889
888
887
886
885
873


872
869
A87
1099
877
A86
17
19
918
33
916
A95
921
923
A96
917
874
67
100
412
412
412
412
879
880
881
882
883
479

Adjustments and checks

D71 Rest position

Camshaft 915/1 in rest position.
Locking lever 866 on the highest point of the cam of camshaft 915.

Antibounce cam of cam sleeve 1071/2 against lever 860.

Release lever 901/3 against locking lever 865.
Lever 1085 of expanding spring clutch 1065 against release lever 901.

A72 Spring 1082/4 against collar of bushing 1070.

Gap between spring 1082 and plate 1074 $\leqq$ 0.4 mm.

Mounting: To arrive at this gap install parts in the following sequence:

bushing 1070, washer 1087, plate 1074 and retainer 1081/5
or
bushing 1070/4, plate 1074, retainer 1081/5 and washer 1087

Before assembling, coat spring chamber in bushing 1070 with a thin film of "Retinax G" grease.

A73 Plate 1074/5 against spring 1082.

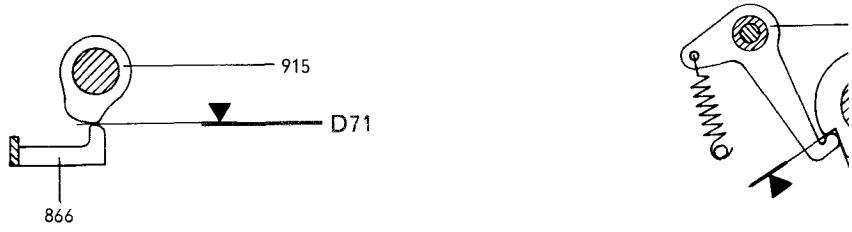
With clutch drum 1067/6 installed, and the clutch tripped, gap between narrowest point of contact surface of lever 1085 and bushing 1070 is 1.6 + 0.3 mm

Adjustment: remove clutch drum 1067/6, loosen pan head screw 1088/5, turn plate 1074.

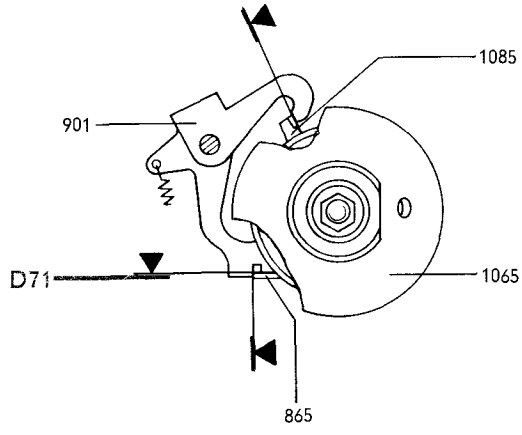
Note: Expanding spring clutches supplied as spare parts provide for a gap of 1.7 $\pm$ 0.1 mm. "After a short period of operation, the expanding spring adapts itself to the clutch drum, so that the above-mentioned dimension may be increased."

D74 Camshaft in rest position D71.

Clutch drum 1067/7 may be gently turned.
When released camshaft 915 driven reliably.


915
D71
866

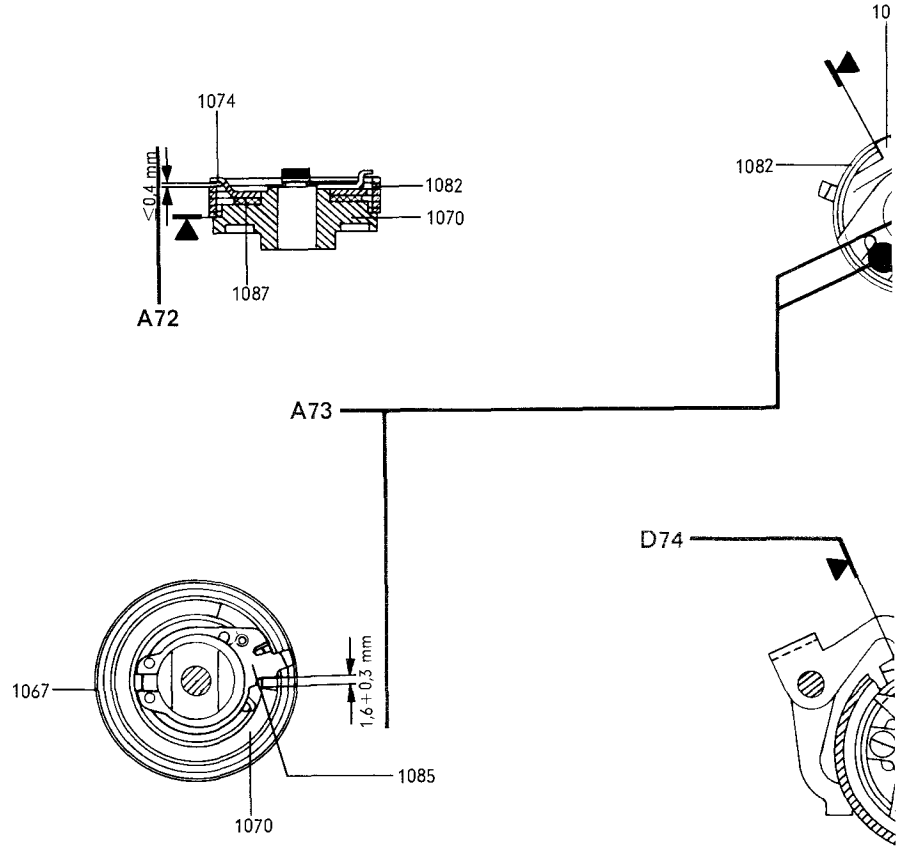
1


1085
901
D71
1065
865

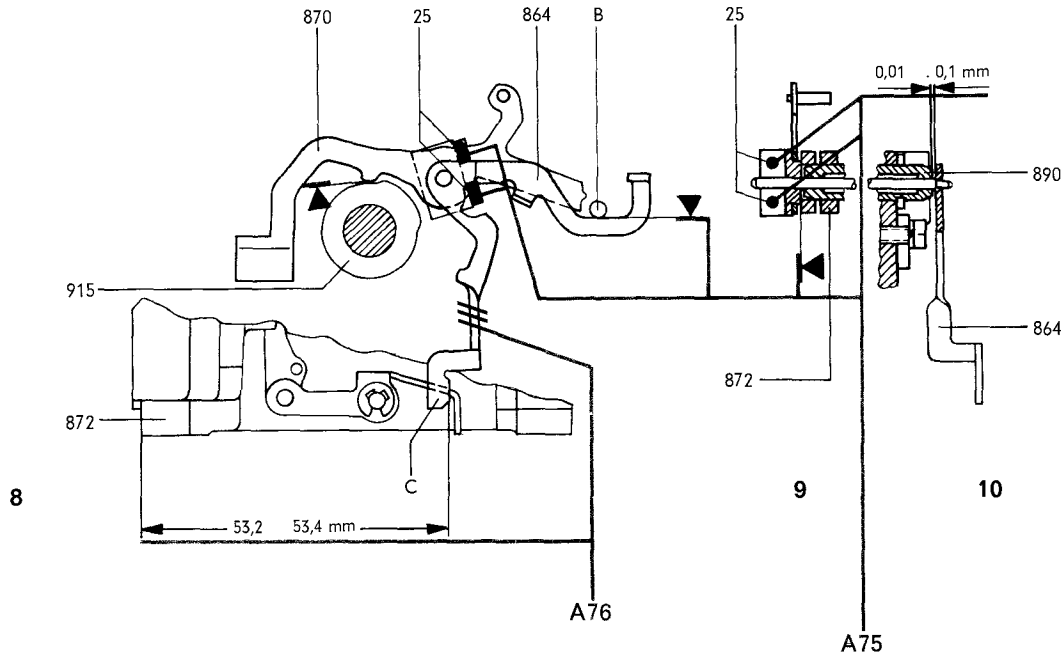
3

1074
≤0,4 mm
1082
1070
1087
A72

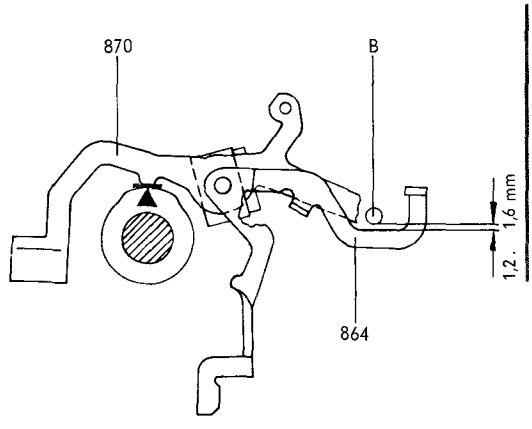
4


10
1082
A73
D74
1067
1,6+0,3 mm
1085
1070

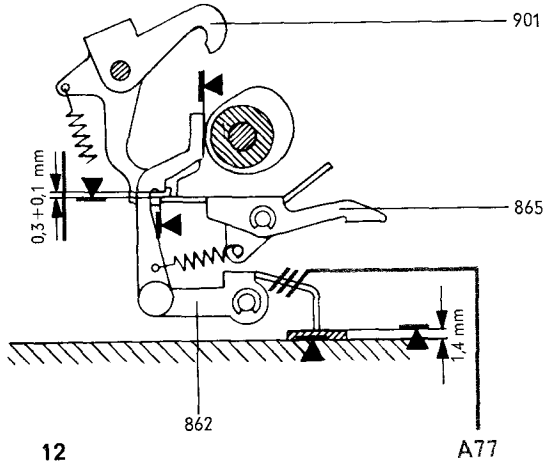
6


870
25
864
B
25
0,01
0,1 mm
890
915
872
864
872
C
53,2
53,4 mm
A76
A75

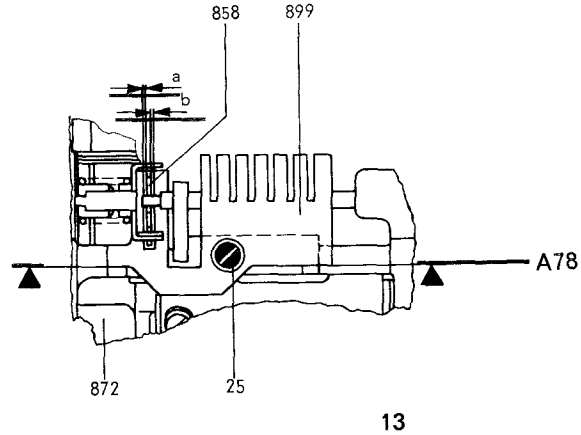
8 9 10


870
B
1,6 mm
1,2
864

11


901
0,3+0,1 mm
865
1,4 mm
862
A77

12


858
899
a
b
A78
872
25

13

A75 Camshaft in rest position D71.
Lever 870/8 against camshaft 915 and mounting frame 872/9. Lever 864/8 against pin B.

Gap between lever 864/10 and tube 890 is 0.01...0.1 mm.

Adjustment: loosen pan head screws 25/8, 9. Turn lever 870 and shift lever 864/8, 10 axially.

Check: release clutch, turn camshaft. Lever 870/11 against highest point of cam.

Gap between lever 864 and pin B is 1.2...1.6 mm.

A76 Camshaft in rest position D71.
Lever 864/8 against pin B.

Gap between front contact surface of mounting frame 872 and lobe C of lever 864 is 53.2...53.4 mm.

Adjustment: band lever 864.

A77 Camshaft in rest position D71.
Release lever 901/12 is latched with locking lever 865.
Gap between mounting surface and lever 862 is 1.4 mm.

Gap between locking lever 865 and release pawl of lever 862 is 0.3 + 0.1 mm.

Adjustment: bend lever 862.

A78 Guide comb 899/13 against mounting frame 872.

Rocker of lever 858 moves freely in slot of guide comb 899 ($a \approx b$).
Code lever 892 with full width on cam (not shown).

Adjustment: loosen pan head screw 25.
Shift guide comb 899.

Pull out plug connector. Remove cover 903 (not shown).

D79 Contact switching assembly 869/14 against pin B.

Lever of contact spring set 867 against ball bearing H of contact switching assembly 869 and pan head screw 25.

A80 Camshaft in rest position D71.

Adjusting gauge L/15 against switching shaft of contact switching assembly 869 and rocker E of lever 859.

Adjustment: loosen pan head screw 23 (lacquer coated).
Turn control lever 894 towards lever 859.

Check: remove adjusting gauge L. It should be possible to re-insert the adjusting gauge with slide fit.

A81 With adjusting gauge (A80) inserted, gap of 1...1.1 mm between switching plate F/16 and cylindrical pin G of contact switching assembly 869.

Adjustment: bend cylindrical pin G.

A82 Camshaft in rest position D71.

Adjusting gauge L/15 inserted according to A80.
Contact just makes.

Adjustment: turn adjusting screw C/14 on contact spring set 867.

D83 Turn camshaft once until in rest position D71.

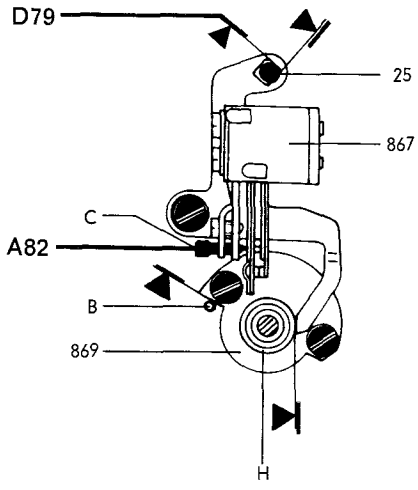
Gap between switching shaft of contact switching assembly 869/17 and rocker E of contact control lever 858 is 0.2...0.5 mm.

D84 Camshaft in rest position D71.
Switching plate F/18 of contact switching assembly 869 against the right-hand side of cylindrical pin G.

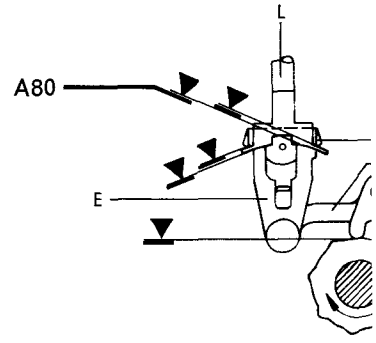
Gap between rocker E of lever 859 and switching shaft of contact switching assembly 869 $\geqq$ 0.05 mm.

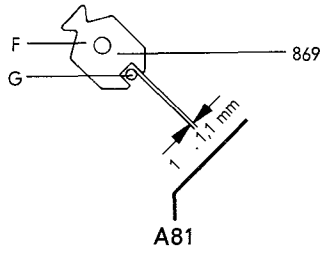
D85 Camshaft in rest position D71.
Switching plate F/19 of contact switching assembly 869 against the left-hand side of cylindrical pin G.

Gap between rocker E of lever 859 and switching shaft of contact switching assembly 869 $\geqq$ 0.05 mm.

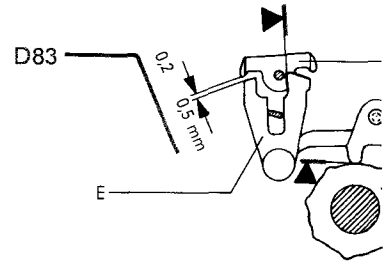

D79
25
867
C
A82
B
869
H

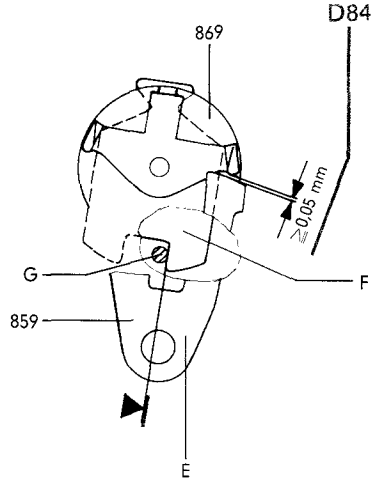
14


L
A80
E

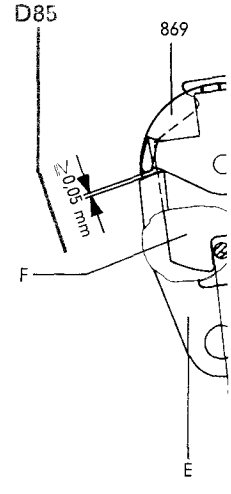

F
G
869
1,1 mm
A81

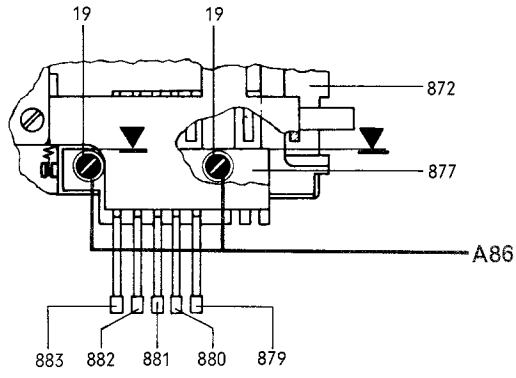
16


D83
0,2
0,5 mm
E

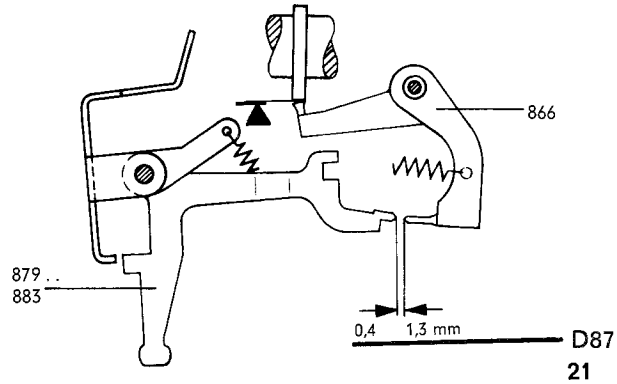

D84
869
≥0,05 mm
G
F
859
E

18

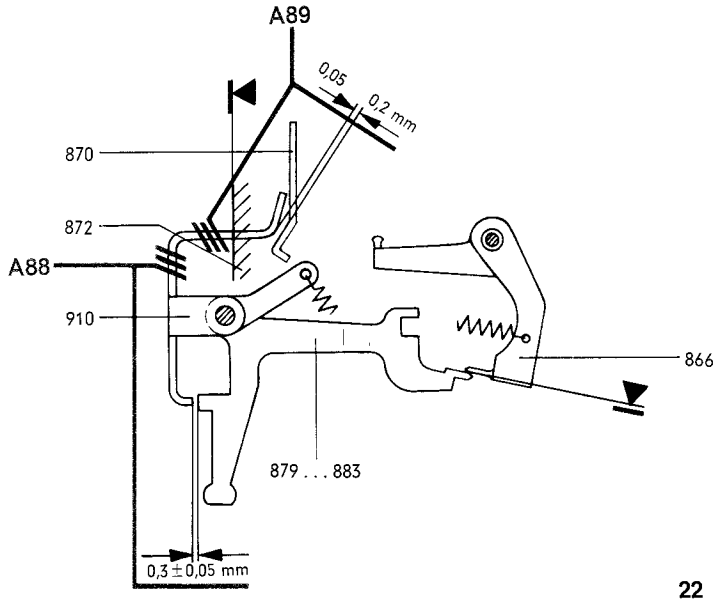

D85
869
≥0,05 mm
F
E


19
19
872
877
A86
883
882
881
880
879

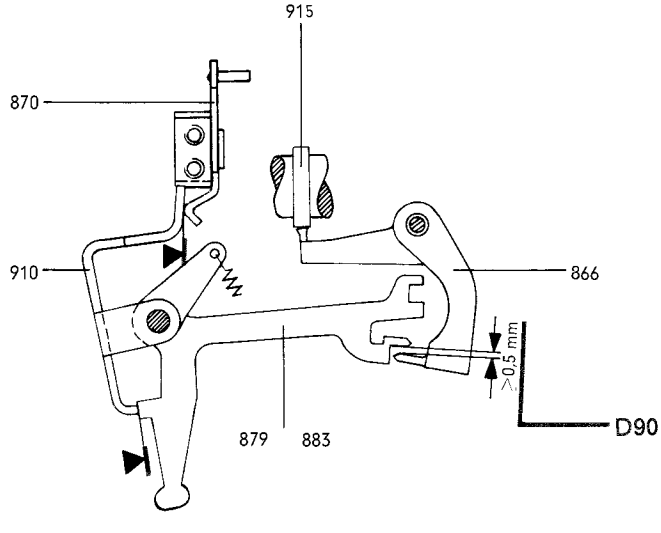
20


866
879 ..
883
0,4
1,3 mm
D87

21


A89
0,05
0,2 mm
870
872
A88
910
866
879 . . . 883
0,3 ± 0,05 mm

22


915
870
910
866
0,5 mm
879
883
D90

23

A86 Guide comb 877/20 against mounting frame 872.

Levers 879, 880, 881, 882, and 883 move freely in guide comb 877 and are apparently vertical to it.

Adjustment: loosen pan head screw 19. Shift guide comb 877.

D87 Camshaft in rest position D71.

Gap between levers 879...883/21 and locking lever 866 is 0.4...1.3 mm.

A88 Answerback unit and camshaft in rest position D71.
Release clutch, turn camshaft. Locking lever 866/22 engaged.
Levers 879, 880, 881, 882, 883 against locking lever 866. Resetting lever 910 against mounting frame 872.

Gap between levers 879...883 and resetting lever 910 is 0.3 ± 0.05 mm (measured at the lever whose nose is nearest resetting lever 910).

Adjustment: bend resetting lever 910.

A89 Answerback unit and camshaft in rest position D71.
Release clutch, turn camshaft until lever 870/22 on highest point of cam.

Gap between resetting lever 910 and lever 870 is 0.05...0.2 mm.

Adjustment: bend resetting lever 910. Recheck A88.

D90 Camshaft in rest position D71.
Release answerback unit, turn camshaft 915/23, locking lever 866 engaged.
Lever 870 and levers 879...883 against resetting lever 910.

Gap between levers 879...883 and locking lever 866 $\geqq$ 0.5 mm.

A91 Answerback unit released.
Lever 870/24 against locking lever 929 (behind drive system 868).
Turn camshaft 915 until vertical edges of release lever 901 and locking lever 865 are aligned.

Gap between release lever 901 and locking lever 865 is 0.1...0.3 mm.

Adjustment: bend locking lever 865.

Check: turn answerback unit drive system 868 once.
Minimum gap 0.1 mm.

A92 Camshaft in rest position D71.
Pawl 920/25 in tooth bottom and on tooth flank of drive system 868.

Gap between pin B of lever 870 and drive system 868 is 0.01...0.05 mm.

Adjustment: loosen hexagon screw 100. Turn bushing 921.

A93 Camshaft in rest position D71.
Pawl 920/26 in tooth bottom and on tooth flank of drive system 868.

Gap between stop 924 and pawl 920 is 0.01...0.05 mm.

Adjustment: loosen pan head screw 35, turn stop 924.

A94 Camshaft in rest position D71.
Pawl 920/26 against drive system 868.

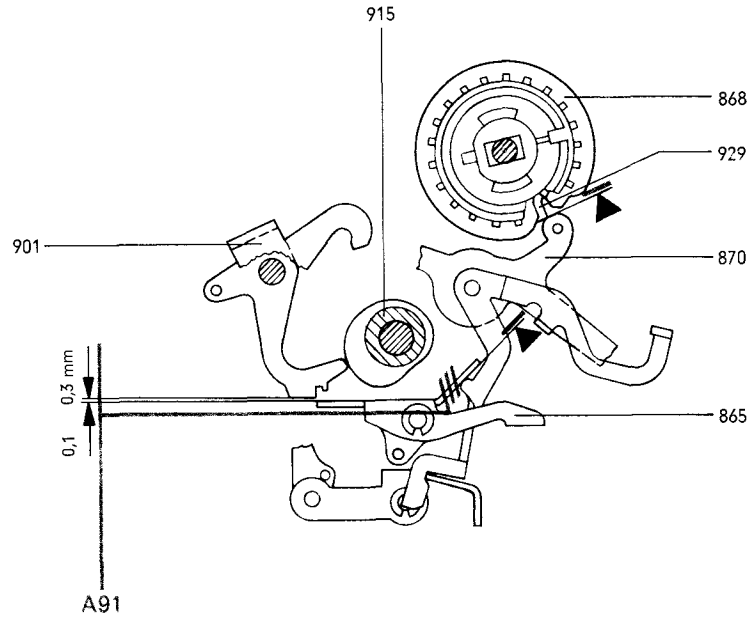
Gap between tooth flank of drive system 868 and tooth of pawl 926 is 0.1...0.2 mm.

Adjustment: loosen hexagon screw 100. Turn bushing 921.

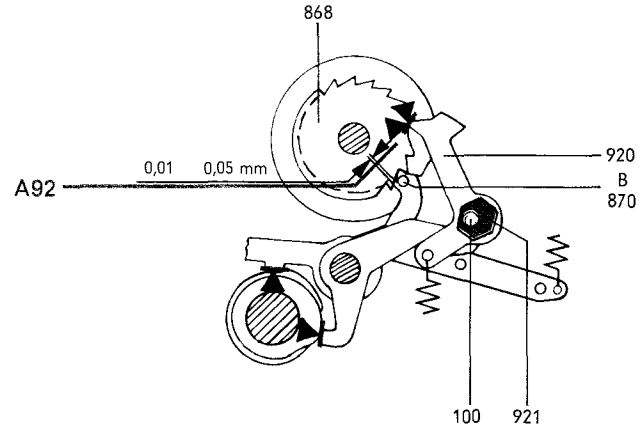
A95 Release answerback unit.
Lever 874/27 on highest point of cam. Gap between tooth flank of drive system 868 and tooth of pawl 926 is 0.3 mm (insert gauge).

Gap between individual tooth of drive system 868 and pawl 923 is 0.02...0.1 mm.

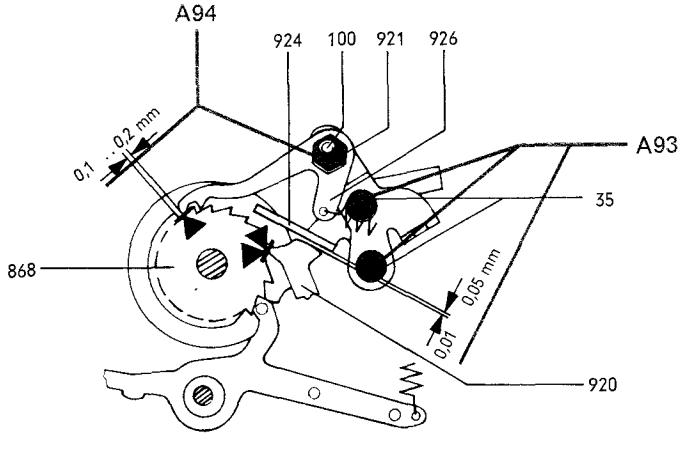
Adjustment: loosen hexagon screw 100. Turn bushing 921.


915
868
929
901
870
0,3 mm
0,1
865
A91

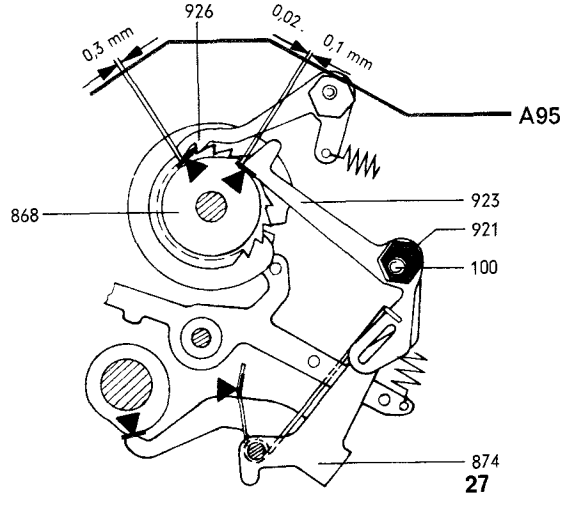
24


868
920
0,01
0,05 mm
A92
B
870
100
921

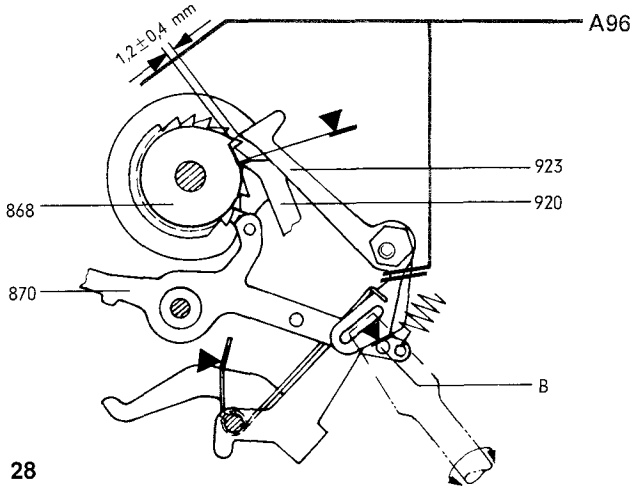
25


A94
924
100
921
926
A93
0,1
0,2 mm
35
868
0,05 mm
0,01
920

26


926
0,02
0,3 mm
0,1 mm
A95
868
923
921
100
874

27



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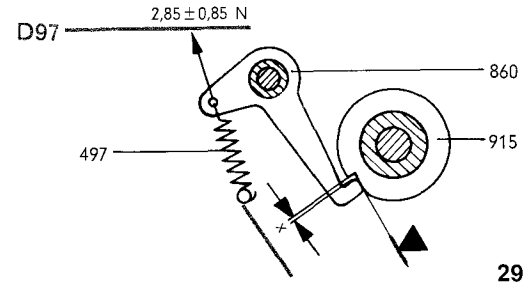

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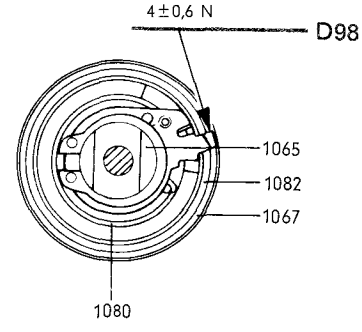

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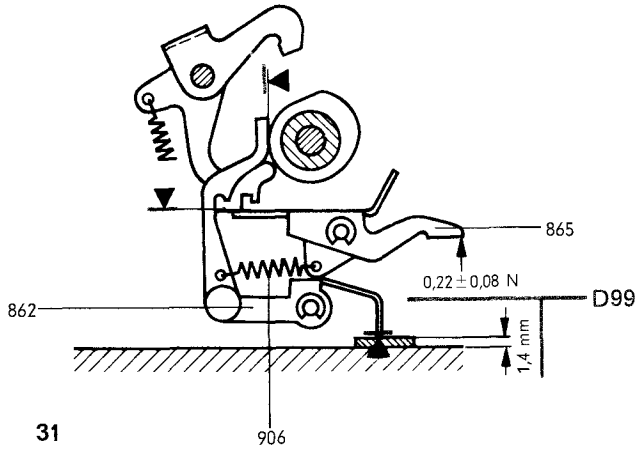

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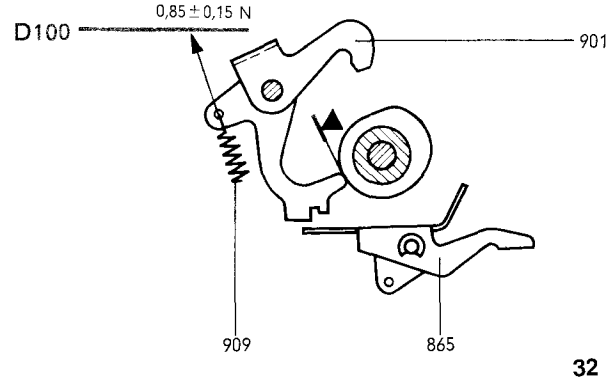

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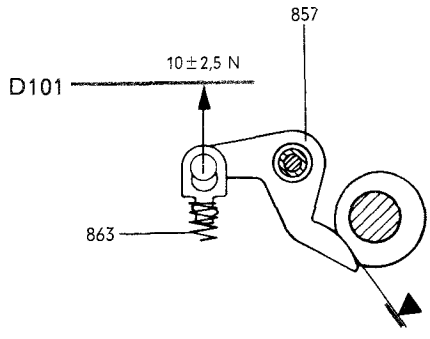

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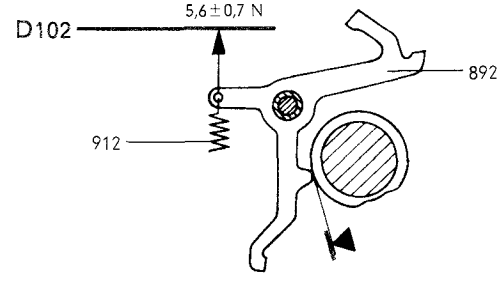

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A96 Camshaft in rest position D71.
Drive system 868/28 against pawl 920. Turn lever 870 until tip of pawl 923 is above tip of individual tooth of drive system 868. Pawl 923 against pin B.

Gap between individual tooth of drive system 868 and pawl 923 is 1.2 ± 0.4 mm.

Adjustment: bend pawl 923.

Spring forces:

Unless otherwise indicated, spring forces are measured in rest position D71.

D97 Lever 860/29 with tension spring 497
Gap x between lever 860 and antibounce cam of camshaft 915.

Force of 2.85 ± 0.85 N required to raise lever 860.

D98 Clutch 1065/30 with spring 1082 and torsion spring 1080

Force of 4 ± 0.6 N required to turn drum 1067.

D99 Locking lever 865/31 with tension spring 906
Locking lever 865 released. Lever 862 is 1.4 mm above mounting surface of transmitter.

Force of 0.22 ± 0.08 N required to raise locking lever 865.

D100 Release lever 901/32 with tension spring 909
Locking lever 865 released and raised from release lever 901.

Force of 0.85 ± 0.15 N required to raise release lever 901.

D101 Zero-setting lever 857/33 with tension spring 863

Force of 10 ± 22.5 N required to raise zero-setting lever 857.

D102 Code levers 892/34 with tension springs 912

Force of 5.6 ± 0.7 N required to raise code levers 892.

D103 Operating lever 897/35 with tension spring 903

Force of 1.3 ± 0.2 N required to raise operating lever 897.

D104 Contact control lever 858/36 with tension spring 911
Tension spring 903/35 on operating lever 897 unhooked.

Force of 1.15 ± 0.15 N required to raise contact control lever 858/36.

D105 Adjust contact gap on contact spring set 867 to 0.1 ± 0.05 mm with switching plate C/37.

Force of $0.76 \begin{smallmatrix} +0.2 \\ -0.15 \end{smallmatrix}$ N required to raise contact spring from switching plate C.

D106 Locking lever 866/38 with tension spring 637
Turn camshaft, locking lever engaged. Levers 879...883 in position for code combination 32.

Force of 1.1 ± 0.2 N required to raise locking lever 866.

D107 Lever 870/39 with tension spring 572
Gap x between pin B and drive system 868.

Force of 1.1 ± 0.28 N required to raise lever 870.

D108 Pawl 920/39 with tension spring 922

Tension spring 922 has a pull of 0.8 ± 0.2 N.

D109 Pawl 926/40 with tension spring 631
Visible gap between any tooth of drive system 868 and teeth of pawl 926.

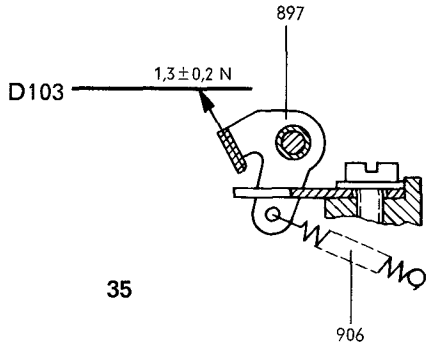
Force of 0.8 ± 0.2 N required to raise pawl 926.

D110 Locking lever 929/41 with torsion spring 928 (not shown).
Turn drive system 868 to position shown.

Force of 0.25 ± 0.07 N required to raise locking lever 929.

D111 Lever 874/42 with torsion spring 917
Lever 874 on highest point of cam.

Force of 0.44 ± 0.11 N required to raise torsion spring 917.



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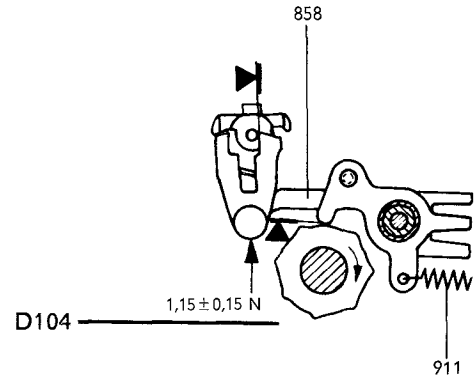

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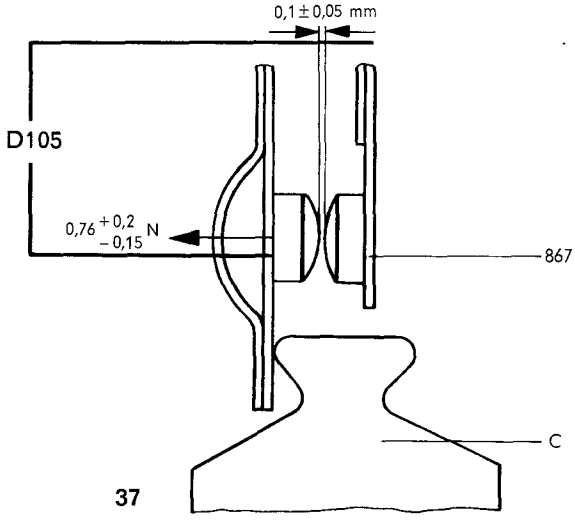

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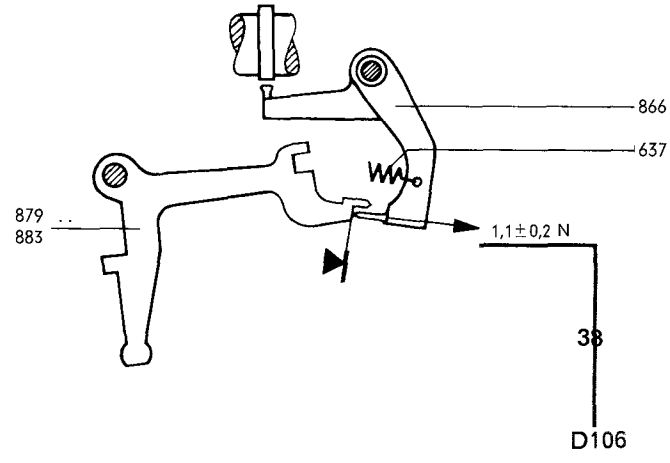

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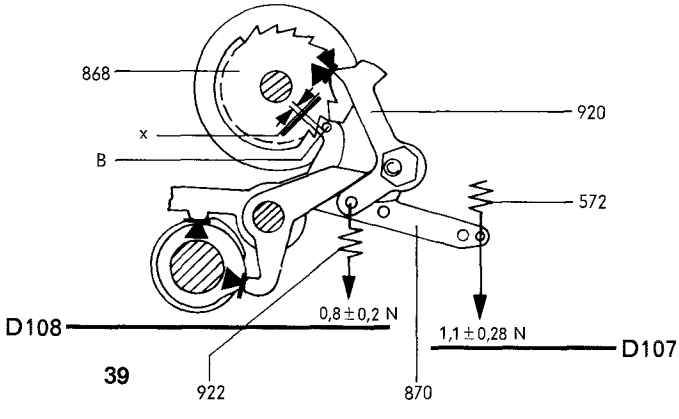

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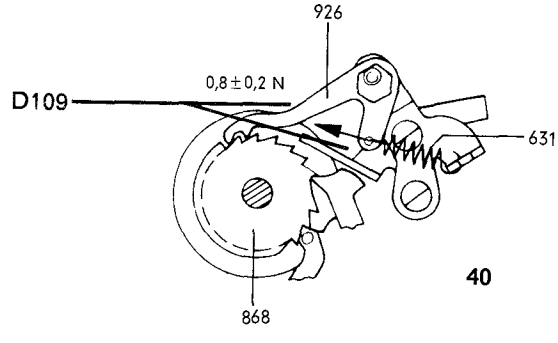

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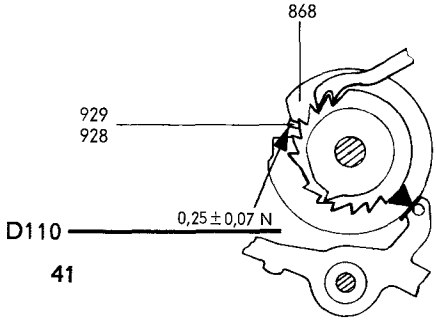

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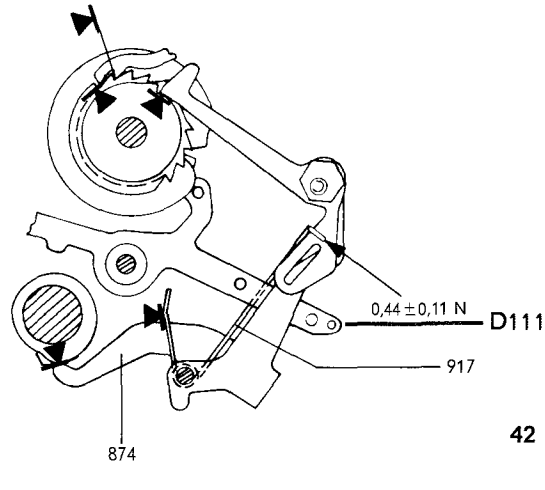

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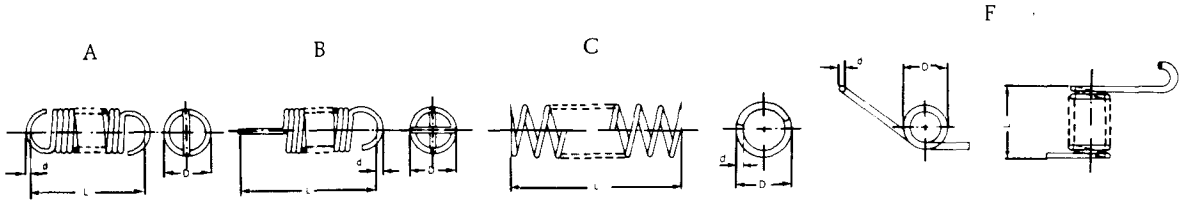
Table of springs



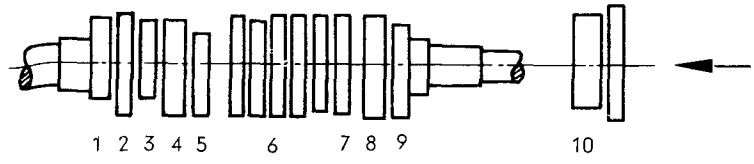
Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

1) consecutive number of part in which the spring engages

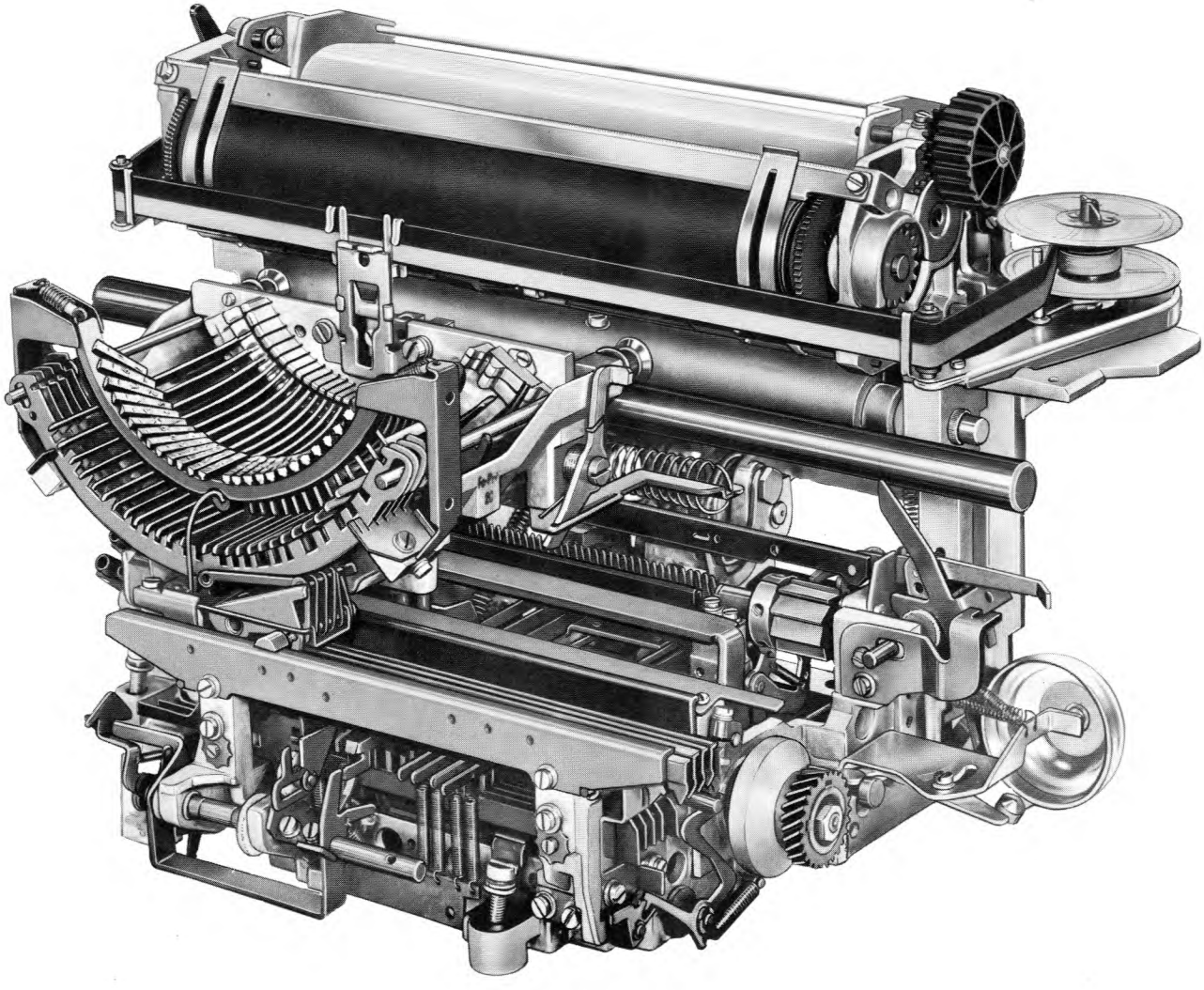
Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No. of part 1)	figure page
B	0.25	3.0	7.7	C20326-A70-C191	906	897	49
						865	49
	0.25	3.1	9.6	C20145-A43-C49	631	926	49
	0.3	3.6	15.0	C20326-A70-C481	922	920	53
	0.32	2.74	10.5	C20326-A70-C346	911	858	53
	0.32	2.94	11.1	C20326-A70-C225	909	901	49
	0.32	3.04	13.3	C20145-A43-C64	637	866	53
	0.32	3.2	20.4	C20136-A114-C105	572	870	49
	0.32	3.54	14.5	C20136-A4-C785	479	910	55
	0.4	2.3	20.7	C20326-A70-C347	912	892	53
	0.45	4.7	9.8	C20136-A4-C866	497	860	49
F	0.56	3.5	-	C20326-A70-C476	917	874	55

Arrangement of cams on transmitter camshaft



1	Answerback unit 1st feed
2	Who-are-you suppression
3	Answerback drum feed pawl
4	Contact control
5	Locking lever
6	Code elements (code levers)
7	Start and stop pulses
8	Zero-setting function
9	Remote control switch
10	Trip lever restoration
11	Anti-bounce lever
←	Drive side

Contents



Contents

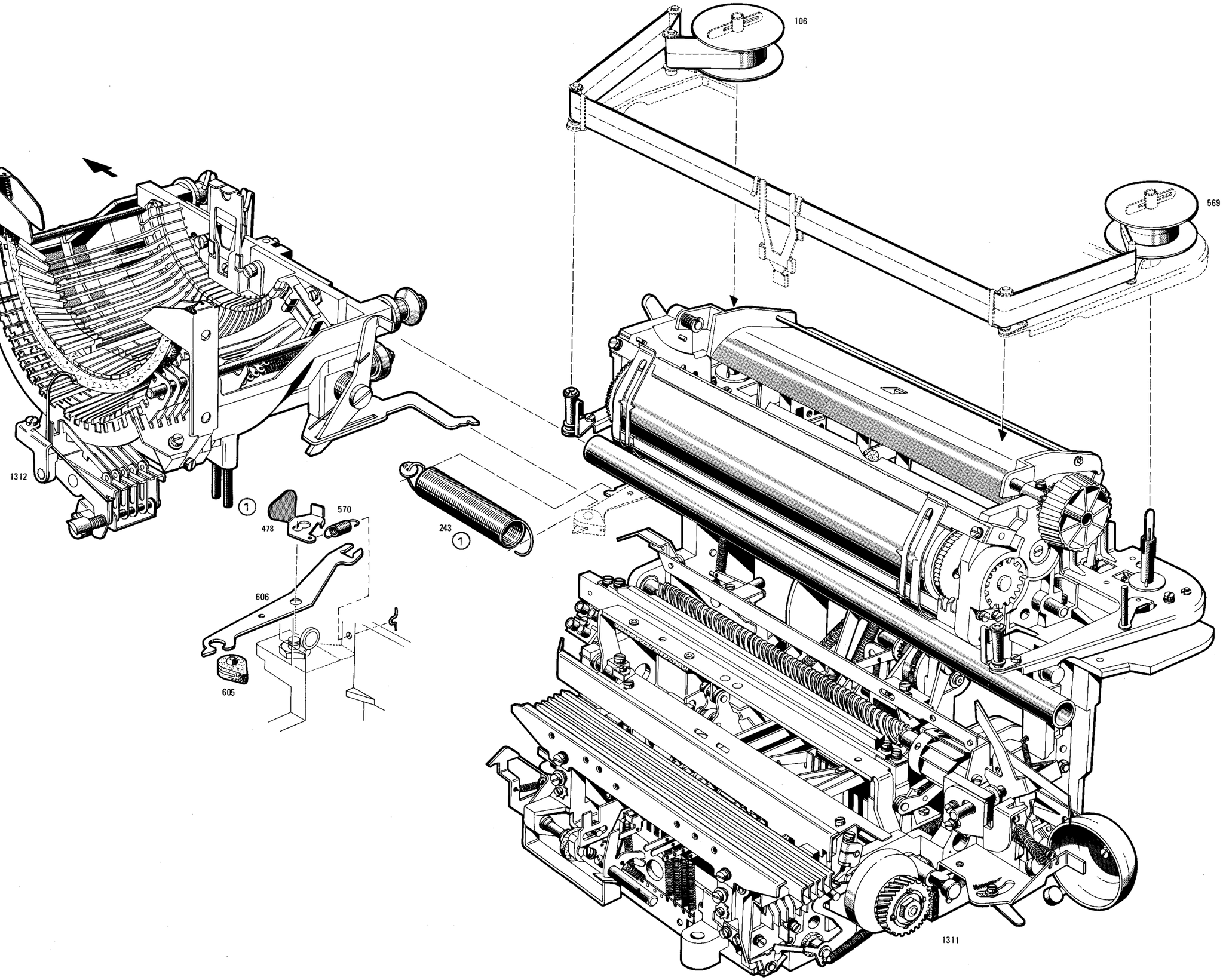
Components
of
printer with type basket carriage

Instructions for removal or replacement

(1) Make absolutely certain that tension spring 243 is unhooked before loosening lock 478.

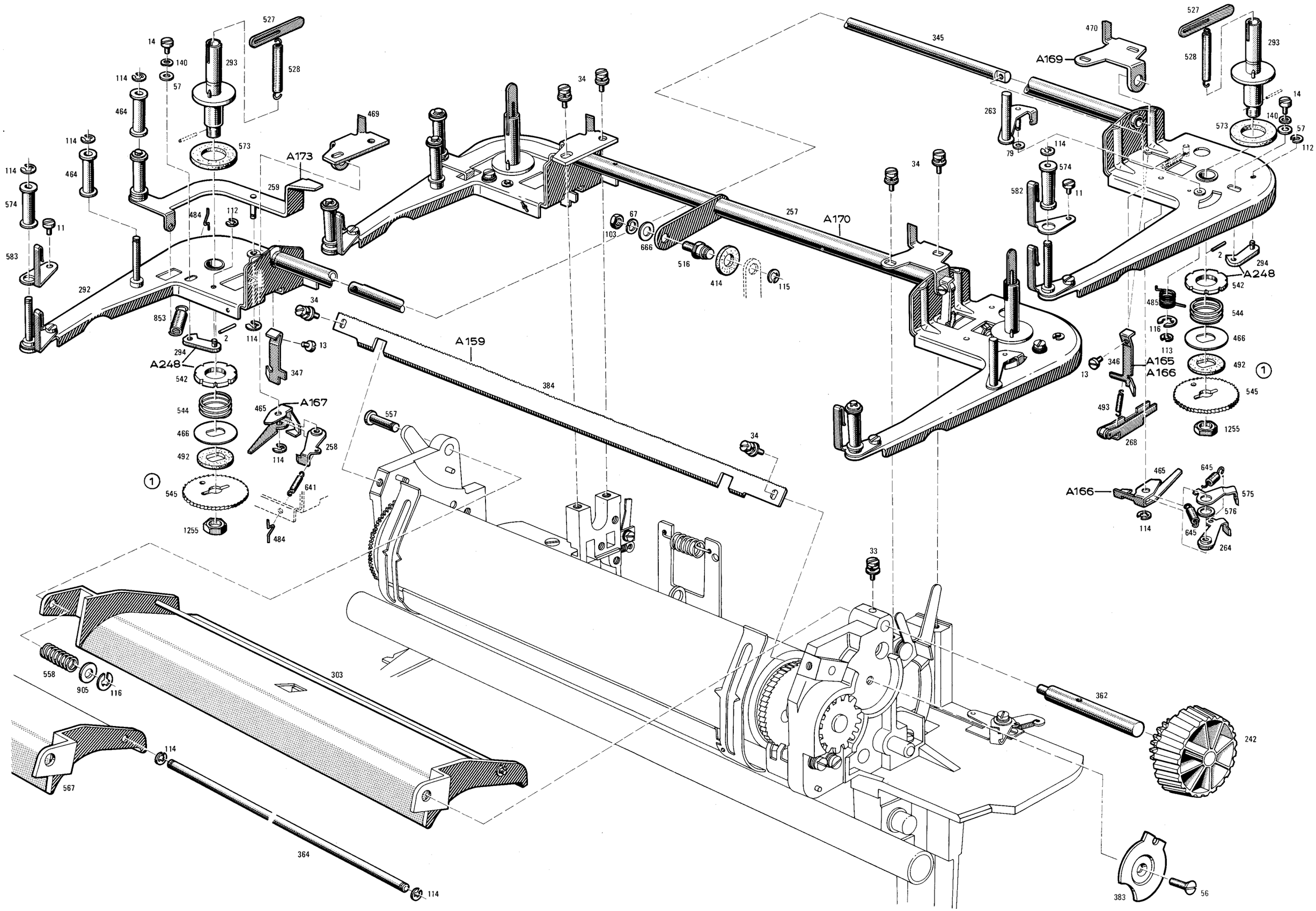
When installing type basket carriage 1312 in printer 1311 observe the following precautions:

1. Camshafts of all modules should be in rest position
2. Transfer bars 290 (page 95) and operating lever 213 (page 91) should be in uppermost position
3. Slide pusher 288 (page 113) of type basket carriage in direction of platen as far as it will go
4. It should be easy to move the type basket carriage in both directions.


106
569
1312
1
478
570
606
605
243
1
1311

Instructions for replacement

(1) Ensure position of teeth on ratchets 545 is correct.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A248
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1255
A167
465
347
13
A159
384
557
34
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103
666
516
414
115
257
A170
345
A169
470
263
79
582
574
582
11
2
294
A248
542
485
544
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113
466
A165
A166
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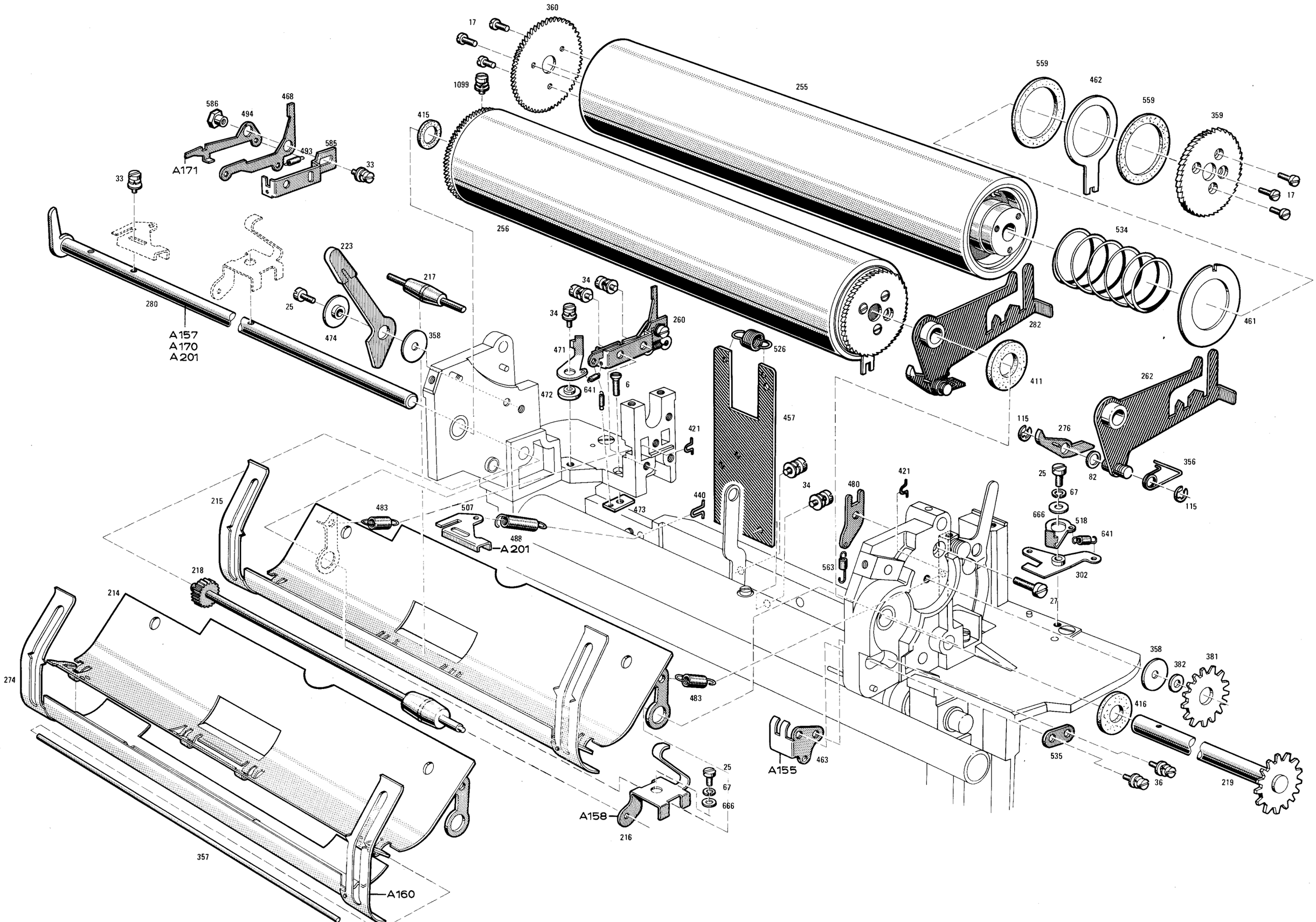
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A201
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488
A201
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214
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463
A155
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382
381
416
535
36
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A158
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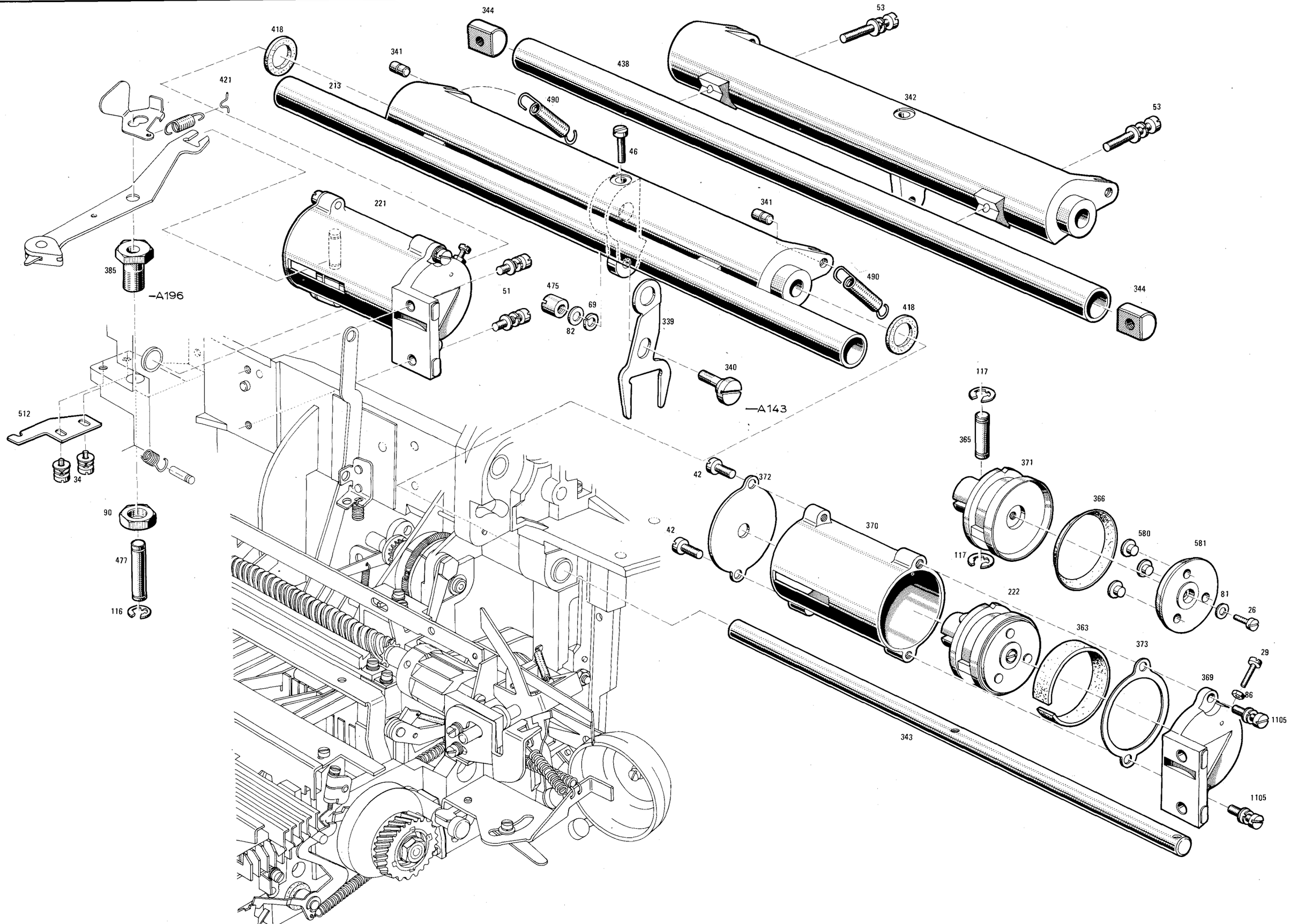
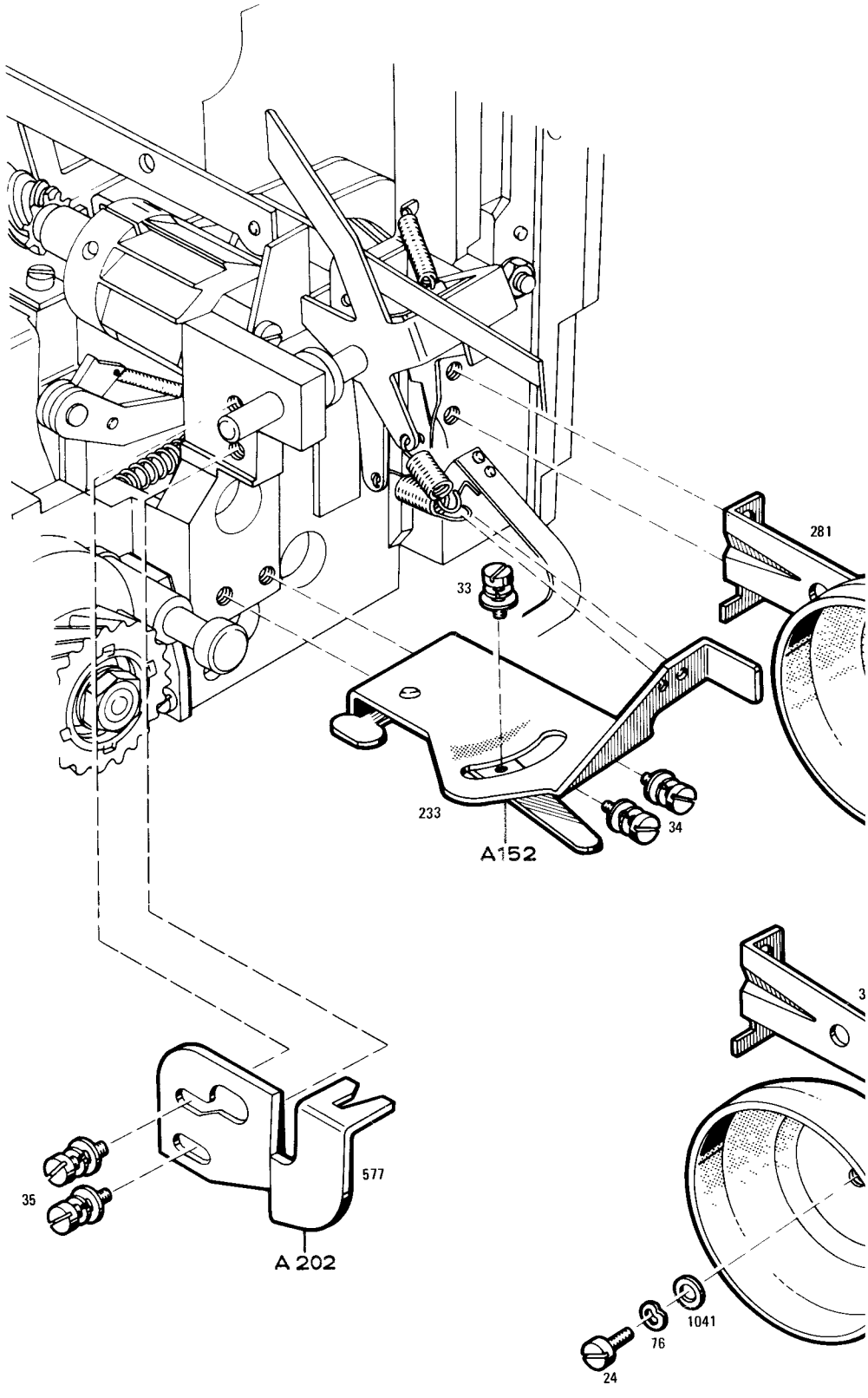
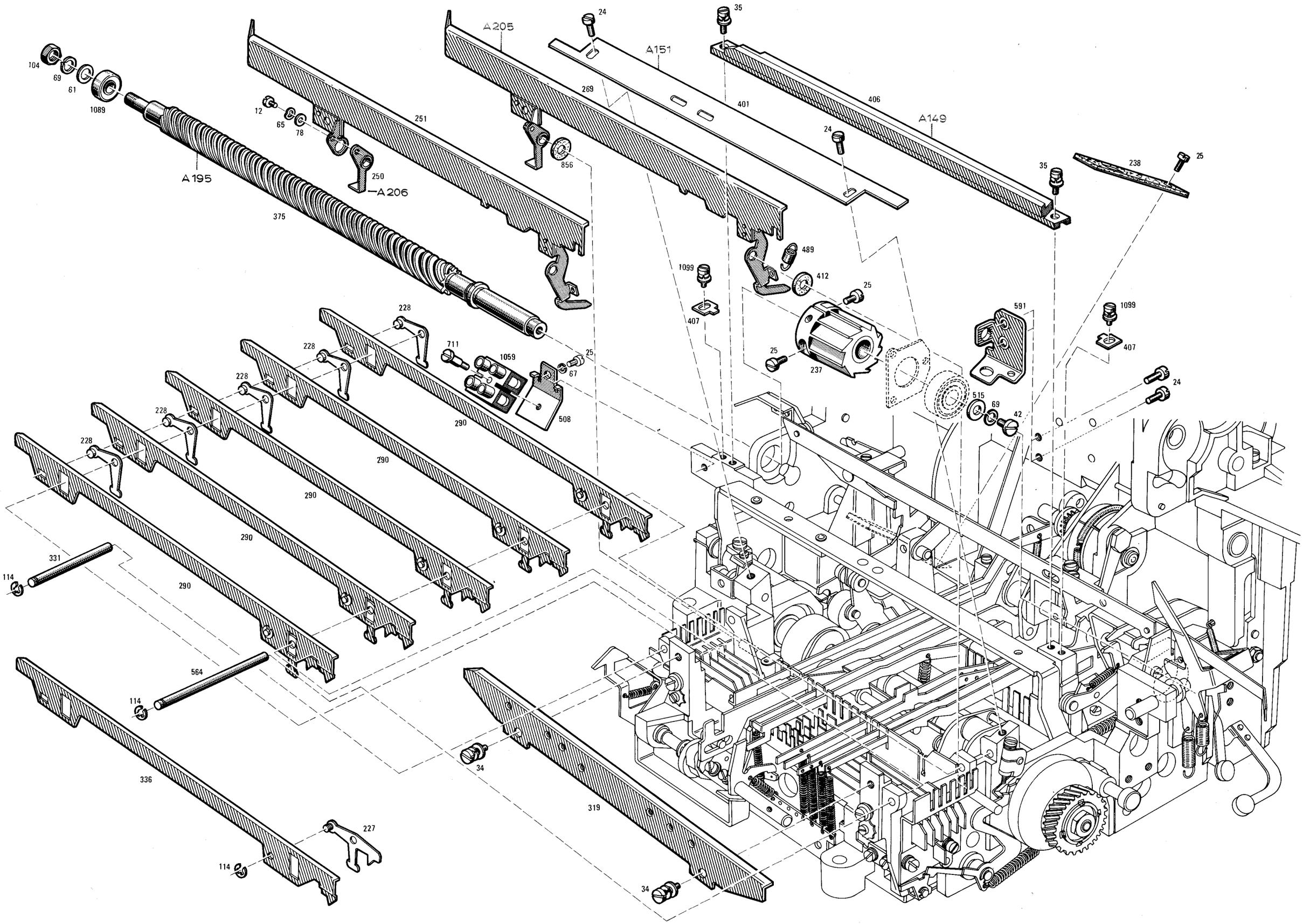
666
357
A160


344
53
418
341
438
213
421
490
342
53
46
221
341
385
490
344
475
51
69
418
82
339
–A196
340
–A143
117
512
365
42
372
371
366
42
370
580
581
117
222
81
26
363
373
29
369
86
1105
343
1105
34
90
477
116

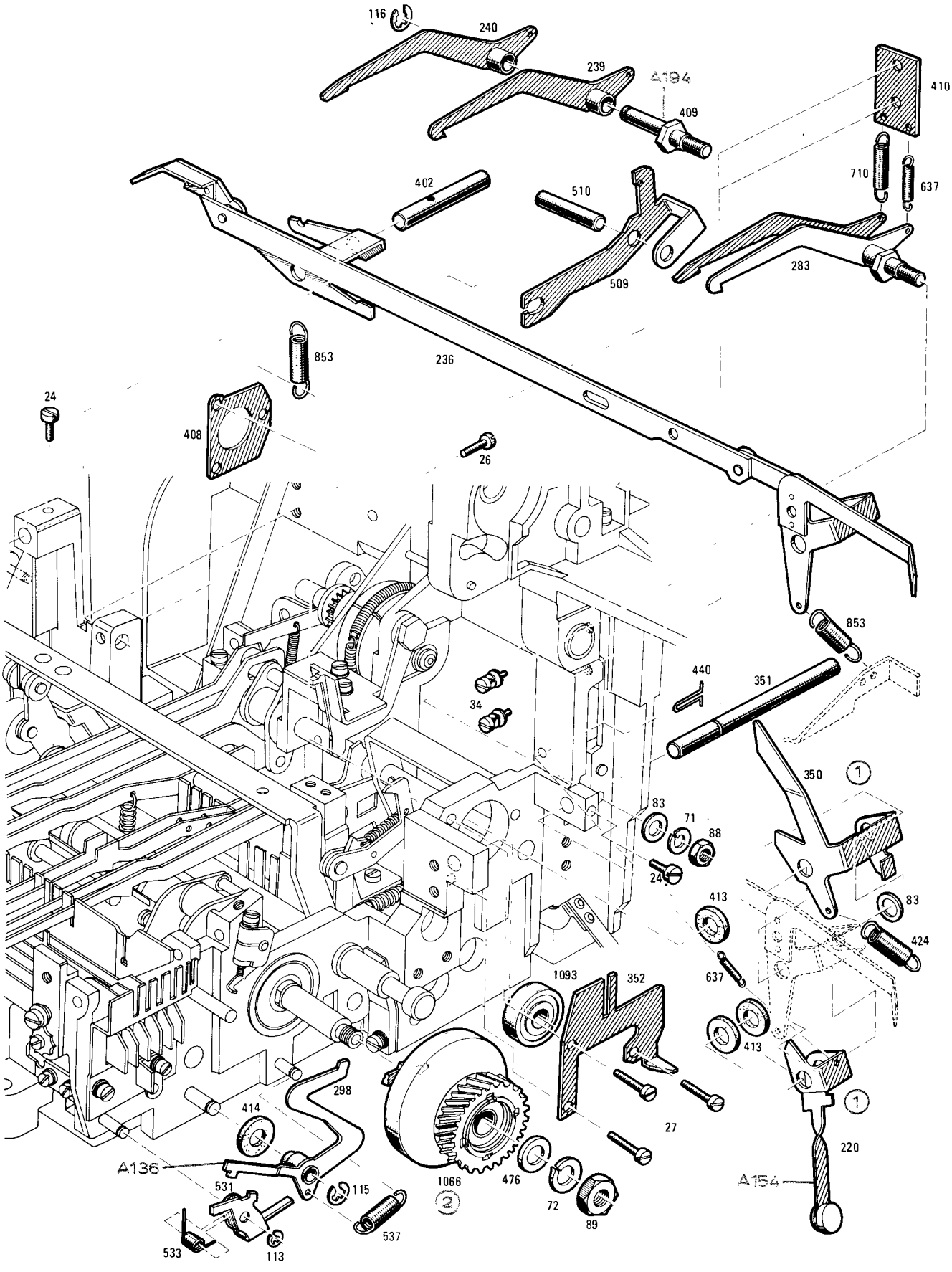

281
33
233
34
A152
35
577
A 202
3
1041
76
24


104
69
61
1089
A195
375
12
65
78
251
250
A206
A205
24
856
A151
35
269
401
406
A149
24
35
238
25
1099
407
489
412
25
237
25
591
1099
407
228
711
1059
25
67
508
290
515
69
42
24
331
114
564
114
336
227
114
34
319
34

Instructions for replacement

(1) Do not insert levers 220 and 350 until after installation of feed screw 375 (page 95) and its associated parts.

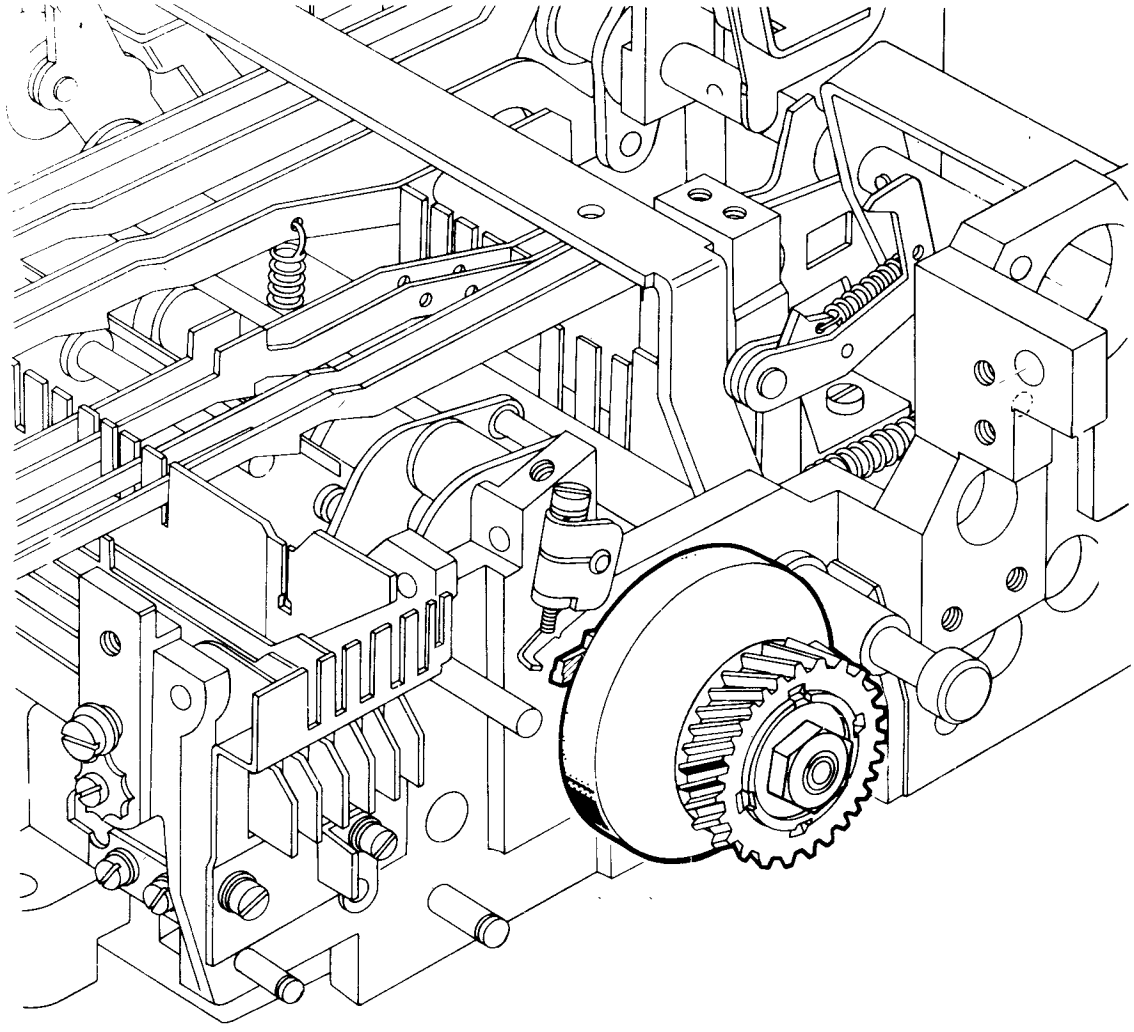
(2) Camshaft 602 (page 105) must be in rest position D121 before expanding spring clutch 1066 is installed; anti-bounce pawl 231 (page 105) should bear against the anti-bounce cam.

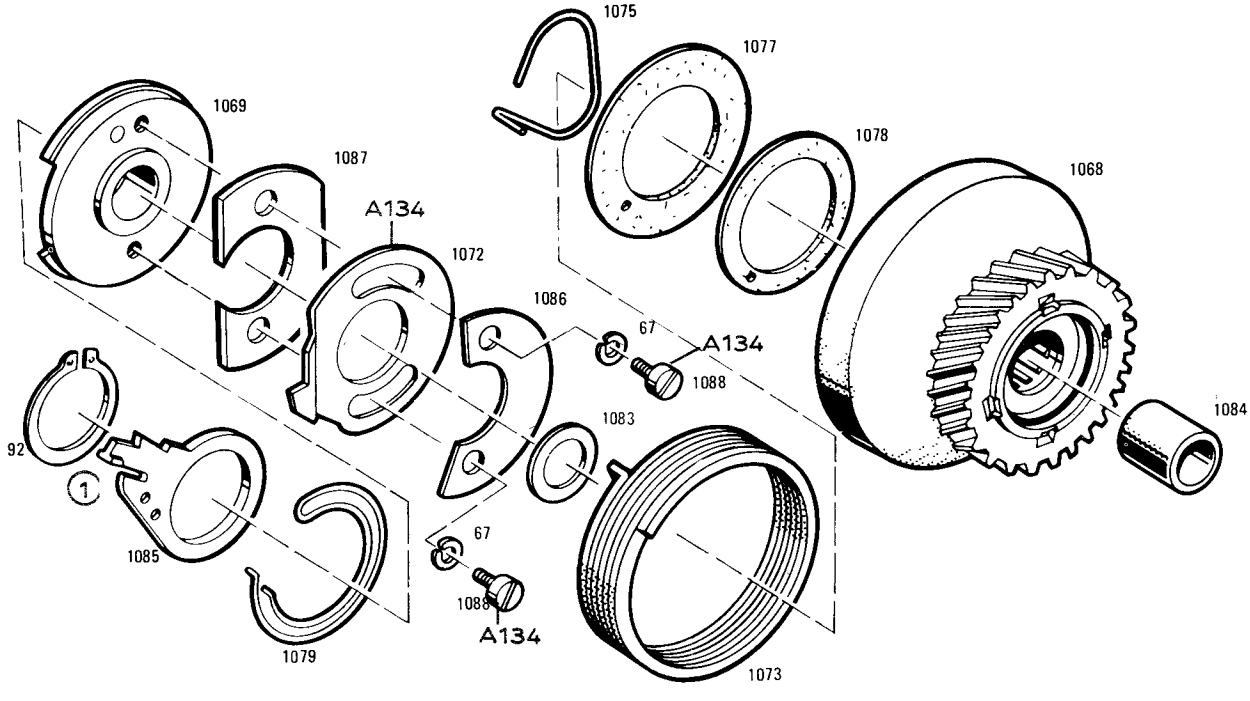

116
240
239
A194
409
410
710
637
402
510
509
283
236
853
24
408
26
853
440
351
34
350
1
83
71
88
24
413
83
424
637
413
1093
352
298
414
A136
531
115
1066
2
476
72
89
27
220
A154
1
533
113
537

Instructions for replacement

Observe mounting instruction under D133

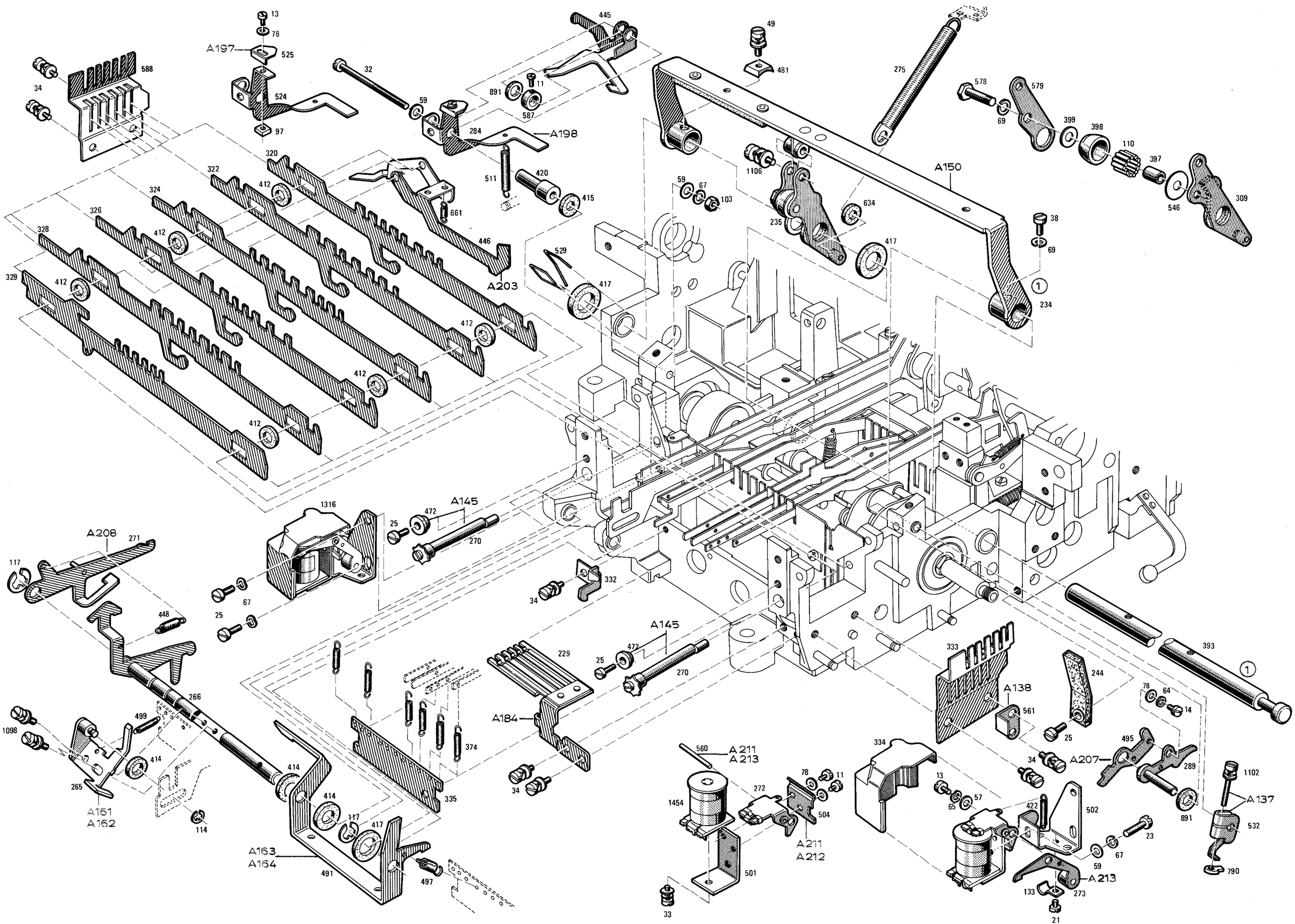
(1) Driver nose of spring 1073 should engage in slot of lever 1085.




1075
1077
1078
1068
1069
1087
A134
1072
1086
67
A134
1088
1084
92
1083
1085
67
1088
A134
1079
1073

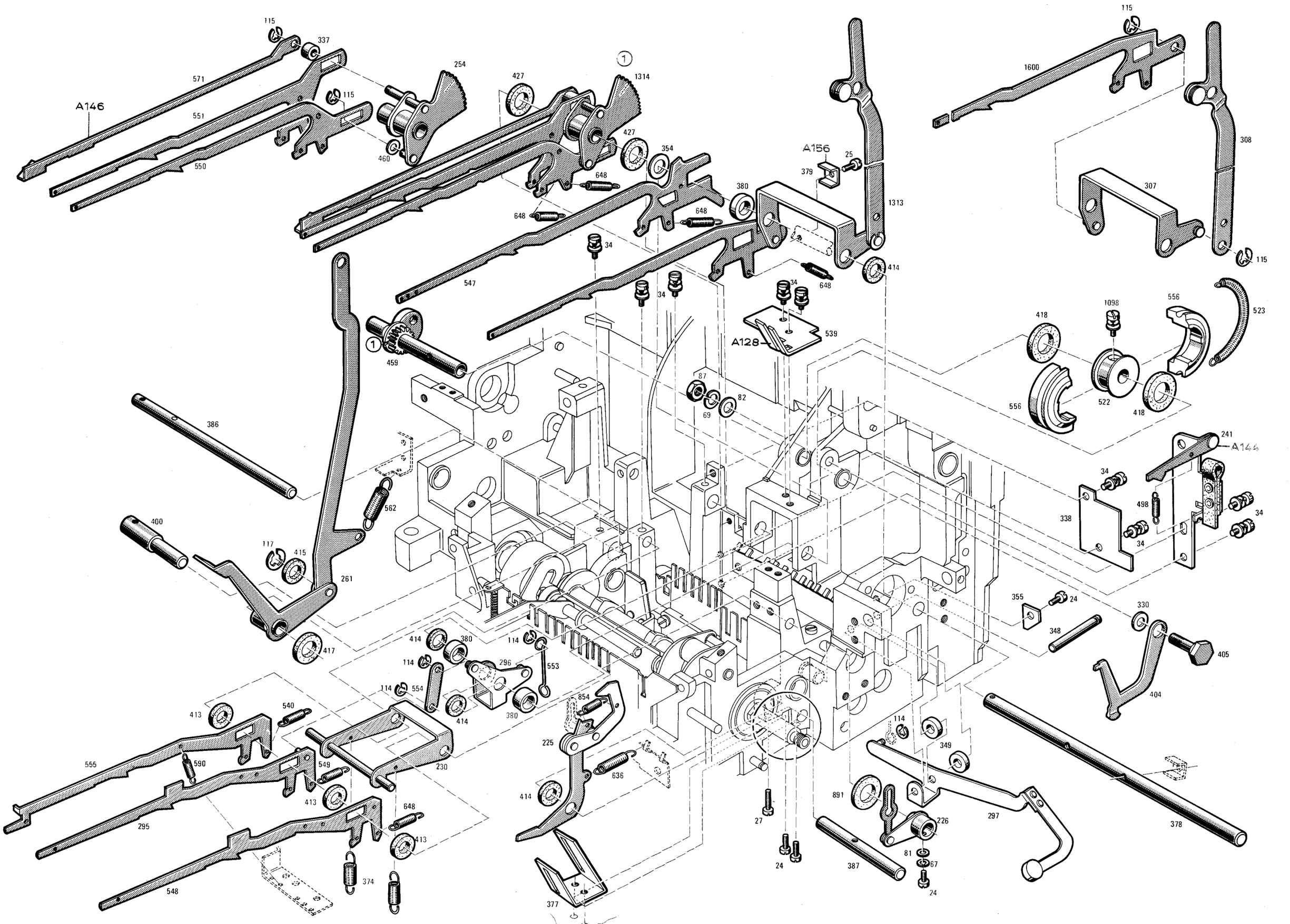
Instructions for replacement

(1) Screw down printer bail 234 onto axle 393, firstly with panhead screw 38, then with panhead screw 49.


13
78
A197
525
524
97
588
34
32
59
445
891
11
587
284
A198
511
420
415
661
446
A203
320
322
324
326
328
329
412
49
481
275
578
69
579
399
398
110
397
546
309
A150
1106
59
67
103
634
235
417
38
69
1
234
529
417
1316
25
472
A145
270
67
25
A208
271
117
448
266
499
1098
265
414
A161
A162
114
A163
A164
491
497
335
374
A184
229
34
332
333
A138
561
244
25
78
64
14
393
334
560
A211
A213
1454
272
78
11
504
A211
A212
501
33
495
A207
289
891
1102
A137
532
790
422
502
57
65
13
23
59
67
A213
133
273
21

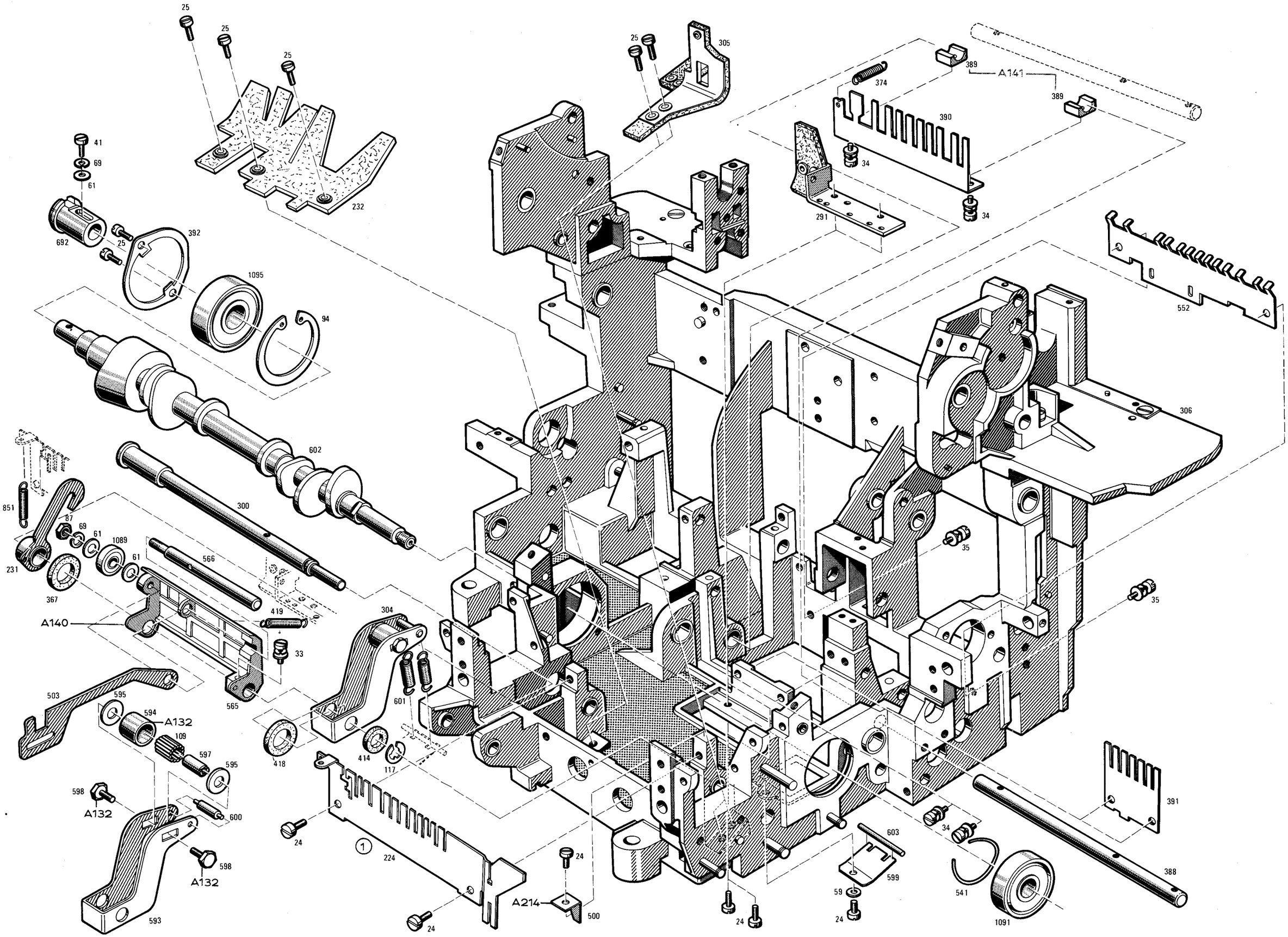
Instructions for replacement

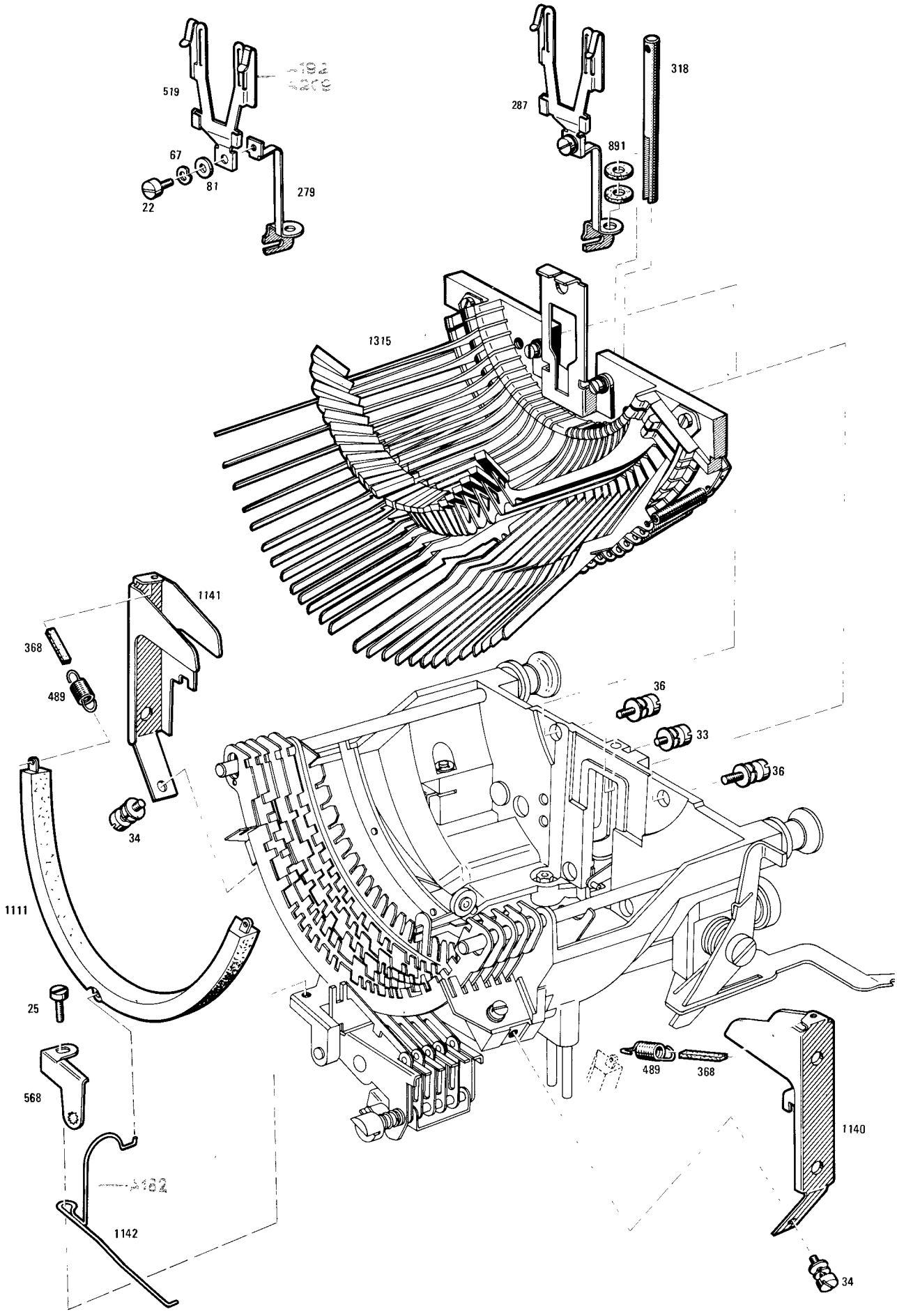
(1) Marker line on case shift rack of ribbon reversing mechanism 1314 should register with the triangular slot of pinion with eccentric 459.

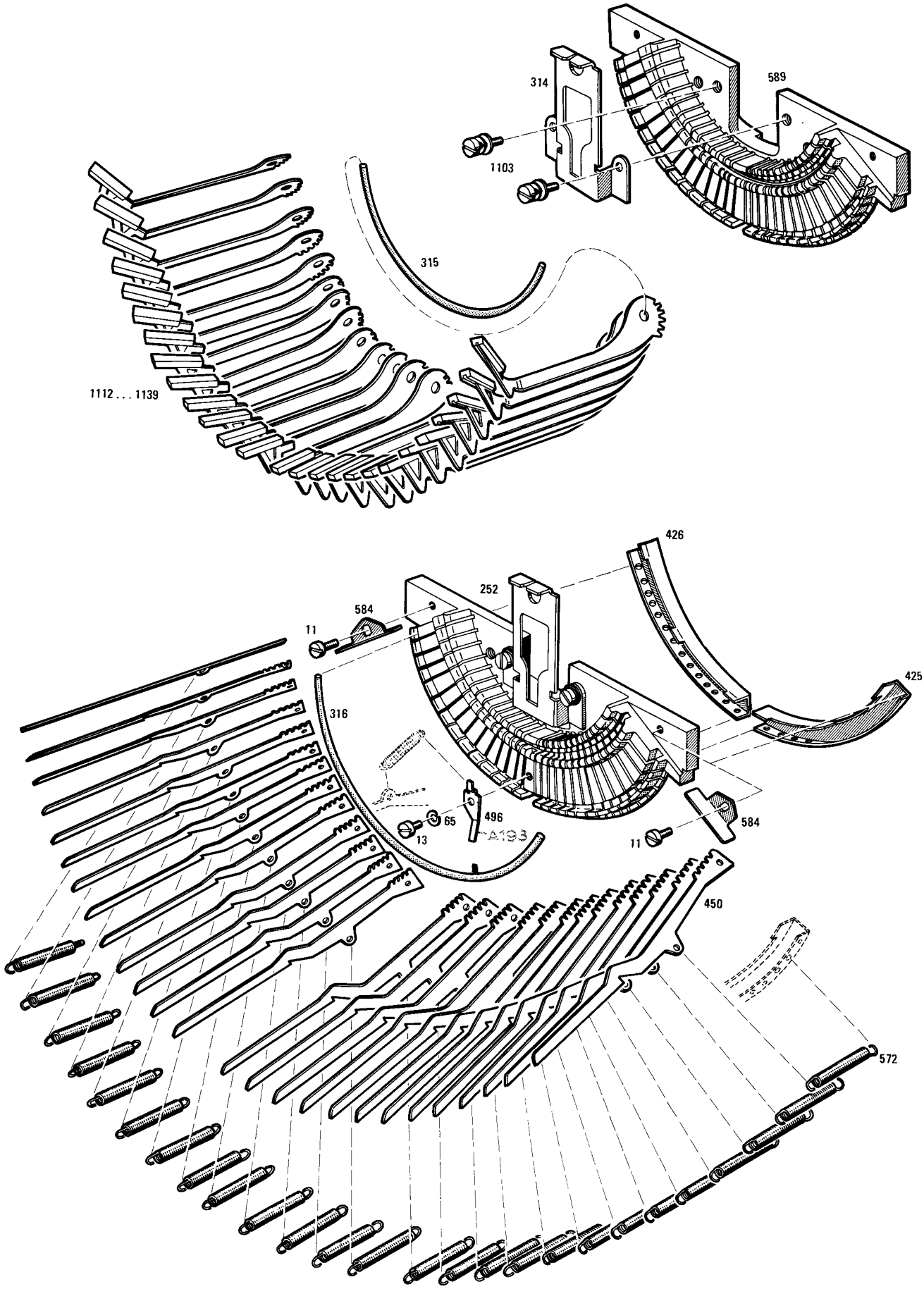

115
337
571
A146
551
550
254
460
115
427
1314
427
354
A156
25
379
1313
380
648
648
648
547
34
34
34
648
414
539
A128
459
1
1600
308
307
115
1098
556
523
418
556
522
418
241
A144
34
498
34
338
34
386
562
400
117
415
261
417
355
24
348
330
405
404
414
380
114
296
553
114
554
414
380
854
225
636
414
413
540
555
590
549
230
295
413
648
413
548
374
377
27
24
114
349
891
226
297
81
67
24
387
378

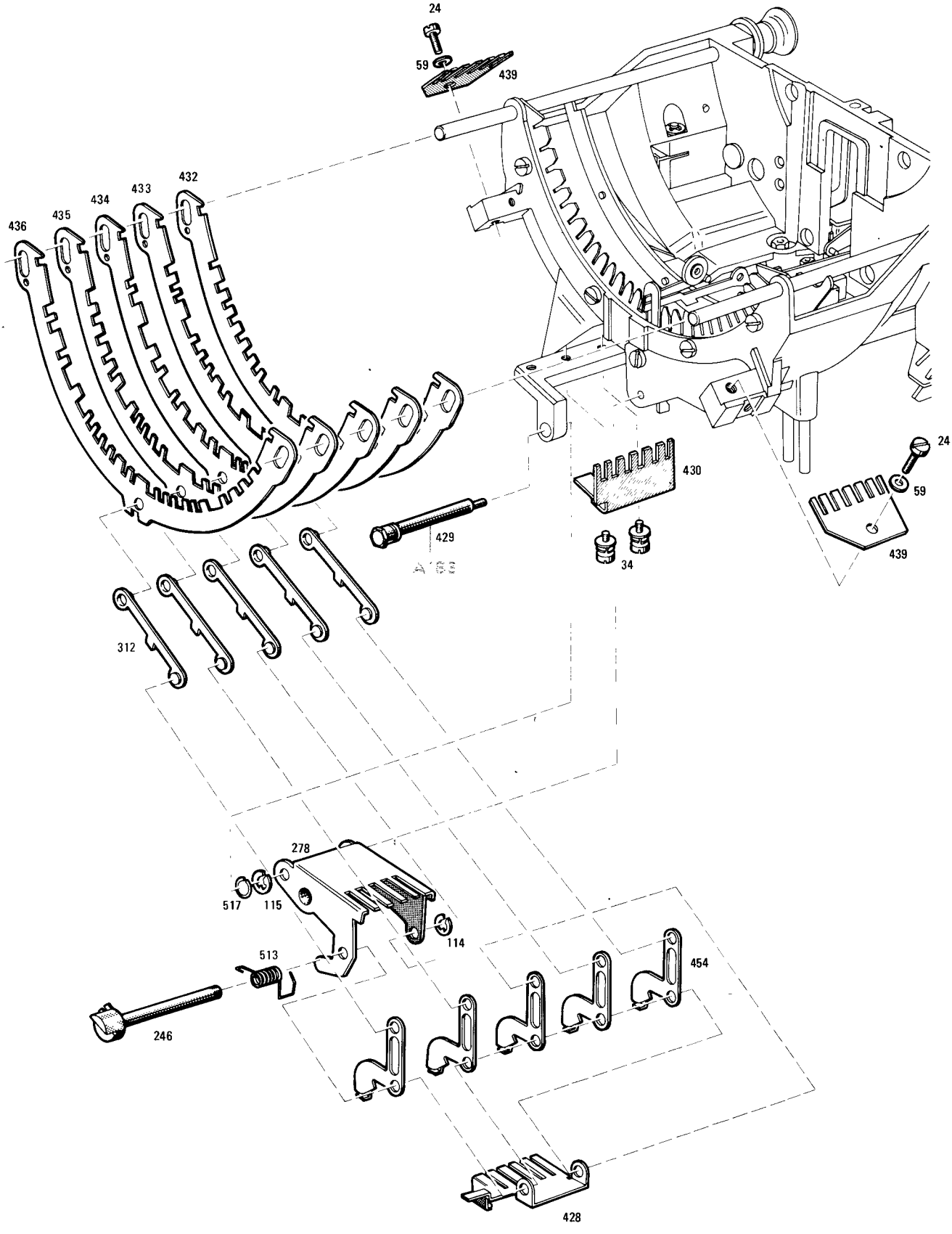
Instructions for replacement

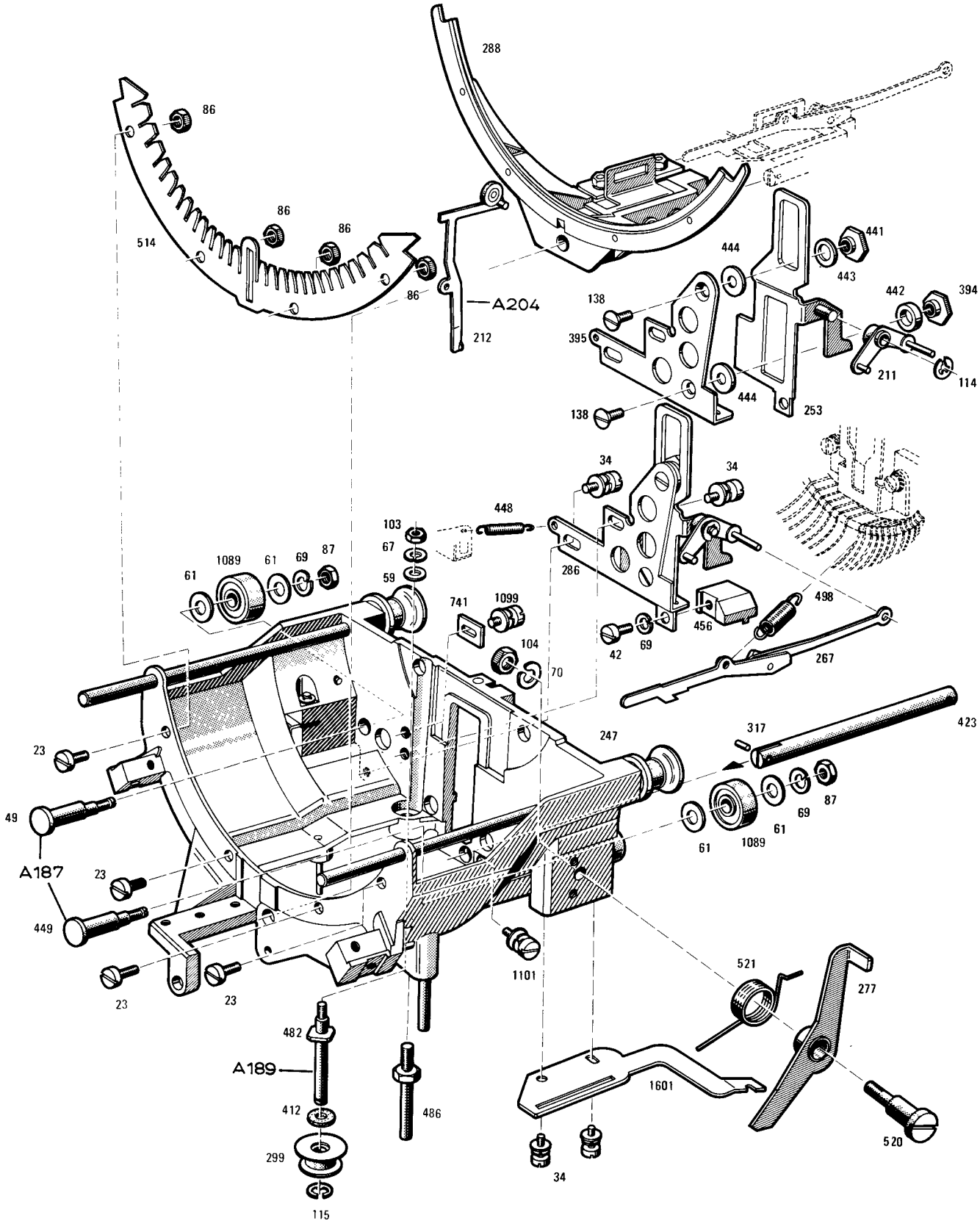
(1) Align comb 224 before screwing onto axle 564 (page 95).


25
25
25
232
41
69
61
692
25
392
1095
94
602
300
851
87
69
61
1089
61
566
231
367
A140
419
33
565
503
595
594
A132
109
597
595
598
A132
600
598
A132
593
304
601
418
414
117
24
1
224
24
A214
500
24
24
305
25
291
374
389
A141
389
390
34
34
552
306
35
35
391
603
599
59
24
34
541
1091
388


519
67
81
22
279
287
318
891
1315
1141
368
489
34
36
33
36
1111
25
568
489
368
1140
1142
34

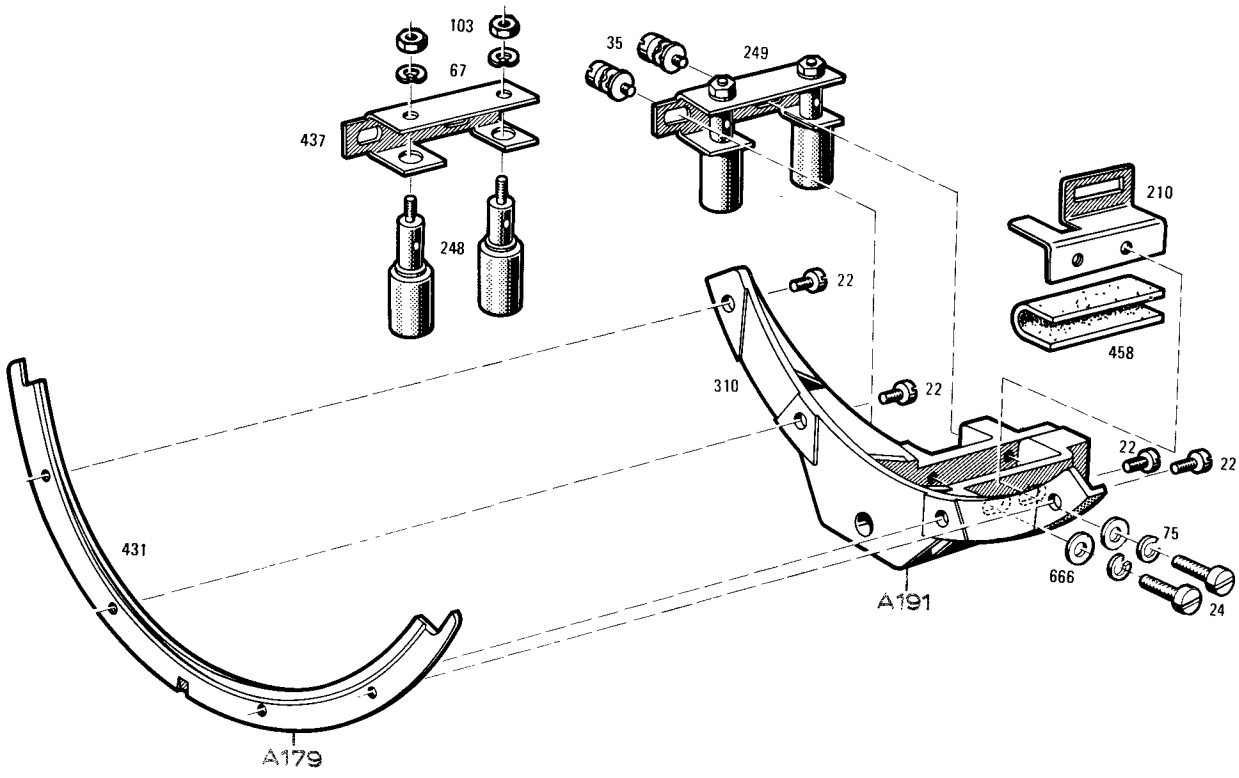

314
589
1103
315
1112 . . . 1139
426
252
584
11
425
316
65
496
13
584
11
450
572

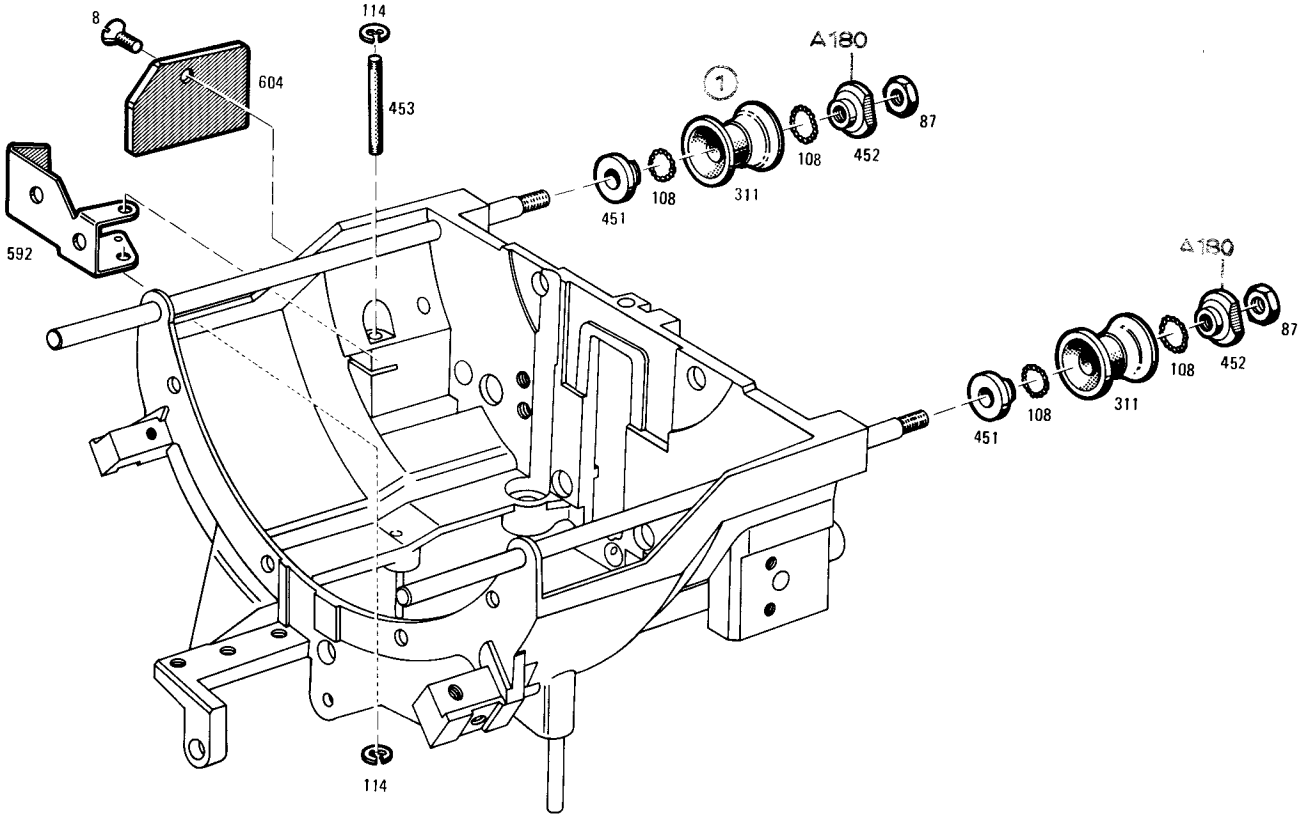

24
59
439
432
433
434
435
436
430
24
59
439
429
34
312
278
517
115
114
513
454
246
428


288
86
514
86
86
86
A204
212
138
395
444
441
443
442
394
211
114
444
253
138
34
34
448
103
67
59
61
1089
61
69
87
286
741
1099
104
70
42
69
456
498
267
247
423
317
87
69
61
1089
61
23
49
A187
23
449
23
23
1101
521
277
520
1601
482
A189
412
299
115
486
34

Instructions for replacement

(1) Broad collar of rollers 311 should face in the direction of the type basket.


103
67
437
248
35
249
210
458
22
310
22
22
22
22
431
75
666
24
A191
A179


8
604
114
453
A180
87
452
108
311
451
108
592
A180
87
452
108
311
451
108
114

D121 Camshaft in rest position

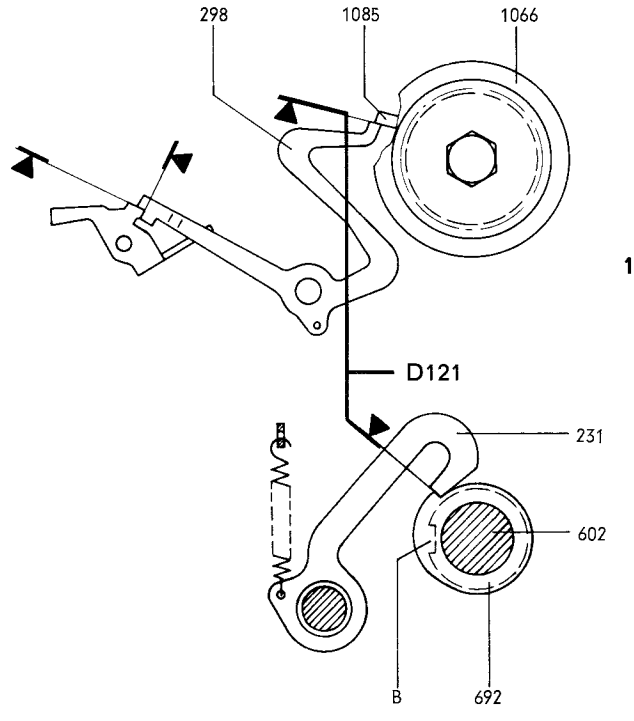
Lever 1085/1 of expanding spring clutch 1066 rests against release lever 298.
Locking cam of camshaft 602/2 against anti-bounce pawl 231.
Recess B in sleeve 692 points in direction of anti-bounce pawl 231.

D122 Camshaft 602/3 and sleeve 692 against ball bearing 1095.

Camshaft 602 has no end play.

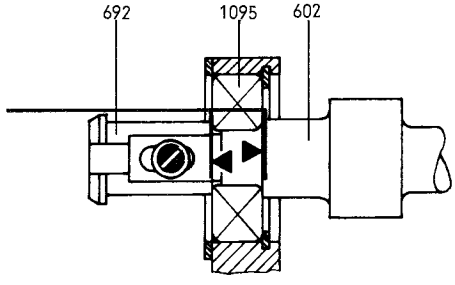
D123 Comb 391/4 against printer frame 306.

D124 Comb 224/5 against printer frame 306 and axle 564.
Guide bar 319 on and against axles 331 and 564.

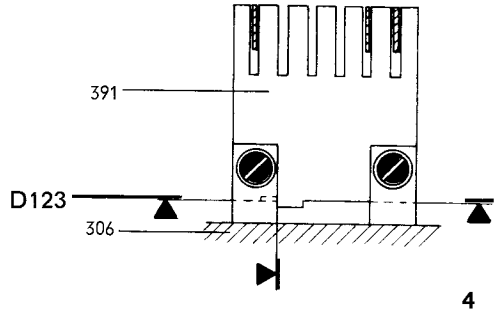

298
1085
1066
D121
231
602
B
692

1

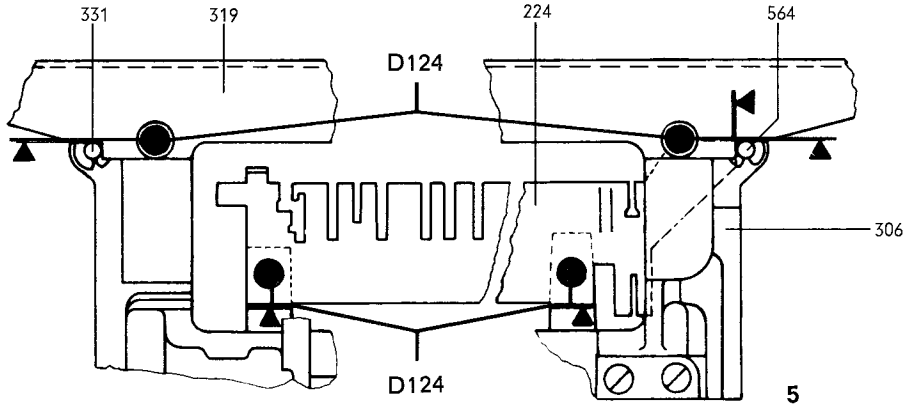
2


692
1095
602

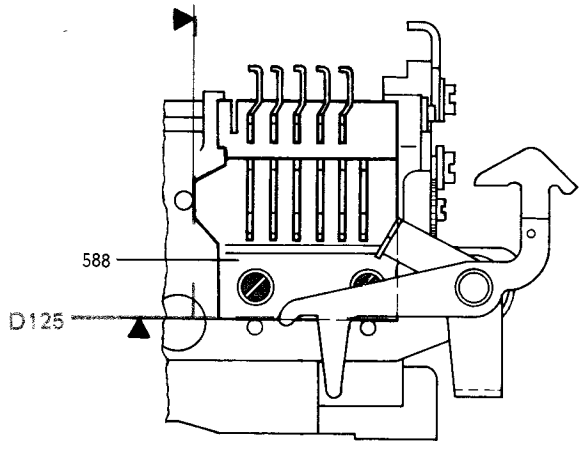
3


391
D123
306

4


331
319
D124
224
564
306
D124

5



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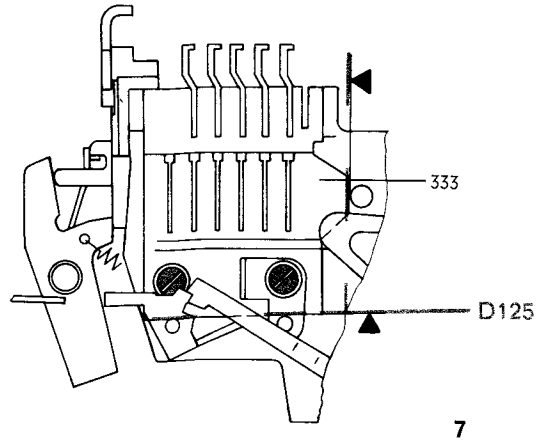

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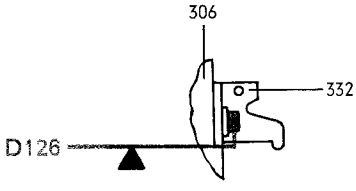

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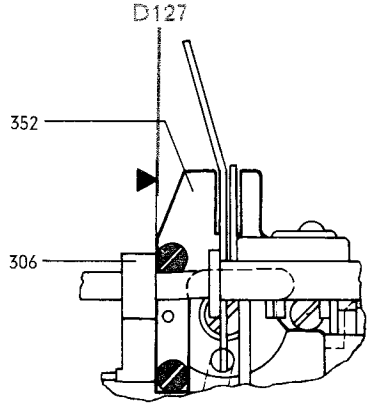

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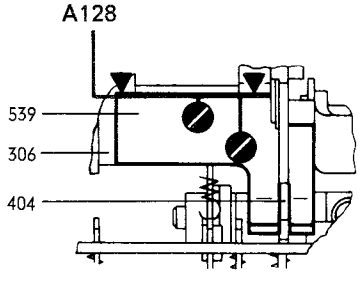

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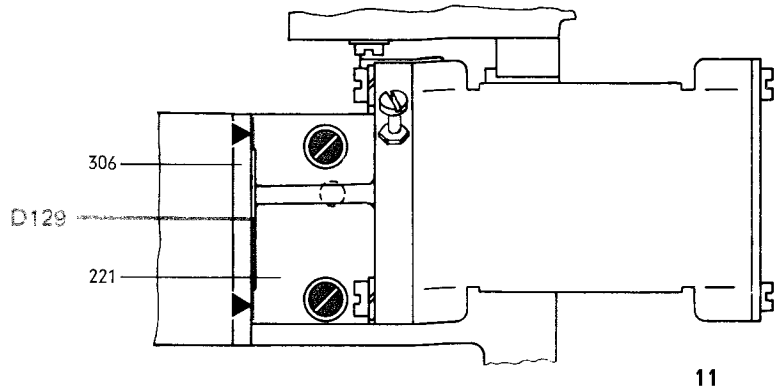

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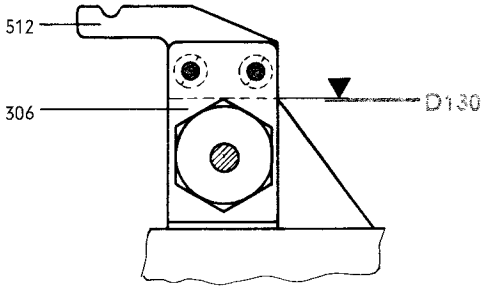

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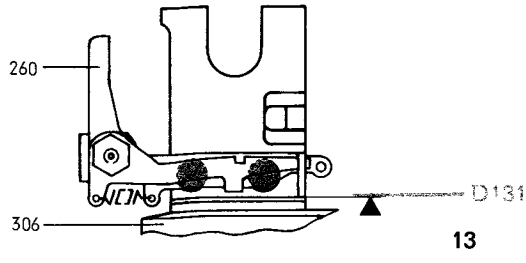


13

D125 Comb 588/6 and comb 333/7 against three pins.

D126 Bracket 332/8 against printer frame 306.

D127 Supporting plate 352/9 against printer frame 306.

A128 Comb 539/10 against printer frame 306.

Lever 404 in comb 539 easy to move.

Adjustment: Move comb 539 to side.

D129 Shock absorber 221/11 against printer frame 306.

D130 Spring suspension plate 512/12 against printer frame 306.

D131 Reversing lever 260/13 against printer frame 306.

A132 Camshaft 602/14 in rest position D121.

Roller 594 of roller lever 304 on compensating cam.

Adjustment: Loosen two hexagonal screws 598. Move roller 594 in direction of arrow.

D133... D139 Expanding spring clutch 1066/16

Before assembly, provide spring chamber in bushing 1069 for torsion spring 1079 with thin "Retinax G" grease film.

D133 Spring 1073/15 against collar of bushing 1069.

Distance between spring 1073 and plate 1072 $\leqq 0.4$ mm.

Assembly: To attain this spacing, the sequence is as follows:
Bushing 1069, washer 1087, plate 1072 and plate 1086/17 or bushing 1069/15, plate 1072, washer 1087 and plate 1086/17 (see figure on page 99).

A134 Plate 1072/17 against spring 1073.

With clutch drum installed and clutch tripped, distance at the narrowest point between the contact surface of lever 1085/16 and bushing 1069 = $1.8 + 0.4$ mm.

Adjustment: Remove clutch drum, loosen screws 1088/17, turn plate 1072.

Note: Expanding spring clutches supplied as spare parts provide for a gap of 1.9 ± 0.1 mm. After a short period of operation the expanding spring adapts itself to the clutch drum, so that the abovementioned dimension may be increased.

D135 Camshaft in rest position D121.

Expanding spring clutch 1066/18 installed so that lever 1085 points in direction of release lever 298.
Hexagonal nut 89 tightened at 600 Ncm.

A136 Printer released, release lever 298/18 against lever 1085.

Distance between release lever 298 and pawl 531 = 0.8 ± 0.1 mm.
Release lever 298 overlaps pawl 531 and lever 1085 laterally by $\geqq$ 2/3 of thickness of plate.

Adjustment: Bend release lever 298.

A137 Lever 289/19 on high part of cam. Clamping lever 532 against release lever 298.

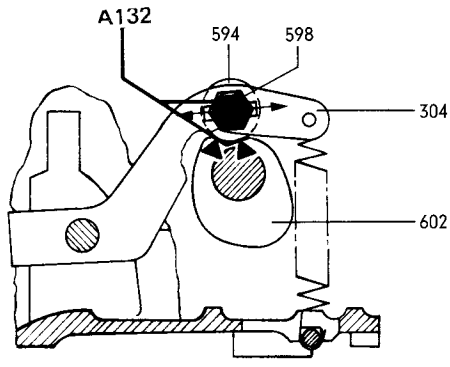
Distance between release lever 298 and pawl 531 = 0.2 ± 0.1 mm.

Adjustment: Loosen panhead screw 1002; turn clamping lever 532.
End play of clamping lever 532 = 0.01...0,2 mm

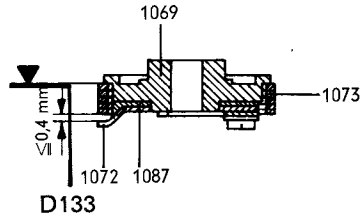
A138 Camshaft in rest position D121. Clutch drum 1068/20 can be turned easily.

Distance between release lever 298 and bracket 561 = 0.6 ± 0.2 mm.

Adjustment: Loosen panhead screw 34; turn bracket 561.



14



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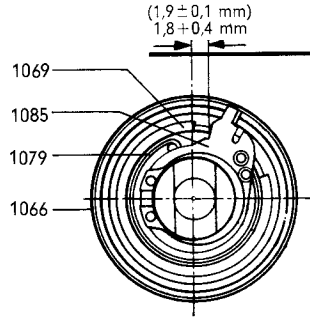

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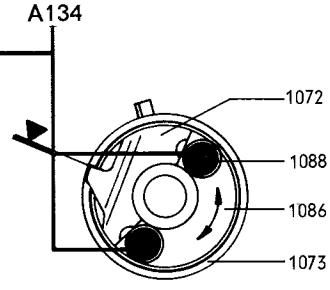

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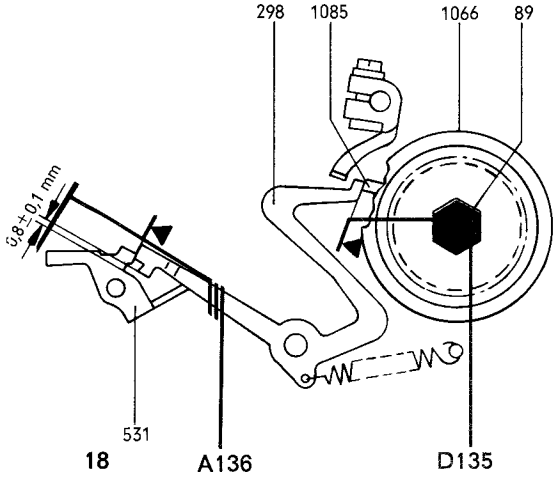

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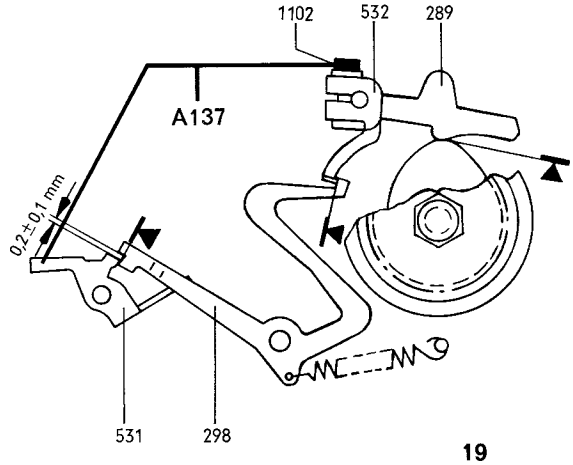

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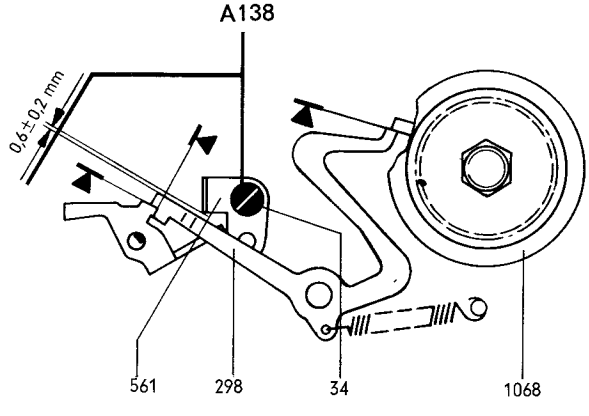

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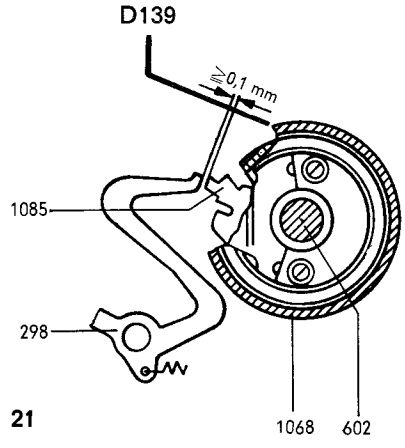
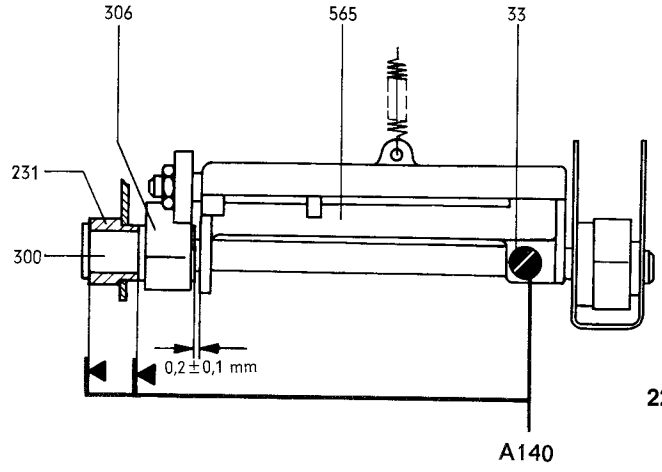
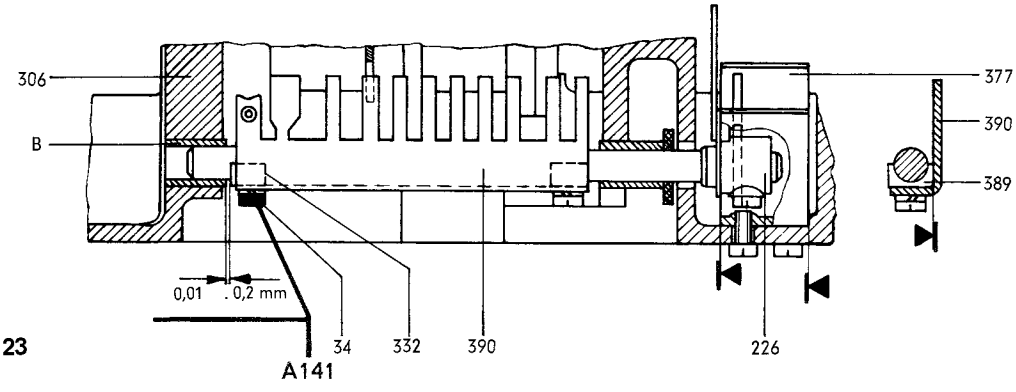

D139
≦0,1 mm
1085
298
1068
602

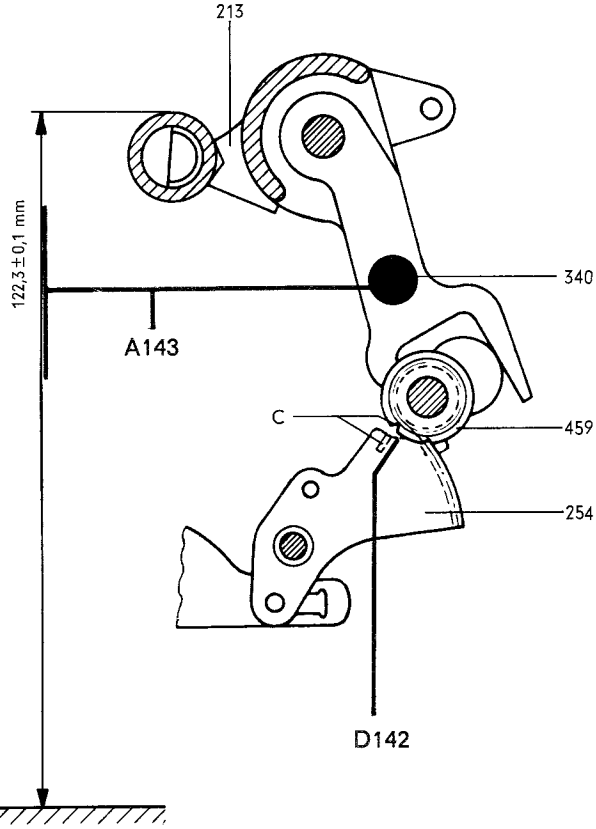
21


306
565
33
231
300
0,2±0,1 mm
A140

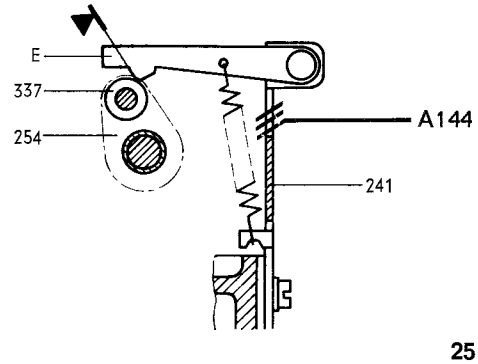
22


306
B
377
390
389
0,01
0,2 mm
34
332
390
226
A141

23


213
122,3±0,1 mm
340
A143
C
459
254
D142

24


E
337
254
A144
241

25

D139 Printer released.

Distance between release lever 298/21 and lever 1085 $\geqq$ 0.1 mm.
Clutch drum 1068 takes camshaft 602 along reliably.

A140 Special function axle 300/22 and anti-bounce pawl 231 make contact on right.

Distance between rocker lever 565 and printer frame 306 = 0.2 $\pm$ 0.1 mm

Adjustment: Loosen panhead screw 33; move rocker lever 565.

A141 Guide comb 377/23 against printer frame 306. Lever comb 390 against two squares 389. Bar with lever 226 against guide comb 377. Pull bars with full material thickness on lever comb 390.

Distance between bushing B in printer frame 306 and square = 0.01...0.2 mm.

Adjustment: Loosen panhead screw 34; move square 389.

D142 Operating lever 213/24 in letters position.

Markings C on segment 254 and pinion with eccentric 459 opposite each other.

A143 Distance between upper edge of operating lever 213/24 and contact surface of printer = 122.3 $\pm$ 0.1 mm.

Adjustment: Turn eccentric screw 340 (lacquer-coated).

A144 Lever E/25 of detent with bracket 241 secures position of segment 254 on roller 337.

Adjustment Bend detent with bracket 241.

A145 Camshaft in rest position D121. Operating lever 213/24 in letters position.

Distance between pull bars and locking bar 329/26 = 0.2. .1.0 mm.

Adjustment: Turn two eccentric pins 270. Secure with bushings 472 and panhead screws 25. At end of code bars 320 ..328 observe distance of 40.9...41.9 mm across range ≈2 mm

A146 Operating lever 213/24 in figures position.

Distance between pull bars and recesses in locking bar 329/26 = 0.8 ± 0.3 mm

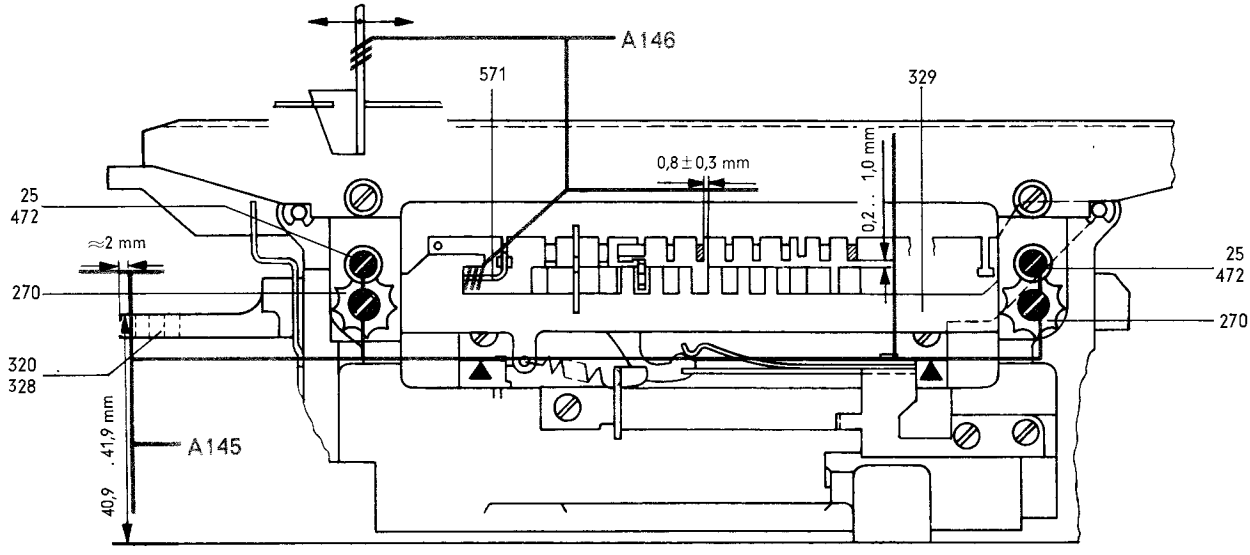
Adjustment: Bend pull bar 571.

D147 Transfer bars 290/61 in letters position. Letters pull bar 550/27 in front position.

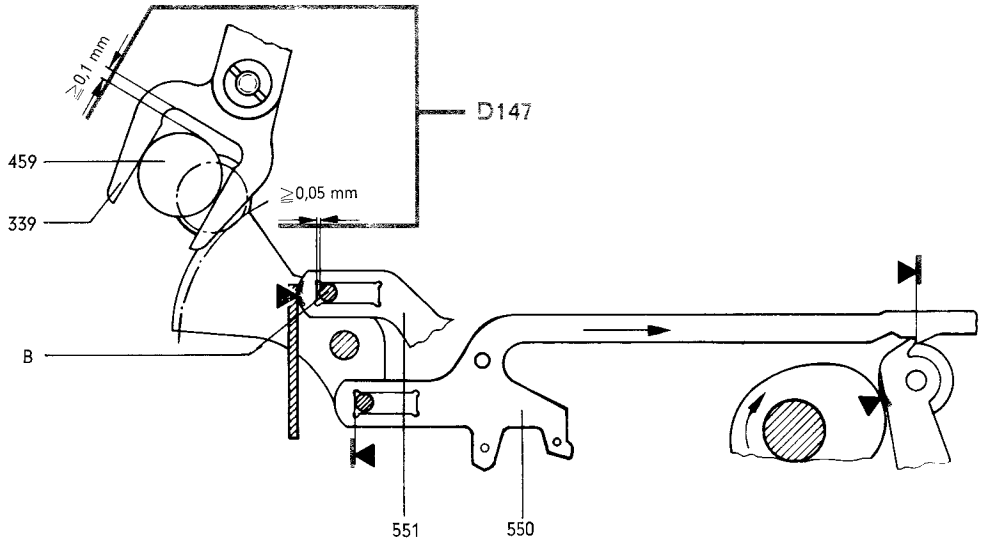
Distance between pin B and figures pull bar 551 ≧ 0.05 mm
Distance between eccentric 459 and fork 339 ≧ 0.1 mm.

D148 Transfer bars 290/61 in figures position. Figures pull bar 551/28 in front position.

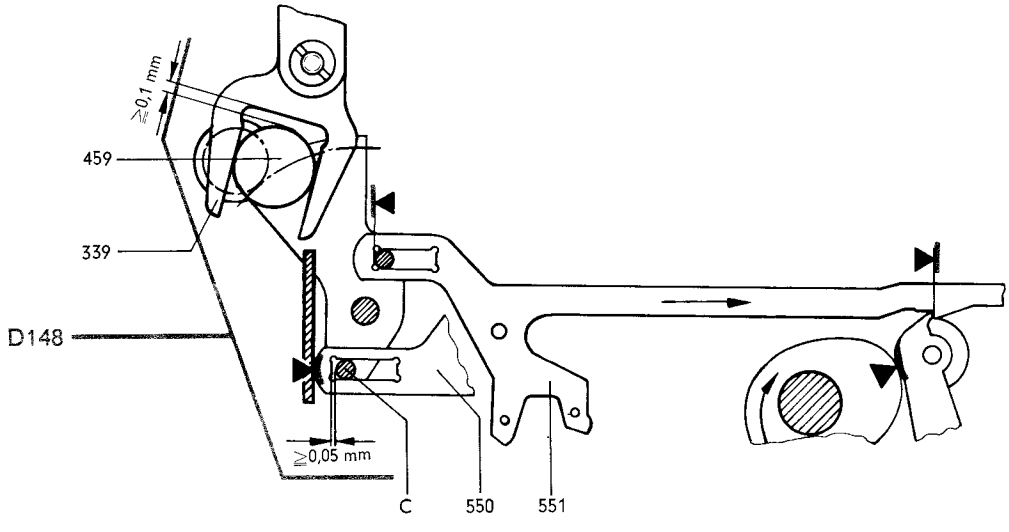
Distance between pin C and letters pull bar 550 ≧ 0.05 mm.
Distance between eccentric 459 and fork 339 ≧0 1 mm


A146
571
329
0,8 ± 0,3 mm
0,2 ... 1,0 mm
25
472
≈2 mm
270
320
328
A145
40,9 ... 41,9 mm
25
472
270

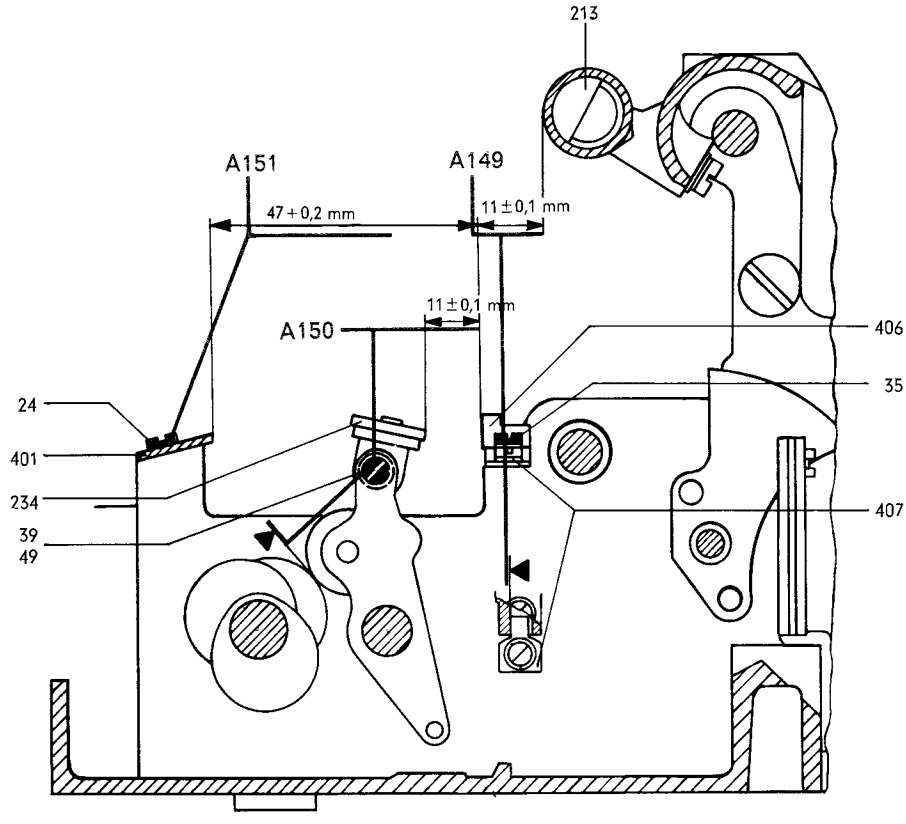
26


≧0,1 mm
D147
459
339
≧0,05 mm
B
551
550

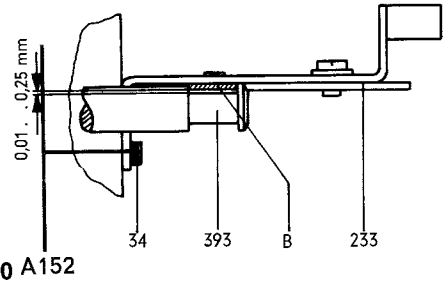
27


≧0,1 mm
459
339
D148
≧0,05 mm
C
550
551

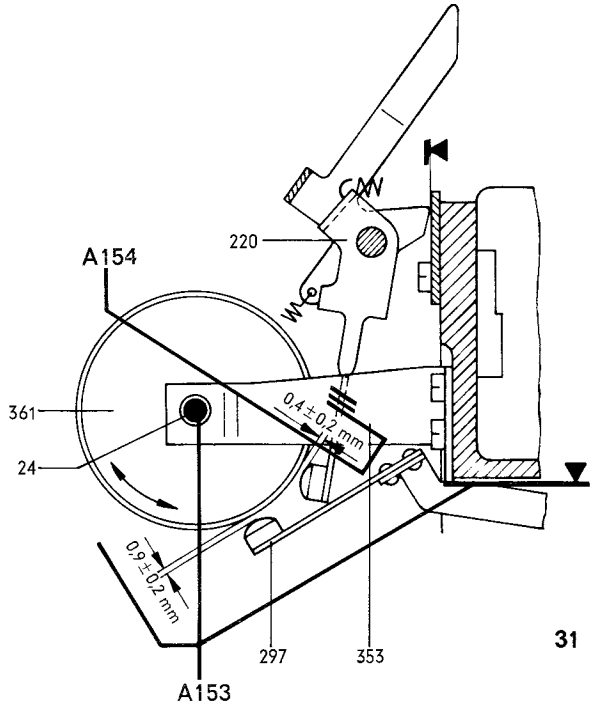
28


213
A151
A149
47 ± 0,2 mm
11 ± 0,1 mm
11 ± 0,1 mm
A150
406
35
407
24
401
234
39
49

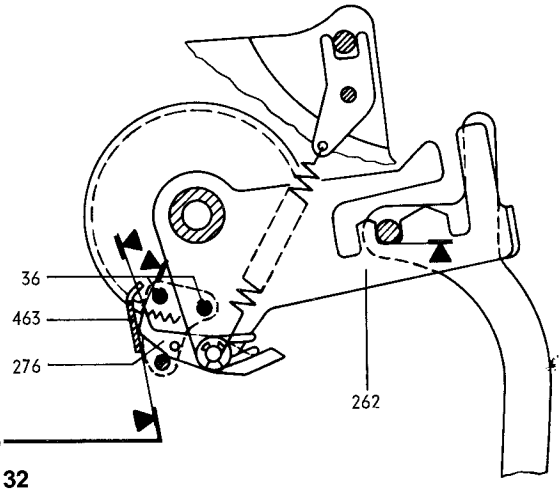
29


0,01 . . 0,25 mm
34
393
B
233
A152

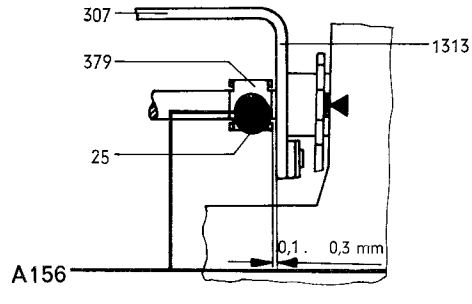
30


CAM
220
A154
361
24
0,4 ± 0,2 mm
0,9 ± 0,2 mm
297
353
A153

31


36
463
276
262
A155

32


307
1313
379
25
0,1 . 0,3 mm
A156

33

A149 Distance between front edge of operating lever 213/29 and supporting rail 406 = 11 ± 0.1 mm. Supporting rail 406 against stops 407 (lacquer-coated).

Adjustment: Loosen panhead screws 35; move supporting rail 406.

A150 Camshaft in rest position D121.

Distance between printer bail 234/29 and supporting rail 406 in the center of the line = 11 ± 0.1 mm.

Adjustment: Loosen panhead screws 39 and 49 (lacquer-coated).
Move printer bail 234.

A151 Distance between front edge of supporting rail 406/29 and bar 401 = 47 ± 0.2 mm.

Adjustment: Loosen panhead screws 24 (lacquer-coated); move bar 401.

A152 Distance between lever B of impact adjuster 233/30 and axle 393 = 0.01 to 0.25 mm.

Adjustment: Loosen panhead screws 34; move impact adjuster 233.

A153 Lever 297/31 against bracket 353.

Distance between bell 361 and lever 297 = 0.9 ± 0.2 mm.

Adjustment: Loosen panhead screw 24; turn bell 361.

A154 Distance between bell 361/31 and lever 220 = 0.4 ± 0.2 mm.

Adjustment: Bend lever 220

A155 Character "Z1" (line feed) set. Line spacing 1 1/2.
Special functions bail in front position. Line feed pawl with pin 276/32 against guide bar 463.

Adjustment: Loosen pan head screws 36. Move guide bar 463.

A156 Line feed linkage 1313/33 on printer frame 306.

Distance between adjusting plate 379/33 and lever 307 of line feed linkage 1313 = 0.1...0.3 mm.

Adjustment: Loosen panhead screw 25. Move adjusting plate 379.

A157 Axle with pressure roller 218/34 against printer frame 306 and lever 216.

Distance between printer frame 306 and lever with axle 280 = 0.01. .0.4 mm.

Adjustment: Loosen panhead screw 25; move lever with axle 280.

A158 Lever 223/35 against pin B.

Distance between platen 256 and pressure roller 217 = 2.1 ± 0.4 mm.

Adjustment: Bend lever 216.

A159 Platen 256/35 can be turned without touching tear-off plate 384.

Distance between tear-off plate 384 and platen 256 = 0.2 ± 0.1 mm

Adjustment: Loosen panhead screws 34; move tear-off plate 384.

A160 Lever 223/36 in front position.
Guide plate 274 against platen 256.
Sag or slant of guide plate 274 ≦ 0.2 mm.

Distance between guide plates C of guide plate 274 and tear-off plate 384 ≦1.0 mm; distance between guide platen C and platen 256 = 0.5 mm.

Adjustment: Bend guide plates C of guide plate 274.

A161 Lever 265/37 against bushing E in printer frame 306. Closed side of spring eyelet of tension spring 374 hooked up as illustrated.

Visible distance x between lever 265 and tension spring 374.

Adjustment: Bend nose on lever 265.

A162 Special functions bail in front position. Lever 265/38 against push rod 503.

Distance between "Who-are-you" pull bar 555 and lever 265 = 1.4 + 0.3 mm.

Adjustment: Bend nose on lever 265.

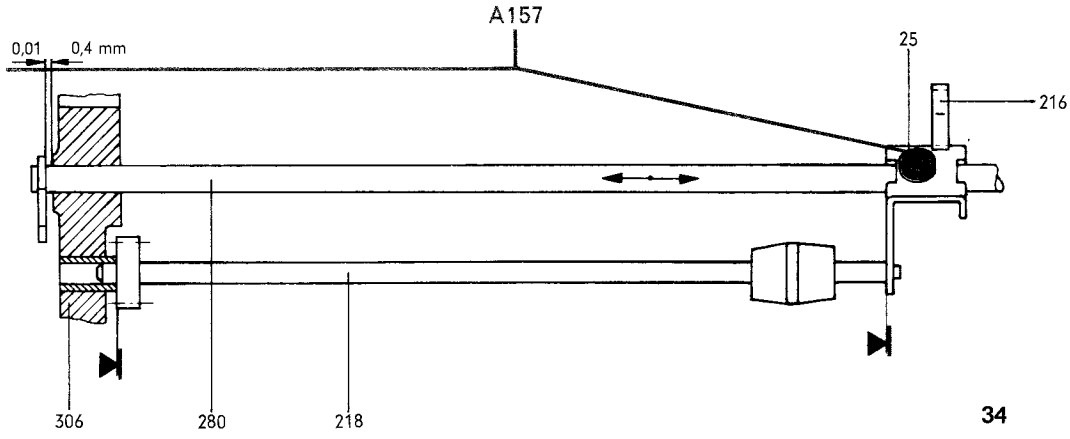
A163 Lever 491/39 overlaps "Who-are-you" pull bar 555 laterally by ≧ 1.0 mm.

Adjustment: Bend lever 491.

A164 Camshaft in rest position D121. Lever 491/39 against bracket 332.

Distance between end of bracket and supporting surface of printer = 31.7 + 1.0 mm.

Adjustment: Turn bracket 491.



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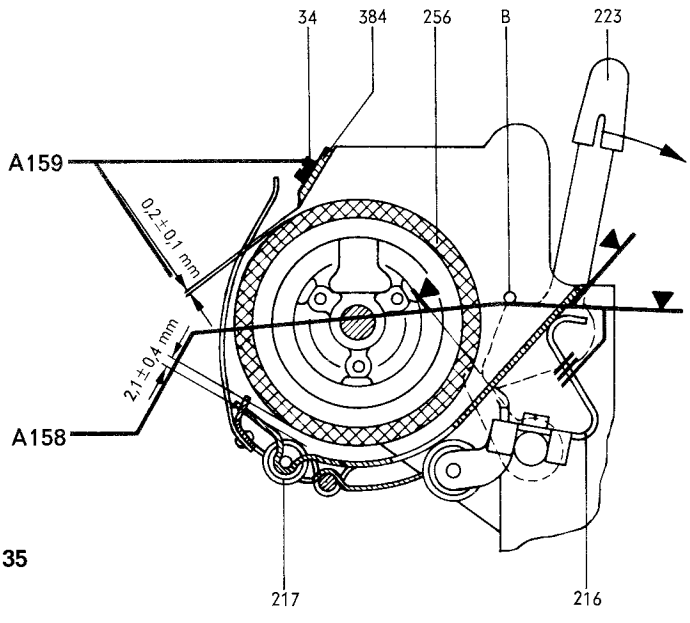

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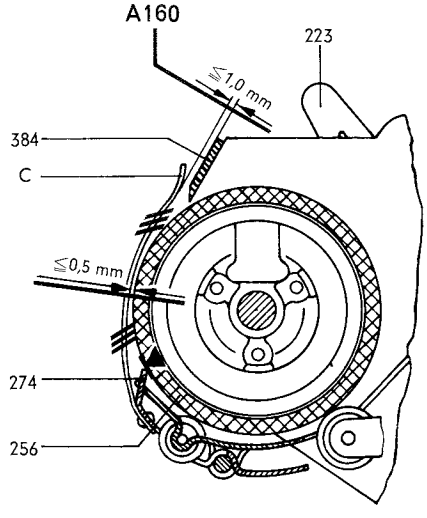

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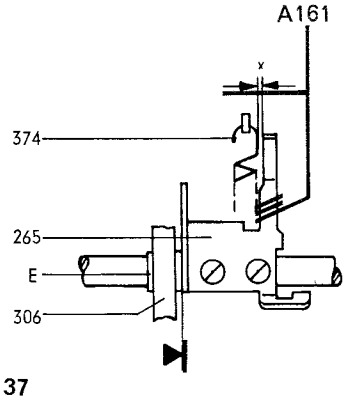

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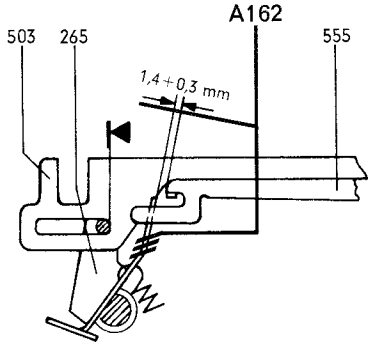

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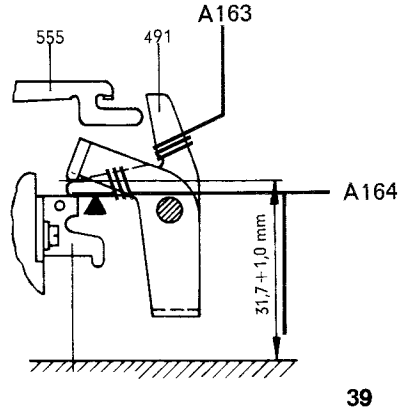

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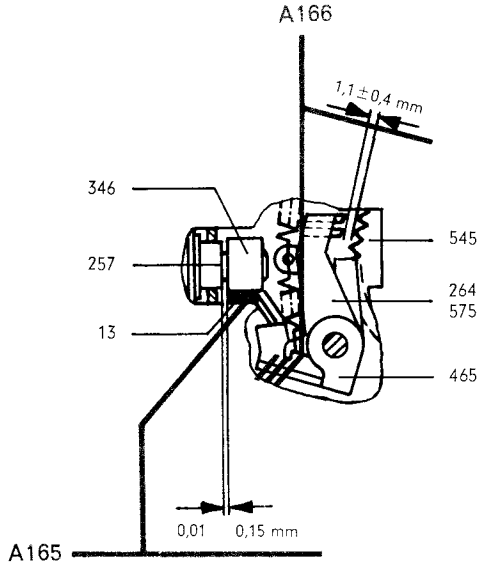
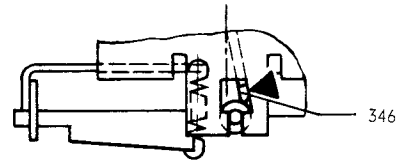
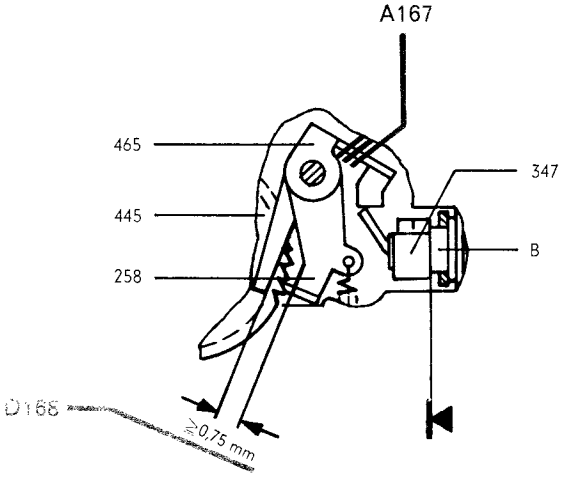

A166
1,1±0,4 mm
346
257
13
545
264
575
465
0,01
0,15 mm
A165

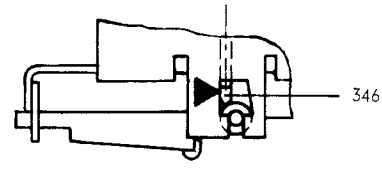
40


346

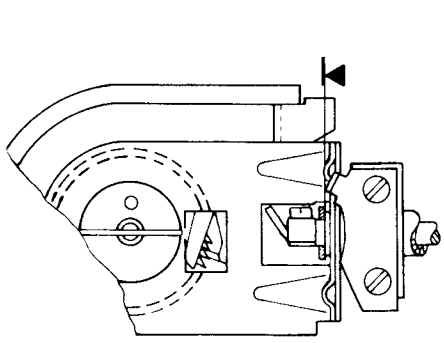
41


A167
465
445
258
347
B
D168
≥0,75 mm

42


346

43



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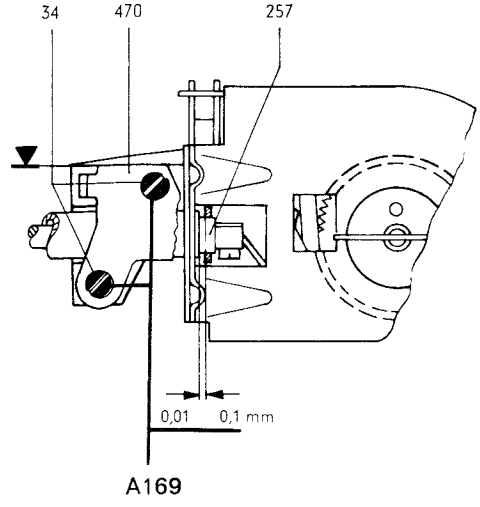

34
470
257
0,01
0,1 mm
A169

A165 Reversing arm 347/42 against sleeve B.

Distance between reversing arm 346/40 and spool carrier 257 = 0.01.. 0.15 mm.

Adjustment: Loosen panhead screw 13; move reversing arm 346.

A166 Reversing arm 346/41 in right-hand rest position.

Measured during one revolution, distance between ratchet 545/40 and detents 264 and 575 = 1.1 $\pm$ 0.4 mm.

Adjustment: Bend nose on lever 465.

A167 Reversing arm 346/43 in left-hand rest position.

Measured during one revolution, distance between ratchet 445/42 and detent 258 = 1.1 $\pm$ 0.4 mm (as A166).

Adjustment: Bend nose on lever 465.

D168 Distance between engaged ratchets 258/42, 264/40 and 575 and levers 465 in their rest positions $\geqq$ 0.75 mm.

A169 Distance between spool carrier 257/44 and retaining bracket 470 = 0.01.. 0.1 mm.

Adjustment: Loosen panhead screws 34; move retaining bracket 470.

A170 Camshaft in rest position D121.

Distance between spool carrier 257/45 (left-hand side) and upper edge of sleeve B in printer frame 306 = 25.5 ± 0.3 mm.

Adjustment: Loosen hexagonal nut 103 (lacquer-coated); turn spool carrier 257.

A171 Reversing arm 346/45 in forward rest position Press lever 468 in direction of arrow.
Reversing arm 347 centered (a ≈ b) in recess of lever 494 when inspected visually.

Turn camshaft until spool carrier 257/46 is in uppermost position.
Reversing arm 346 in rear rest position. Press changeover lever 468 in direction of arrow.

Reversing arm 347 lies securely in recess of lever 494.

Adjustment: Loosen panhead screw 33; move lever 494.

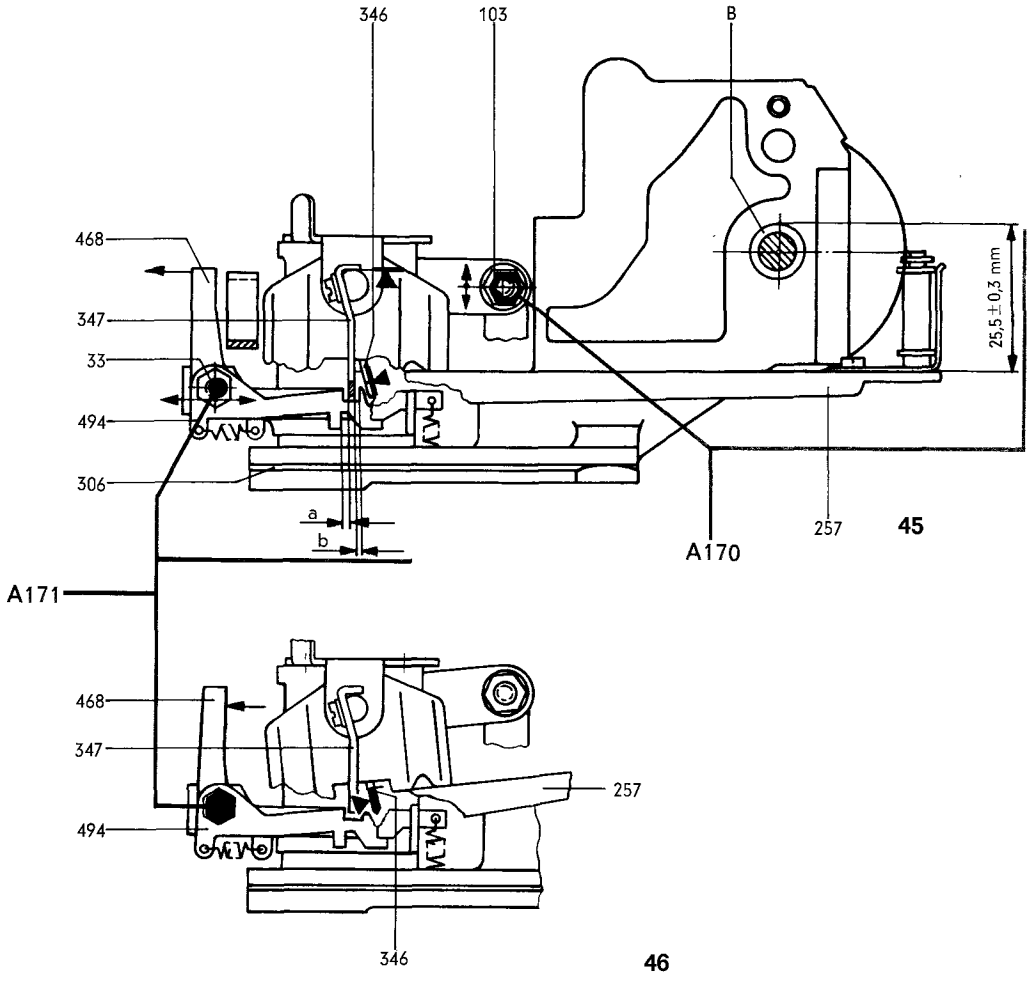
D172 Supporting plate 302/47 against panhead screw 25 in direction of arrow.

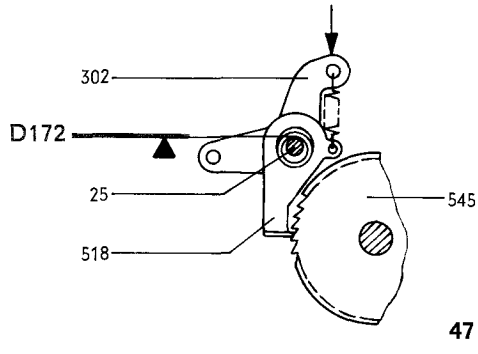
During one camshaft revolution, ratchet 545 turned by pawl 518.

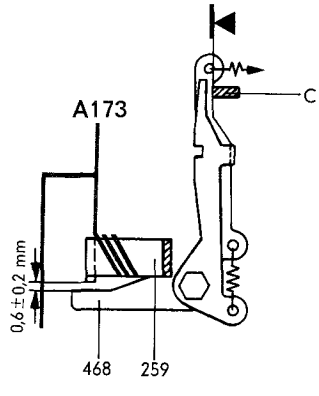
A173 Camshaft in rest position D121.
Lever 468/48 on bracket C and reversing lever 259/49 on spool carrier 257.

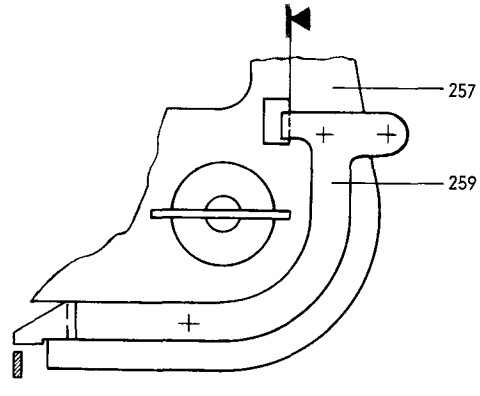
Distance between lever 468/48 and reversing lever 259 = 0.6 ± 0.2 mm.

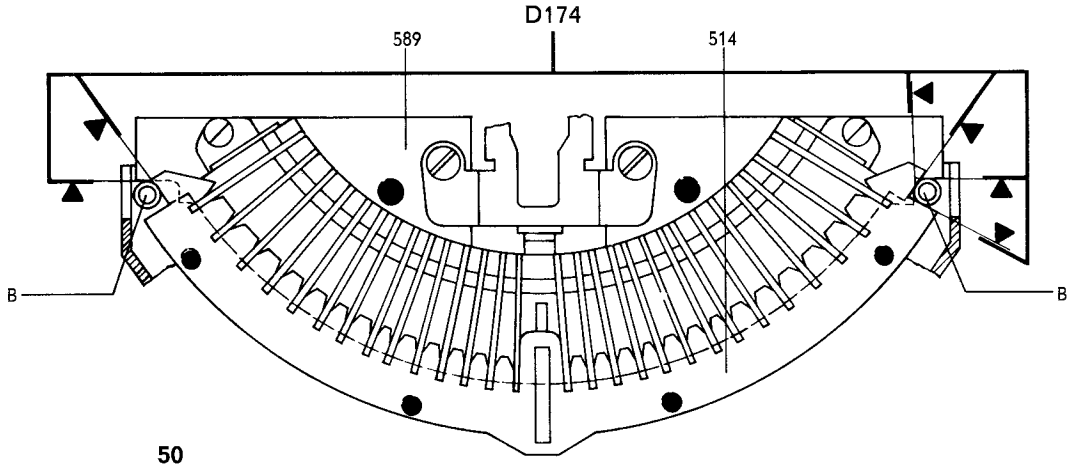
Adjustment: Bend reversing lever 259.


346
103
B
468
347
33
494
306
a
b
A171
A170
257
25,5±0,3 mm
45
468
347
494
257
346
46


302
D172
25
518
545
47


A173
C
0,6±0,2 mm
468
259
48


257
259
49



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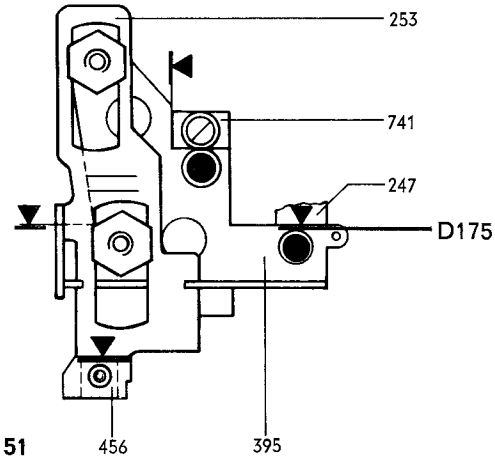
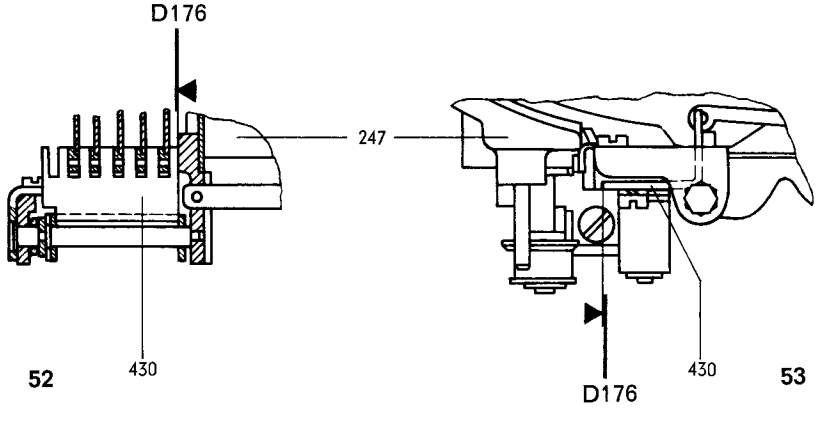


51



52 53

Type basket carriage

D174 Type bar segment 589/50 and guide comb 514 against axles B.

D175 Guide 395/51 against cast edges of type basket 247 and lacquer-coated stop 741. Threaded block 456 against lift feed rack 253.

Lift feed rack 253 easy to move in guide 395.

D176 Guide comb 430/52, 53 against cast edges of type basket carriage 247.

D177 Guide combs 439/54, 55 against cast edges of type basket carriage 247.

D178 Suspension plates 1140, 1141/55 parallel to cast edge of type basket carriage 247 as gauged by the naked eye.

A179 Type basket carriage 1312/56 without type bar segment.

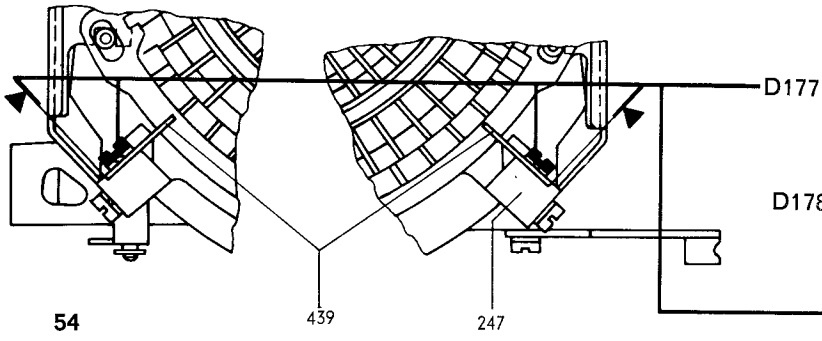
Distance between axle B and pusher segment 431 in the upstroke range = 0.03...0.1 mm.

Adjustment: Loosen four panhead screws 22. Locate pusher segment 431 against axle C and turn.

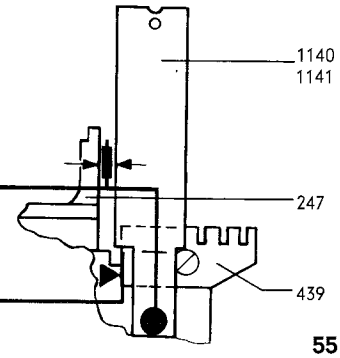
A180 Rollers 311/57 easily rotatable.

End play of rollers 311 $\leqq$ 0.01 mm.

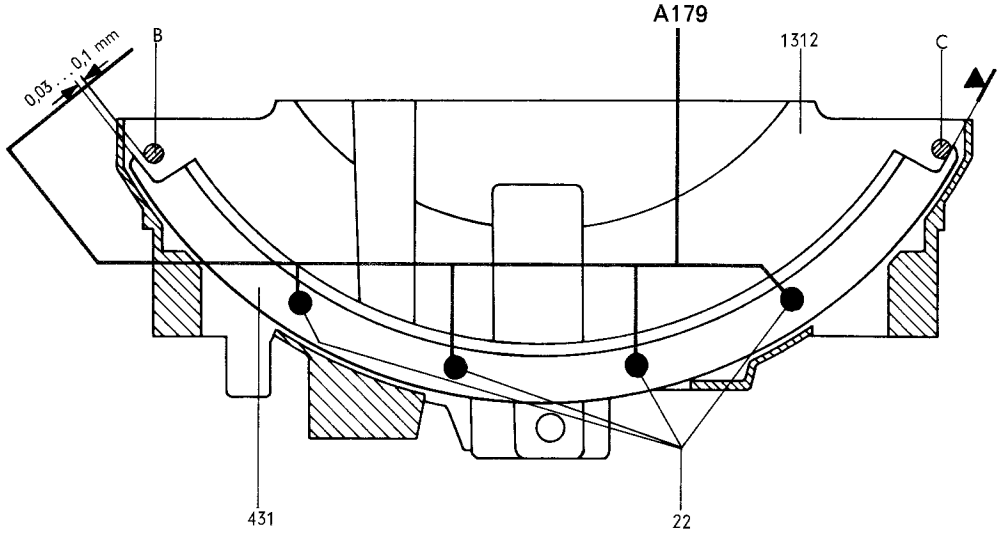
Adjustment: Loosen hexagonal nuts 87 (lacquer-coated); turn supports 452.


D177
439
247

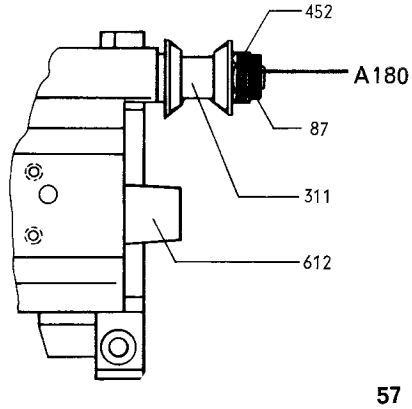
54


1140
1141
D178
247
439

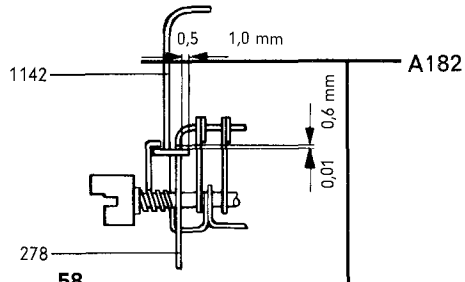
55


A179
1312
B
C
0,03 ... 0,1 mm
431
22

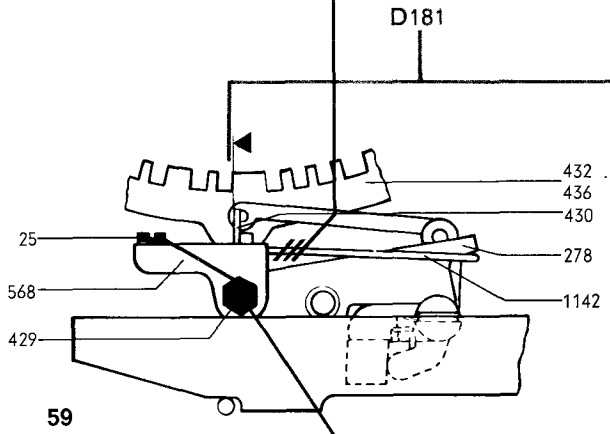
56


452
A180
87
311
612

57



58



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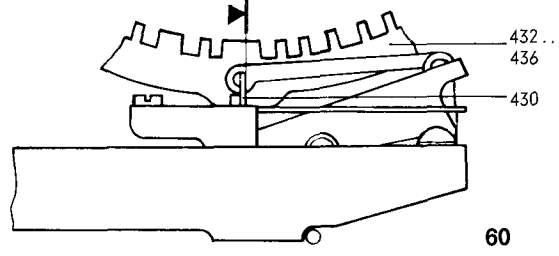

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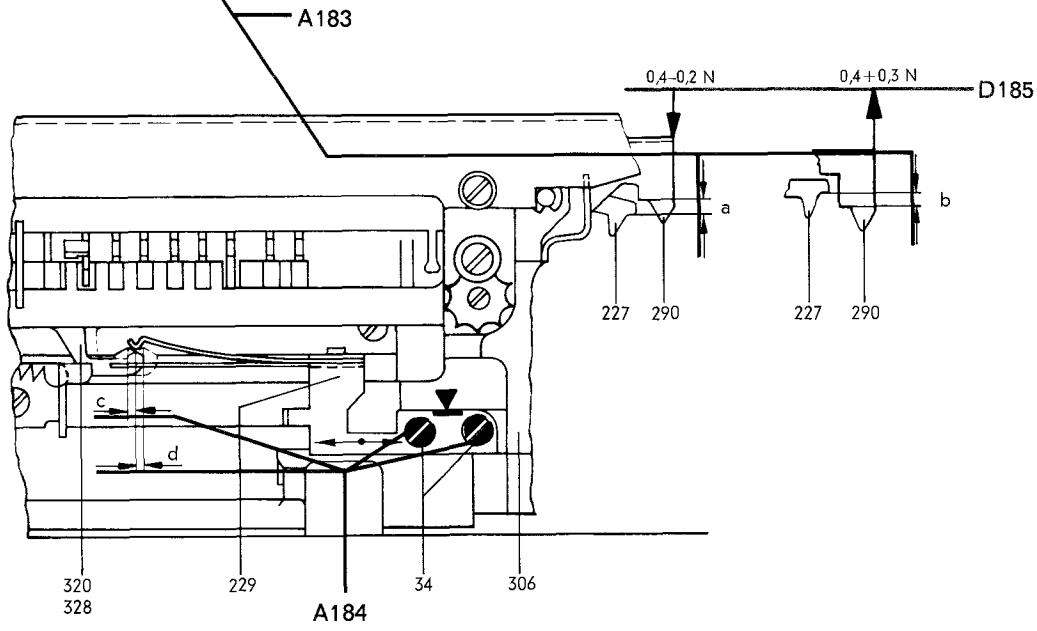

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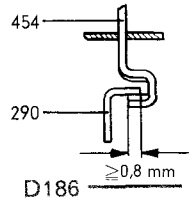


62 D186

Printer with type basket carriage

D181 Type basket carriage in beginning-of-line and letters position. Raise transfer bars 290/61 until code segments 432...436/59 rest against guide comb 430. Remove springs of detent bracket 229/61 from code bars 320...328.

Transfer bars 290 drop down due to their own gravity. Code segments 432...436/60 lie on other side of guide comb 430.

Type basket carriage in figures position; repeat procedure.

A182 Bail 1142/58, 59 overlaps rocker lever 278 by 0.5...1.0 mm.

In beginning-of-line and figures position, distance between bail 1142 and rocker lever 278 = 0.01...0.6 mm.

Adjustment: Bend bail 1142/59.

A183 Type basket carriage in middle of line and figures position. Transfer bars 290/61 in upper or lower position; code segments 432.. 436/59, 60 rest against guide comb 430 on left and right.

In both positions, distance between transfer bars 290/61 and levers 227 about the same ($a \approx b$).
Code bars 320...328 lock pull bars. Overlap $\geqq 1.0$ mm.
Code bars 320...328 release pull bars. Engagement reliability $\geqq 0.05$ mm.

Adjustment: Loosen panhead screw 25/59 (lacquer-coated), remove bracket 568 and turn eccentric axle 429.

A184 Transfer bars 290/61 in upper or lower position. Code bars 320...328 have same paths right and left of detent bracket 229 ($c \approx d$).

Adjustment: Loosen panhead screws 34 (lacquer-coated). Detent bracket 229 against printer frame 306 and shift.

D185 Force for lifting transfer bars 290/61 0.4 + 0.3 N
Force for lowering transfer bars 290 0.4 - 0.2 N.

D186 Levers 4/62 on type basket carriage overlap transfer bars 290 by $\geqq 0.8$ mm.

A187 Radial play of type basket carriage 1312/63 on operating lever 213 $\leqq$ 0.07 mm.

Adjustment: Loosen hexagonal nuts 87; turn eccentric pins 449.

D188 Carriage return spring unhooked. Type basket carriage outside lubricating felt area of printer bail 234. Parallel guide 236/71 latched up.

Roller resistance of type basket carriage 1312/63 $\leqq$ 2.8 N.

A189 Camshaft in rest position D121.
Type basket carriage in figures and middle-of-line position.

Distance between guide bar 319/63 and axle B of type basket carriage
= 61 $\pm$ 0.1 mm (changeover travel 7.1 mm).

Adjustment: Loosen hexagonal nut 103; turn pin 482.

D190 Distance between bar 401/63 and pin C as well as pin 486 = 0.05...0.55 mm.

A191 Camshaft in rest position D121. Type basket carriage 1312/63 in the middle-of-line and figures position.

Distance between noses of external pull bars 450 and pusher segment 431
$= 3.2 \, ^{+0.4}_{-0.2}$ mm.

Distance between pull bars 450 and code segments 432...436 $\geqq$ 0.2 mm.

Adjustment: Loosen panhead screws 35 (lacquer-coated); move pusher 310.

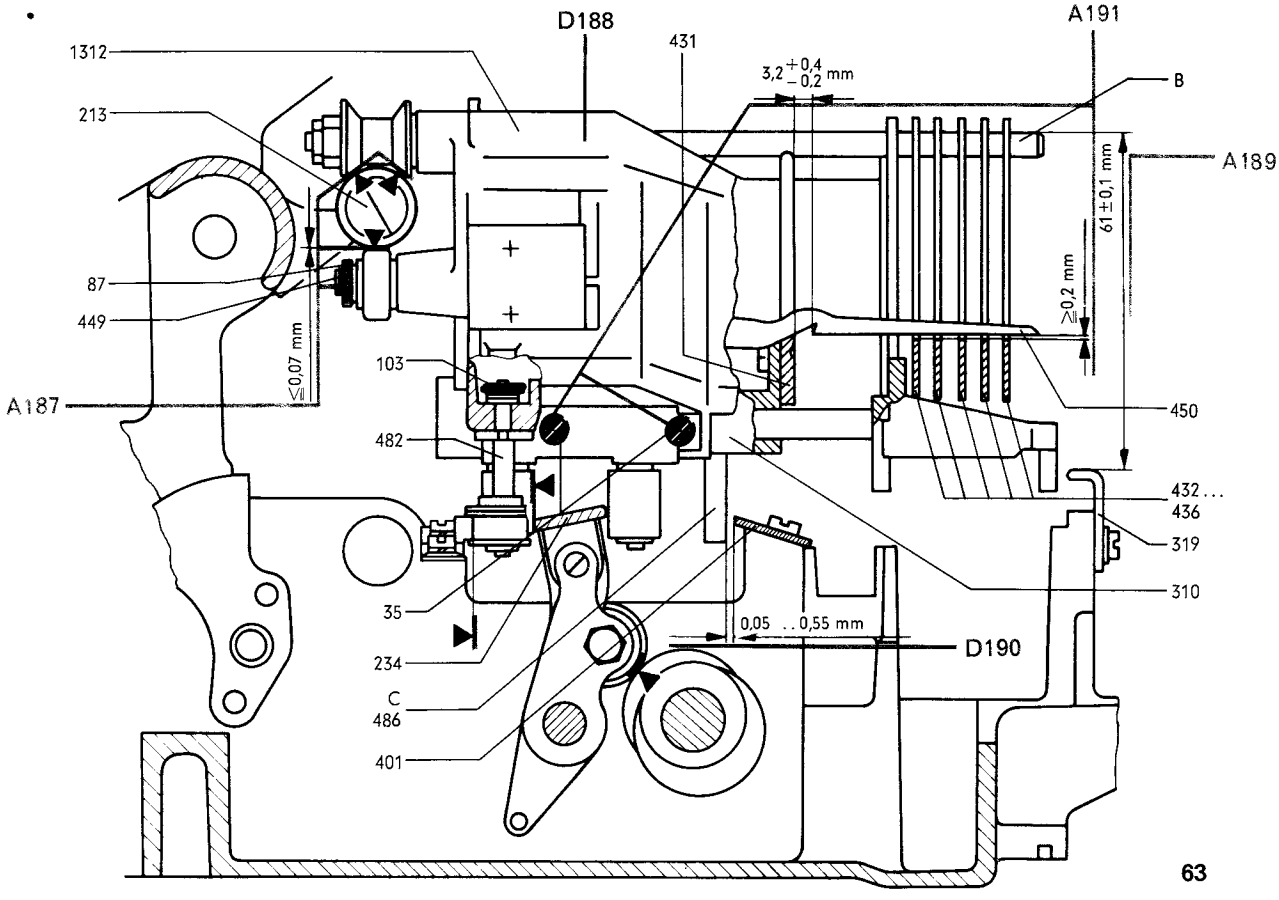
A192 Not applicable for two-color device.
Type basket carriage 1312/64 in figures position. Pusher 288 in front position. Press type bar with character / against ribbon.
Distance between upper edge of character and upper edge of the one-color ink ribbon $\approx$ 0.5 mm.

Adjustment: Screw on ribbon lifter 519 at middle of elongated hole. Loosen panhead screws 33 (lacquer-coated); move bracket 210.

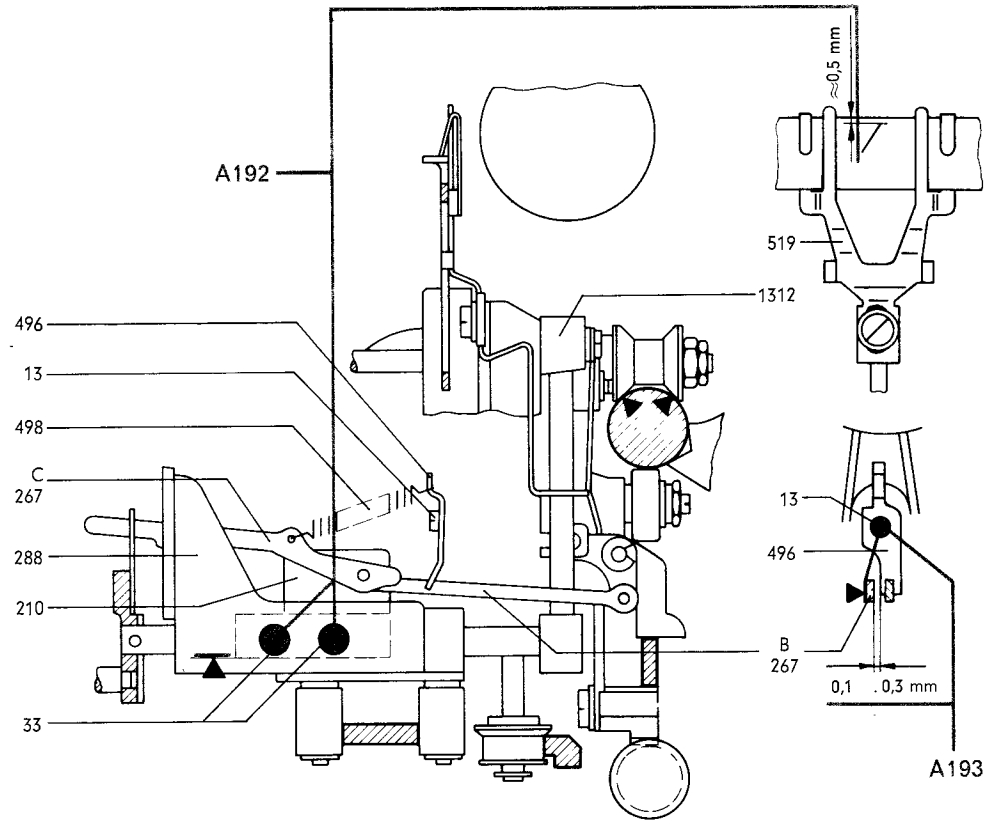
A193 Tension spring 498 unhooked from pull bar C, 267. Lever B of pull bar 267 against bracket 210.

Distance between lever B of pull bar 267 and stop 496 = 0.1...0.3 mm.

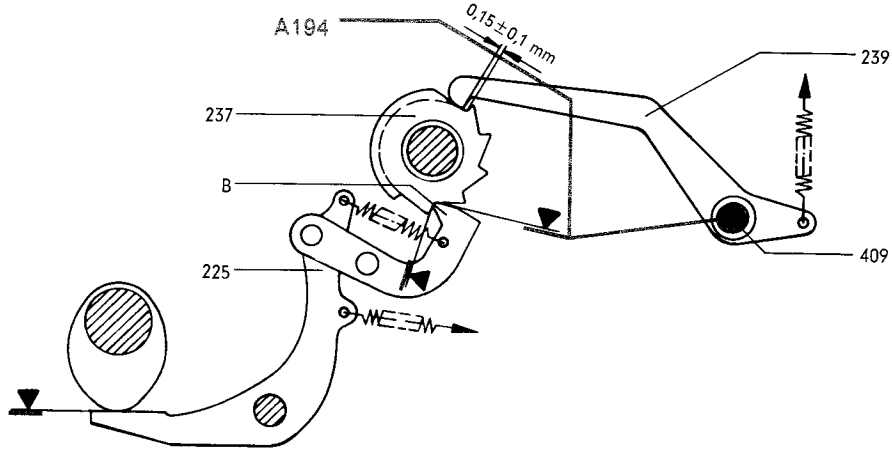
Adjustment: Loosen screw 13; turn stop 496.


D188
A191
431
1312
213
3,2 +0,4 −0,2 mm
B
A189
61 ± 0,1 mm
87
449
≤0,07 mm
0,2 mm
103
A187
450
482
432...
436
319
310
35
0,05 .. 0,55 mm
D190
234
C
486
401

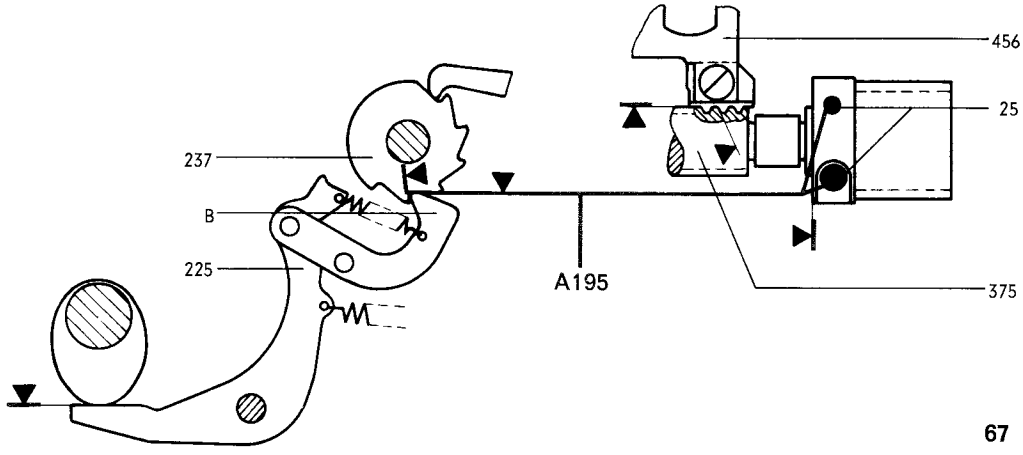
63


≈0,5 mm
A192
519
1312
496
13
498
C
267
288
210
13
496
B
267
0,1 . 0,3 mm
33
A193

64

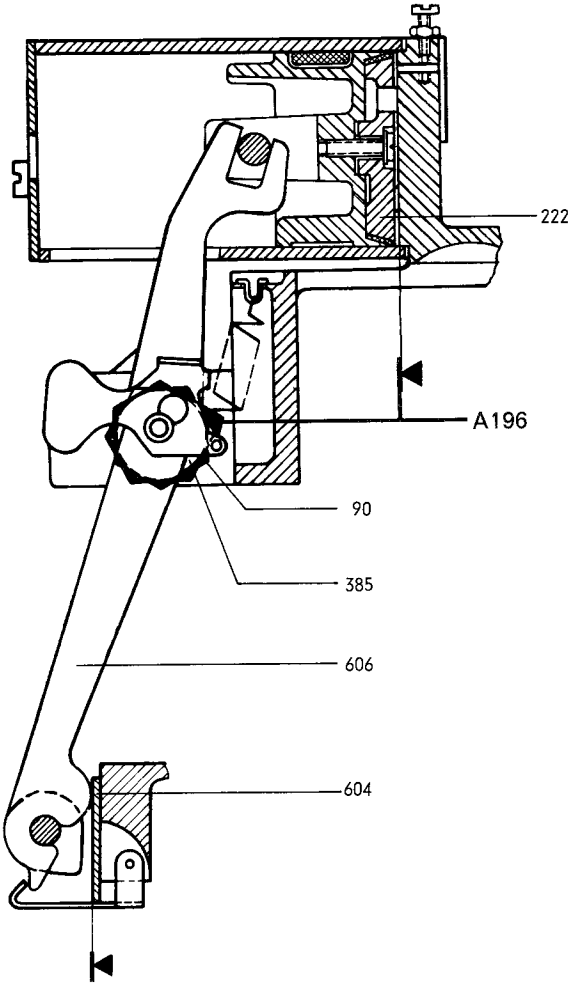

A194
0,15±0,1 mm
239
237
B
225
409

65


456
25
237
B
225
A195
375

66

67


222
A196
90
385
606
604

68

A194 Camshaft in rest position D121. Carriage feed lever 225/65 on high part of cam. Turn sleeve with ratchet 237 against pawl B. Pawl B engages in bottom of tooth.

Distance between detent 239 and any tooth of sleeve with ratchet 237 = 0.15 ± 0.1 mm.

Adjustment: Turn eccentric pin 409 in upper rotation range.

A195 Camshaft in rest position D121. Type basket carriage just before end of line. Sleeve with ratchet 237/66 against pawl B of carriage feed lever 225. Print any character.

Spacing between last two characters corresponds roughly to preceding character spacing.

Adjustment: Loosen panhead screws (lacquer-coated); turn feed screw 375/67.

A196 Camshaft in rest position D121. Type basket carriage in beginning-of-line position. Sleeve with ratchet 237/66 against pawl B of carriage feed lever 225. Braking lever 606/68 against stop 604 of type basket carriage. Piston 222 in extreme right-hand position. Raise and lower parallel guide 236/71.

Threaded block 456/67 symmetrically engaged in feed screw 375.
Spacing between first and second characters corresponds roughly to succeeding character spacing.

Adjustment: Loosen hexagonal nut 90/68 (lacquer-coated); turn eccentric bushing 385.

A197 Type basket carriage 1312/64 in 2nd-character position.

Taking into consideration points of contact, distance between switching bracket 525/69 and pin B = 0.8 ± 0.2 mm.

Adjustment: Loosen panhead screw 13; move switching bracket 525.

A198 Type basket carriage in beginning-of-line and figures position. Switching lever 284/70 against pin B of type basket carriage 1312.

Distance between detent 509 and stop C of parallel guide 236 = 0.4 ± 0.3 mm.

Adjustment: Bend switching lever 284.

D199 Type basket carriage held in place at end of line. Carriage return pull bar engaged. Special functions bail on high part of cam. Parallel guide 236/71 raised.

Distance between detent 509/72 and stop C of parallel guide ≧ 0.15 mm.

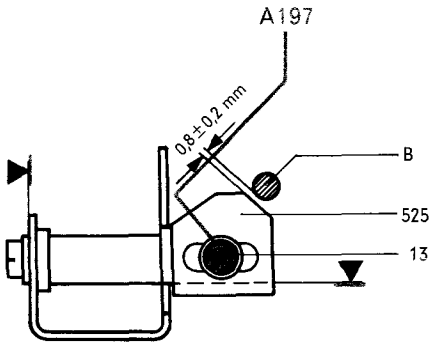
Camshaft in rest position D121. Stop C against detent.

Distance between threaded block 456/73 and feed screw 375 over length of line ≧ 0.3 mm.

A200 Camshaft in rest position D121. Parallel guide 236/71 raised and held in place. Type basket carriage moved to end-of-line position manually and released.

Beginning-of-line position reached without bouncing.

Adjustment: Loosen hexagonal nut 86/74; turn panhead screw 29 and secure with hexagonal nut 86.



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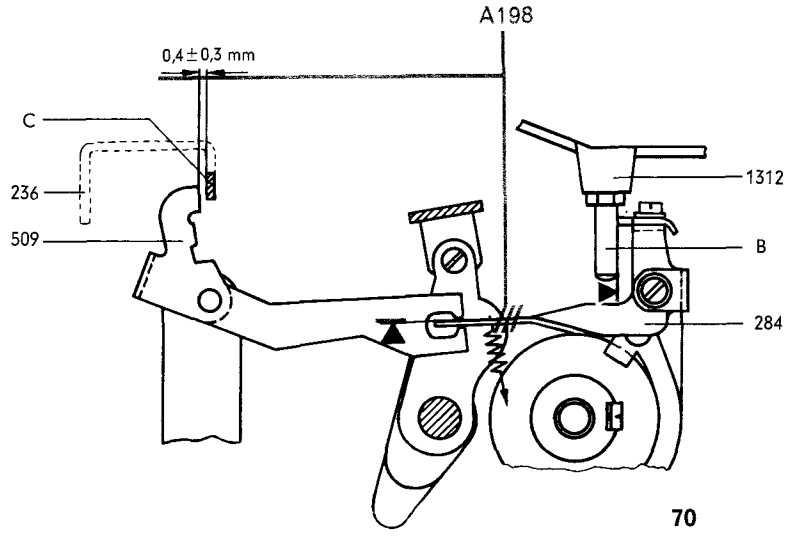

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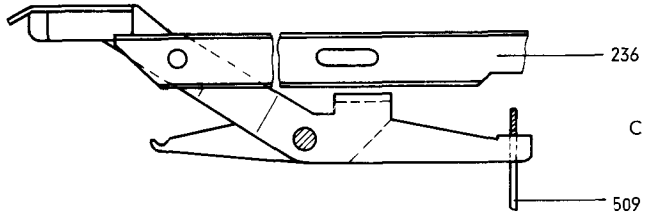

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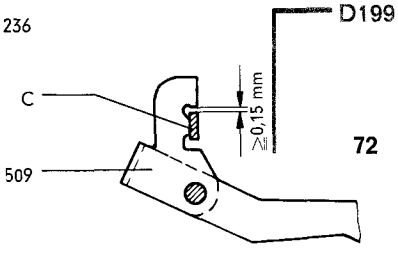
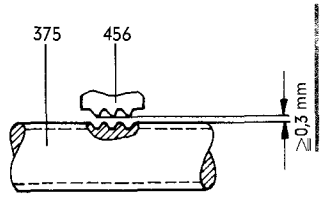


72



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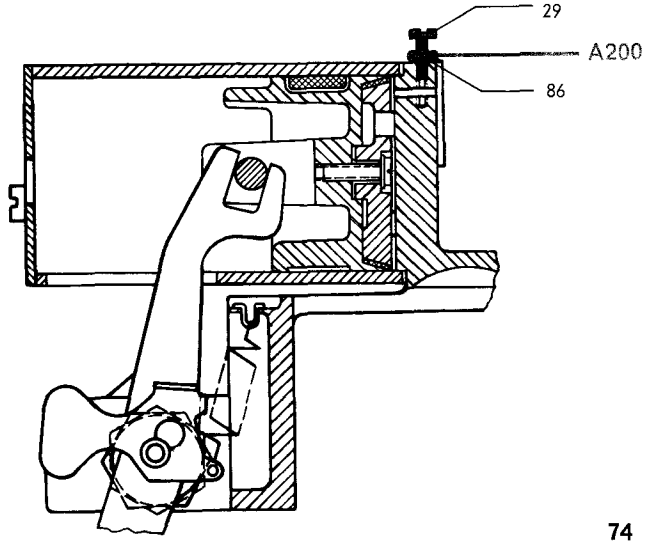

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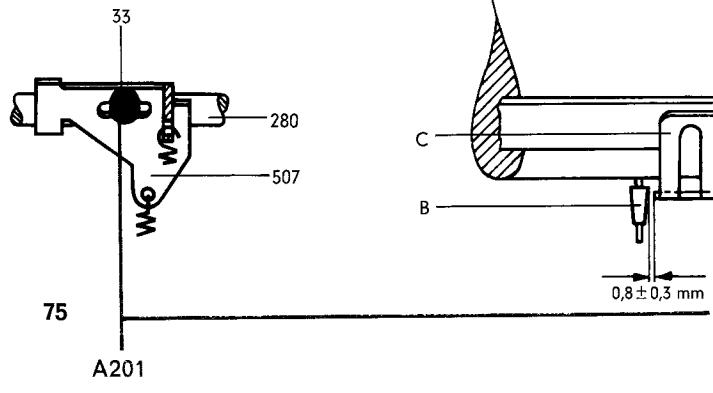
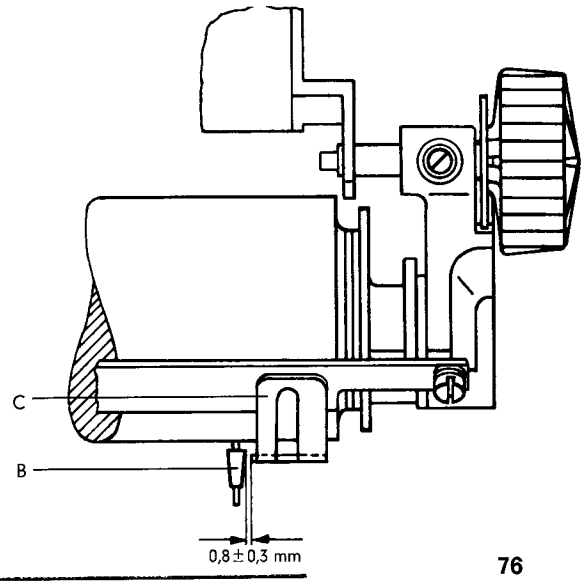
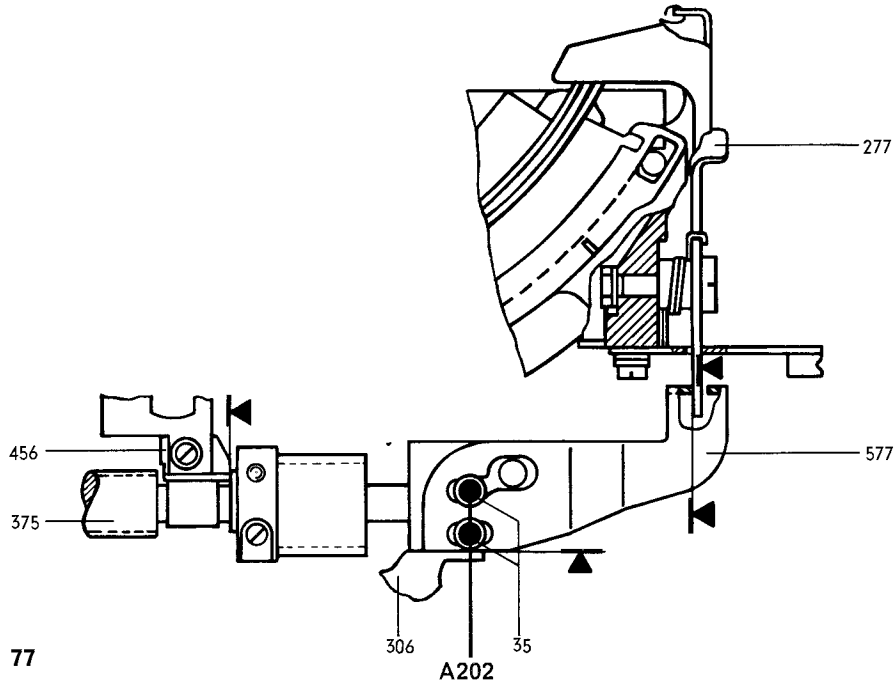

33
280
507
A201

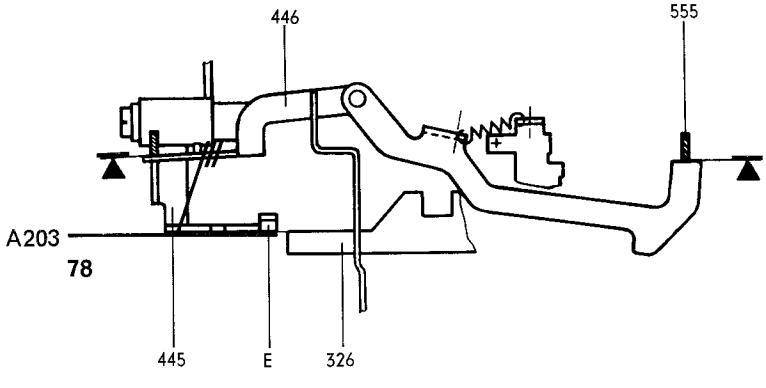
75


C
B
0,8 ± 0,3 mm

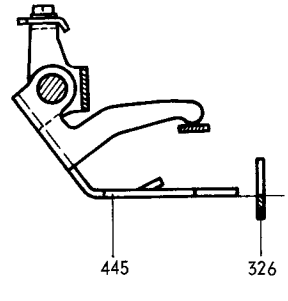
76


277
456
375
577
306
35
A202

77


446
555
A203
445
E
326

78


445
326

79

A201 Type basket carriage at the end of line.

Distance between raised type bar B/76 and guide plate C - 0.8 ± 0.3 mm.

Adjustment Loosen panhead screw 33/75, move bracket 507 on axle 280.

A202 Detent bracket 577/77 against printer frame 306. Type basket carriage in right end position. Threaded block 456 against feed screw 375.

Detent bracket 577 against lever 277.

Adjustment: Loosen panhead screws 35; move detent bracket 577.

A203 "Who-are-you" pull bar 555/78 engaged. Control lever 230 (not shown in diagram) on low point of cam.

Bottom edge of stop E of lever 445 in alignment with top edge of code bar 326 (4th element).

Adjustment: Bend lever 446.

Two-color device

A204 Camshaft in rest position D121. Type basket carriage in figures position and at end of line. Control bar 269/80 disengaged. Lever B against cam.
Control bar 269 almost perpendicular. Lever 212 against pull bar 267 and against pusher 288 by pressing in direction of arrow.

Distance between lever 212 and control bar 269 = 0.05...0.2 mm.

Adjustment: Bend lever 212.

A205 Camshaft in rest position D121. Type basket carriage in figures position and at beginning of line. Control bar 269/81 disengaged. Lever 212 against pull bar 267 and against pusher 288 by pressing in direction of arrow.

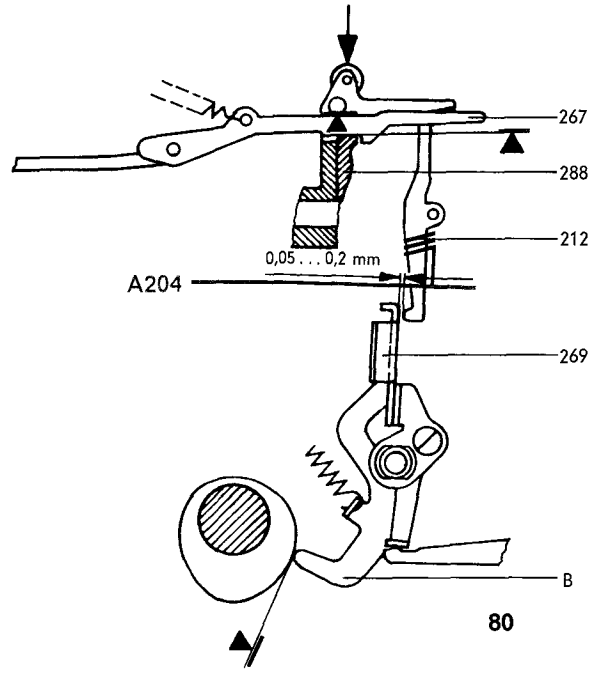
Control bar 269 against lever 212.

Adjustment: Loosen panhead screw 12 (lacquer-coated); move control bar 269.

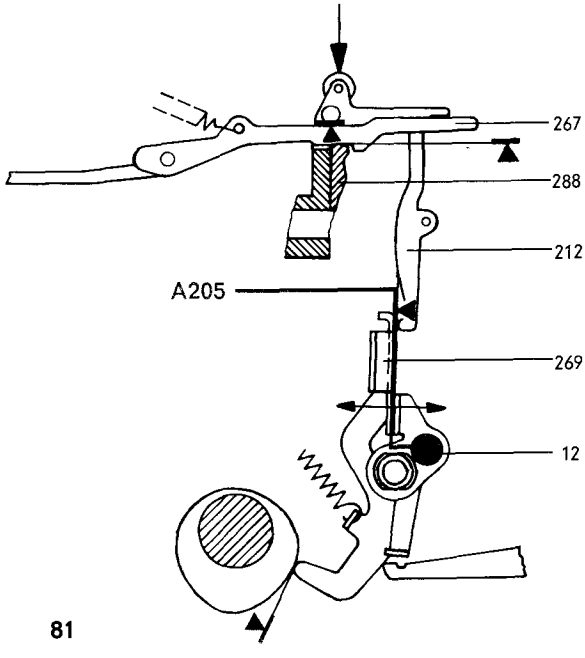
A206 Control bar 269/82 on high point of cam.

Distance between lever 250 and lever 271 = 0.1 + 0.1 mm.

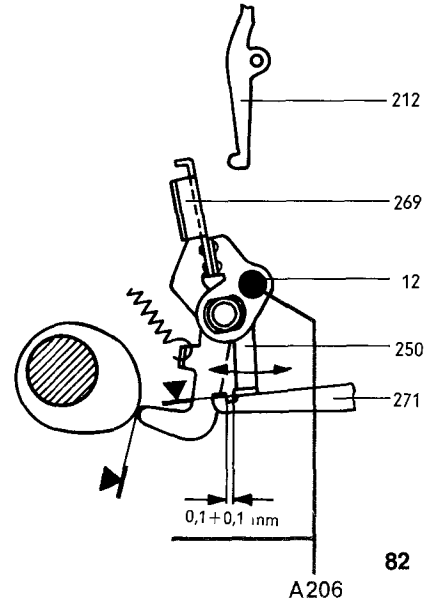
Adjustment Loosen panhead screw 12 (lacquer-coated); turn lever 250; re-check adjustment A205.


267
288
212
0,05 . . . 0,2 mm
A204
269
B

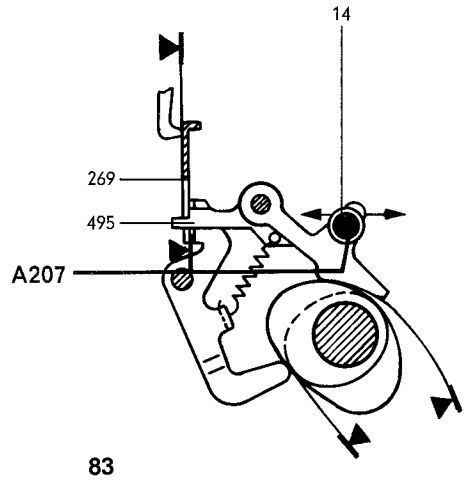
80


267
288
212
A205
269
12

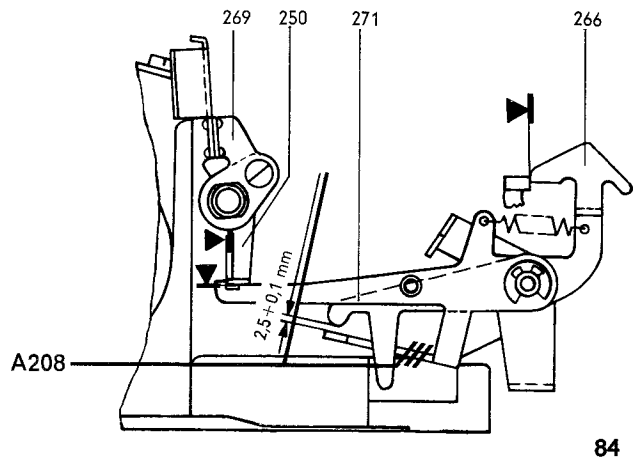
81


212
269
12
250
271
0,1+0,1 mm
A206

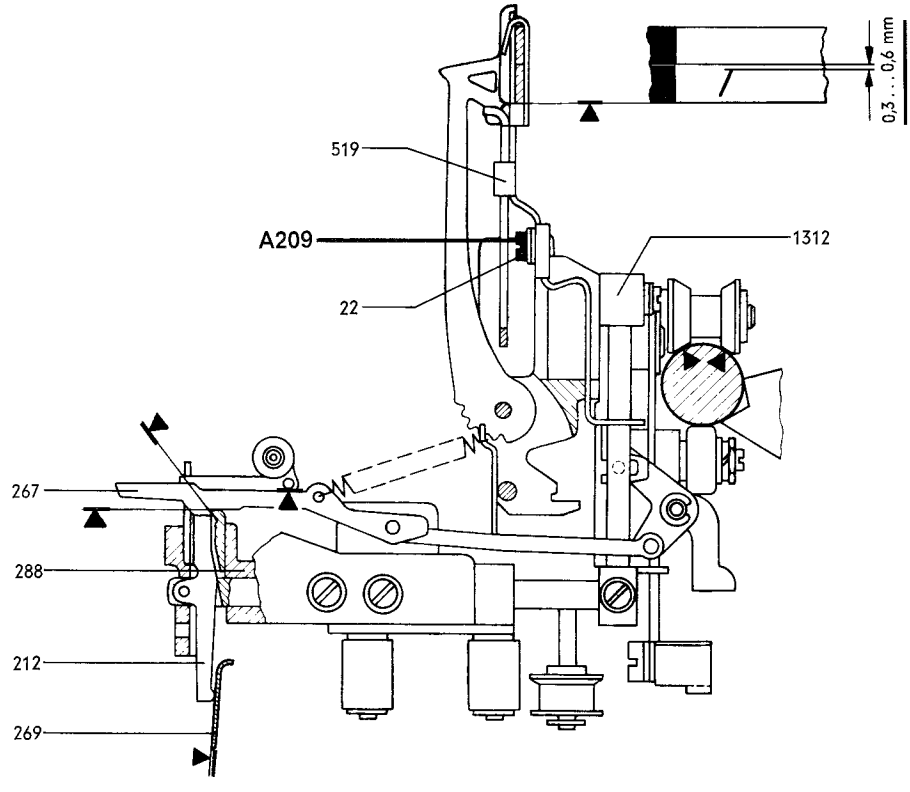
82


14
269
495
A207

83


269
250
271
266
2,5+0,1 mm
A208

84


0,3 ... 0,6 mm
519
A209
1312
22
267
288
212
269

85

A207 Camshaft in rest position D121. Type basket carriage in figures position and at beginning of line. Control bar 269/83 disengaged.

Pawl 495 against control bar 269.

Adjustment: Loosen panhead screw 14 (lacquer-coated), move pawl 495.

A208 Special functions bail at high point of cam. Shaft with lever 266/84 in front position. Lever 271 against lever 250 of control bar 269.

Distance between shaft with lever 266 and nose of lever 271 = 2.5 + 0.1 mm.

Adjustment Bend nose on lever 271.

A209 "Red" position: Type basket carriage 1312/85 in figures position. Control bar 269 disengaged. Pull bar 267 held against pusher 288 by lever 212. Pusher 288 in front position. Type bar with character / pressed against ribbon.

Distance between top edge of character and bottom edge of black half of ink ribbon = 0.3...0.6 mm.

Adjustment: Loosen panhead screw 22 (lacquer-coated); move ribbon lifter 519.

A210 "Black" position: Type basket carriage in figures position. Control bar 269/86 engaged. Pull bar 267 not engaged. Pusher 288 in front position. Pin B of pull bar 267 against bracket 210. Type bar with character / pressed against ribbon.

Distance between top edge of character and top edge of black half of ink ribbon = 0.3...0.6 mm.

Adjustment: Loosen panhead screws 24 (lacquer-coated); move bracket 210.

A211 Distance between attracted armature 272/87 and yoke 510 = 0.01...0.06 mm.

Adjustment: Loosen panhead screws 11/88; move clamp 504.
Axle 560 projects by $\approx$ 1 mm.

A212 Distance between released armature 272/89 and core E of magnet 1454 = 1.1 + 0.1 mm.

Adjustment: Bend tab on clamp 504/88.

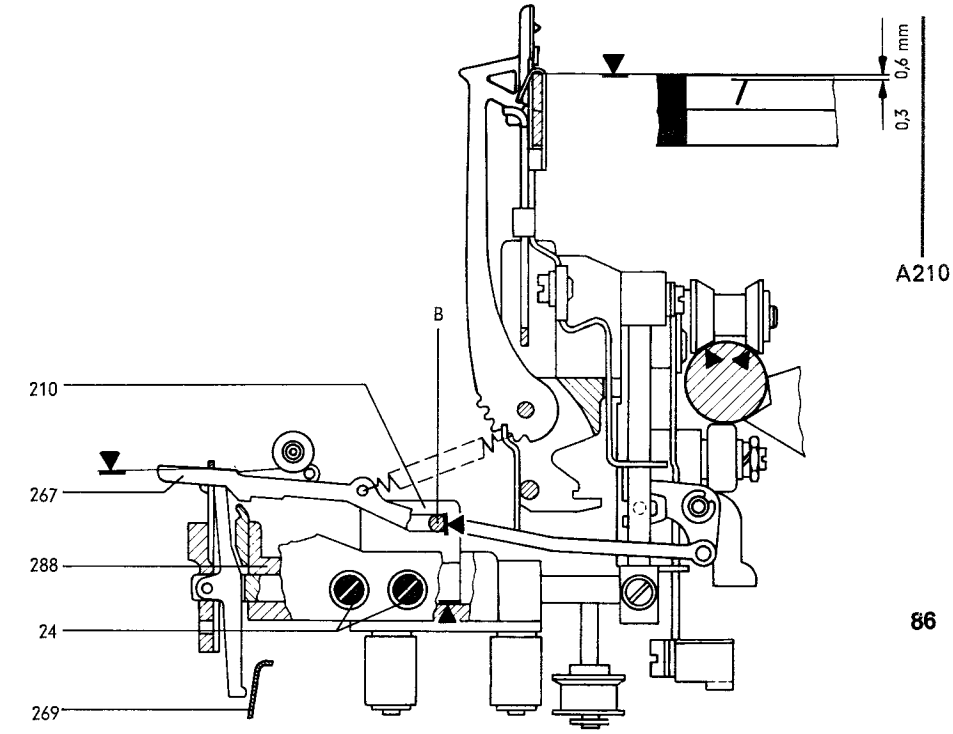
A213 Camshaft in rest position D121. Lever 271/90 engaged with lever 250.

Distance between pin C and lever 273 = 1.2 + 0.1 mm.

Adjustment: Loosen panhead screw 11; pivot lever 273 about axle 560.

A214 Two-color device turned on: Free tab end of locking bracket 500/91 down.
Two-color device turned off: Free tab end of locking bracket 500 up.

Adjustment: Loosen panhead screw 24; shift locking bracket 500 into desired position.



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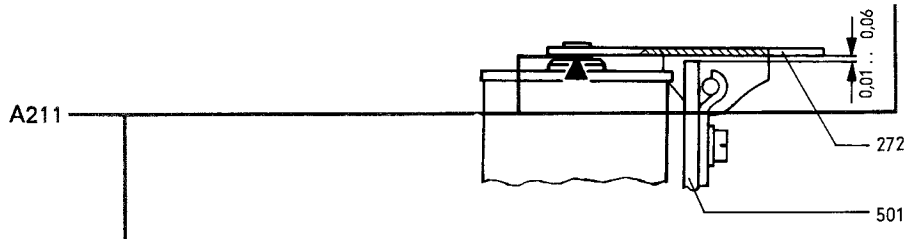

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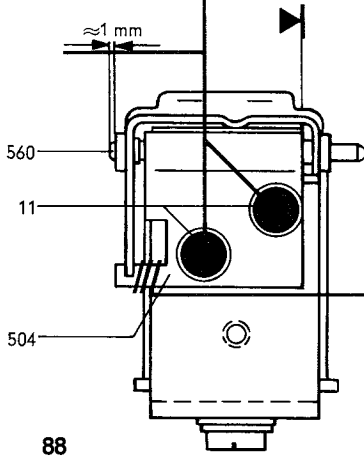

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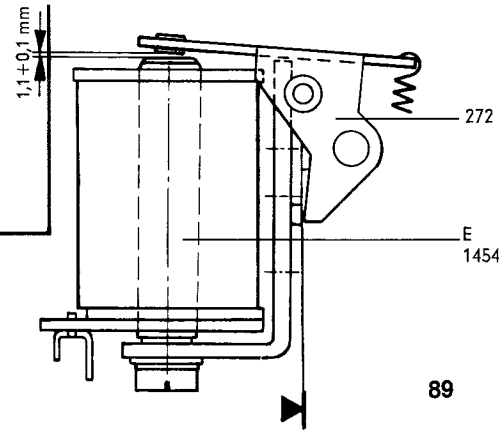

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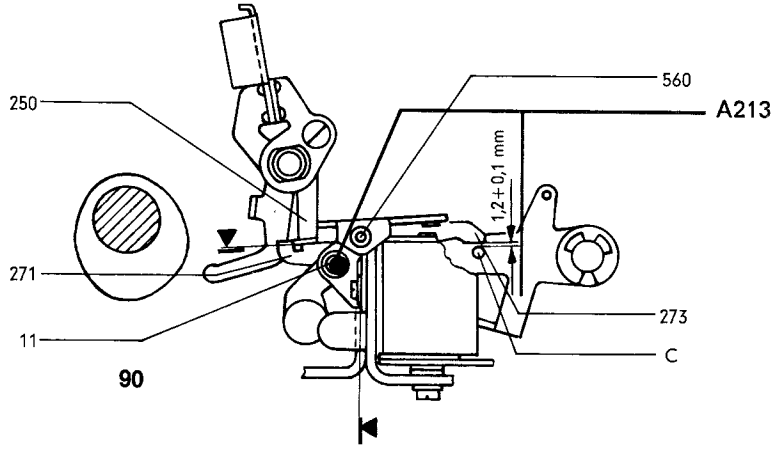

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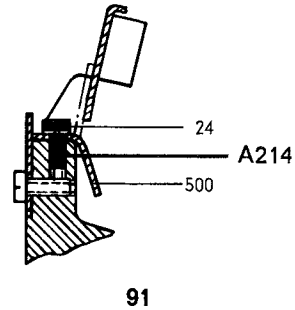

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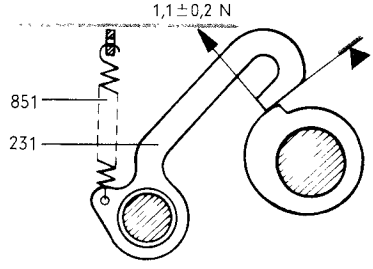
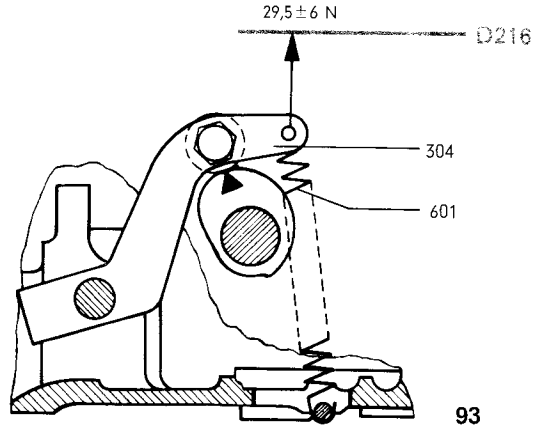
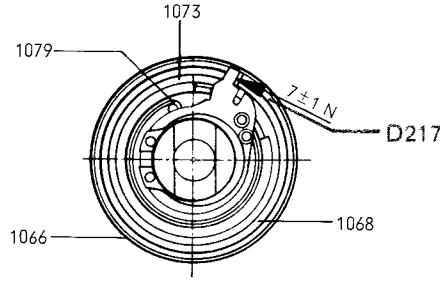
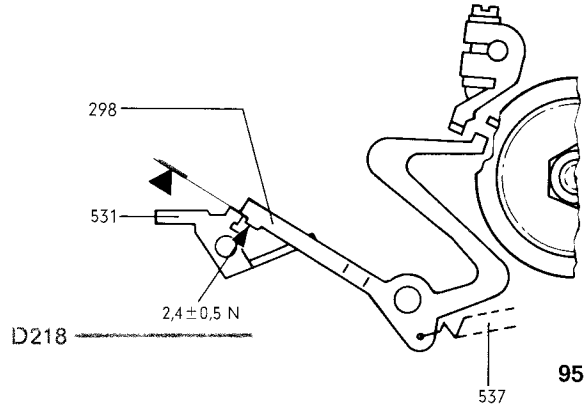

1,1±0,2 N
851
231


29,5±6 N
D216
304
601

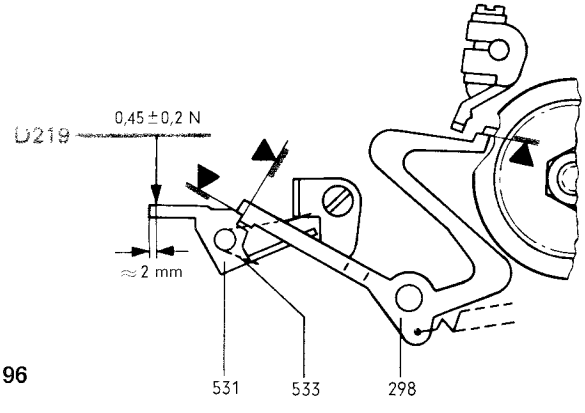
93


1073
1079
7±1 N
D217
1066
1068

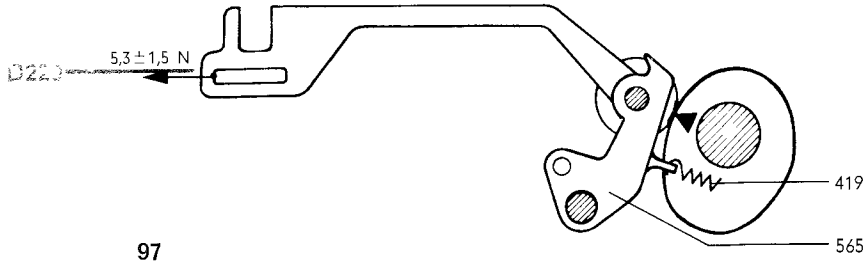
94


298
531
2,4±0,5 N
D218
537

95


D219
0,45±0,2 N
≈2 mm
531
533
298

96


D220
5,3±1,5 N
419
565

97

Spring forces

D215 Anti-bounce pawl 231/92 with tension spring 851 at highest point of cam.

Force of 1.1 ± 0.2 N required to raise anti-bounce pawl 231.

D216 Roller lever 304/93 with tension springs 601 at highest point of cam.

Force of 29.5 ± 6 N required to raise roller lever.

D217 Clutch 1066/94 with springs 1073 and 1079

Force of 7 ± 1 N required to turn drum 1068.

D218 Release lever 298/95 with tension spring 537
Camshaft just before rest position D121. Pawl 531 raised.

Force of 2.4 ± 0.5 N required to lift release lever 298.

D219 Pawl 531/96 with torsion spring 533
Camshaft in rest position D121. Release lever 298 latched.

Release force is 0.45 ± 0.2 N.

D220 Special functions lever 565/97 with tension spring 419
Camshaft in rest position D121.

Force of 5.3 ± 1.5 N required to raise special functions lever 565.

D221 Control lever 230/98 with tension springs 374
Control lever 230 at lowest point of cam. Special function pull bars raised.

Force of 1.3 ± 0.25 N required to raise control lever 230.

D222 Operating lever 213/99 with tension springs 490 in Figures position.

Tension spring B: 5.85 ± 0.75 N
Tension spring C: 5.65 ± 0.75 N

D223 Sliding weights 556/100 with tension spring 523

Force of 1.05 ± 0.4 N required to turn sliding weights 556.

D224 Latching lever with bracket 241/101 and tension spring 498

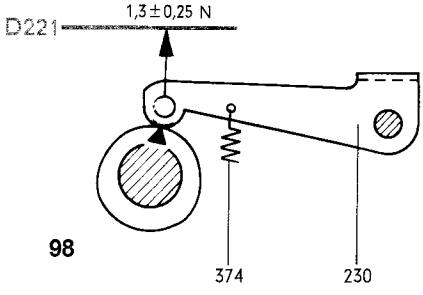
Force of 7.5 ± 2.1 N required to raise latching lever.

D225 Locking bar 329/102 with tension spring 641 in Figures position.
Camshaft in rest position D121.

Force of 0.63 ± 0.1 N required to raise locking bar 329.

D226 Figures pull bar 551/103 and Letters pull bar 550, Bell pull bar 295, pull bar 548 for code combination "32", pull bar for carriage return 547 and pull bar for line feed 1600 with tension spring 374
Camshaft in rest position D121. Lever comb 390 raised.

Force of 0.85 ± 0.15 N required to raise pull bars.



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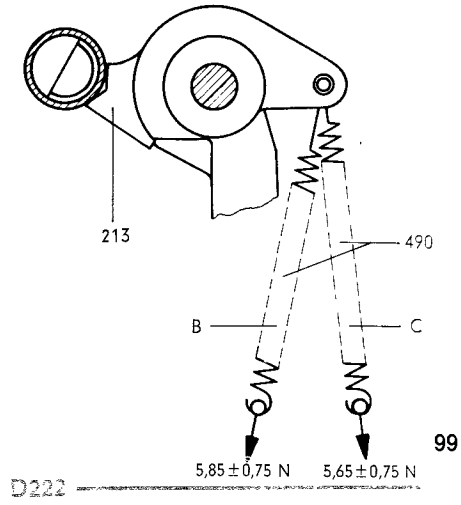

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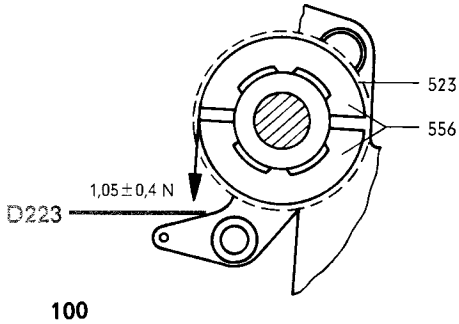

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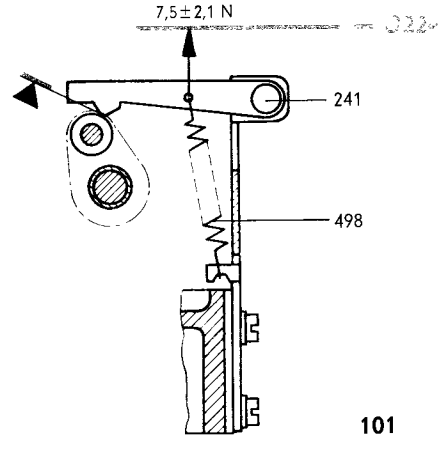

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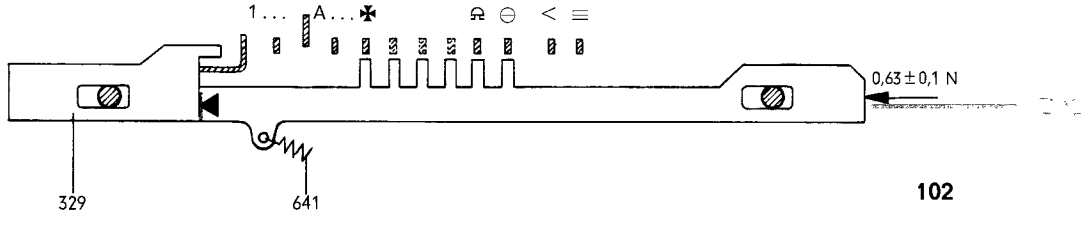

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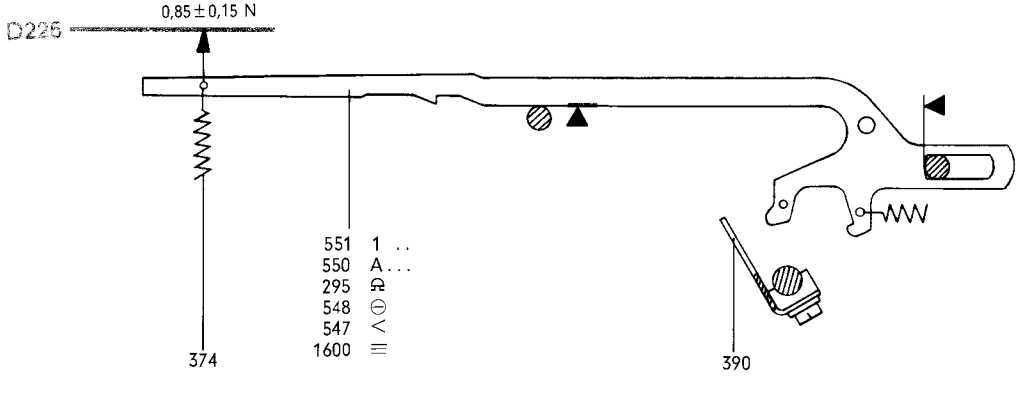

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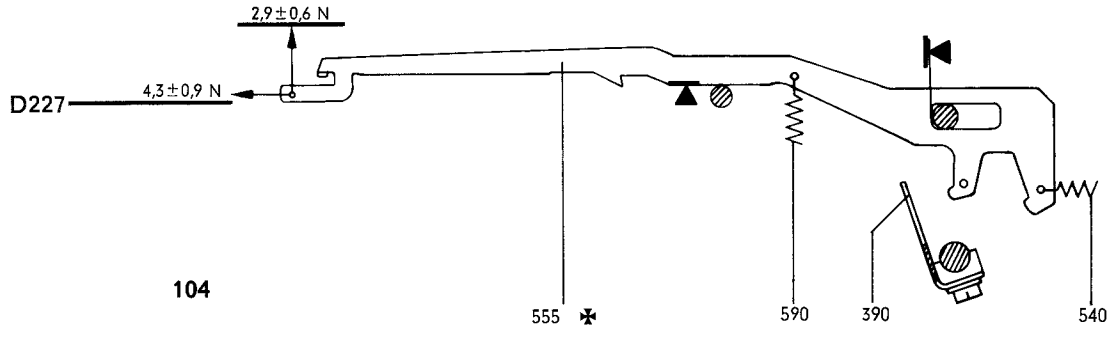
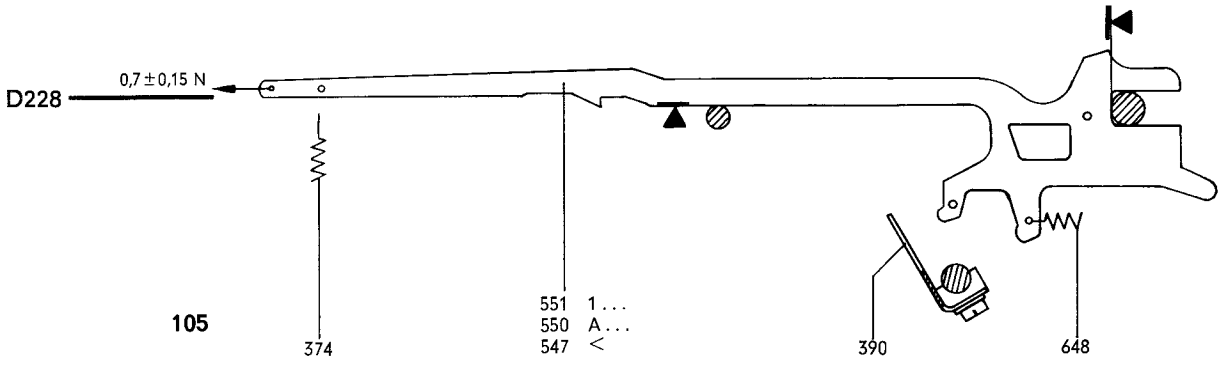
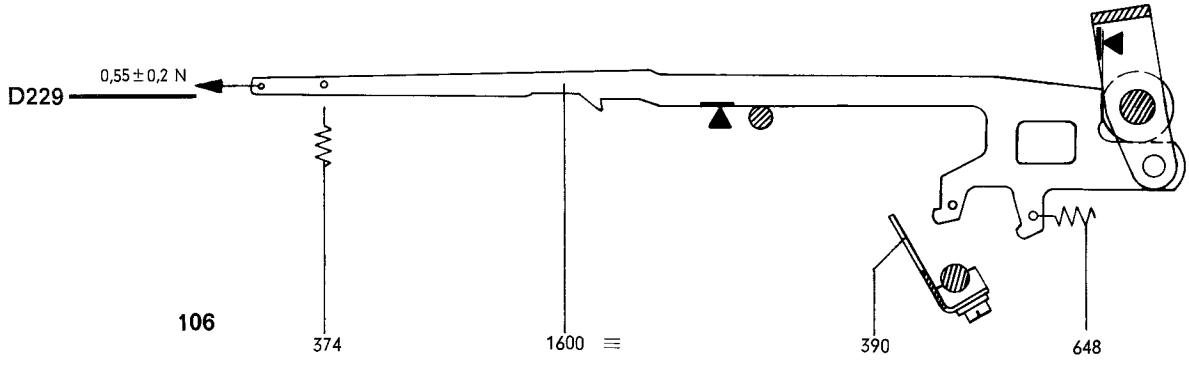
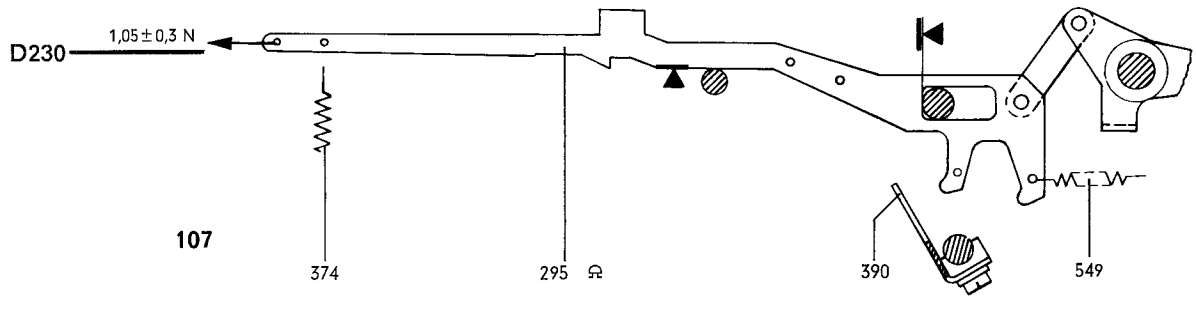
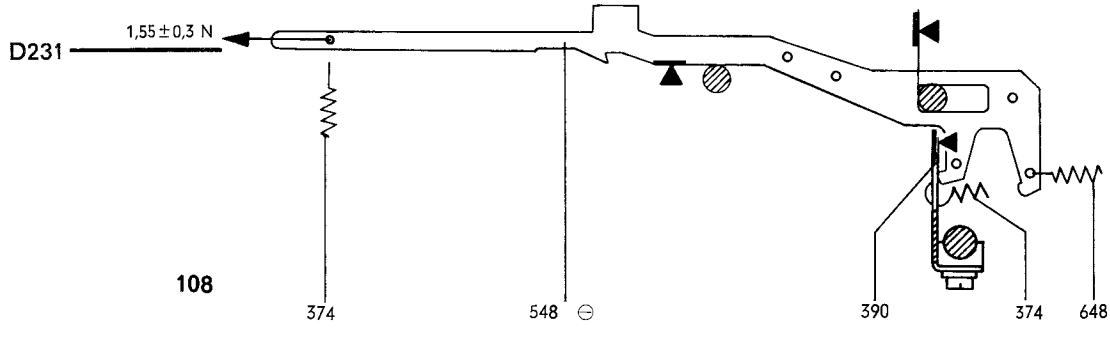

2,9 ± 0,6 N
D227
4,3 ± 0,9 N
104
555
590
390
540


D228
0,7 ± 0,15 N
105
374
551 1...
550 A...
547 <
390
648


D229
0,55 ± 0,2 N
106
374
1600 ≡
390
648


D230
1,05 ± 0,3 N
107
374
295 Ω
390
549


D231
1,55 ± 0,3 N
108
374
548 ⊖
390
374
648

D227 "Who are you?" pull bar 555/104 with tension springs 590 and 540
Lever comb 390 raised.

Force of 2.9 ± 0.6 N required to raise "Who are you?" pull bar 555.

Tension spring 590 unhooked.

Pull pull bar 555 with force of 4.3 ± 0.9 N.

D228 Figures pull bar 551/105, Letters pull bar 550, pull bar for carriage return 547 with tension springs 648.
Lever comb 390 raised. Tension springs 374 unhooked.

Pull pull bars with force of 0.7 ± 0.15 N.

D229 Pull bar for line feed 1600/106 with tension spring 648
Lever comb 390 raised. Tension spring 374 unhooked.
Lever 262/32 pressed against stop.

Pull line feed pull bar 1600 with force of 0.55 ± 0 2 N.

D230 Bell pull bar 295/107 with tension spring 549
Lever comb 390 raised. Tension spring 374 unhooked.

Pull bell pull bar 295 with force of 1.05 ± 0.3 N.

D231 Pull bar 548/108 for code combination "32" and lever comb 390. Tension spring 374 unhooked.

Pull pull bar 548 with force of 1.55 + 0.3 N.

D232 Cam roller 235/109 with tension spring 275
Camshaft in rest position D121. Type basket carriage 1312 removed.
Lever B of ribbon feed linkage 261 raised.
Tension spring 275 in upper hole C of bracket 591 (50...75 bauds).

Force of 25.7 ± 3 N required to raise cam roller 235.

D233 Lever 220/110 with tension spring 637

Force of 0.2 ± 0.05 N required to raise lever 220.

D234 Lever 350/111 with tension spring 424

Force of 0.08 ± 0.2 N required to raise tension spring 424.

D235 Pawl 276/112 with torsion spring 356

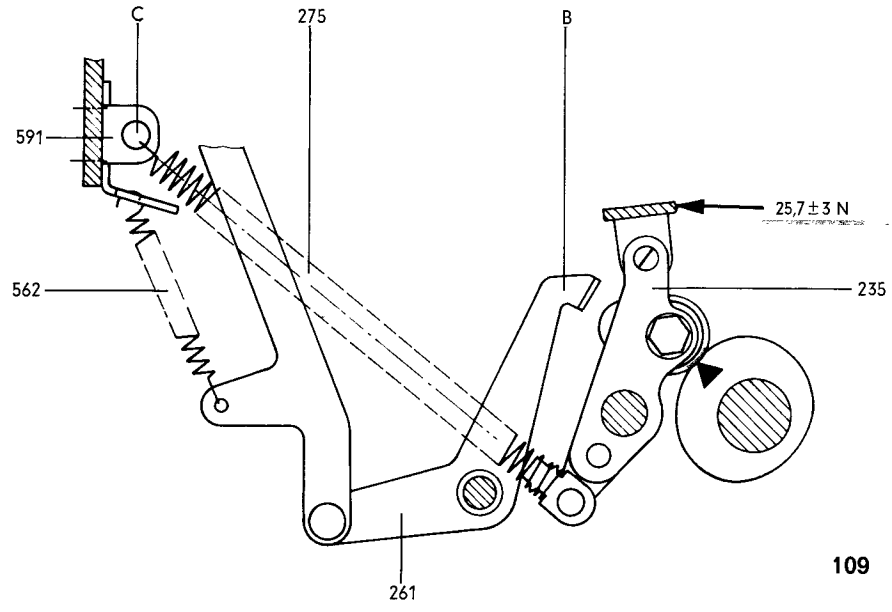
Force of 1.05 ± 0.3 N required to raise pawl 276.

D236 Lever 282/113 with tension spring 563
Pawl 276 raised.

Press lever 282 with force of 0.66 ± 0.1 N.

D237 Frictional moment of platen 256/112
Metering lever L on gear of knob 242.

Force of 2.3 ± 0.9 exerted upon metering lever L.



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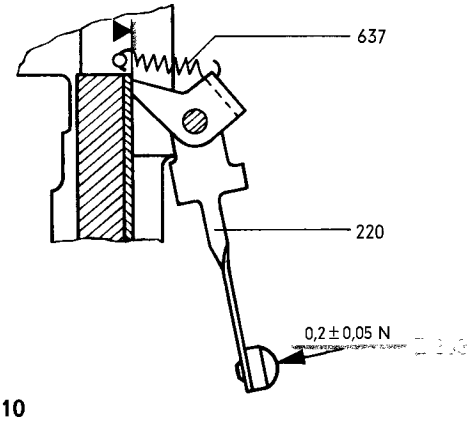

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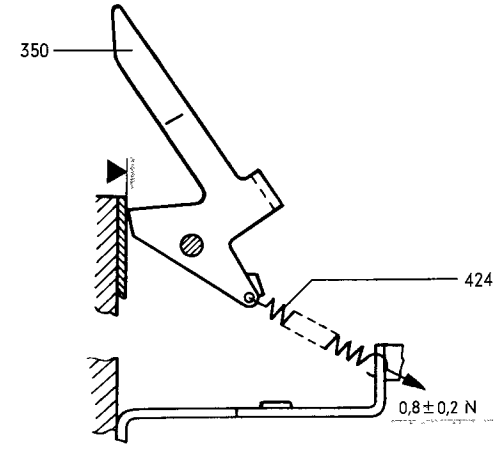

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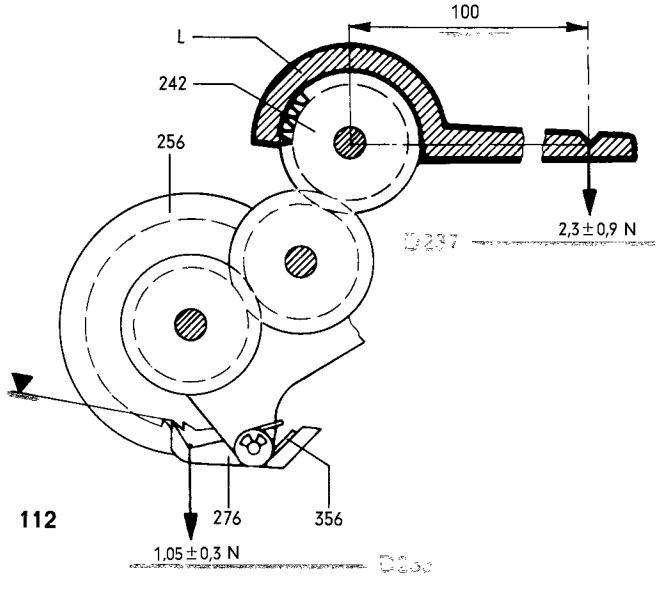

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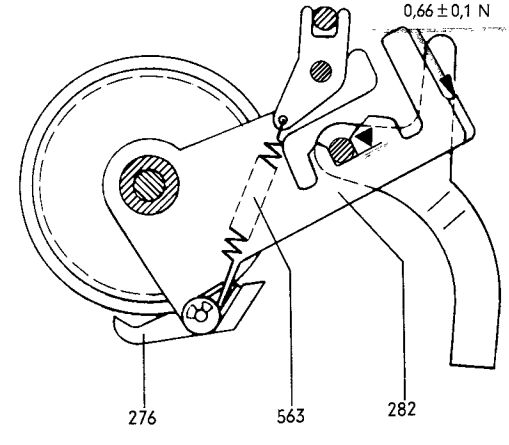

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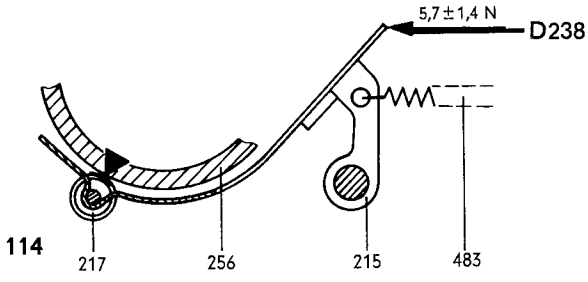

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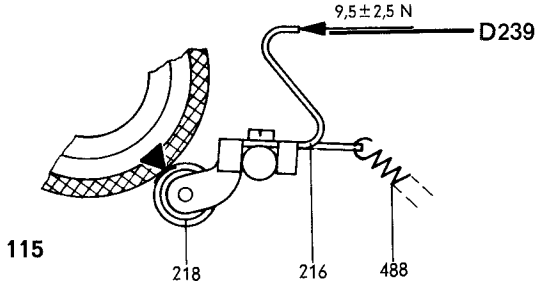

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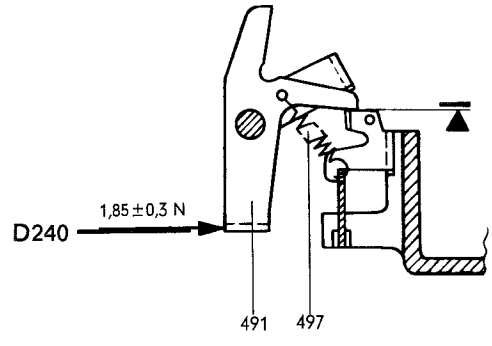

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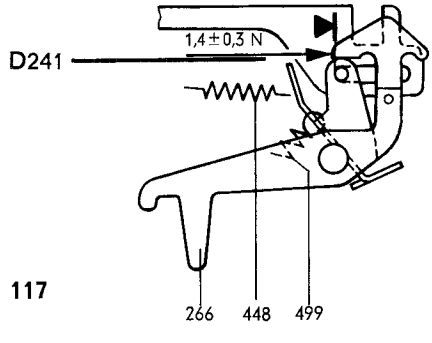

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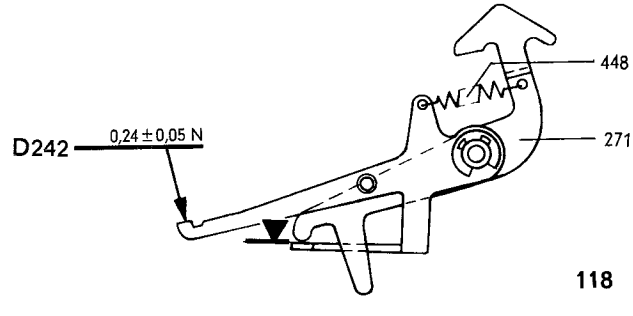

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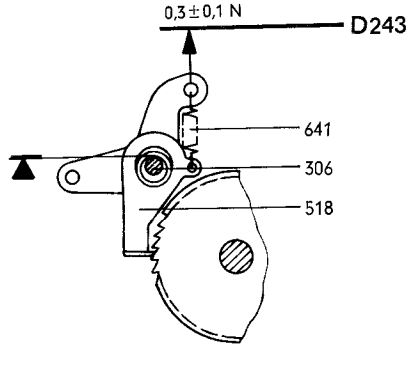

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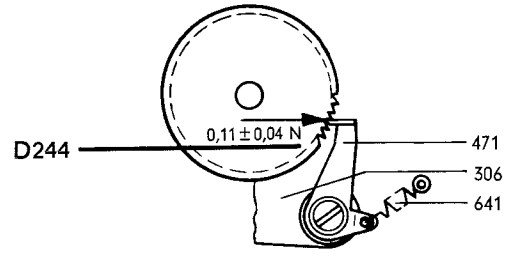


120

D238 Paper guide 215/114 with tension springs 483
Paper guide 215 with pressure roller 217 on platen 256.

Force of 5.7 ± 1.4 N required to raise paper guide 215.

D239 Lever 216/115 with tension spring 488

Force of 9.5 ± 2.5 N required to raise axle with pressure roller 218.

D240 Lever 491/116 with tension spring 497

Force of 1.85 ± 0.3 N required to raise lever 491.

D241 Shaft with lever 266/117 and tension spring 499
Tension spring 448 unhooked. Special functions lever at highest point of cam.
Shaft with lever 266 in front position.

Force of 1.4 ± 0.3 N required to raise shaft with lever 266.

D242 Lever 271/118 with tension spring 448

Force of 0.24 ± 0.05 N required to raise lever 271.

D243 Pawl 518/119 with tension spring 641 on printer frame 306/120.

Force of 0.3 ± 0.1 N required to raise tension spring 641/119.

D244 Pawl 471/120 with tension spring 641 on printer frame 306.

Force of 0 11 ± 0.04 N required to raise pawl 471.

D245 Lever 468/121 with tension spring 641

Force of 0 76 ± 0.18 N required to raise lever 468.

D246 Pawl 575/122 and pawl 264 with tension springs 645

Force of 0.2 ± 0.06 N required to raise pawl 264.
Force of 0.12 ± 0.04 N required to raise pawl 575.

D247 Detent 258/123 with tension spring 641 engaging ratchet 545.

Force of 0.2 ± 0.06 N required to raise detent 258.

A248 Ratchets 545/124 with compression springs 544
Detents 258 or 264 and 575 raised.

Turn ratchets 545 with a force of 0.18 ± 0.02 N on arm H = 50 mm.

Adjustment: Turn disks 542 and secure with pawls 294.

D249 Lever 259/125 with tension spring 853
Camshaft in rest position D121.

Force of 8.4 ± 1.2 N required to raise lever 259.

D250 Tensioning lever 263/126 with torsion spring 485

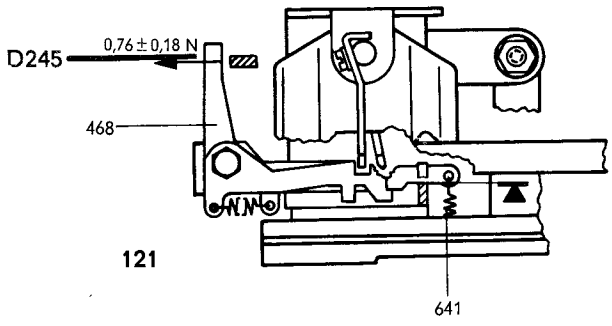
Force of 0.1 ± 0.03 N required to raise tensioning lever 263.

D251 Latching bail 268/127 with tension spring 493

Force of 2.6 ± 1 N required to raise latching bail 268.

D252 Spool carrier 257/128 with tension spring 562/109

Force of 20 ± 3.5 N required to move spool carrier 257/128.



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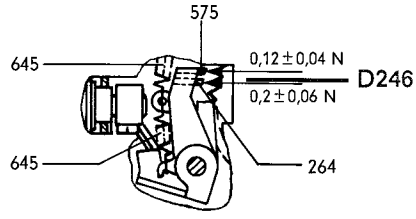

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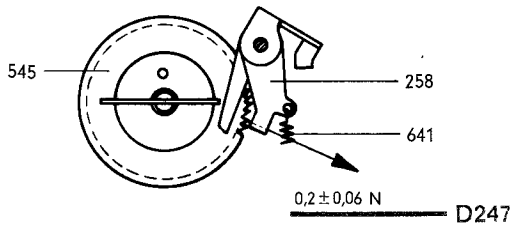

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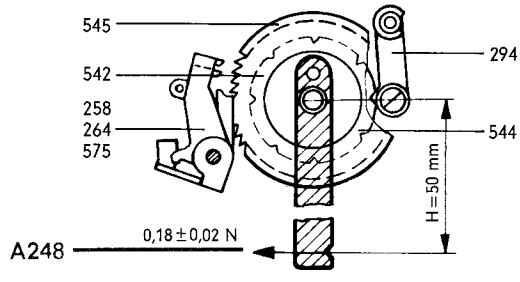

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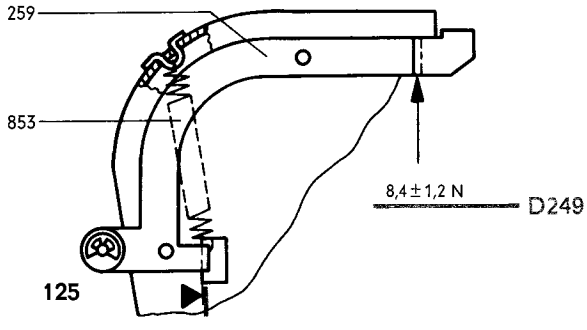

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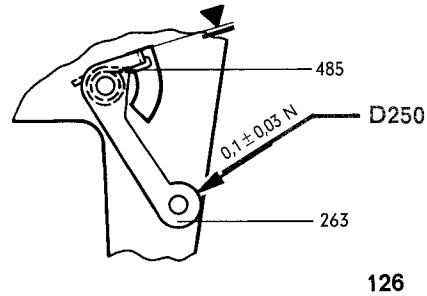

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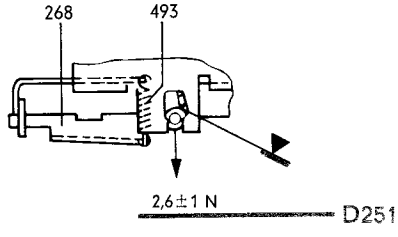

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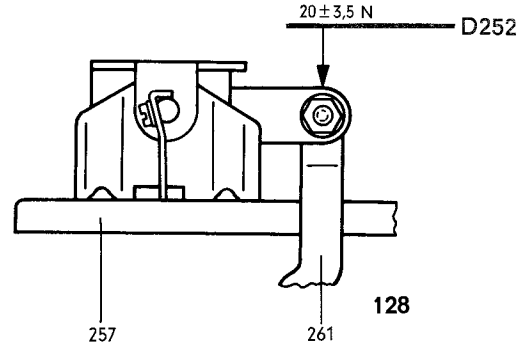

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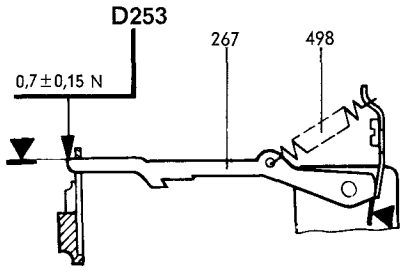

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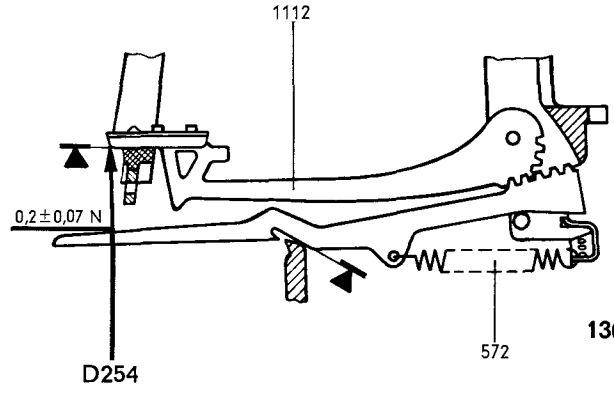

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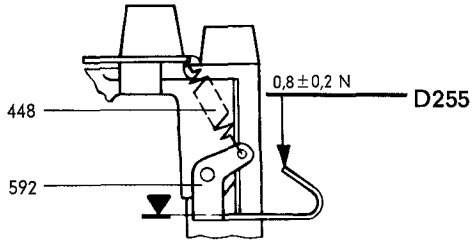

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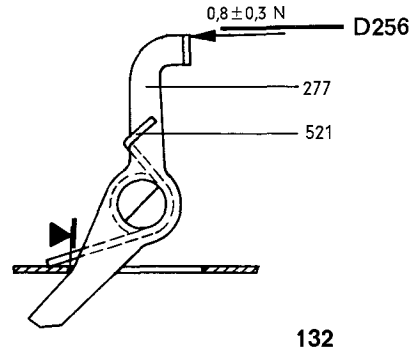

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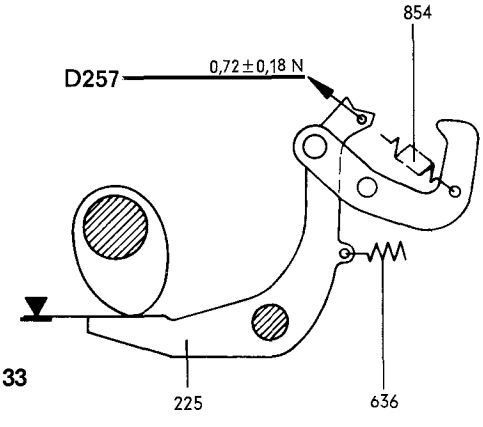

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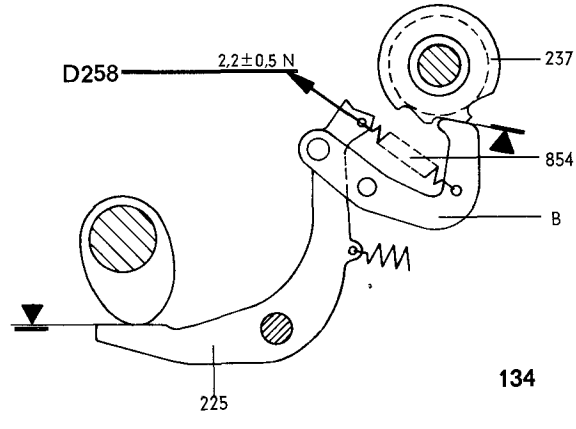


134

D253 Pull bar 267/129 with tension spring 498

Force of 0.7 ± 0.15 N required to raise pull bar 267.

D254 Type bar 1112/130 with tension springs 572
Camshaft in rest position D121.

Force of 0.2 ± 0.07 N required to raise type bar 1112.

D255 Pawl 592/131 with tension spring 448

Force of 0 8 ± 0.2 N required to raise pawl 592.

D256 Lever 277/132 with torsion spring 521

Force of 0.8 ± 0.3 N required to raise lever 277.

D257 Carriage feed lever 225/133 with tension spring 636
Camshaft in rest position D121. Tension spring 854 unhooked.

Force of 0.72 ± 0.18 N required to raise carriage feed lever 225.

D258 Carriage feed lever 225/134 with tension spring 854
Camshaft in rest position D121. Pawl B on ratchet 237.

Force of 2.2 ± 0.5 N required to raise tension spring 854.

D259 Latching lever 239/135 with tension spring 637
Camshaft in rest position D121.

Force of 2.3 ± 0.6 N required to raise latching lever 239.

D260 Lever 240/136 with tension spring 710
Camshaft in rest position D121.

Force of 10 ± 3 N required to raise lever 240.

D261 Lever 284/137 with tension spring 511
Latching lever 509 on parallel guide 236.

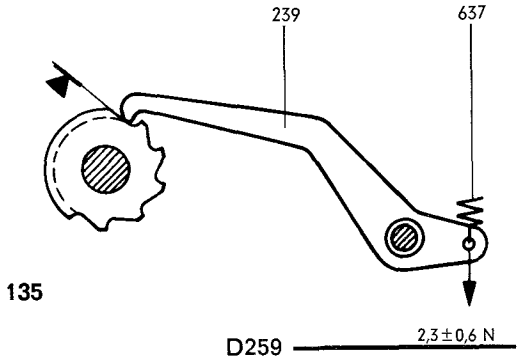
Force of 0.26 ± 0.04 N required to raise lever 284.

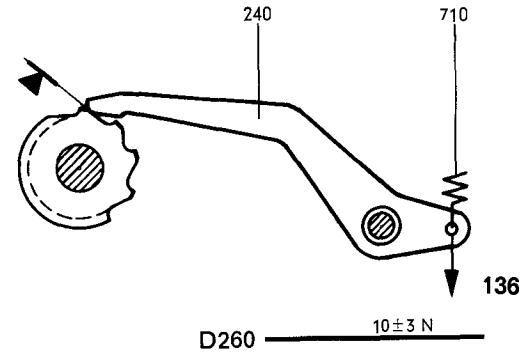
D262 Parallel guide 236/138 with tension springs 853
Lever B of parallel guide 236 latched with latching lever 509.

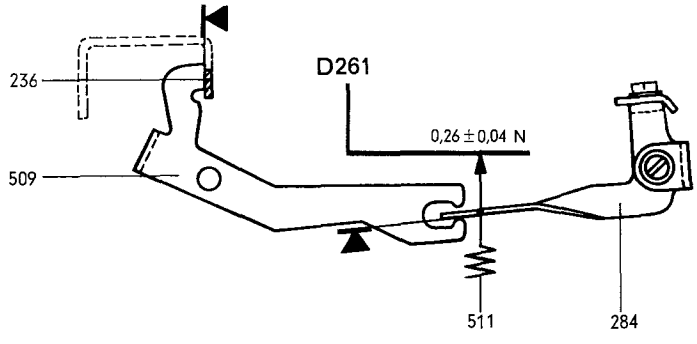
Press parallel guide 236 with force of 6.5 ± 1.2 N.

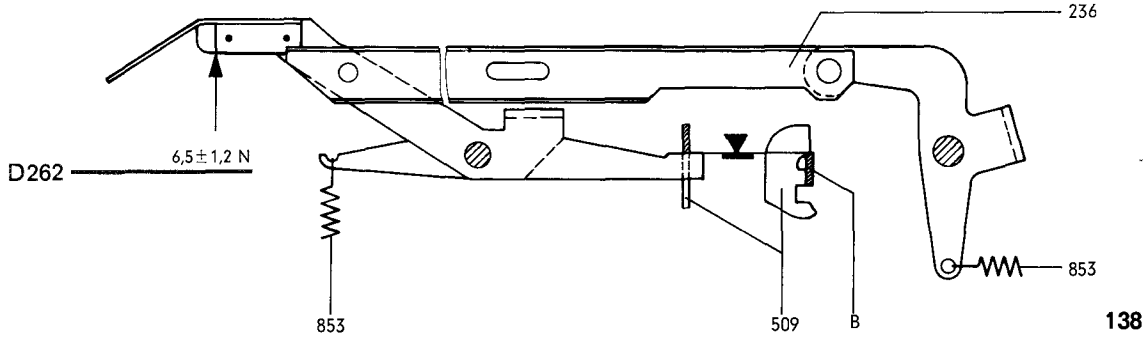
D263 Braking lever 606/139 with tension spring 570
Piston in end position.

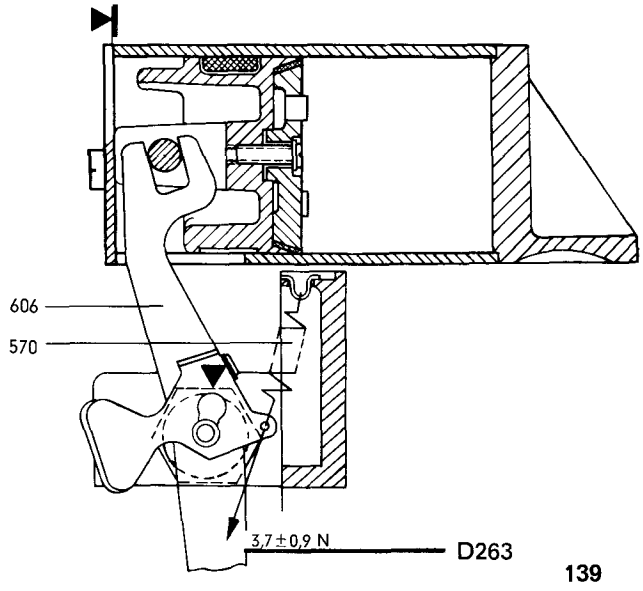
Spring 570 has pull of 3.7 ± 0.9 N.

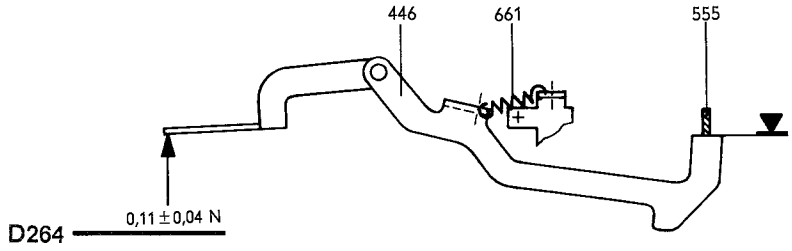

239
637
135
D259
2,3±0,6 N


240
710
136
D260
10±3 N

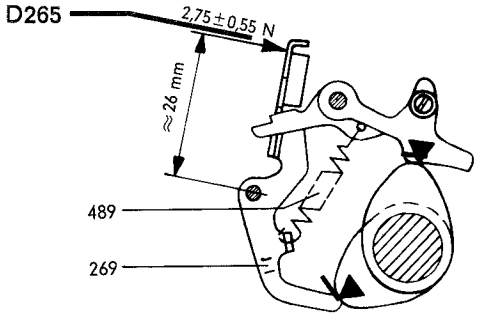

236
509
D261
0,26±0,04 N
511
284
137


236
D262
6,5±1,2 N
853
509
B
853
138

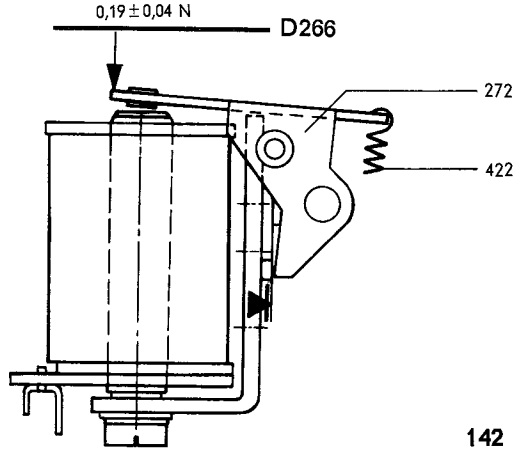

606
570
3,7±0,9 N
D263
139


446
661
555
D264
0,11 ± 0,04 N

140


D265
2,75 ± 0,55 N
≈ 26 mm
489
269

141


0,19 ± 0,04 N
D266
272
422

142

D264 Lever 446/140 with tension spring 661
Camshaft in rest position D121. Lever 446 against "Who are you?" pull bar 555.

Force of 0.11 ± 0.04 N required to raise lever 446.

D265 Control bar 269/141 with tension spring 489 at highest point of cam.

Force of 2.75 ± 0.55 N required to raise control bar 269.

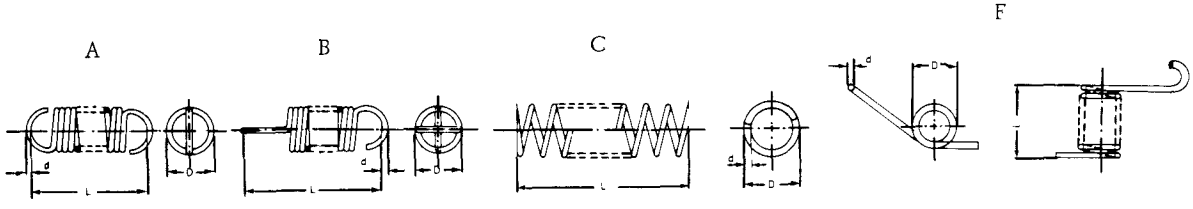
D266 Armature 272/142 with tension spring 422

Force of 0.19 ± 0.04 N required to raise armature 272.

D267 Carriage return spring 243 (on page 85) for 50-baud telegraph speed
Type basket carriage in beginning-of-line position.

Tension spring 243 has a pull of 6.25 ± 3 N.

Table of springs



Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

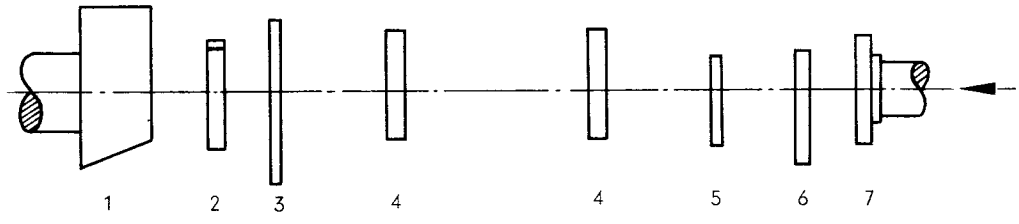
1) consecutive number of part in which the spring engages

Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons No. of part [1]	figure page
A	0.2	2.4	7.1	C20145-A43-C132	645	575	87
						264	87
	0.2	2.4	8.3	C20145-A43-C105	641	302	89
						471	89
						260	89
						258	87
	0.22	2.94	7.7	C20145-A43-C191	661	446	101
	0.28	2.7	11.5	C20136-A4-C604	448	286	113
						266	101
	0.28	2.96	12.7	C20136-A14-C659	549	295	103
	0.28	2.96	15.1	C20145-A43-C63	636	225	103
	0.28	4.2	23.0	C20136-A4-C935	511	284	101
	0.32	2.56	7.7	C20136-A4-C844	493	268	87
						468	89
	0.32	3.04	13.3	C20145-A43-C64	637	239	97
						220	97
	0.32	3.2	11.3	C20326-A64-C403	854	225	103
	0.5	3.0	25.8	C20136-A14-C277	528	527	87
	0.5	3.5	17.0	C20136-A4-C867	498	241	101
						267	113
	0.63	6.76	34.0	C20136-A4-C831	490	341	91
	0.7	6.0	28.8	C20136-A114-C679	601	304	105
	0.7	7.5	14.5	C20136-A14-C239	526	457	89
	0.9	14.5	73.9	C20136-A4-B113	243	1312	85

Table of springs

Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No. [1] of part	figure page
B	0.28	2.96	13.0	C20145-A43-C138	648	1600	103
						547	103
						550	103
						551	103
	0 28	3.5	18.5	C20136-A4-C488	422	272	101
	0.28	3 56	19.1	C20136-A4-C334	374	335	101
						548	103
						230	103
						390	105
	0.28	3.96	12.7	C20136-A4-C503	424	350	97
	0.32	3.2	20.4	C20136-A114-C105	572	450	109
	0.36	3.42	11.9	C20136-A4-C869	499	265	101
	0.36	5.22	19.3	C20136-A14-C770	563	480	89
	0.4	3.1	59.2	C20136-A14-C63	523	556	103
	0.4	4.1	14.3	C20326-A64-C87	851	231	105
	0.45	3.8	20.0	C20136-A4-C473	419	565	105
	0.45	4.7	9.8	C20136-A4-C866	497	491	101
	0.5	5.0	11.0	C20136-A4-C821	489	269	95
						1111	107
	0.5	5.0	14.2	C20136-A14-C559	540	555	103
	0.5	5.1	17.3	C20326-A64-C313	853	236	97
						259	87
	0.5	5.5	14.5	C20136-A114-C45	570	478	85
	0.56	3.6	28.2	C20136-A114-C353	590	555	103
	0.56	3.9	17.2	C20156-A100-C142	710	240	97
	0.56	6.12	14.8	C20136-A4-C795	483	215	89
	0.63	5.0	20.0	C20136-A14-C495	537	298	97
	0.7	6.2	24.0	C20136-A4-C820	488	507	89
	0.8	6.2	26.3	C20136-A14-C769	562	261	103
C	0.28	4.06	10.8	C20136-A4-C945	513	246	111
	0.56	6.52	13.9	C20136-A14-C693	558	567	87
	0.85	15.7	6.4	C20136-A14-C590	544	293	87
	1.4	25.1	66.5	C20136-A14-C385	534	255	89
F	0.36	3.92		C20136-A14-C379	533	531	97
	0.4	7.4		C20136-A4-C805	485	263	87
	0.56	-		C20136-A4-C249	356	262	89
	0.8	12.6		C20136-A14-C21	521	277	113

Cam assignment on the printer shaft



1 Impact
2 Anti-bounce lever
3 Special functions bail
4 Disengaging the special function pull bars
5 Torque adjustment
6 Carriage feed
7 Two-color printing, indirect printer release

← Drive side

Contents

Components of the assembly

Instructions for removal and replacement:

(1) Before inserting a new spherical lamp check for correct operating voltage!

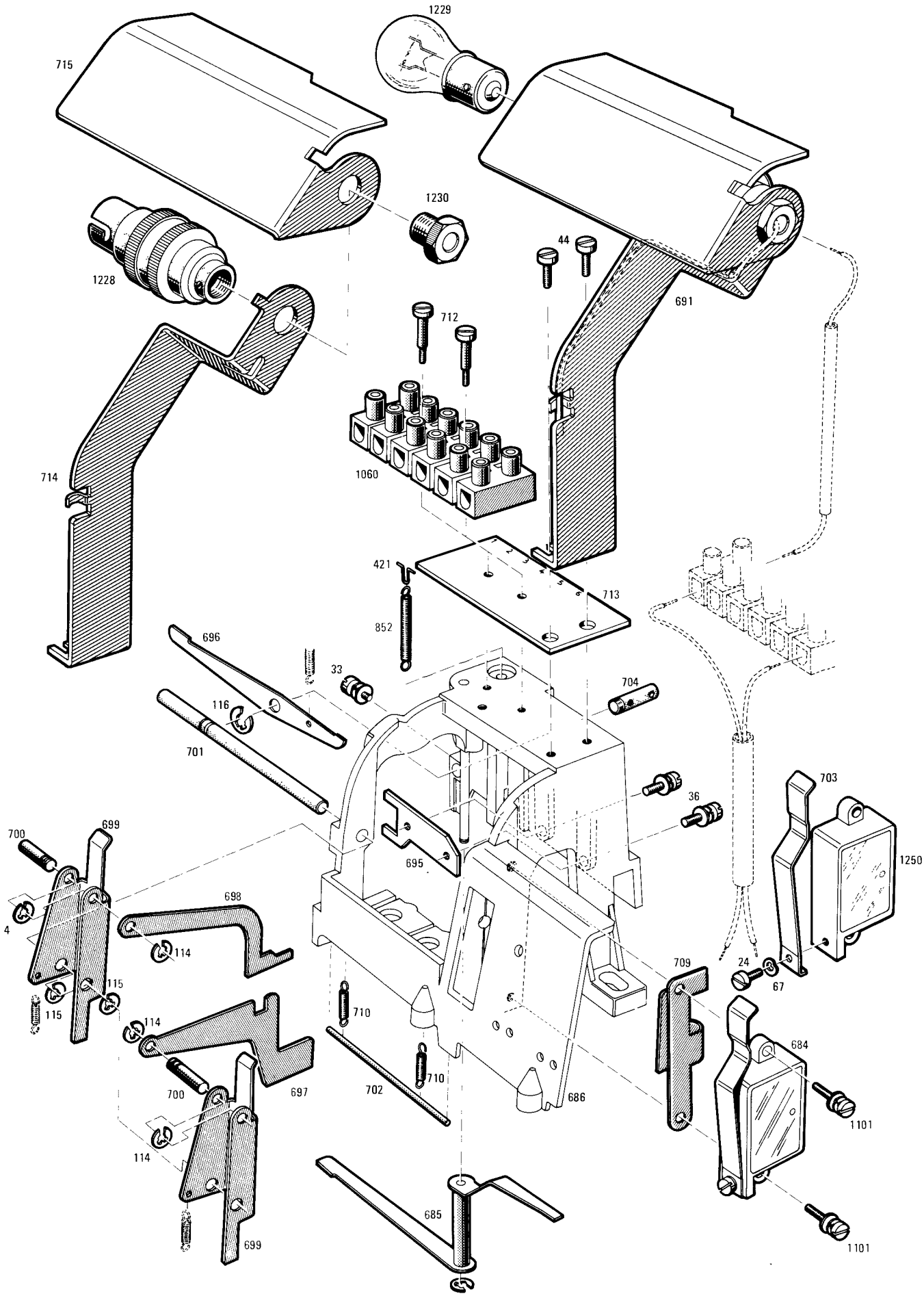
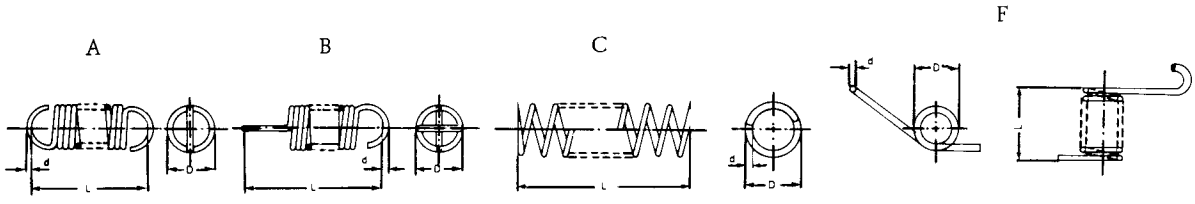

1229
715
1230
1228
44
691
712
714
1060
421
713
852
696
33
704
116
701
703
36
695
1250
700
699
698
4
114
115
115
709
24
67
710
684
114
697
710
702
700
686
1101
114
685
699
1101

Table of springs



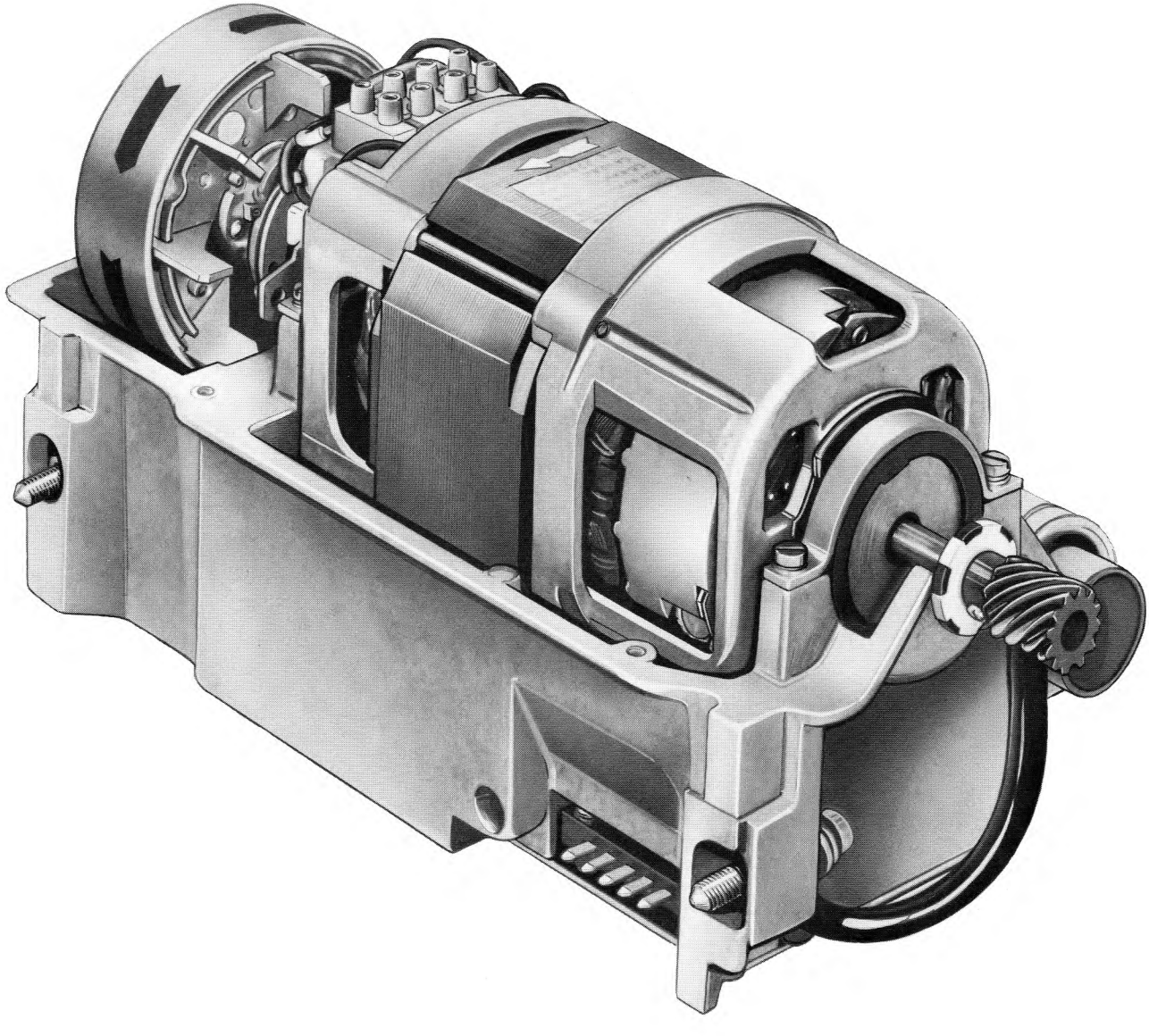
Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

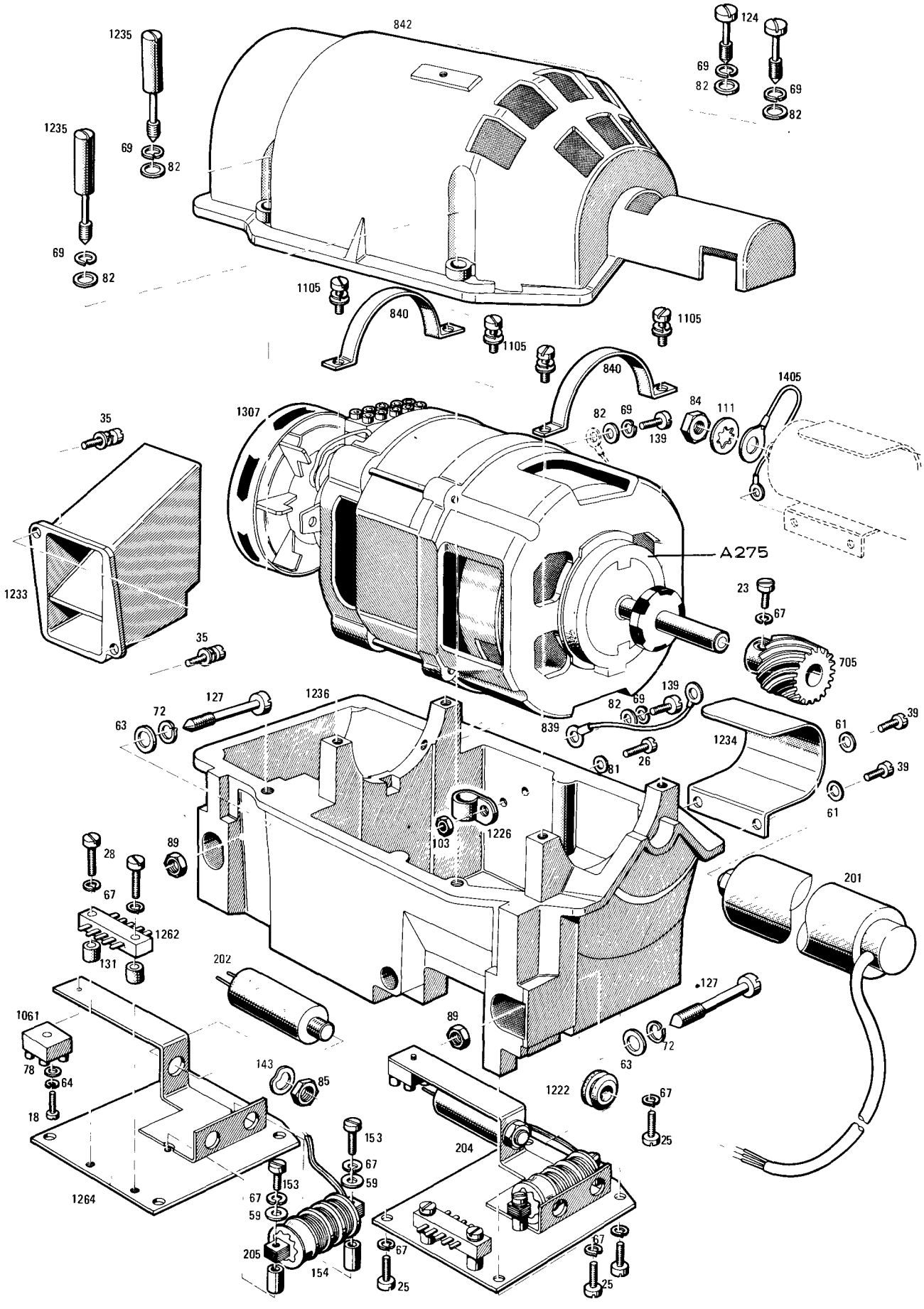
1) consecutive number of part in which the spring engages

Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No. of part 1)	figure page
B	0.28	3.6	21.2	C20326-A64-C176	852	421	185
	0.56	3.9	17.2	C20156-A100-C142	710	702	185

Contents

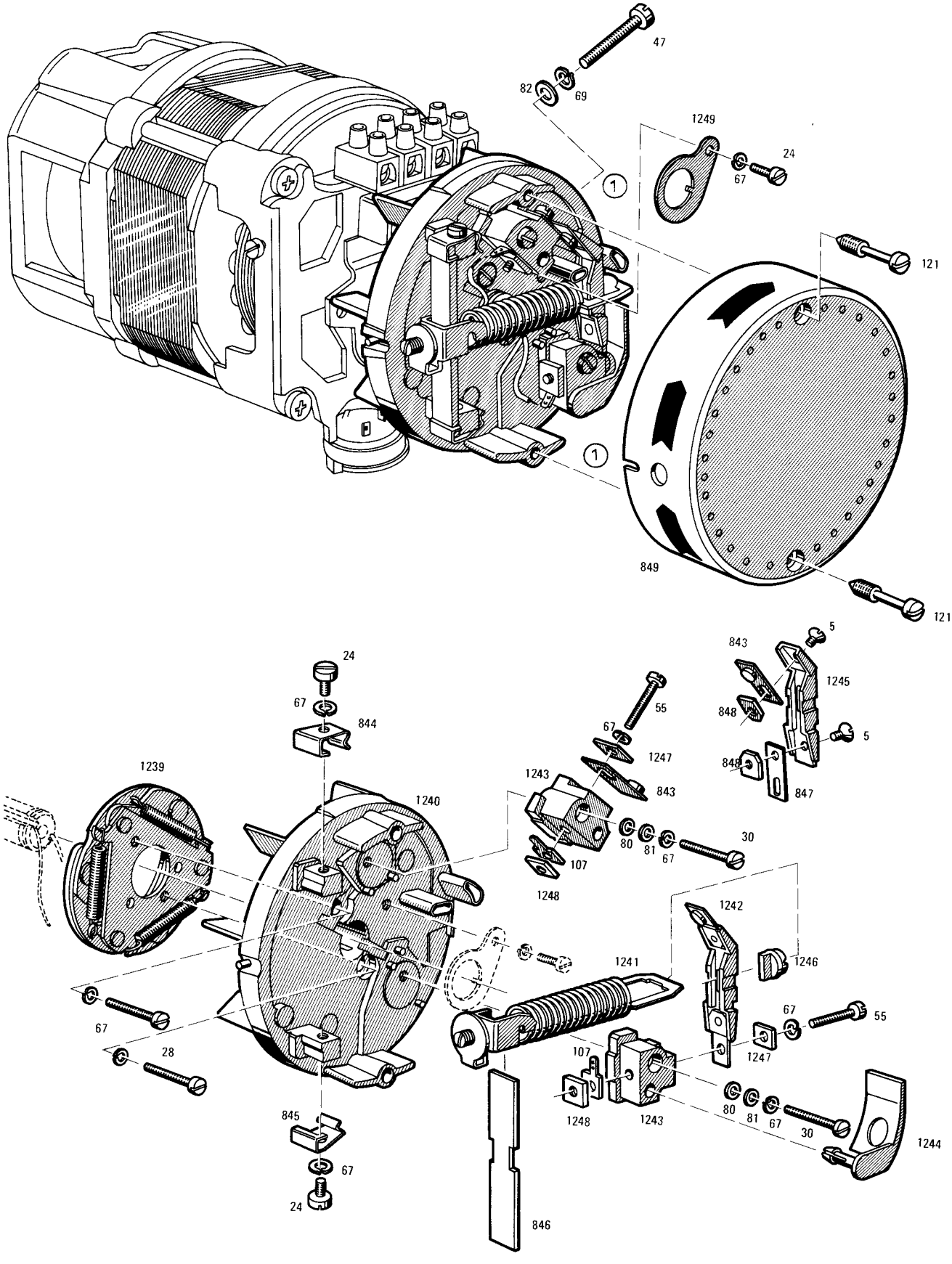


Components of motor with governor


A275
842
840
1307
1236
1234
1226
1262
1264
1061
204
201
202
1405
1222
1233
705
1235
1105
124
69
82
35
23
67
127
72
63
139
84
111
1405
39
61
28
89
131
143
85
153
59
205
154
18
78
64
25
1222
839
81
26
103

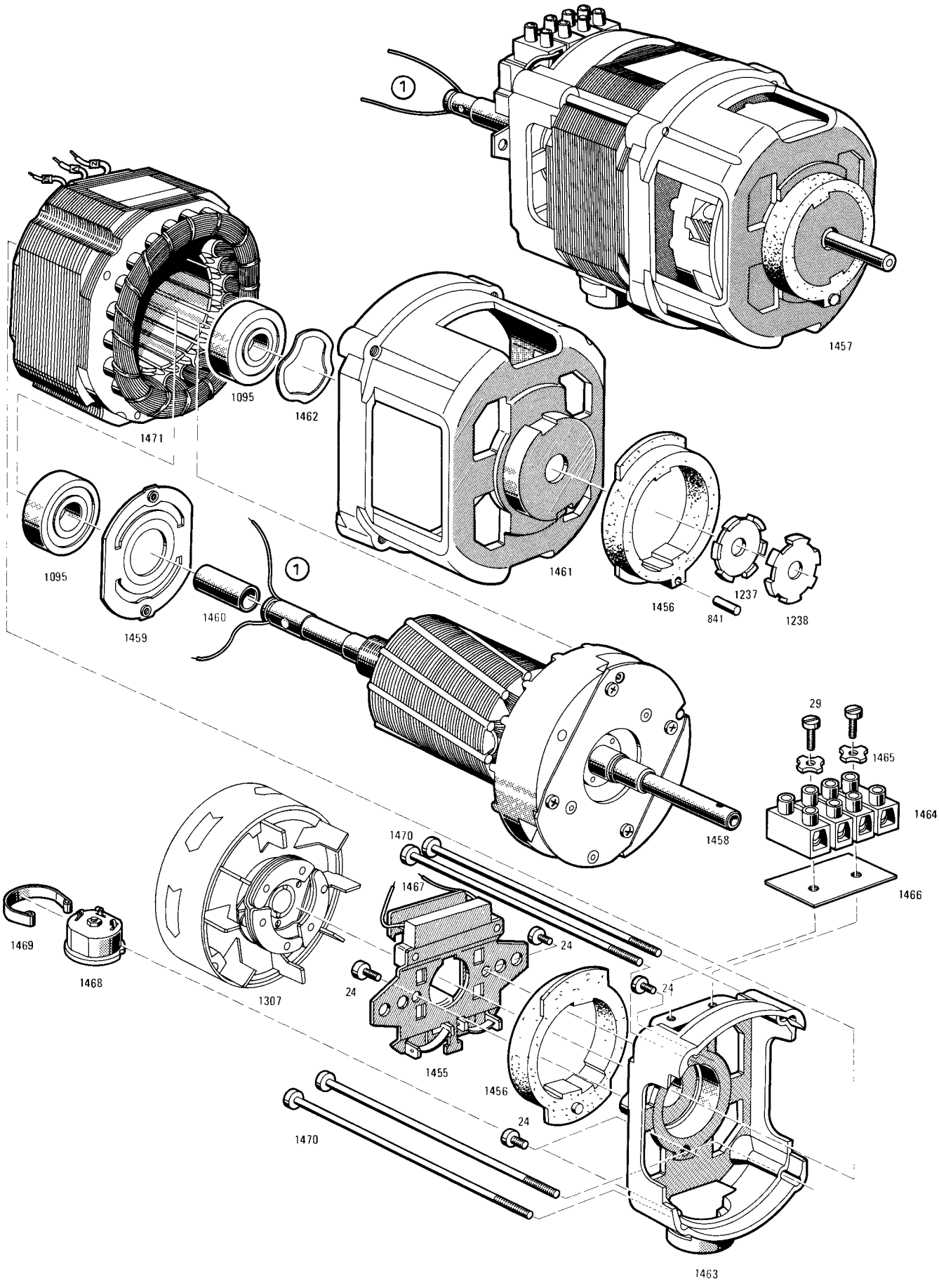
Instructions for removal

(1) Before removing the governor from the motor, it is essential to unsolder the connecting wires from the governor contact.


47
82
69
1249
24
67
1
121
849
121
5
843
1245
848
5
848
847
24
67
844
55
67
1247
1243
843
1239
1240
80
81
67
30
107
1248
1242
1246
1241
67
55
28
107
1247
80
81
67
30
1244
1248
1243
845
67
24
846

Instructions for replacement

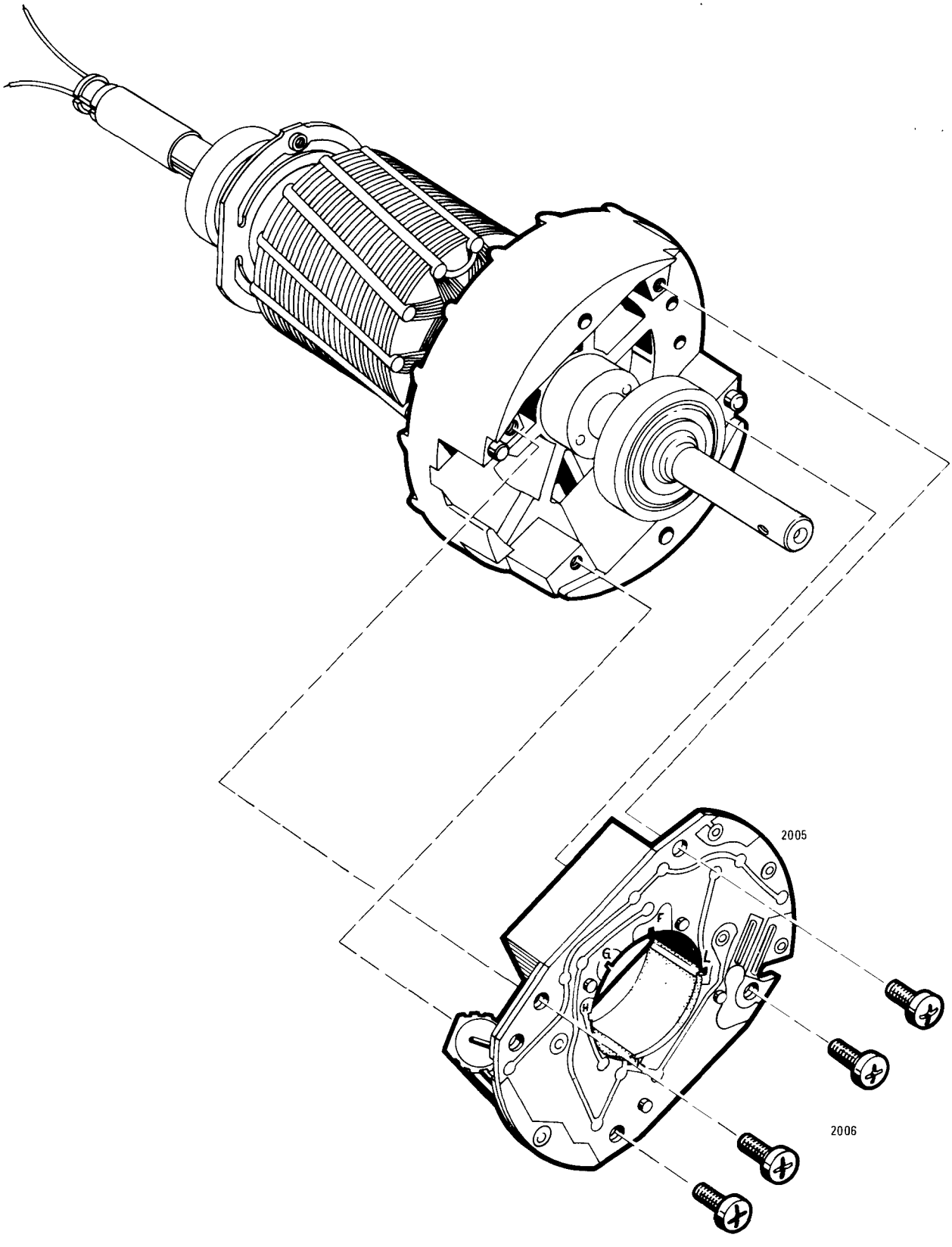
(1) Before slipping the governor onto the motor shaft, check that the insulation of the two connecting wires for the governor contact is not damaged and the wires are not kinked in the grooves of the shaft.


1
1457
1095
1462
1471
1461
1095
1459
1460
1456
841
1237
1238
1458
29
1465
1464
1466
1470
1467
1469
1468
1307
24
1455
1456
1463

Instructions for removal or replacement

(1) Before removing, unsolder wires on the governor electronics

wire bl point F
wire br point G
wire ws point H
wire rt point K
wire sw point L

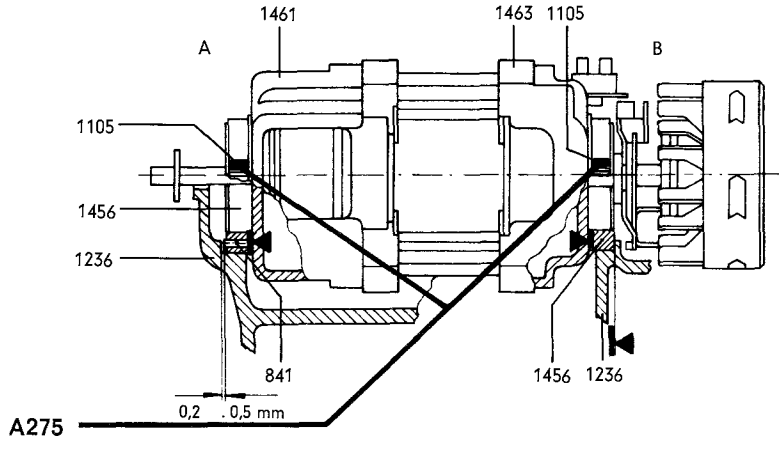

2005
2006

Adjustments and checks

A275 Rubber rings 1456/1 on bearing shields 1461 and 1463.
Rubber ring collars fitted in recess in casing 1236.

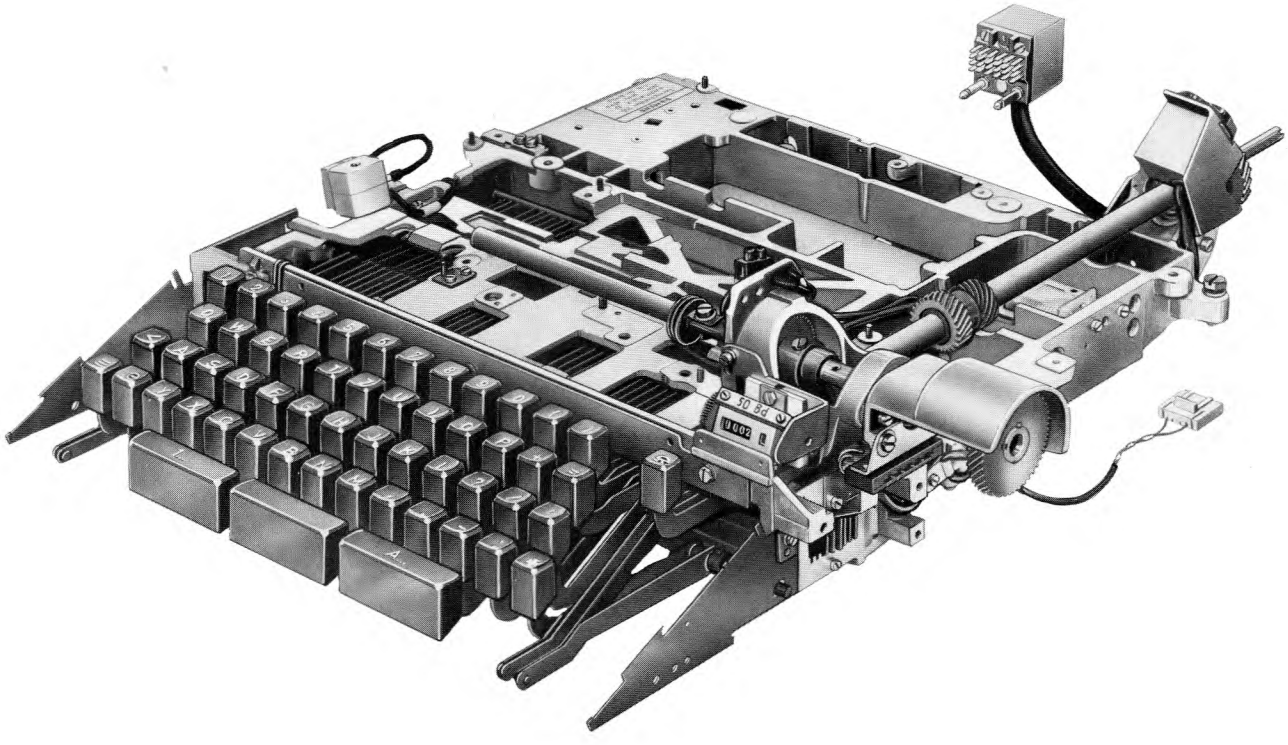
Gap on side A between pin 841 and casing 1236 = 0.2...0.5 mm.

Adjustment: Loosen four panhead screws 1105; push the motor in direction of side B.

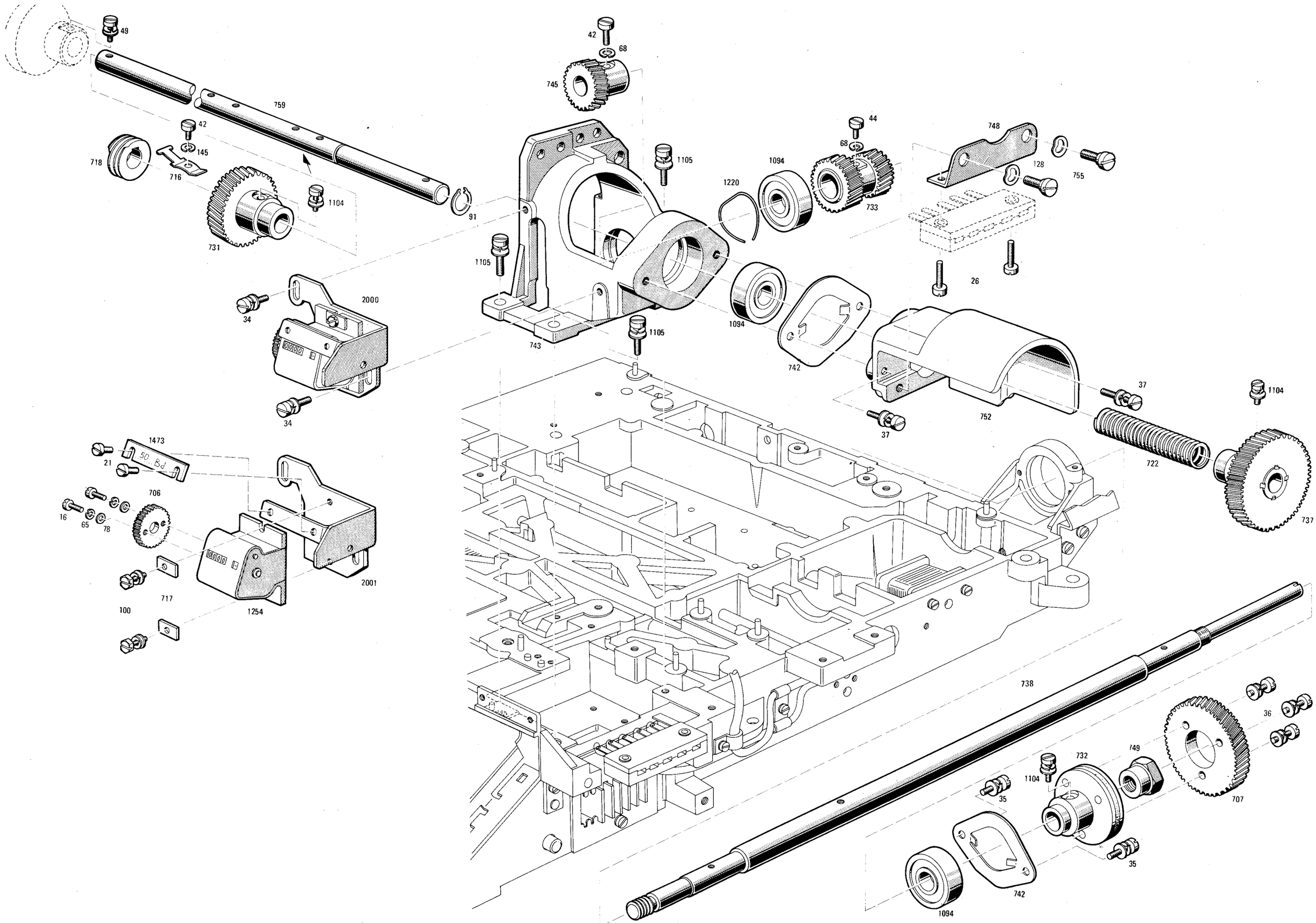


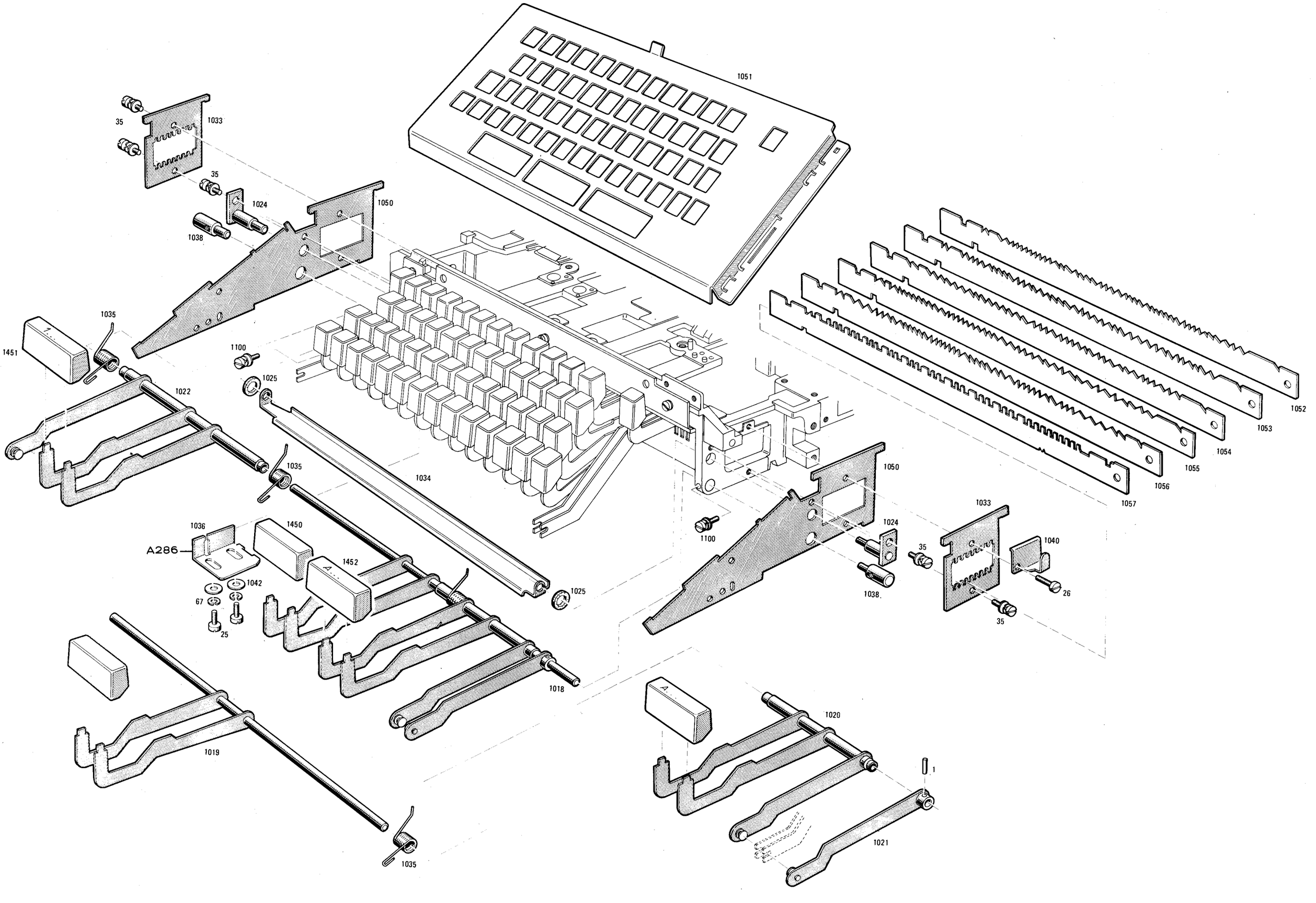
1

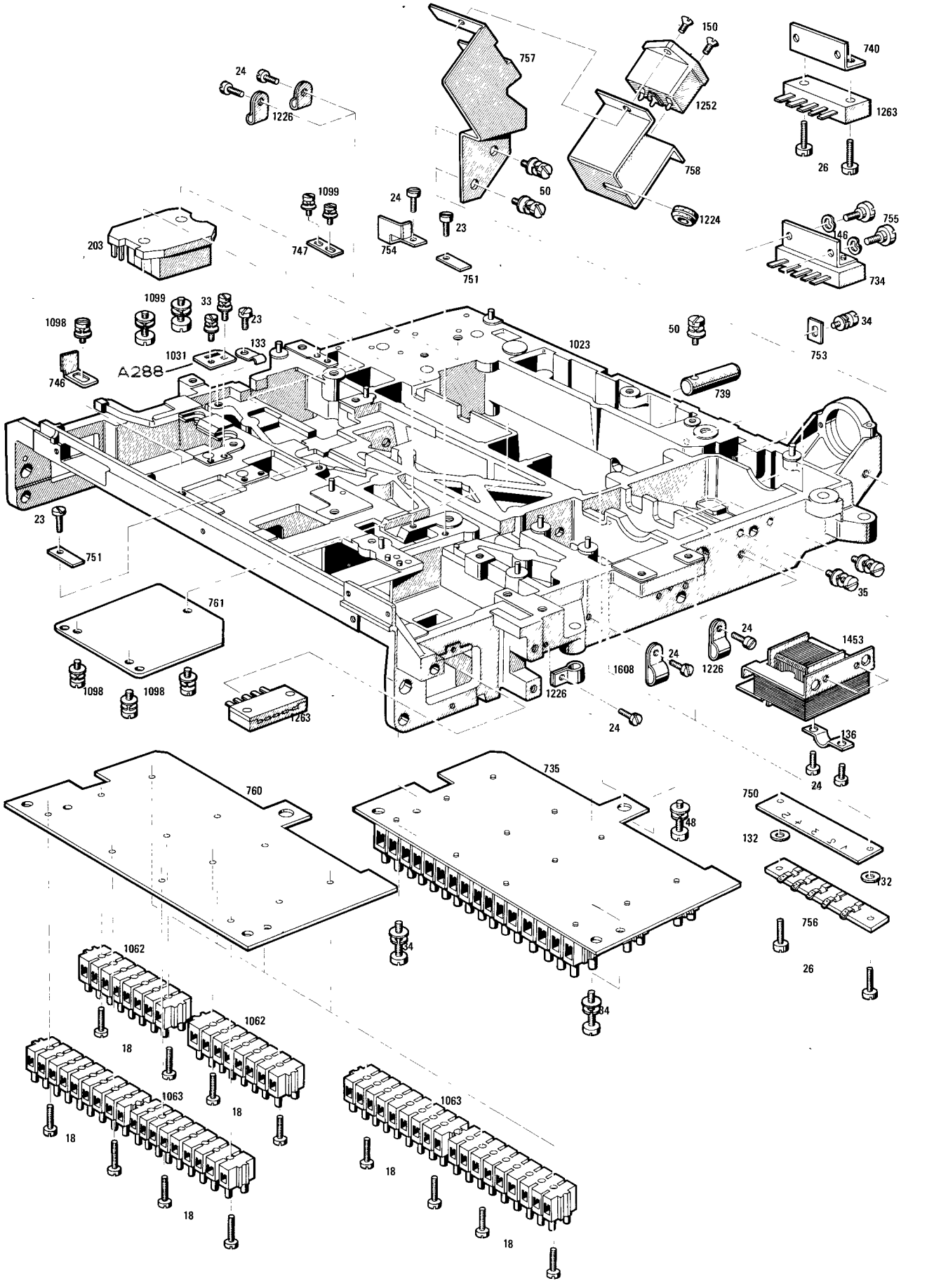
Contents



Components of assembly


49
759
42
145
718
716
731
1104
91
42
68
745
1105
1105
743
1105
1220
1094
44
68
733
748
128
755
26
1094
742
2000
34
34
1473
21
50 Bd
706
16
65
78
717
100
1254
2001
37
752
37
722
737
1104
738
36
732
749
1104
35
707
35
742
1094


1051
35
1033
35
1024
1050
1038
1035
1451
1100
1025
1022
1052
1053
1054
1055
1056
1057
1034
1050
1100
1024
1033
1040
35
26
1038
35
1036
1450
A286
1452
1042
67
25
1025
1018
1020
1
1021
1019
1035


757
150
1252
758
1224
740
1263
26
24
1226
1099
747
754
23
751
50
203
755
146
734
1098
33
1031
133
A288
746
1023
739
753
34
35
761
1453
1608
136
760
735
48
750
132
732
756
1062
18
1063

Adjustments and checks

D281 Combs 1033/1, 2, plates 1050 and stop bar 1017 on mounting frame 1023.

D282 Cover plate 1051/2 on plates 1050.

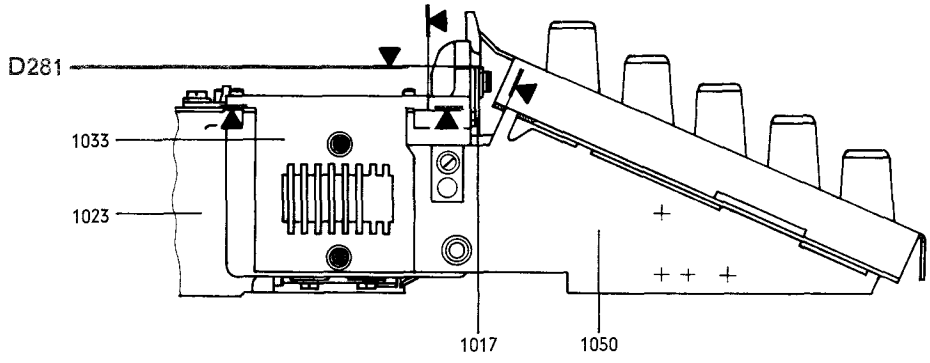
D283 Guide comb 1012/3, 4 on plates 1050.

D284 Comb 1039/5 on guide comb 1012.

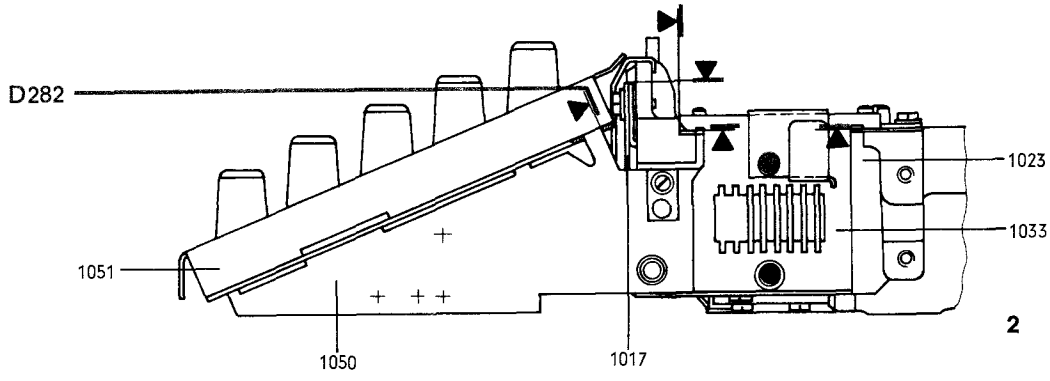
A285 Code bars 1052...1057/6 on plates 1050.

Between spacer 1029 of guide comb 1012/5 and code bars 1052...1057/6 there should be a gap of 0.05...0.1 mm.

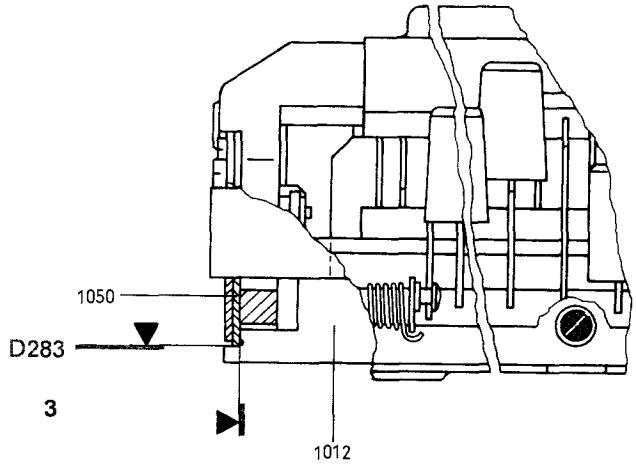
Adjustment: Loosen hexagon screws 99 (lacquer-coated).
Shift spacer 1029.


D281
1033
1023
1017
1050

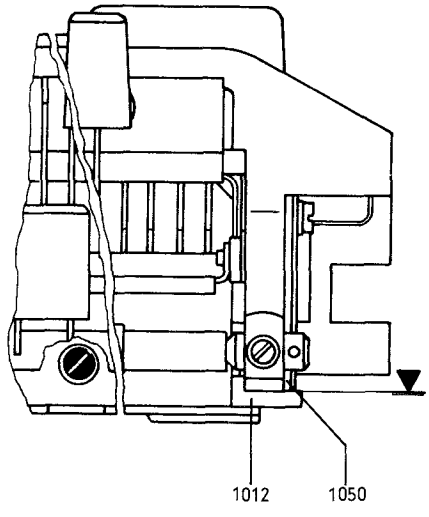
1


D282
1023
1033
1051
1050
1017

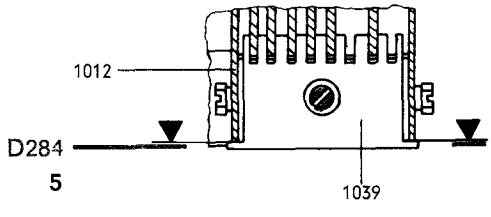
2


1050
D283
1012

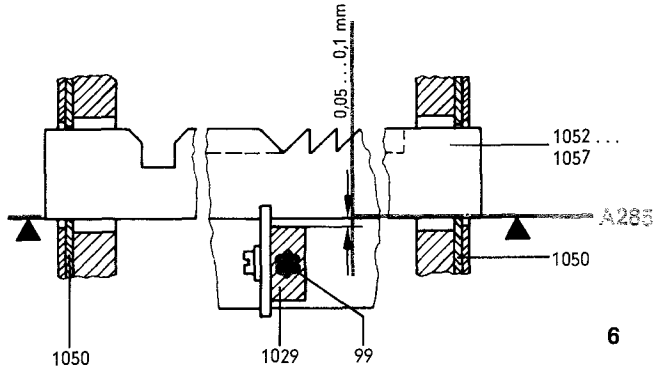
3


1012
1050

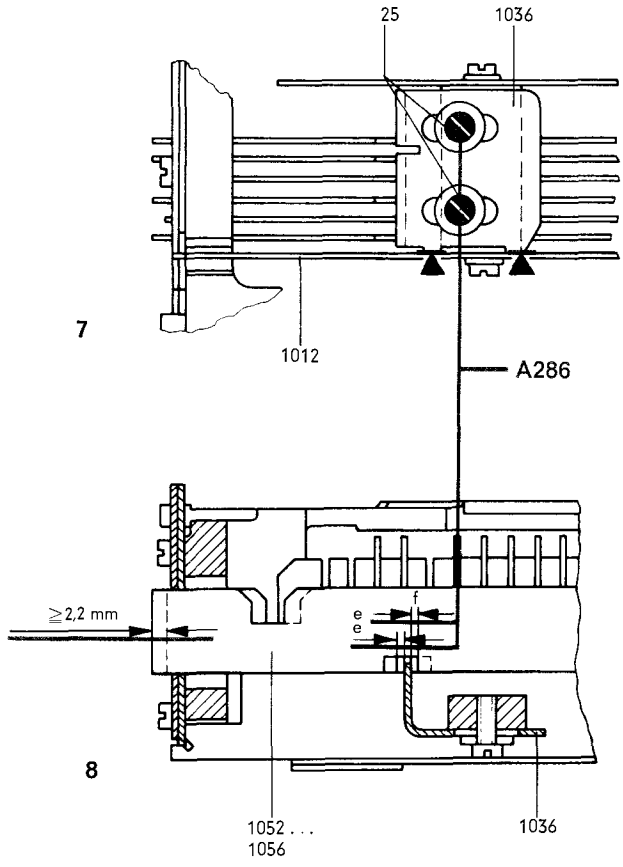
4


1012
D284
1039

5

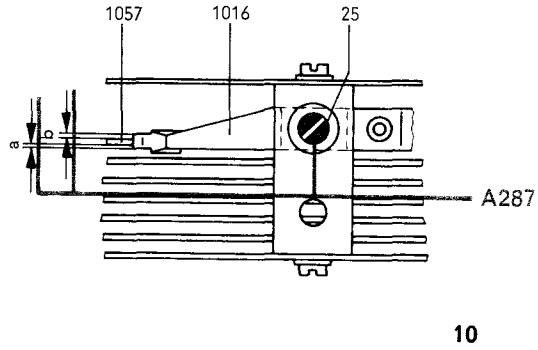

0,05 ... 0,1 mm
1052 ...
1057
A285
1050
1050
1029
99

6

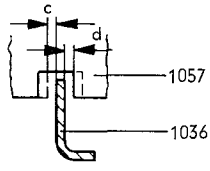


7

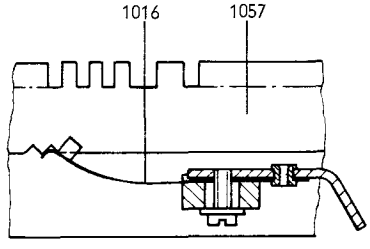
8



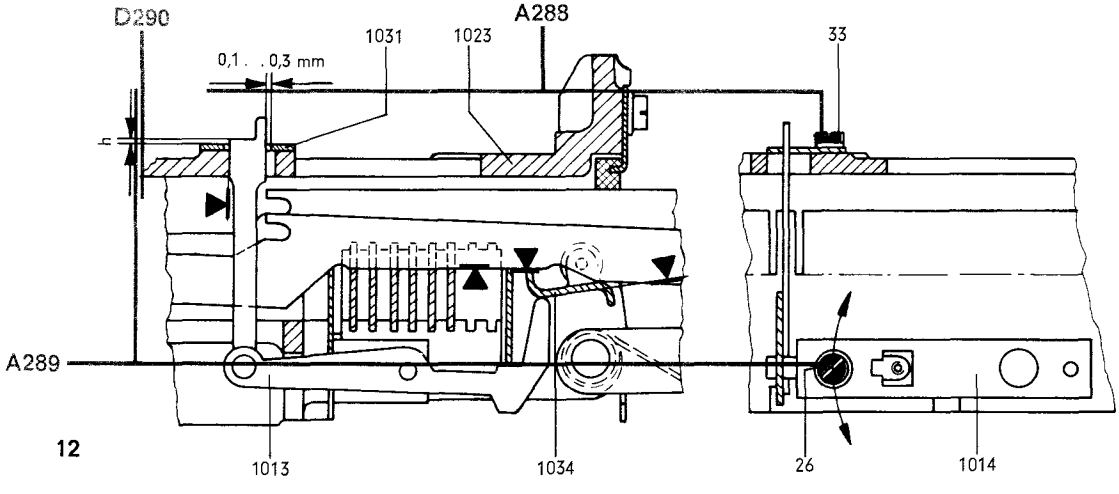
10



9



11



12

13

A286 Bracket 1036/7 on guide comb 1012. Detent 1016/10 for locking bar 1057 disengaged. Hold key "R" depressed.

Bracket 1036/8 centered in notches of code bars 1052...1056 so that $e = f \pm 0.1$ mm.

Adjustment: Loosen panhead screws 25/7. Shift bracket 1036.

Check: Travel of code bars 1052...1056/8 $\geqq 2.2$ mm.

A287 Detent 1016/10 centered on locking bars 1057 so that $a = b \pm 0.2$ mm.
Key A... depressed. Detent 1016/11 locked.
Key 1... depressed. Locking bars locked in inverse position.

Between locking bar 1057/9 and bracket 1036 there should be a gap of $c = d \pm 0.1$ mm.

Adjustment: Loosen panhead screw 25/10. Shift detent 1016.

A288 Release lever 1013/12 on mounting frame 1023.

Distance from guide plate 1031: 0.1...0.3 mm.

Adjustment: Loosen panhead screws 33/13. Shift guide plate 1031/12.

A289 Depress key at center of keyboard with force of 1.7 N.
Key lever on code bar bottom and against start bar 1034/12.

Travel h of release lever 1013 = 1.4 ± 0.05 mm.

Adjustment: Loosen panhead screw 26/13 (lacquer-coated).
Shift bracket 1014.

D290 Depress any key at the edge of the keyboard with a force of 1.7 N. Key lever on code bar bottom and against start bar 1034/12.

Travel h of release lever 1013 = $1.4 + 0.25$ mm.

D291 Between key openings in cover plate 1051/14 and keys there should be a gap of $\geqq 0.1$ mm.

Spring forces

D292 Force of 0.62 ± 0.1 N required to raise detent 1016/15.

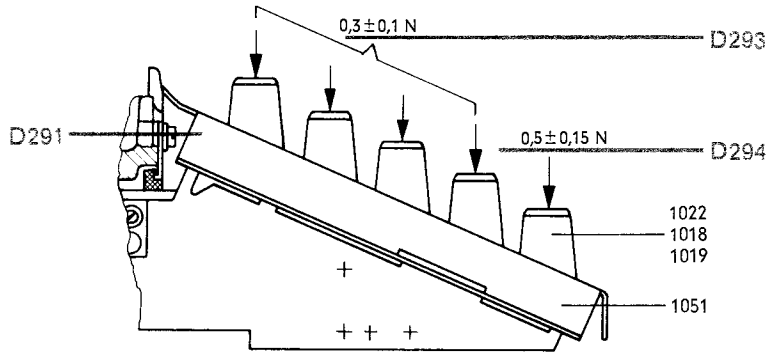
D293 Before measuring depress key.

Force of 0.3 ± 0.1 N required to raise key levers.

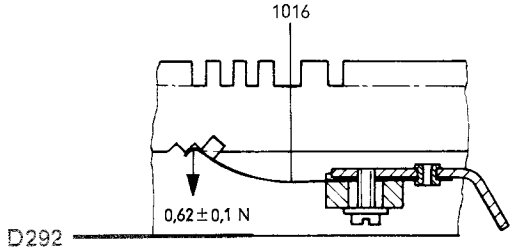
D294 Before measuring depress keys.

Force of 0.5 ± 0.15 N required to raise key lever set with tube 1022/14 as well as key lever sets 1018 and 1019.

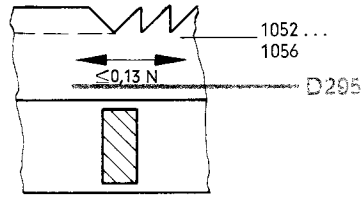
D295 Force of $\geqq 0.13$ N required to shift each of code bars 1052...1056/16.


0,3±0,1 N
D293
D291
0,5±0,15 N
D294
1022
1018
1019
1051

14

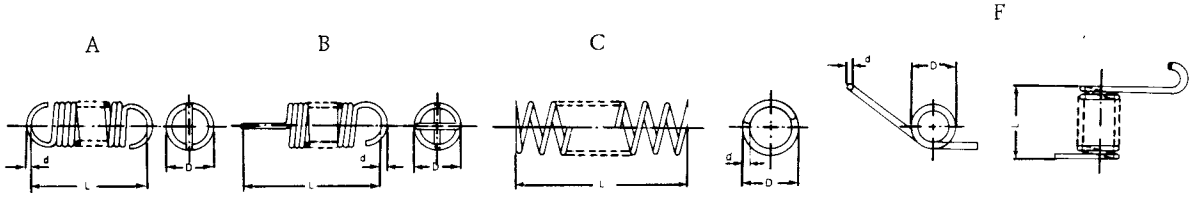

1016
0,62±0,1 N
D292

15


1052 . . .
1056
≤0,13 N
D295

16

Table of springs



Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

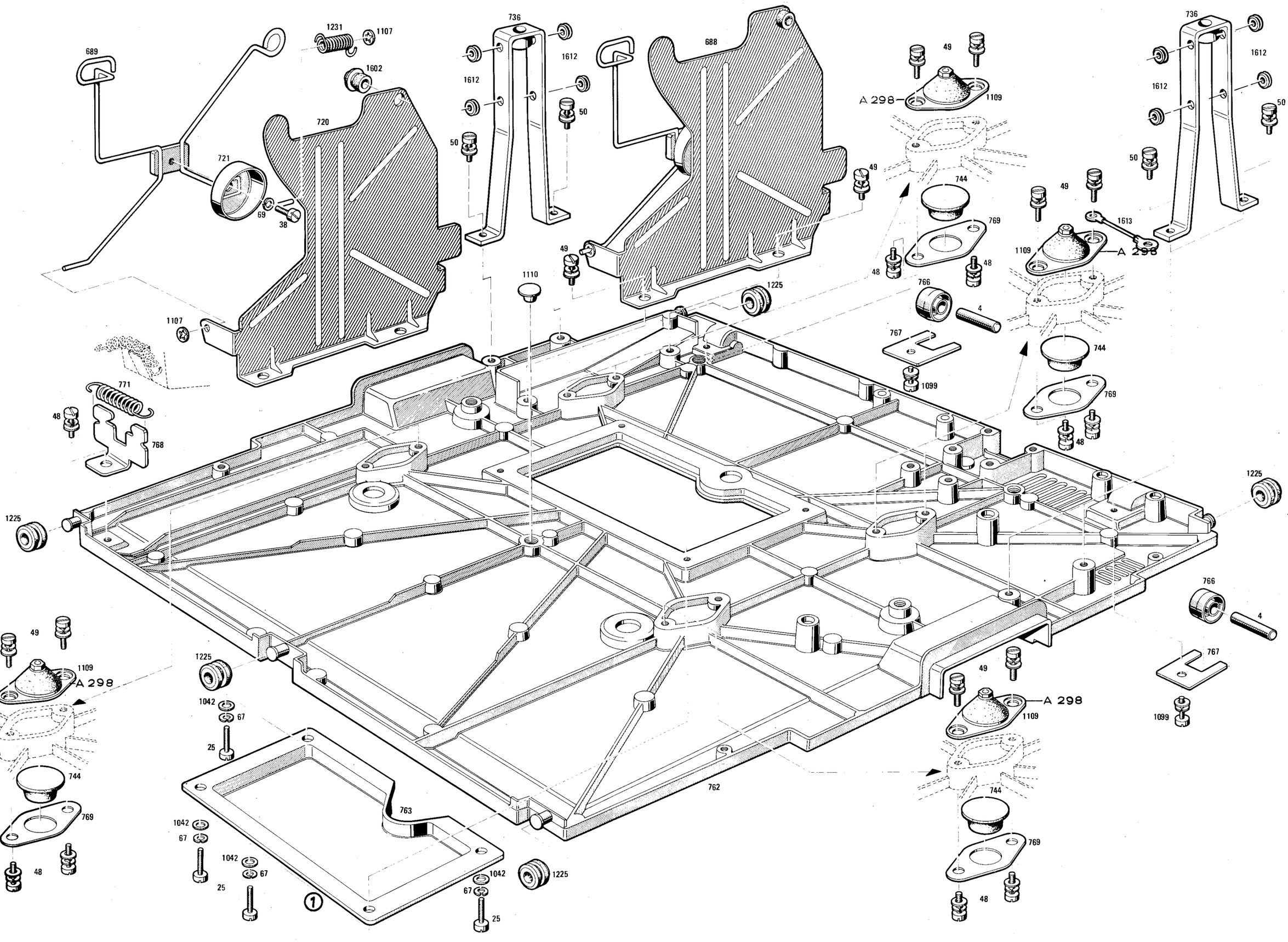
1) consecutive number of part in which the spring engages

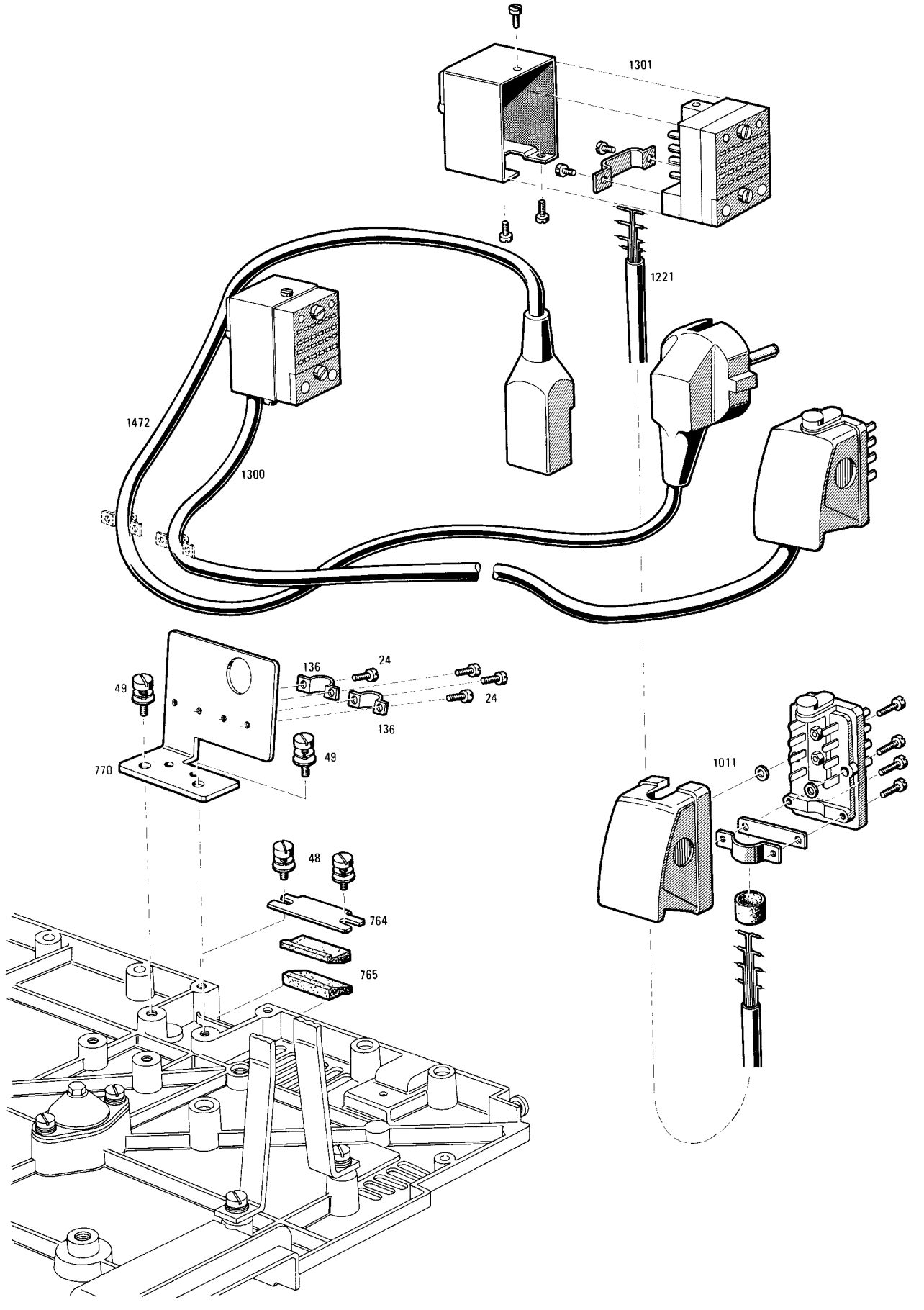
Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No. of part 1)	figure page
Frame C	1.25	9.5	50	C20156-A100-C611	722	759	215
Keyboard F	1.0	10	10	C20372-A15-C108	1035	1019 1022	217

Contents

Components of assembly

(1) When cover plate 763 has been taken off base tray 762, terminal plate 735 (chap. IV-8/221), which terminates all electrical connections, is accessible.


689
1231
1107
1602
736
1612
1612
50
50
720
721
69
38
688
49
1110
1225
1107
771
48
768
1225
49
1109
A 298
744
769
48
1042
67
25
763
1042
67
1042
67
25
1225
762
49
1109
A 298
744
769
48
766
4
767
1099
736
1612
1612
50
50
49
1109
A 298
1613
744
769
48
1225
766
4
767
49
1109
A 298
1099
744
769
48


1301
1221
1472
1300
136
24
49
24
136
770
49
1011
48
764
765

Adjustments and checks

A298 The four shock mounts 1109/1 are secured according to the measurements given.

Adjustment: loosen two panhead screws 49 (lacquer-coated) from each shock mount 1109 and shift shock mounts 1109.

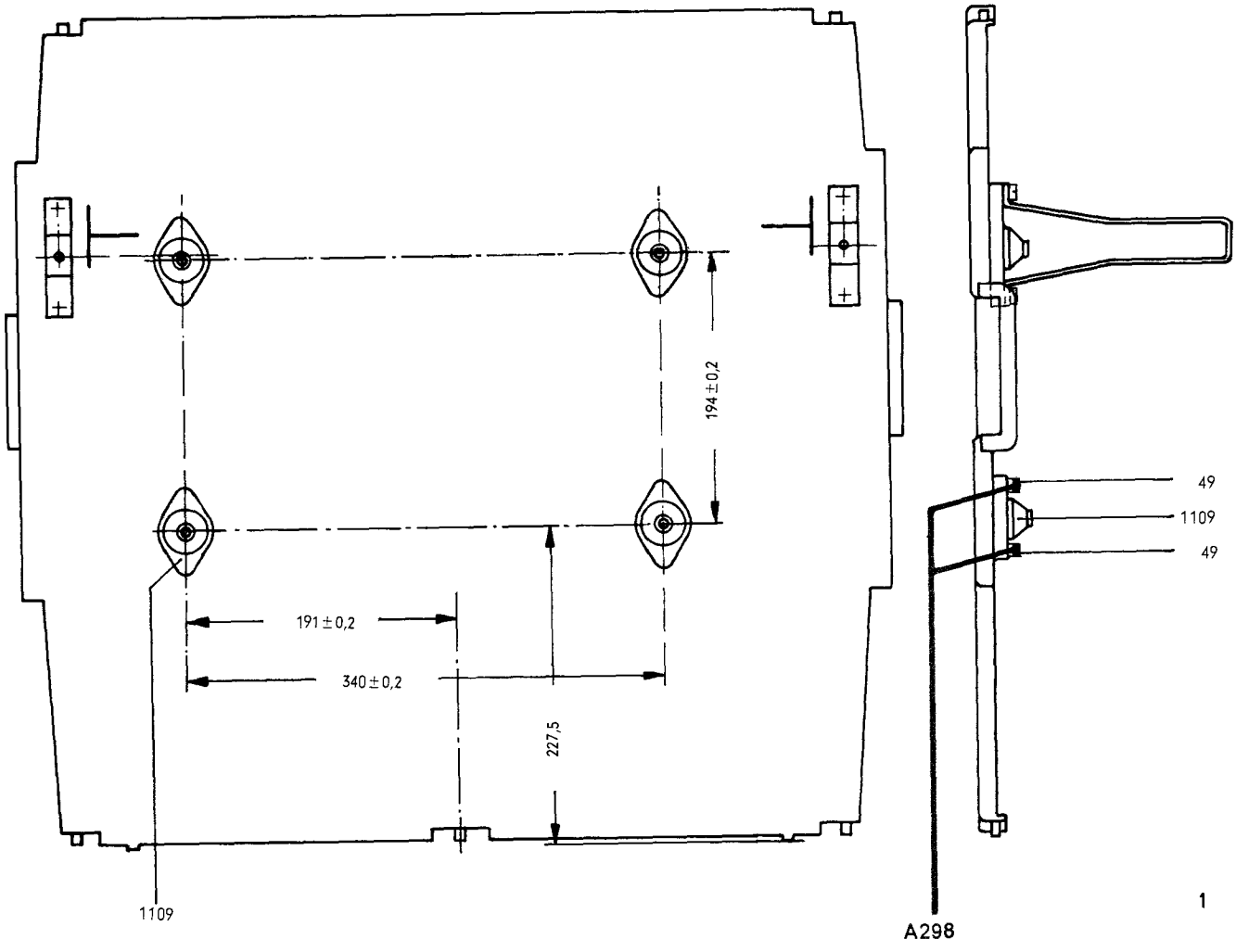
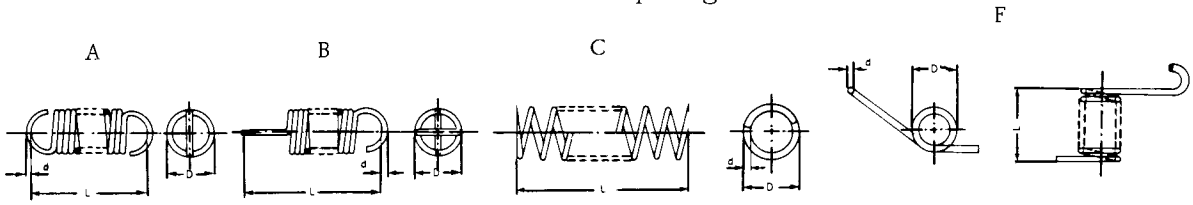

194 ± 0,2
191 ± 0,2
340 ± 0,2
227,5
1109
49
1109
49
A298
1

Table of springs



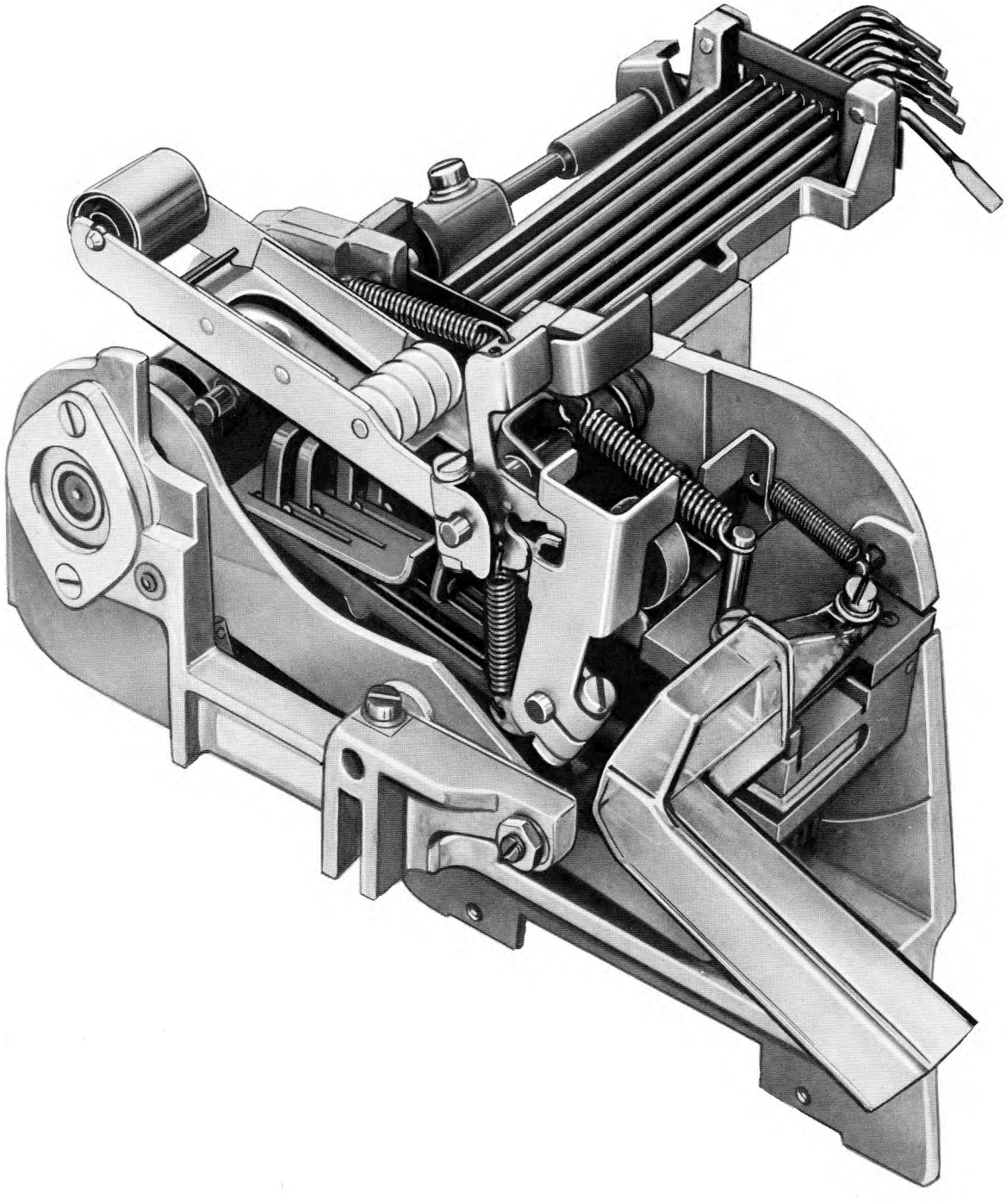
Type of spring
- A tension spring
- B tension spring
- C pressure spring
- F torsion spring

- d wire diameter
- D spring diameter
- L length in normal condition

1) consecutive number of part in which the spring engages

Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No. of part 1)	figure page
B	0.7	7.0	23.5	C20170-A82-C518	771	768	239
F	1.6	8.2	20	C22234-A150-C8	1231	689	239

Contents

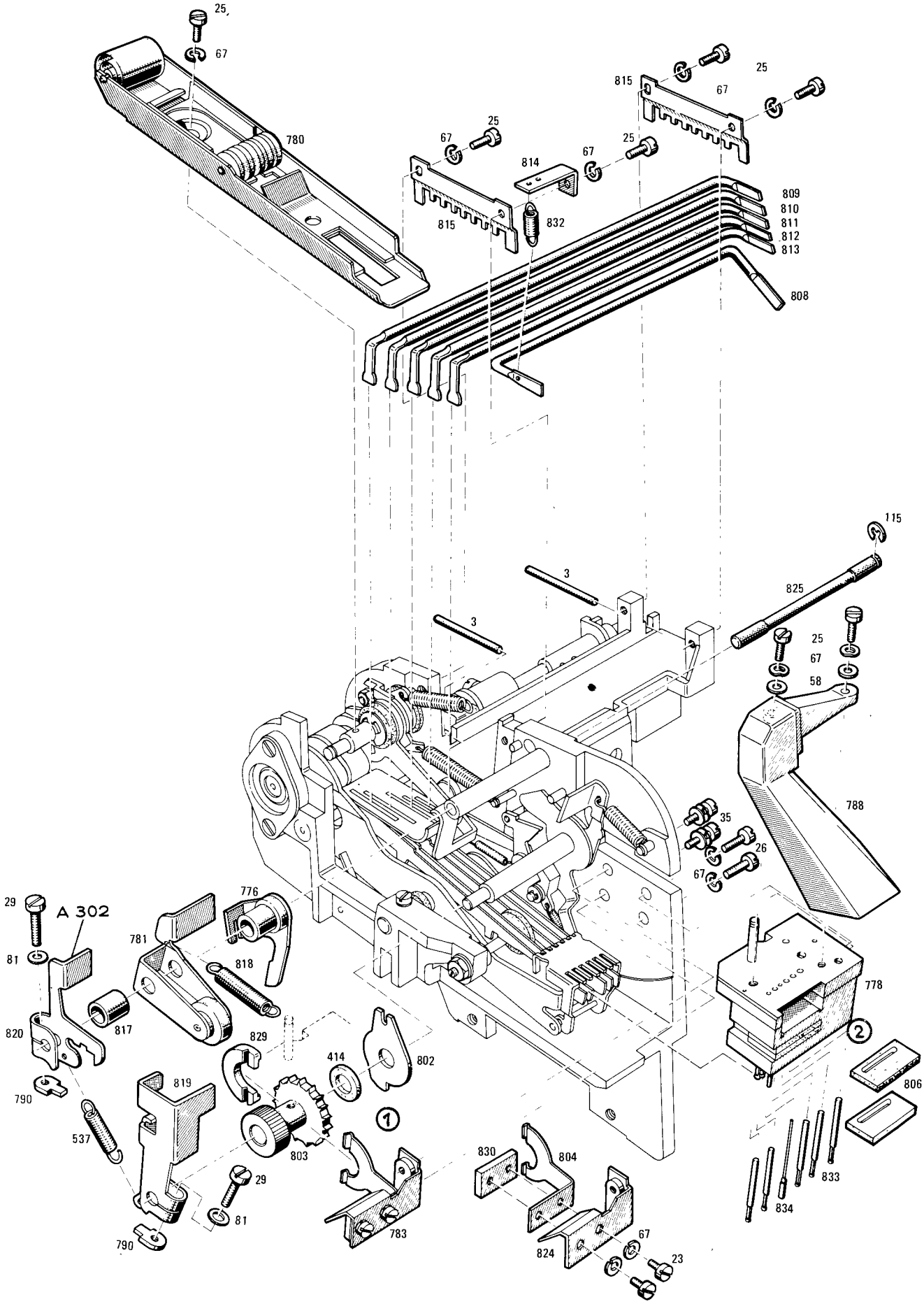


Components of assembly

Instruction for removal or replacement

(1) Pawl 793 (page 257) should lie against the edge of the lower shoulder of disk 802.

(2) If punch guide 778 is ordered, parts 806, 833 and 834 are already included. Replacements for 833 and 834 only available in special cases (see Service Manual Ba T App 19).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815
814
832
809
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811
812
813
808
115
825
3
58
788
35
26
776
781
818
A 302
29
81
820
817
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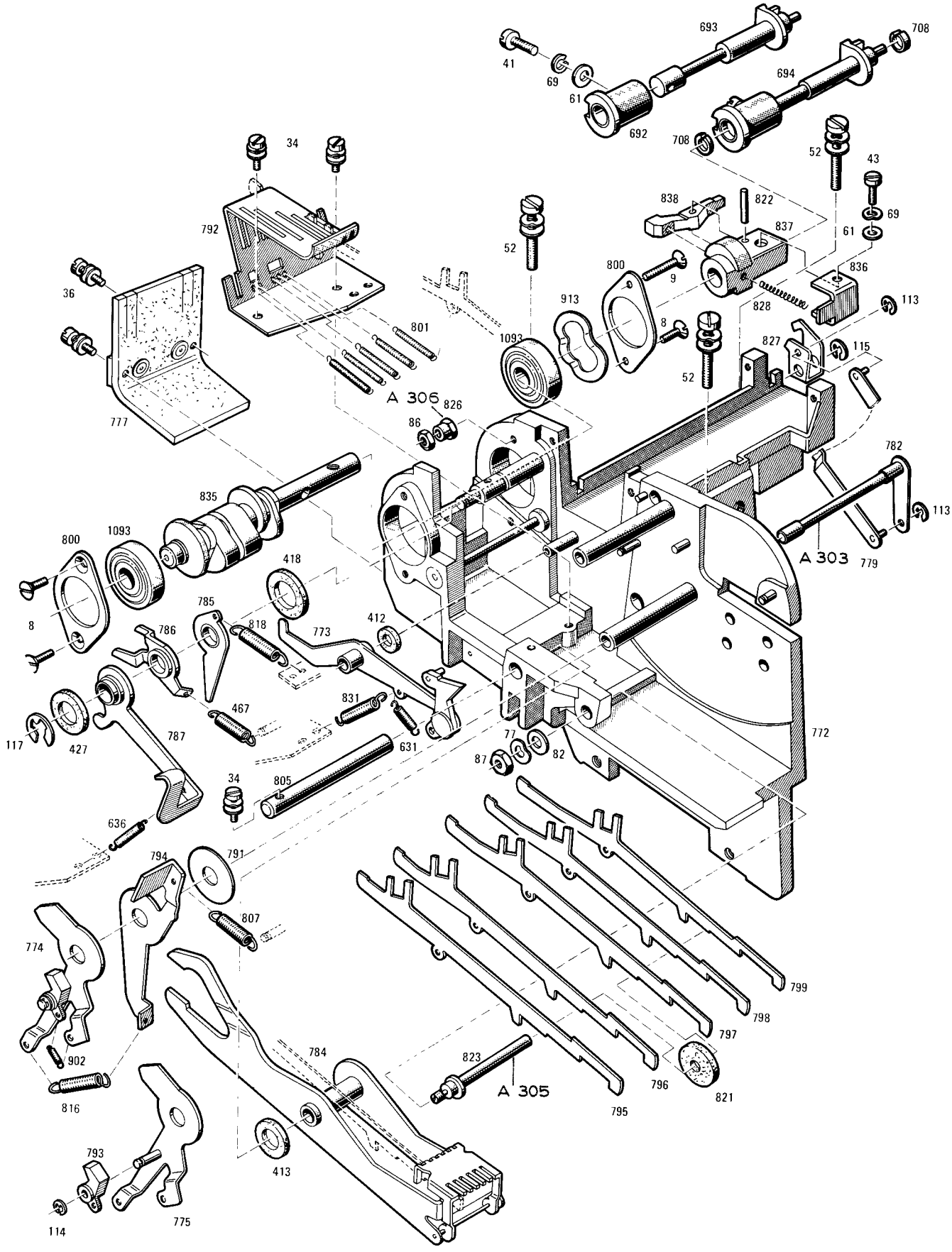
414
802
778
806
819
790
537
803
783
830
804
824
833
834
23


693
708
41
69
61
694
692
708
34
52
43
838
822
69
792
837
61
52
800
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36
9
913
828
113
801
1093
827
115
8
52
A 306
826
86
777
782
835
113
800
1093
A 303
779
418
785
8
786
818
773
412
467
831
117
427
787
631
77
87
82
772
34
805
636
794
791
807
774
799
798
797
902
784
823
796
821
816
A 305
795
793
413
114
775

Adjustments and checks

D301 Points of contact

Guide comb 792/1, 2, punch guide 778/3, two combs 815/4 (only one comb visible), chad chute 788/5, 6 and bracket 824/7 rest against the points indicated.

A302 Tape punch attachment in OFF position. Lever 820/10 depressed.

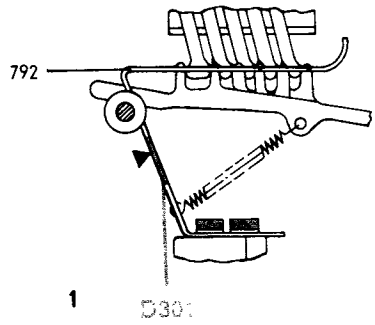
Gap between OFF lever 820/8, 10 and hollow axle B is 0.01...0.1 mm.

Adjustment: Loosen pan head screw 29, shift OFF lever 820.

A303 Tape punch attachment in OFF position.

Gap between lever 827/10 and bail 836 is 0.3 ± 0.1 mm.
Gap between ON lever 819/9 and hollow axle B is 0.01...0.1 mm.

Adjustment: Loosen pan head screw 29a/9, 10, turn lever with axle 782/9.
Adjustment A302 must not be affected.



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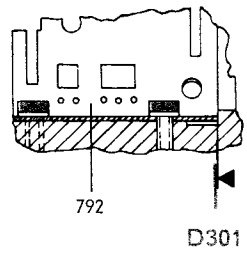

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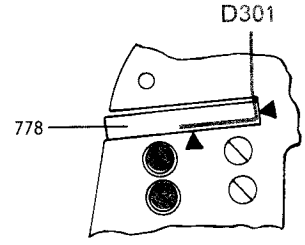

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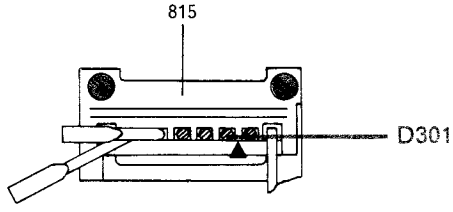

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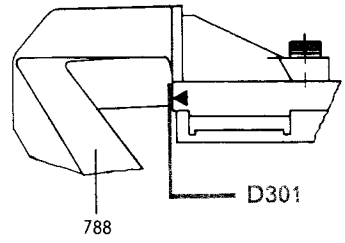

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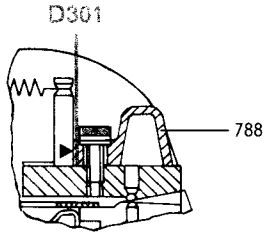

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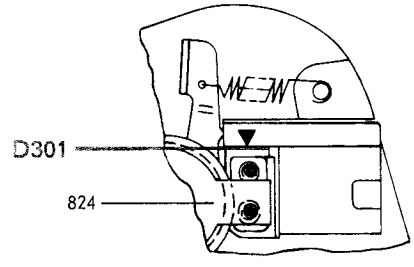

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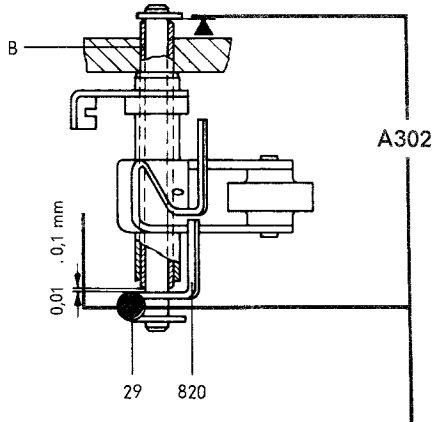

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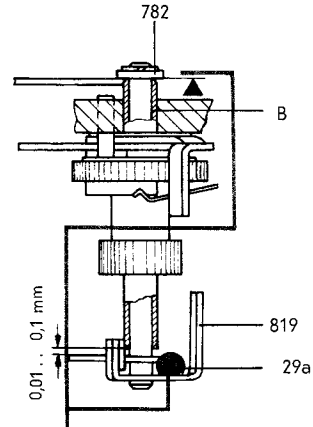

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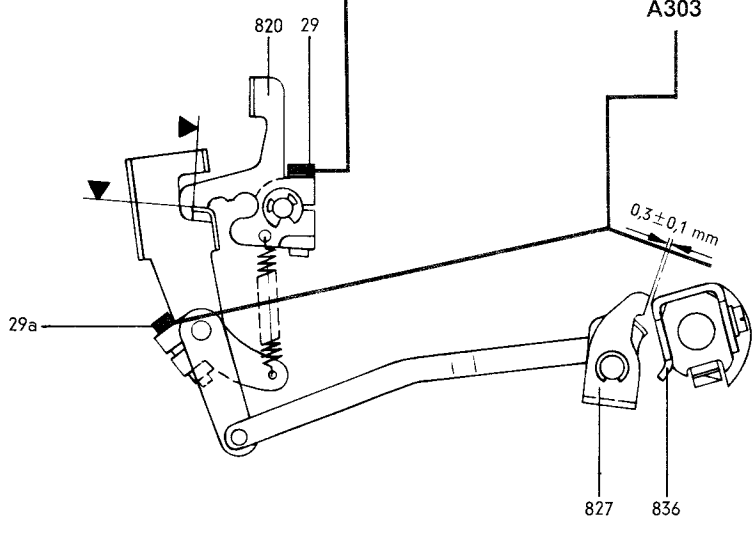

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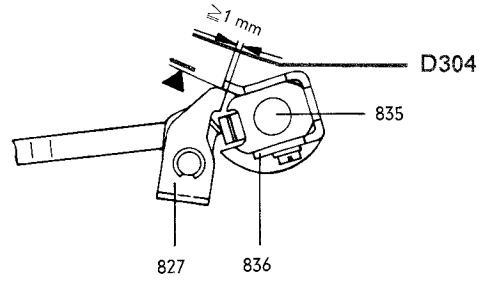

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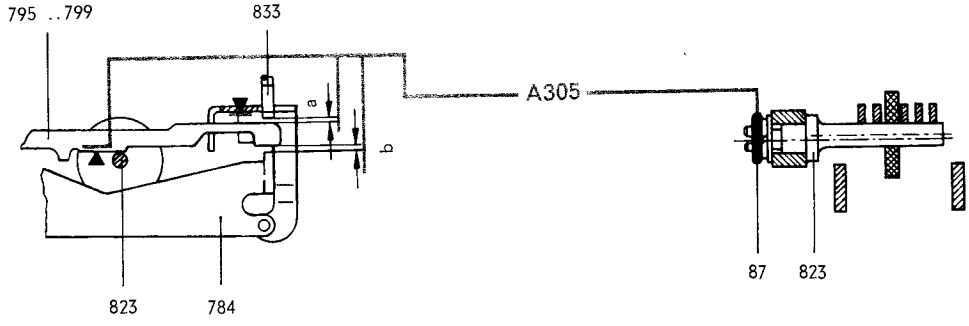

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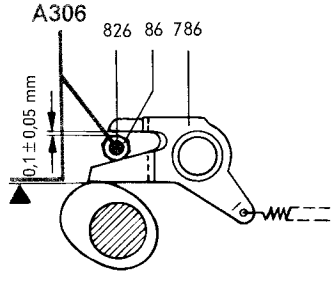

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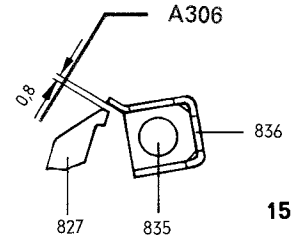

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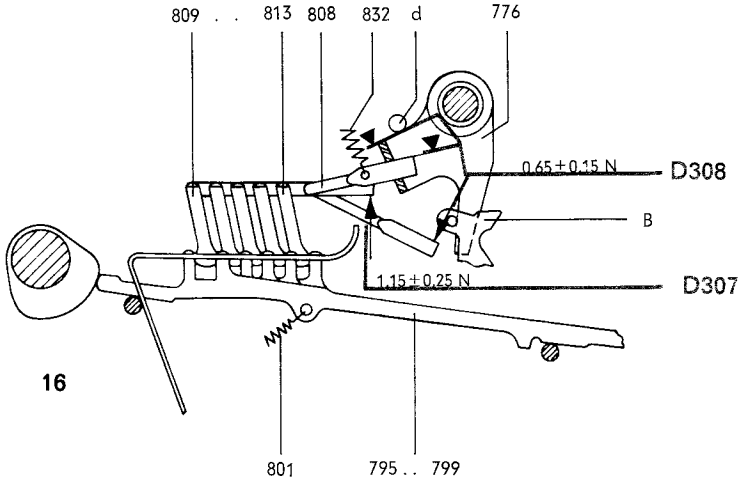

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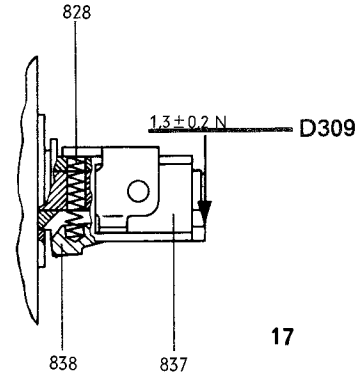

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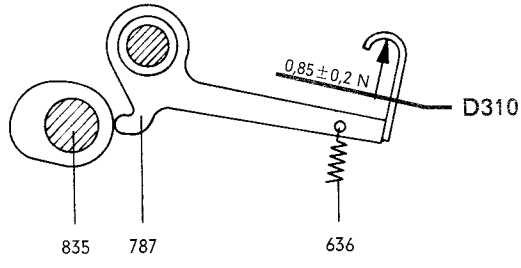

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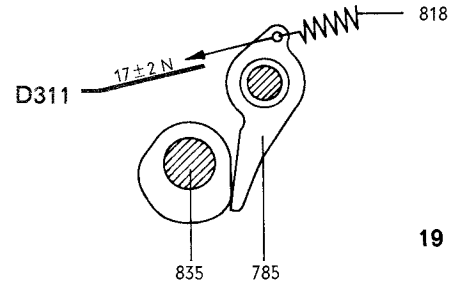


19

D304 OFF lever 820/10 depressed. Camshaft 835/11 in position indicated.

Bail 836 overlaps lever 827 by $\geqq 1$ mm.

A305 Punch setting levers 795...799/12 on lowest point of cam and on eccentric axle 823.

Gap between punch lever with bracket 784 and punch setting levers 795...799, and between five punches 833 and punch setting levers 795...799 is $a = b \geqq 0.05$ mm.

Adjustment: Loosen hexagon screw 87/13, turn eccentric axle 823.

A306 Turn camshaft 835/15 until there is a gap of 0.8 mm between bail 836 and lever 827.

Gap between braking lever 786/14 and eccentric 826 is 0.1 ± 0.05 mm.

Adjustment: Loosen hexagon nut 86, turn eccentric 826.

Spring forces

Unless otherwise indicated, spring forces should be checked with the tape punch attachment in the rest position.

D307 Transfer levers 809...813/16, punch setting levers 795...799 each with one tension spring 801.

Force of 1.15 ± 0.25 N required to raise transfer levers 809...813.

D308 Control lever 808/16 with tension spring 832
Lever with sleeve 776 against pin d, feed pawl B raised from lever with sleeve 776.

Force of 0.65 ± 0.15 N is required to depress control lever 808.

D309 Clutch sleeve 837/17 with compression spring 828
Tape punch attachment in released condition, pawl 838 engaged.

Force of 1.3 ± 0.2 N required to force out pawl 838.

D310 Lever with sleeve 787/18 and tension spring 636

Force of 0.85 ± 0.2 N required to raise lever with sleeve 787 from camshaft 835.

D311 Zero-setting lever 785/19 with tension spring 818

Force of 17 ± 2 N required to raise zero-setting lever 785 from camshaft 835.

D312 Feed lever 773/20 with tension spring 831
Lever with sleeve 776 lifts feed pawl B out of ratchet 803.

At the point shown force of 3.7 ± 0.8 N is exerted.

D313 Pressure roller 781/21 with tension spring 818

A force of 9.7 ± 1.5 N is required to raise pressure roller 781 from ratchet 803.

D314 Feed pawl B/22 with tension spring 631 on feed lever 773
Lever with sleeve 776 raised from feed pawl B. Visible clearance at x.

Force of 0.38 ± 0.07 N required to raise feed pawl from ratchet 803.

D315 ON lever 819/23 with tension spring 537
ON lever 819 depressed and locked.

On the top edge of ON lever 819 a force of 3.8 ± 0.8 N is exerted.
(Raise OFF lever 820 gently and check without friction.)

D316 Lever 794/24 with tension spring 807

A force of 1.9 ± 0.3 N is required to raise lever 794 off punch guide 778.

D317 Pawl 793/24 with tension spring 902

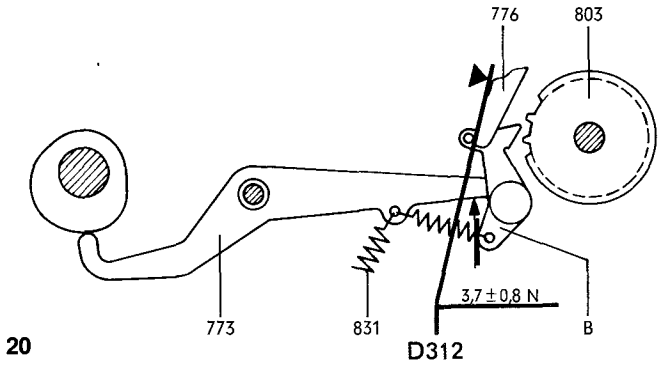
Force of 0.75 ± 0.15 N required to raise pawl 793 from brake disk 802.

D318 Ratchet 803/24 with pressure plate 783
Raise pressure roller 781/21.

Force of 2.75 ± 1.25 N required to turn ratchet 803/24.

D319 Braking lever 786/25 with tension spring 467
Braking lever 786 on eccentric 826.

Force of 4.4 ± 1.1 N exerted at point shown.



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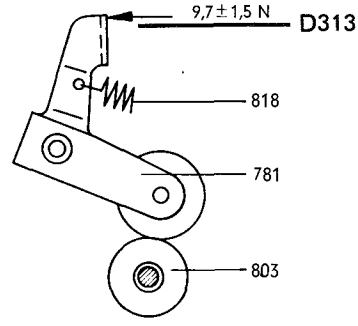

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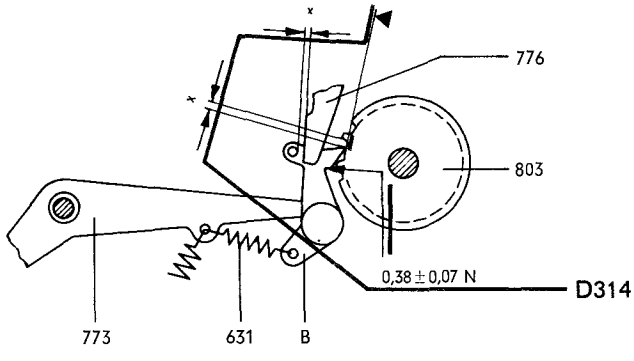

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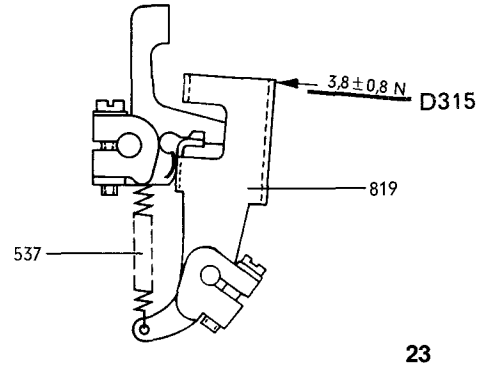

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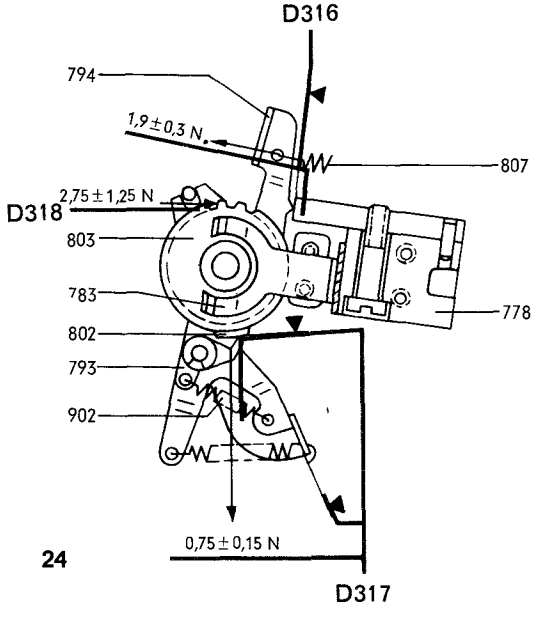

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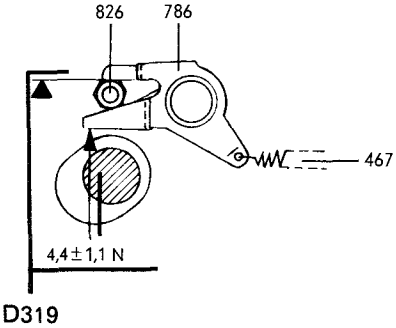

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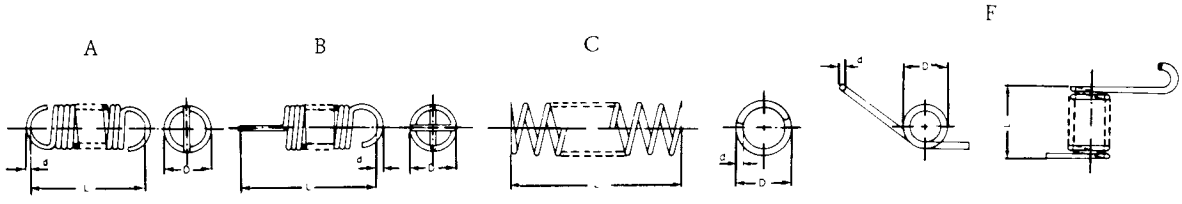
Table of springs



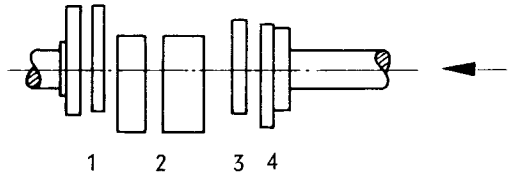
Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

1) consecutive number of part in which the spring engages

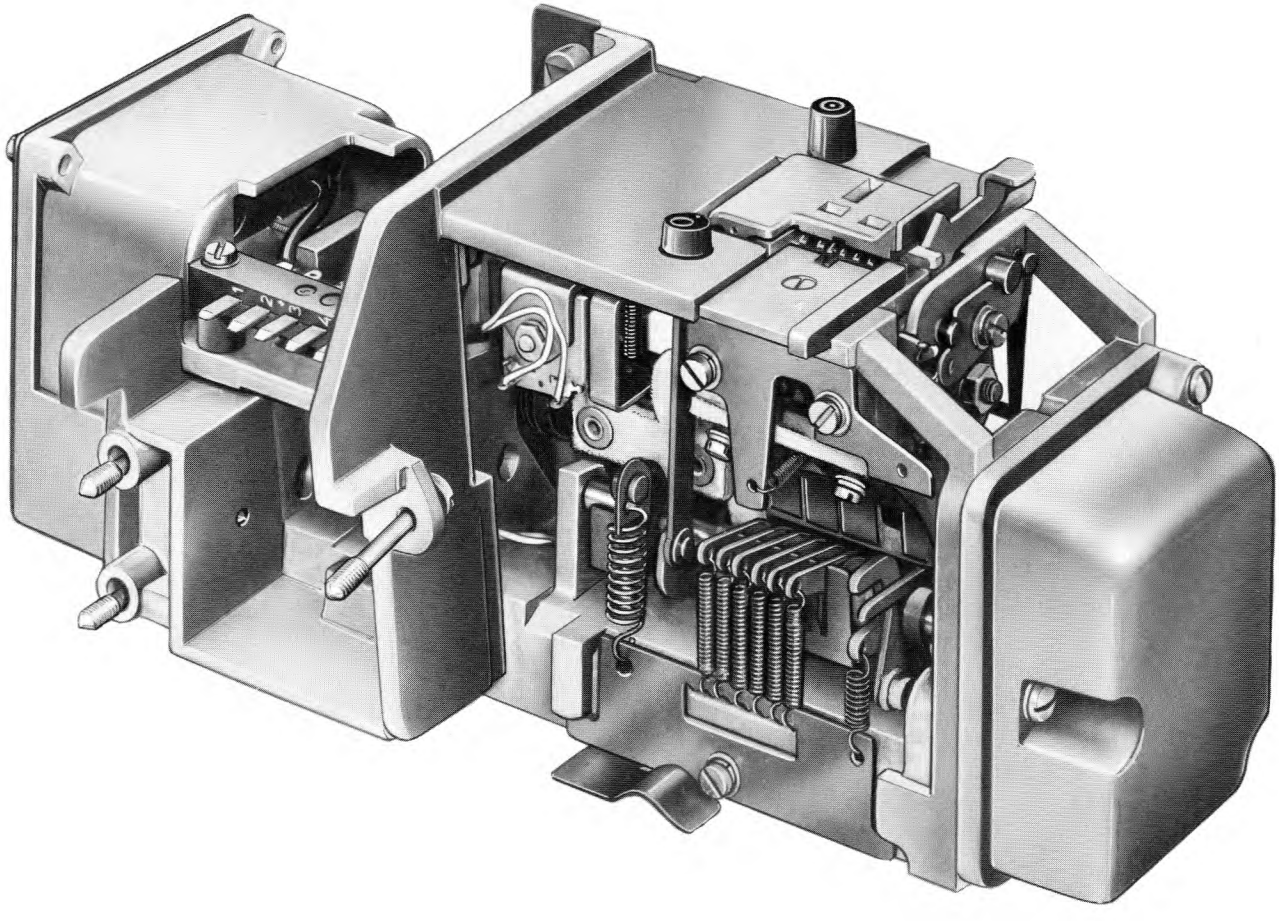
Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	cons. No.[1] of part	figure page
A	0.25	3.1	9.6	C20145-A43-C49	631	773	257
	0.28	2.96	15.1	C20145-A43-C63	636	787	257
B	0.25	2.0	18.2	C20234-A18-C33	801	795 799	257
	0.25	3.3	8.3	C20326-A70-C112	902	793 775	257
	0.28	3.06	8.2	C20234-A18-C206	832	808	255
	0.45	4.0	13.9	C20234-A18-C204	831	773	257
	0.5	3.9	18.1	C20234-A18-C57	816	794	257
	0.5	4.5	19.7	C20136-A4-C752	467	786	257
	0.5	5.5	18.0	C20234-A18-C46	807	794	257
	0.63	5.0	20.0	C20136-A14-C495	537	820	255
	0.7	4.9	24.7	C20136-A18-C64	818	785 781	257
C	0.32	2.94	20.8	C20234-A18-C193	828	837	257

Arrangement of cams on the camshaft

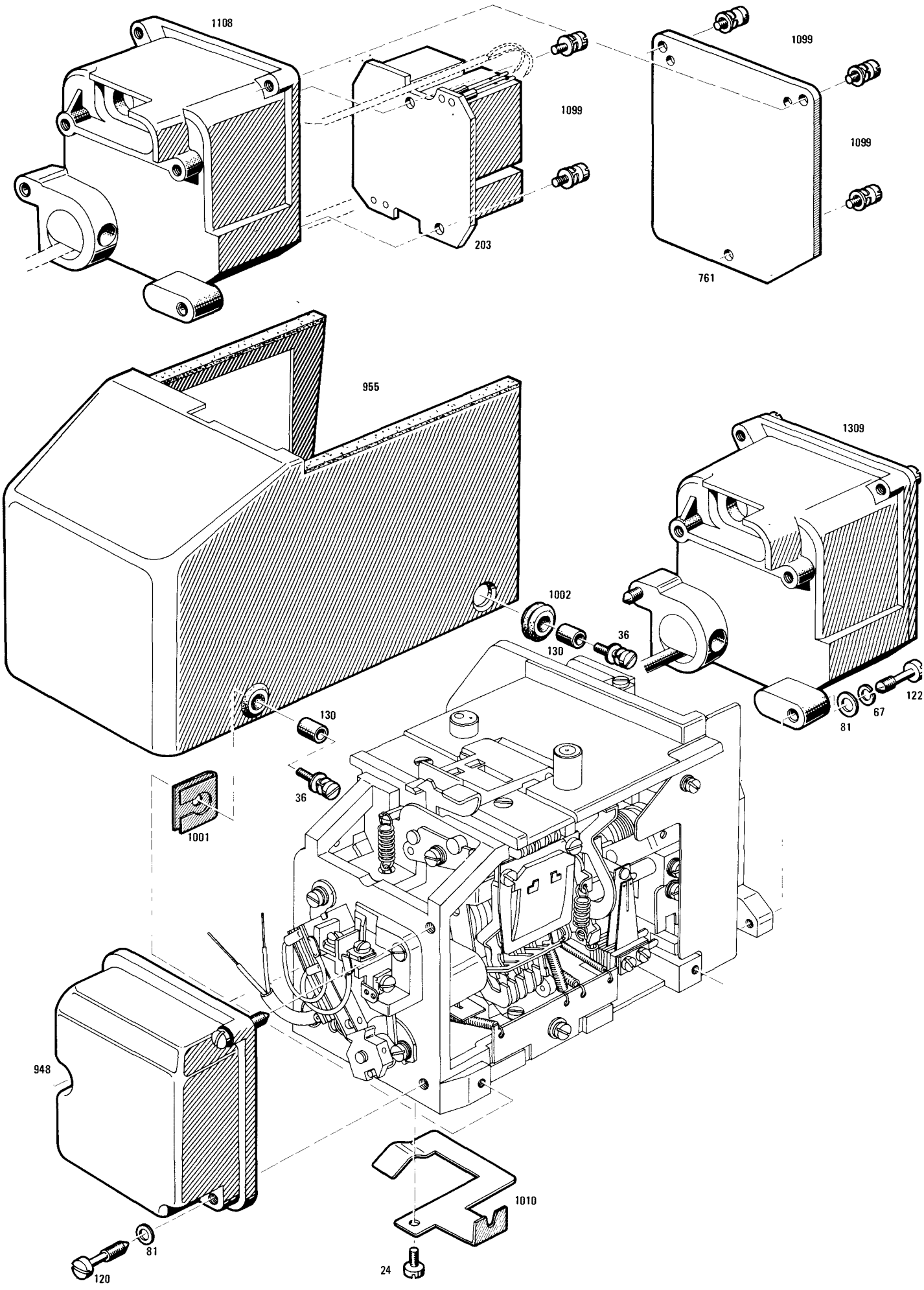


1 Punching lever
2 Punch setting lever
3 Tape puller
4 Feed lever
← Drive side

Contents



Components of assembly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130
36
122
67
81
1001
948
1010
81
120
24

Instructions for removal and replacement

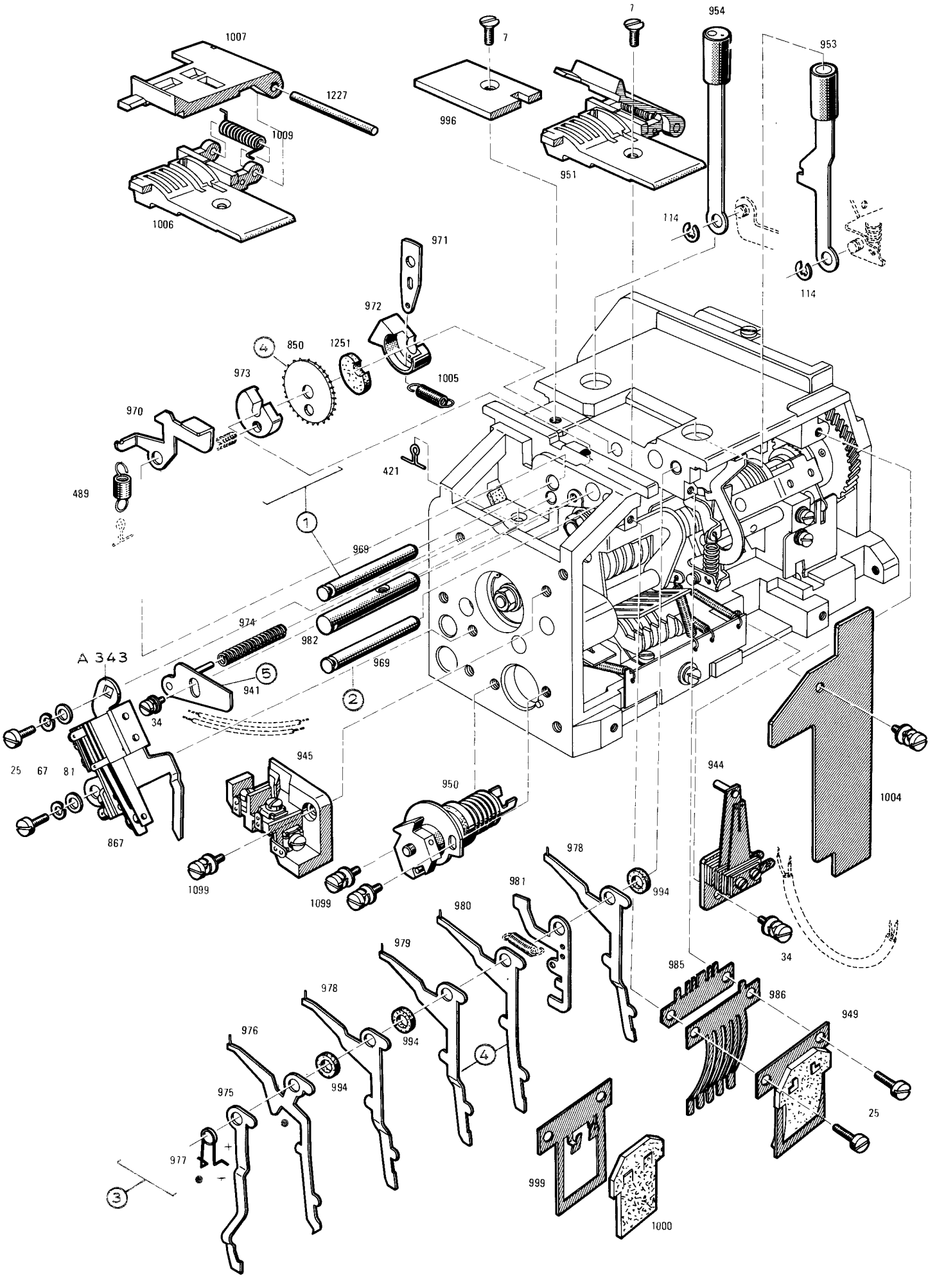
(1) When pushing axle 969 into the mounting frame, spring 974 should be held between brake shoe 973 and retaining plate 941.

(2) Axle 969 with levers should not be installed until step (1) has been carried out.

(3) As marked in red, torsion spring 977 lies against trailing lever 975 and sensing lever 976.

(4) Sprocket wheel 850 between sensing levers 979 and 980.

(5) Retaining plate 941 secures the two axles 969 and bearing pin 982.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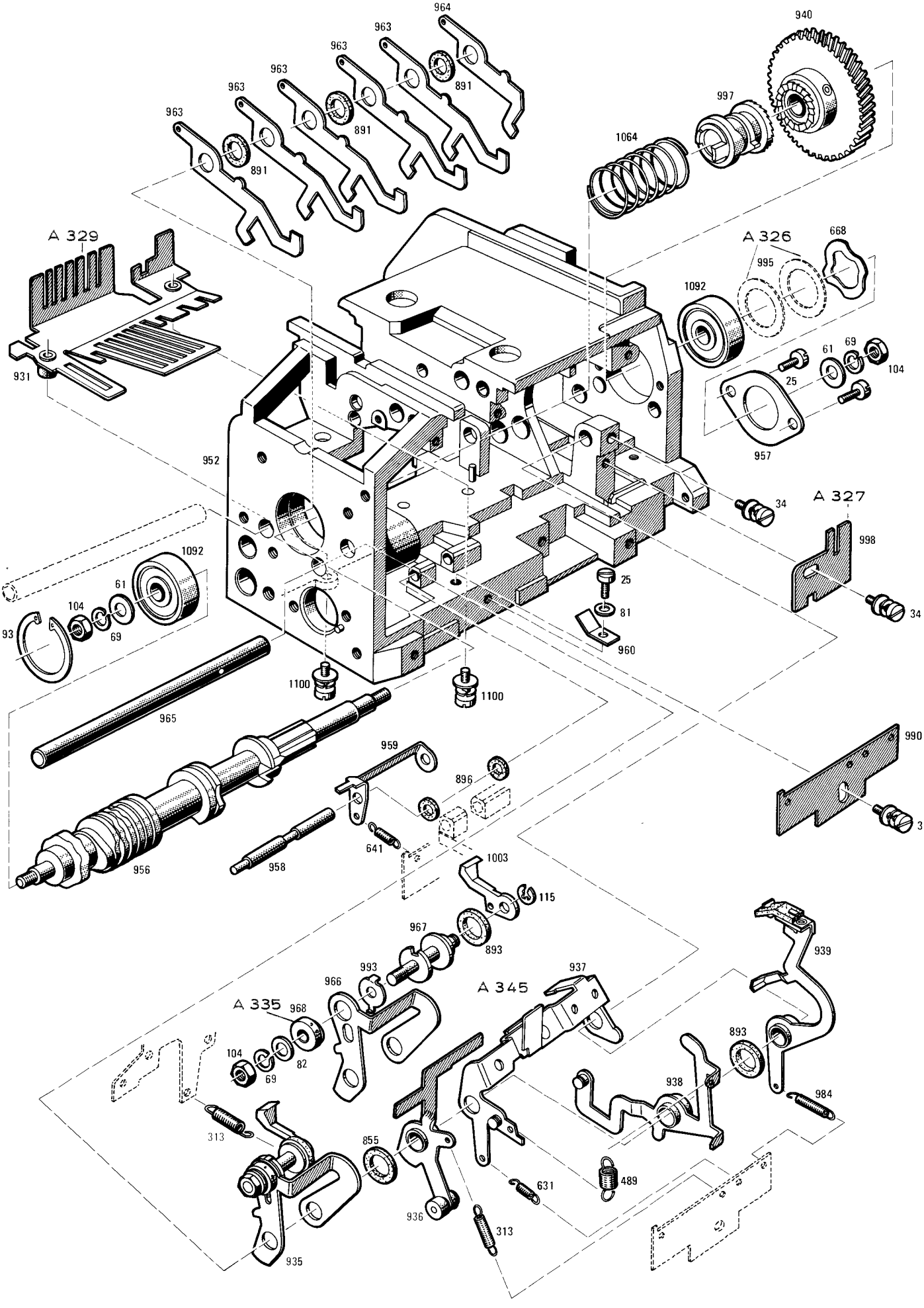
994
981
980
979
985
986
949
976
975
977
999
1000

Instructions for removal and replacement

(1) Individual lobe of lubricating felt 942 lies on guide comb 931 (page 285).


964
963
963
963
963
963
891
891
891
940
997
1064
A 329
931
A 326
668
995
1092
61
69
104
25
957
952
34
A 327
998
34
1092
61
104
69
93
25
81
960
1100
1100
965
959
896
990
641
958
956
1003
115
3
967
893
993
966
937
A 345
939
A 335
968
104
69
82
893
938
984
313
855
631
489
936
313
935

Adjustments and checks

D325 Rest position

Stop lever 937/1 resting against locking cam of clutch member 997.

A326 Camshaft 956/2 with ball bearing bearing against retainer ring 93 and mounting frame 952.

Measure gap a.
Insert disks 995 between ball bearing 1092 and lock washer 668, as in the table:

Gap a (mm)	Number of disks
0.4 to 0.9	0
over 0.9 to 1.4	1
over 1.4 to 1.9	2

A327 Push helical gear 940/3 in direction of clutch member 997 to eliminate end play.

Gap between clutch member 997 and helical gear 940 = 0.2 ± 0.1 mm.

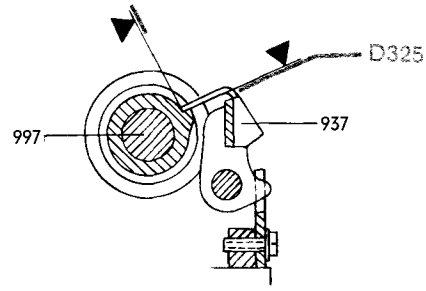
Adjustment: Loosen panhead screw 34. Shift guide plate 998.

D328 Guide comb 931/4 bearing against pins B of mounting frame 952.

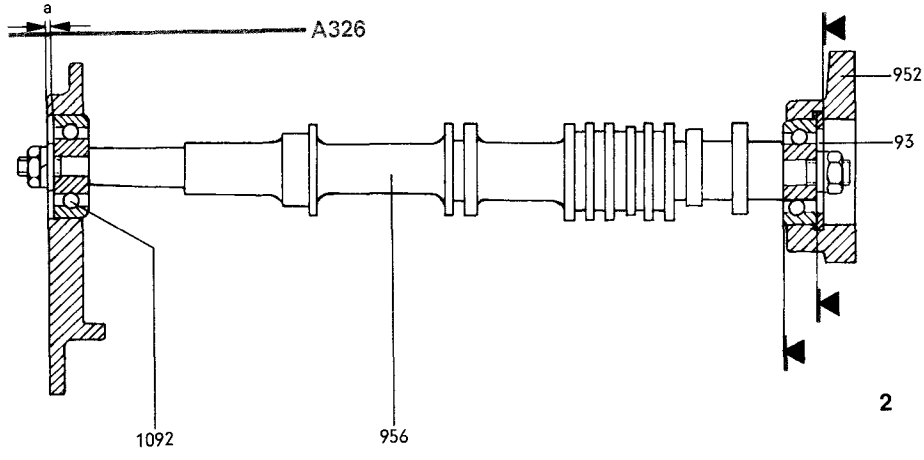
All code levers in guide comb 931 should move freely.

A329 Gap between guide comb 931/5 and spring comb 986 = 0.5 ± 0.2 mm.

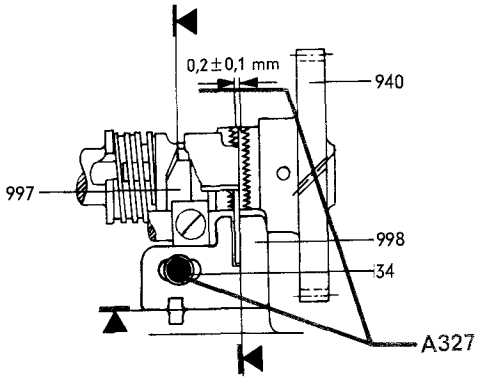
Adjustment: Bend guide comb 931.


D325
997
937

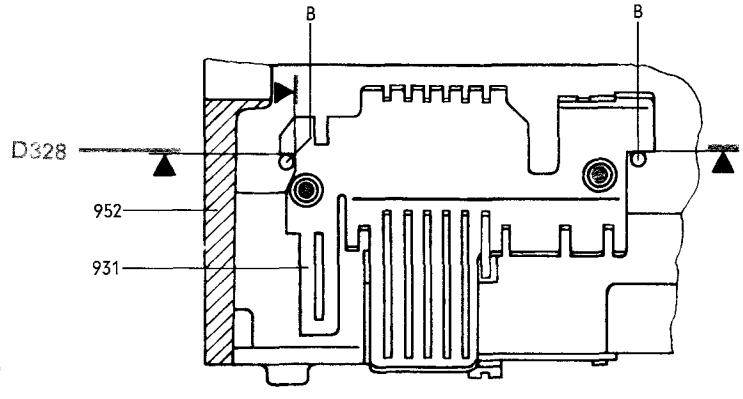
1


a
A326
952
93
1092
956

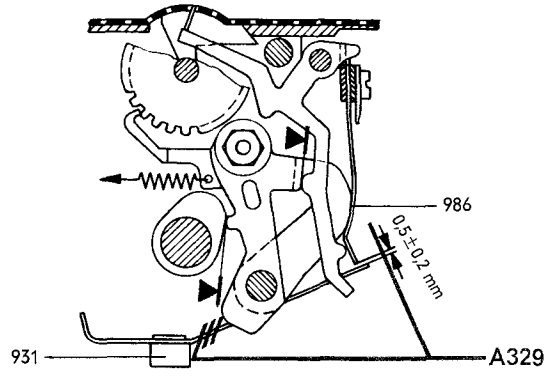
2


0,2±0,1 mm
940
997
998
34
A327

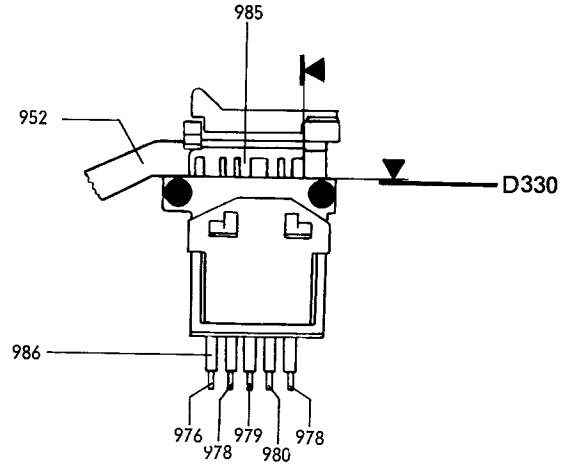
3


B
B
D328
952
931

4


986
0,5±0,2 mm
931
A329

5



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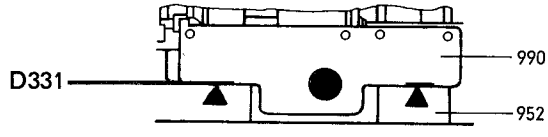

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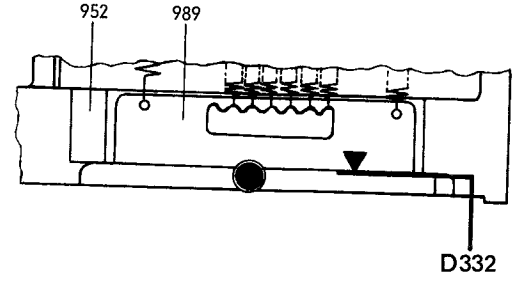

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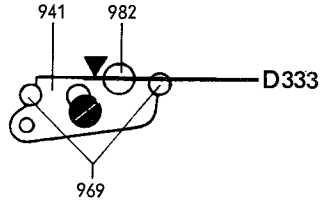

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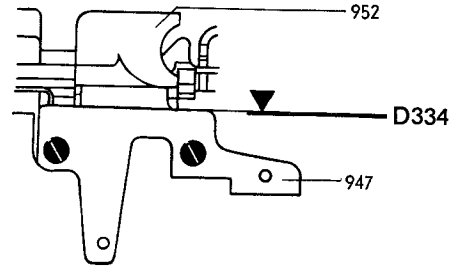

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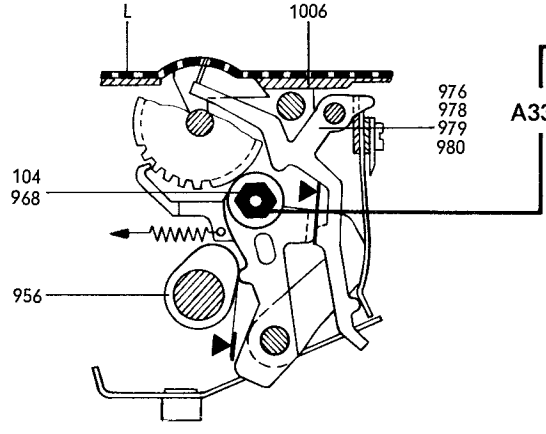
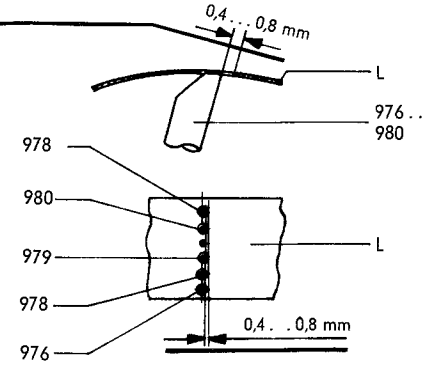


11

A335



12

D330 Guide comb 985/6 and spring comb 986 resting against mounting frame 952. Sensing levers 976 to 980 should lie with full width against spring comb 986.

D331 Spring suspension plate 990/7 resting against mounting frame 952.

D332 Spring suspension plate 989/8 resting against mounting frame 952.

D333 Retaining plate 941/9 in slot of bearing pin 982 and in recesses of axles 969.

D334 Bracket 947/10 resting against mounting frame 952.

A335 Insert paper tape L/11 with letters code combinations into paper guide 1006.
Release tape reader attachment. Turn camshaft 956 once. Release tape reader attachment again.
Turn camshaft until sensing pins of levers 976, 978, 979, 980 are level with punched tape L.

Gap between sensing pins of levers and holes in punched tape L = 0.4 to 0.8 mm (Fig. 12).

Adjustment: Loosen hexagon nut 104.
Turn eccentric bushing 968.

D336 Lateral gap between sensing pins of levers 976, 978, 980/13 and edge of hole ≧ 0.2 mm.

D337 Contact control 950/14 resting against pin B.
Retainer of contact spring set 867 resting against ball bearing C of contact control 950 and against upper panhead screw 25.

A338 Camshaft in rest position D235.
Adjusting gauge L/15 bearing against operating shaft of contact control 950 and pusher E of lever 933.

Adjustment: Loosen panhead screw 24 (lacquer-coated). Move control lever 962 towards lever with pusher 933.

Check: It must be possible to re-insert the adjusting gauge with slide fit.

A339 Gap between operating plate of contact control 950/16 and cylindrical pin F when adjusting gauge inserted according to A338 = 1 to 1.1 mm.

Adjustment: Bend cylindrical pin F.

D340 Turn camshaft once until it has reached the rest position D325.

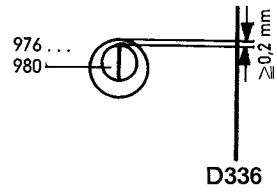
Gap between operating shaft of contact control 950/17 and lever with pusher 933 = 0.2 to 0.5 mm.

D341 Camshaft in rest position D325.
Operating plate G/18 of contact control 950 on right-hand side of cylindrical pin F.

Gap between pusher E of lever 933 and operating shaft of contact control 950 ≧ 0.05 mm.

D342 Camshaft in rest position D325.
Operating plate G/19 of contact control 950 on left-hand side of cylindrical pin F.

Gap between pusher E of lever 933 and operating shaft of contact control 950 ≧ 0.05 mm.



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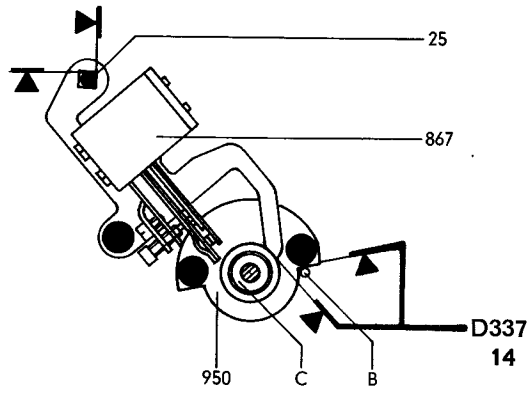

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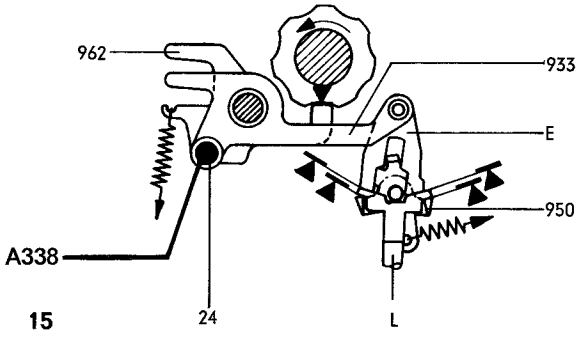

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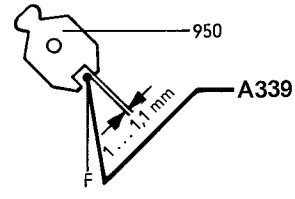

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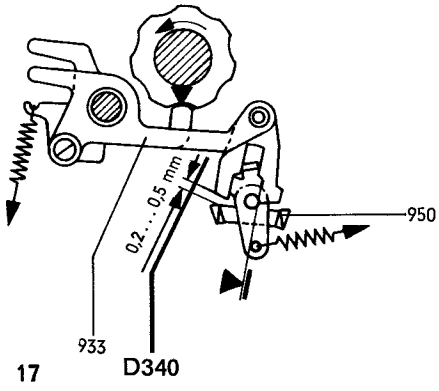

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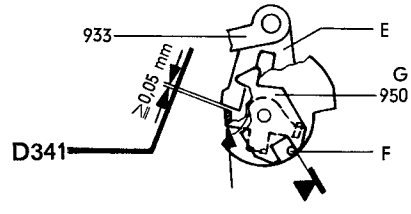

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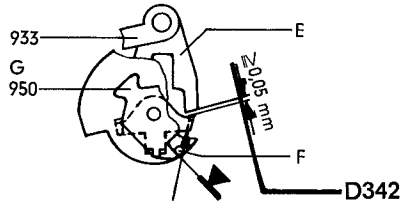

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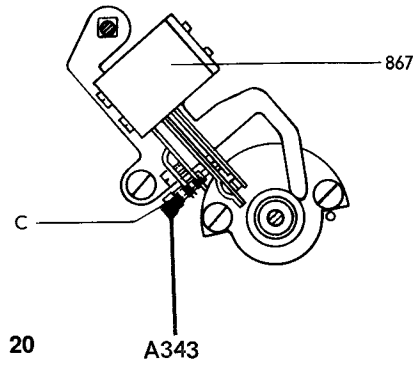

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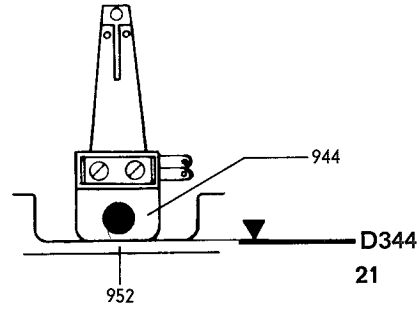

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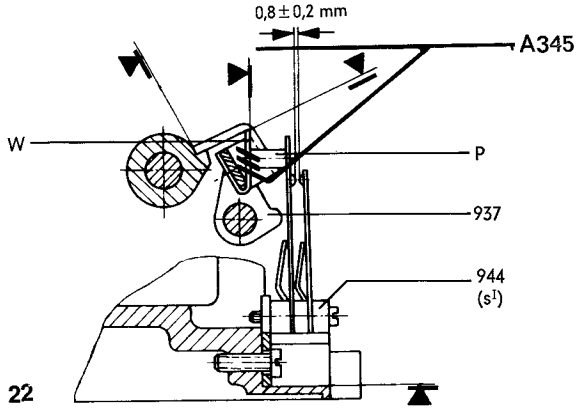

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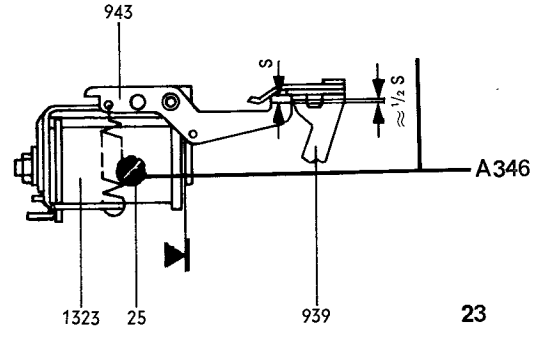

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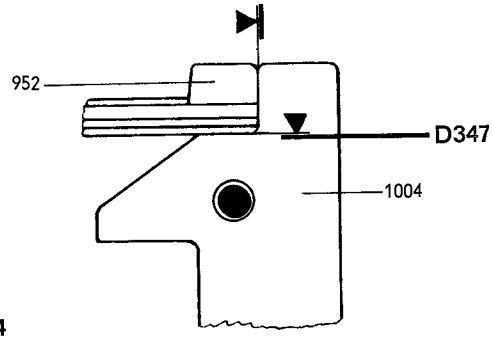

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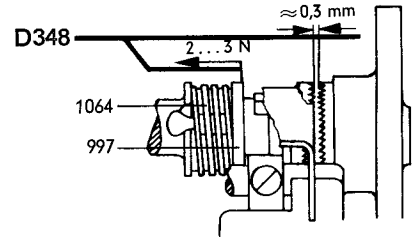

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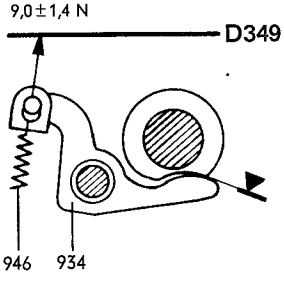

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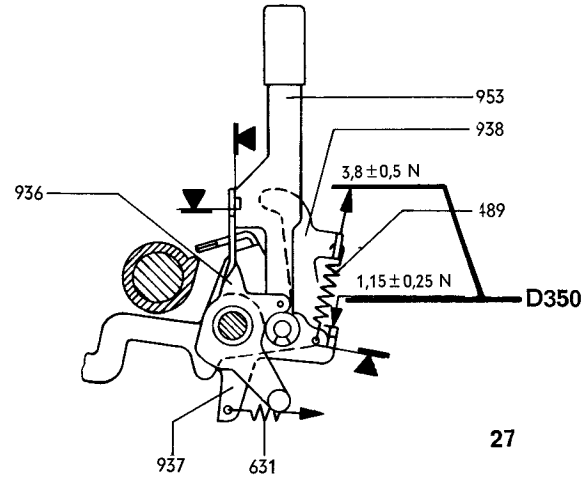


27

A343 Cable removed from contact frame 945 (not shown).

Adjusting gauge L/15 inserted according to A338. Contact just makes.

Adjustment: Turn adjusting screw C/20 on contact spring set 867.

D344 Contact spring set 944/21 on mounting frame 952.

A345 Camshaft in rest position D325.
Lug P/22 of contact spring set 944 (s^I) bearing against stop lever 937.

Contact gap of make contact = 0.8 ± 0.2 mm.

Adjustment: Bend bracket W on stop lever 937.

A346 Armature 943/23 on magnet core.

Sensing lever 939 overlaps armature 943 by approx. half of plate thickness S.

Adjustment: Loosen panhead screw 25, shift magnet system 1323.

D347 Cover 1004/24 bearing against mounting frame 952.

Spring forces

Unless otherwise indicated, spring forces should be measured with the tape reader attachment in rest position D325.

D348 Clutch member 997/25 with compression spring 1064.
ON button 953 in depressed position.

A force of 2 to 3 N (kgs) is exerted on clutch member 997 when the clutch gap is approx. 0.3 mm.

D349 Zero-setting lever 934/26 with tension spring 946

Force of 9.0 ± 1.4 N required to raise zero-setting lever 934.

D350 Trailing lever 938/27 with tension spring 489 and stop lever 937 with tension spring 631
ON button 953 latched with locking lever 936.

Force of 1.15 ± 0.25 N exerted on s^I contact.
Tension spring 489 has a pull of 3.8 ± 0.5 N.

D351 Locking lever 936/28 with tension spring 313

Force of $0.2\ ^{+0.15}_{-0.09}$ N required to raise locking lever 936.

D352 Feed lever 935/29 with tension spring 313
Insert punched tape L with code combinations no. 32. Feed lever 935 riding on the flat portion of the cam. Visible distance x between feed lever 935 and sensing levers 976, 978, 979, 980.

Force of 0.5 ± 0.18 N required to raise feed lever 935.

D353 Code levers 963, 964/30 with tensions springs 991

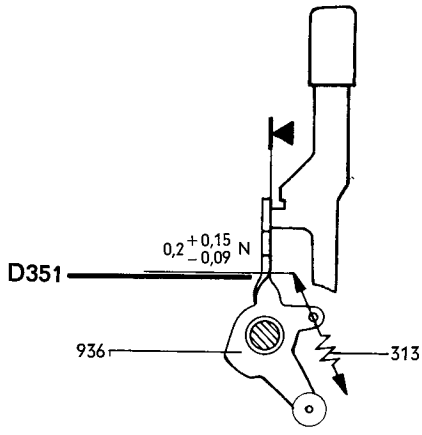
Force of 3.5 ± 0.7 N required to raise code levers 963, 964.

D354 Sensing levers 976, 978, 979, 980/31 with spring comb 986
Tape reader attachment released. Sensing pins of sensing levers level with tape guide.

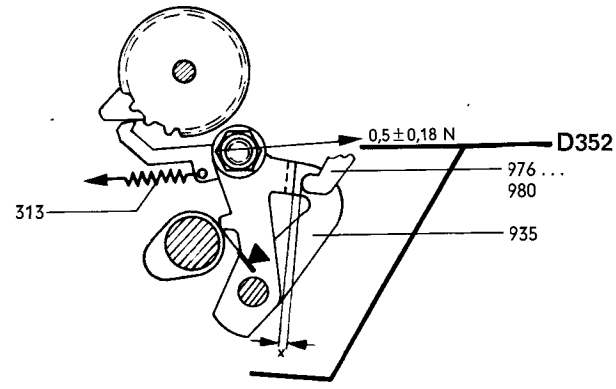
Force of 0.37 ± 0.1 N required to raise sensing levers.

D355 Trailing lever 975/32 with torsion spring 977

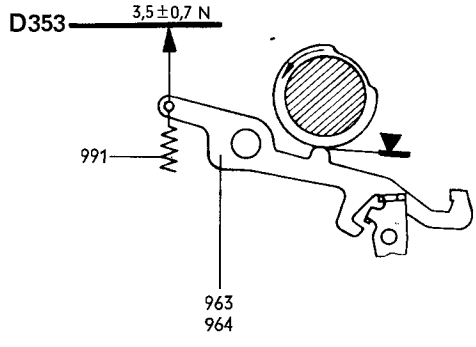
Force of 0.06 ± 0.02 N required to raise trailing lever 975.


0,2 +0,15 −0,09 N
D351
936
313

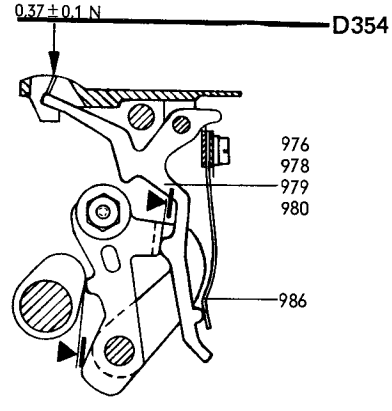
28


0,5 ± 0,18 N
D352
976 . . .
980
313
935

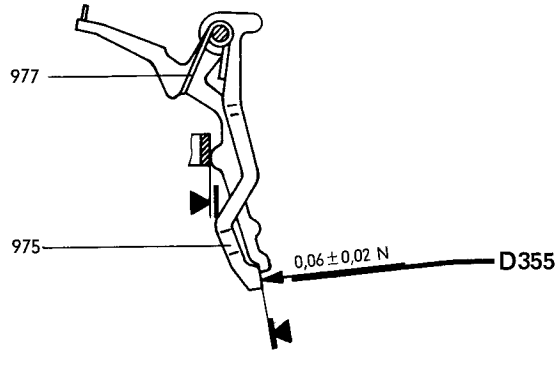
29


D353
3,5 ± 0,7 N
991
963
964

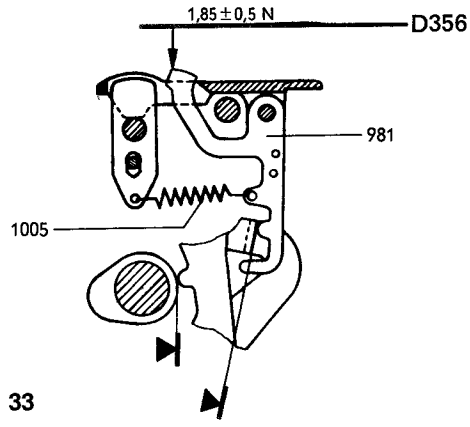
30


0,37 ± 0,1 N
D354
976
978
979
980
986

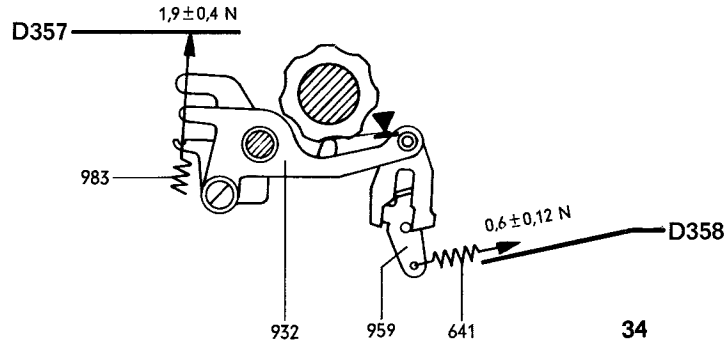
31


977
975
0,06 ± 0,02 N
D355

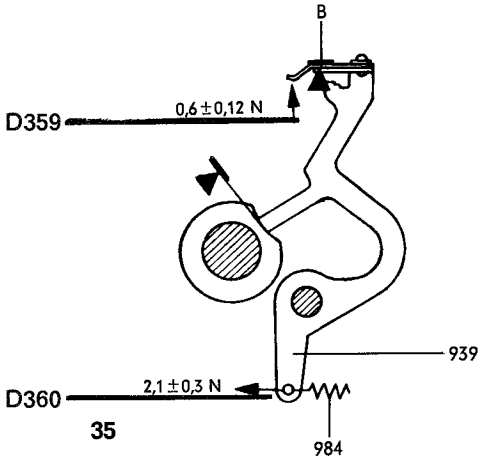
32


1,85±0,5 N
D356
981
1005

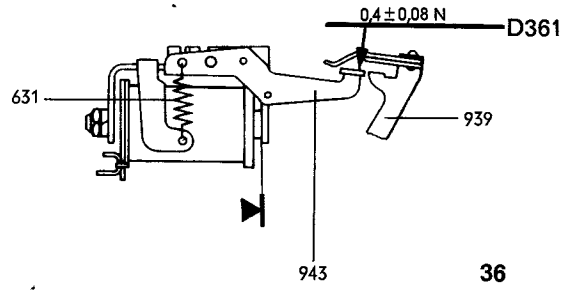
33


D357
1,9±0,4 N
983
0,6±0,12 N
D358
932
959
641

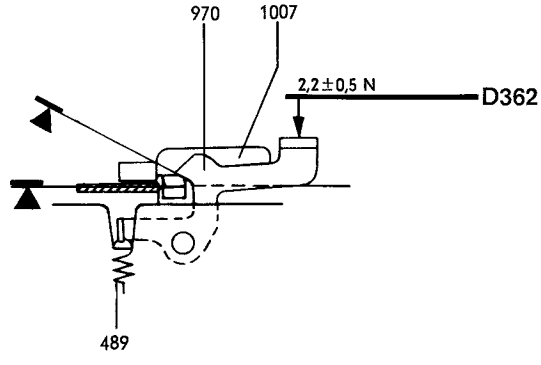
34


B
D359
0,6±0,12 N
939
D360
2,1±0,3 N
984

35


0,4±0,08 N
D361
631
939
943

36


970
1007
2,2±0,5 N
D362
489

37

D356 End-of-tape lever 981/33 with tension spring 1005
Tape reader attachment released. End-of-tape lever 981 in uppermost position.

Force of 1.85 ± 0.5 N required to raise end-of-tape lever 981.

D357 Contact control lever 932/34 with tension spring 983

Force 1.9 ± 0.4 N required to raise contact control lever 932.

D358 Lever 959/34 with tension spring 641

Tension spring has pull of 0.6 ± 0.12 N.

D359 Sensing lever 939/35

Force of 0.6 ± 0.12 N required to raise leaf spring B.

D360 Sensing lever 939/35 with tension spring 984

Force of 2.1 ± 0.3 N required to raise sensing lever 939.

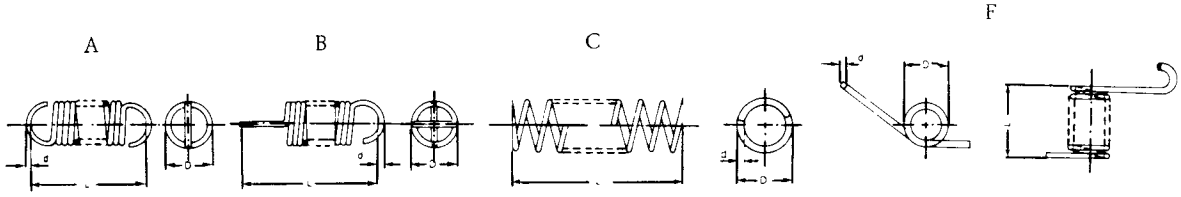
D361 Armature 943/36 with tension spring 631
Push sensing lever 939 to right.

Force of 0.4 ± 0.08 N required to raise armature 943.

D362 Lid latching lever 970/37 with tension spring 489
Tape retainer lid 1007 pressed onto tape guide.

Force of 2.2 ± 0.5 N required to raise lid latching lever 970.

Table of springs



Type of spring
A tension spring
B tension spring
C pressure spring
F torsion spring

d wire diameter
D spring diameter
L length in normal condition

1) consecutive number of part in which the spring engages

Type of spring	d mm	D mm	L mm	Ordering number	cons. No. of spring	1) cons. No. of part	figure page
A	0.28	3.2	17.8	C20136-A4-C45	313	936	285
						935	285
B	0.2	2.4	8.3	C20145-A43-C105	641	959	285
	0.25	3.1	9.6	C20145-A43-C49	631	937	285
						943	283
	0.28	2.46	10.6	C20326-A86-C60	984	939	285
	0.32	3.9	9.3	C20326-A86-C59	983	932	283
	0.36	3.0	12.5	C20326-A86-C93	991	963, 964	283
	0.36	3.2	10.6	C20326-A86-C280	1005	971	281
	0.5	5.0	11.0	C20136-A4-C821	489	970	281
						937	285
C	0.45	3.7	24.1	C20326-A86-C45	974	941	281
F	0.36	5.32	-	C20326-A86-C49	977	975, 976	281
	0.7	4.4	14.5	C20326-A86-C318	1009	1006	281

Schaltungen

Circuits

Circuits

Circuitos

Circuitos

Contents

Contents

Circuits for the power circuit as per

Overall Circuit Diagram A22211-A100-A50-*-12
A22211-A100-A51-*-12
A22211-A100-A52-*-12

1. Information relating to the circuit and wiring diagrams

The positions of the contacts as shown in the circuit and wiring diagrams correspond to the following operating condition:

Teleprinter 100:	teleprinter paper inserted
Tape punch attachment:	paper tape inserted
Tape transmitter attachment 86:	paper tape not inserted

Power-line and telegraph plugs are inserted.
Motor is not turned on.

The revision level of the circuit and wiring diagrams is indicated by the edition number appearing as the fourth block of the product code. On the facing page the edition number is replaced by an asterisk *.

1.1. Abbreviations

All abbreviations used in the circuit and wiring diagrams are contained in the following list:

C capacitor

dk lid contact

ET motor starting key

FE RF suppressor
fk remote control switch contact

LK lamp contact

M see motor
m governor contact
mf centrifugal contact governor for switching off auxiliary winding
mk line circuit-breaker

N power line socket

pk paper supervision contact

R resistor

s control contact in tape transmitter attachment 86

T transistor
Th button thermostat

M motor

commutator motor:
- B governor connecting cable
- EA terminal for connection to power line
- FA governor connecting cable
- FB terminal for connection to power line

Synchronous motor:
- C terminal for connection of centrifugal contact governor
- U-V main winding
- U 1 terminal for connecting the button thermostat
- W-Z auxiliary winding

Speed regulated asynchronous motor:
- C terminal for connection of centrifugal contact governor
- U 1 terminal for connection to line circuit-breaker
- U-V main winding
- W-Z auxiliary winding
- u-x
- v-y armature windings
- w-z

1.2. Plug connector designations

IV, V — Connecting leads from teleprinter to built-in remote control unit

1.3. Circuit symbols

blade contact


clip contact

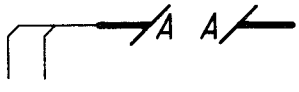

chassis connection


protective ground terminal


contact, normal

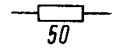
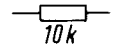
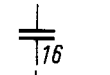
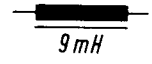

contact, cam-controlled


contact, manually actuated



cable cut-off point

1.4. Units

Resistance		50 ohms
		10 kilohms
Capacitance		16 microfarads
		2500 picofarads
Inductance		9 millihenries

1.5. Basic colors of the insulated circuit wires

ws	white	rs	pink
br	brown	bl	blue
gn	green	rt	red
ge	yellow	sw	black
gr	grey	vi	violet

Power circuit with built-in remote control unit or electrical module

Overall circuit diagram A22211-A100-A50-*-12

No.	Item
(1)	Commutator motor
or (2)	Synchronous motor
or (3)	Speed-regulated asynchronous motor
(4)	Built-in remote control unit or electrical module
(5)	Power connecting cable

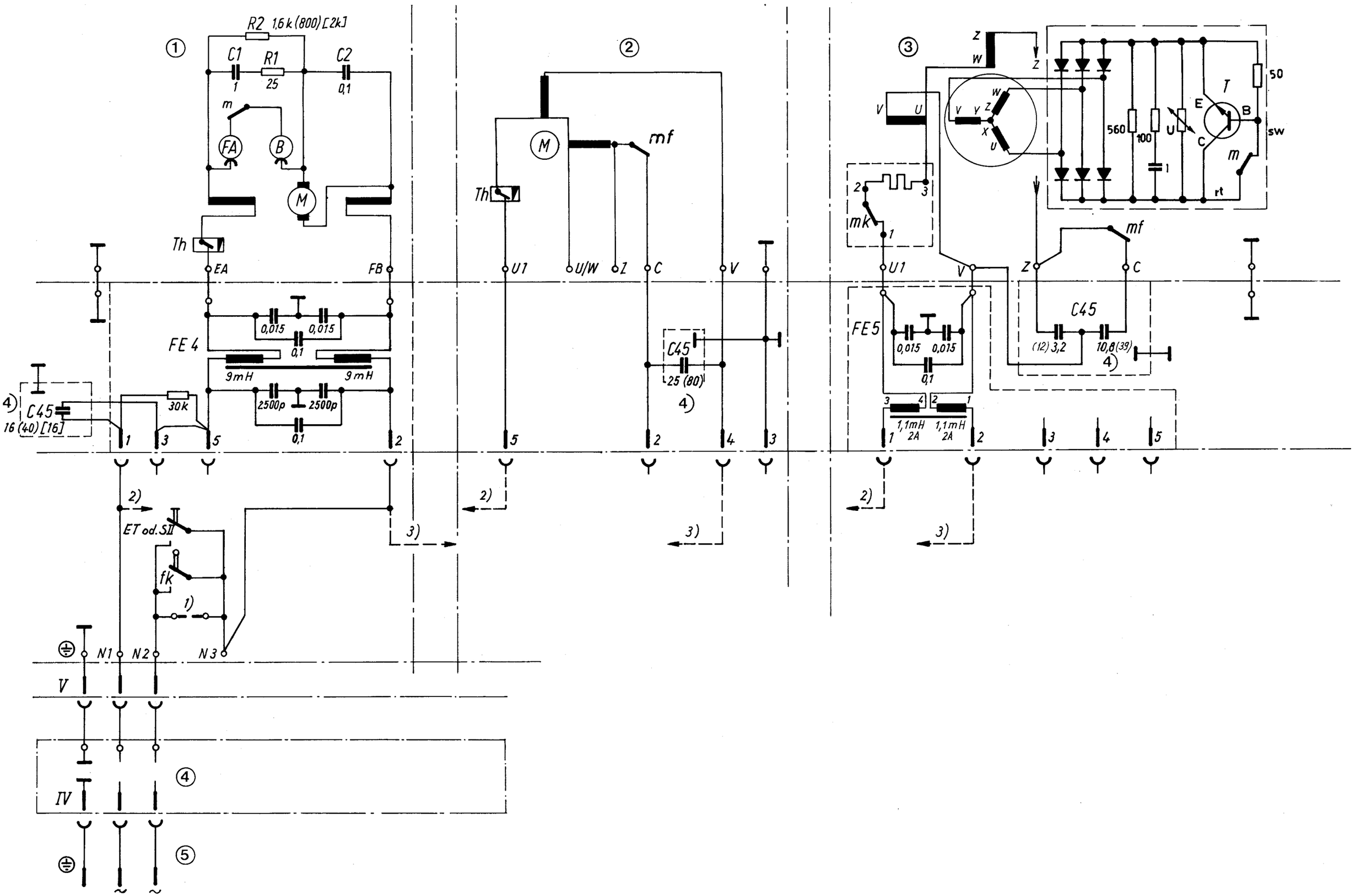
1) Strap, if fk or ET or S^{II} not installed

2) 3) Connection for synchronous and asynchronous motors

4) electrical ratings — ac power voltage

without brackets :		220 V ac~
( )	:	100 to 135 V ac~
[]	:	240 V ac~

See page 29 for ordering numbers of electrical components.



A22211-A100-A50-4-12

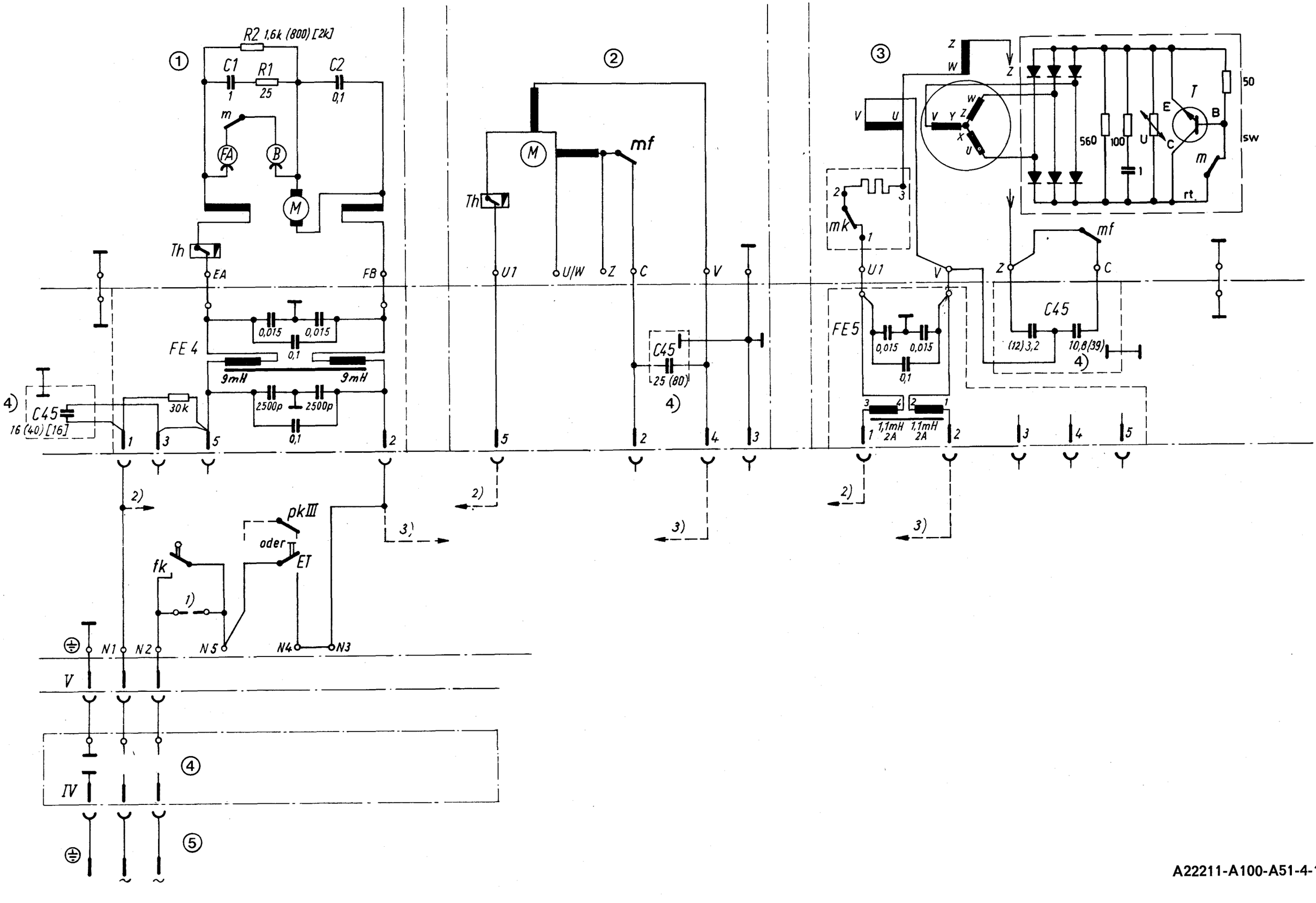
Power circuit with end-of-tape contact for motor switch-off and built-in remote control unit or electrical module

Overall circuit diagram A22211-A100-A51-*-12

No.	Item
(1)	Commutator motor
or (2)	Synchronous motor
or (3)	Speed-regulated asynchronous motor
(4)	Built-in remote control unit or electrical module
(5)	Power connecting cable

1)	Strap, if no fk installed	
2) 3)	Connection for synchronous and asynchronous motor	
4)	electrical ratings	ac power voltage
	without brackets:	220 V ac~
	( ) :	100 to 135 V ac~
	[ ] :	240 V ac~

See page 29 for ordering numbers of electrical components.



A22211-A100-A51-4-12

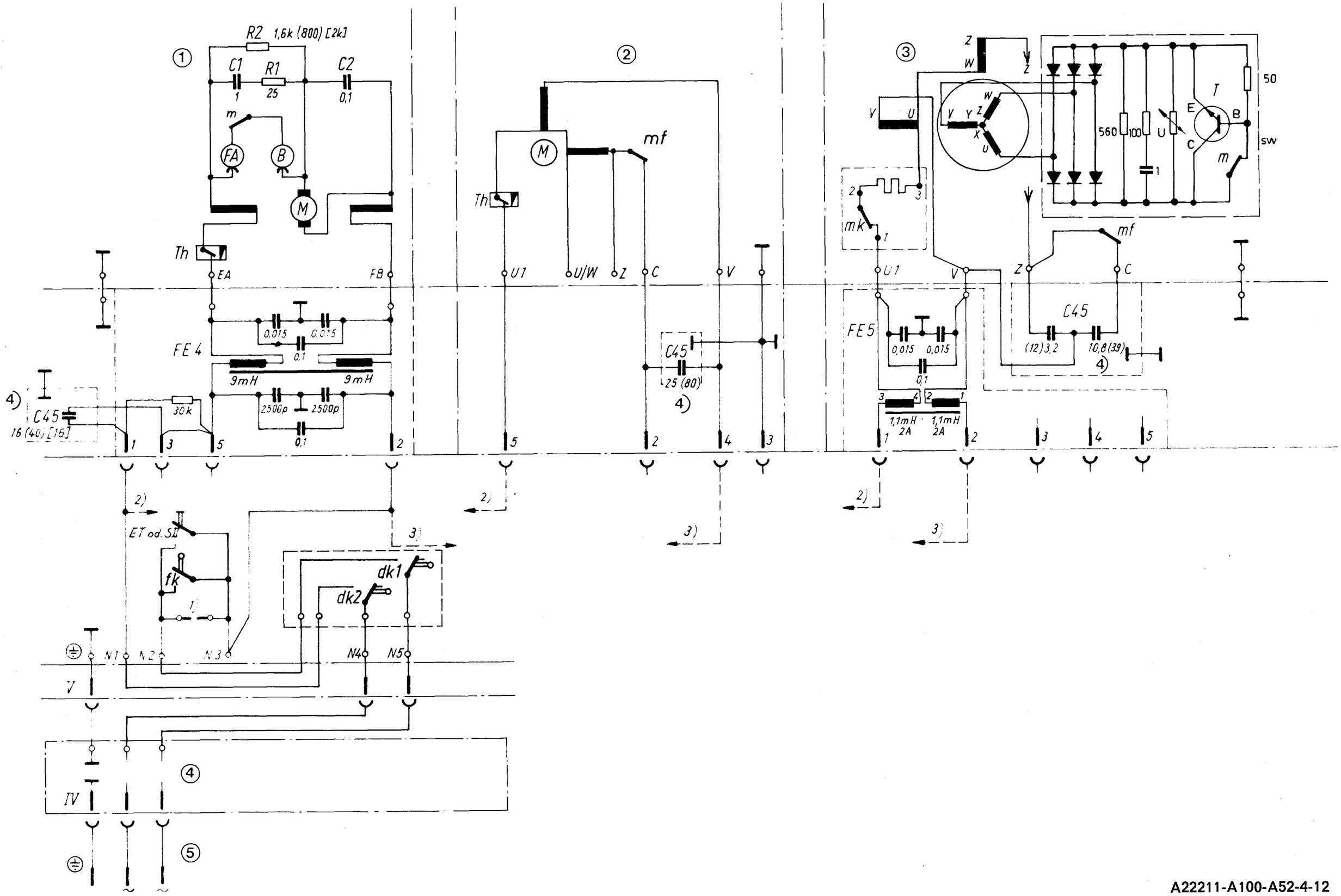
Power circuit with lid contact and built-in remote control unit or electrical module

Overall circuit diagram A22211-A100-A52-*-12

No.	Item
(1)	Commutator motor
or (2)	Synchronous motor
or (3)	Speed-regulated asynchronous motor
(4)	Built-in remote control unit or electrical module
(5)	Power connecting cable

1)	Strap, if fk or ET or S^{II} not installed	
2) 3)	Connection for synchronous or asynchronous motors	
4)	electrical ratings	ac power voltage
	without brackets :	220 V ac~
	( ) :	100 to 135 V ac~
	[] :	240 V ac~

See page 29 for ordering numbers of electrical components.

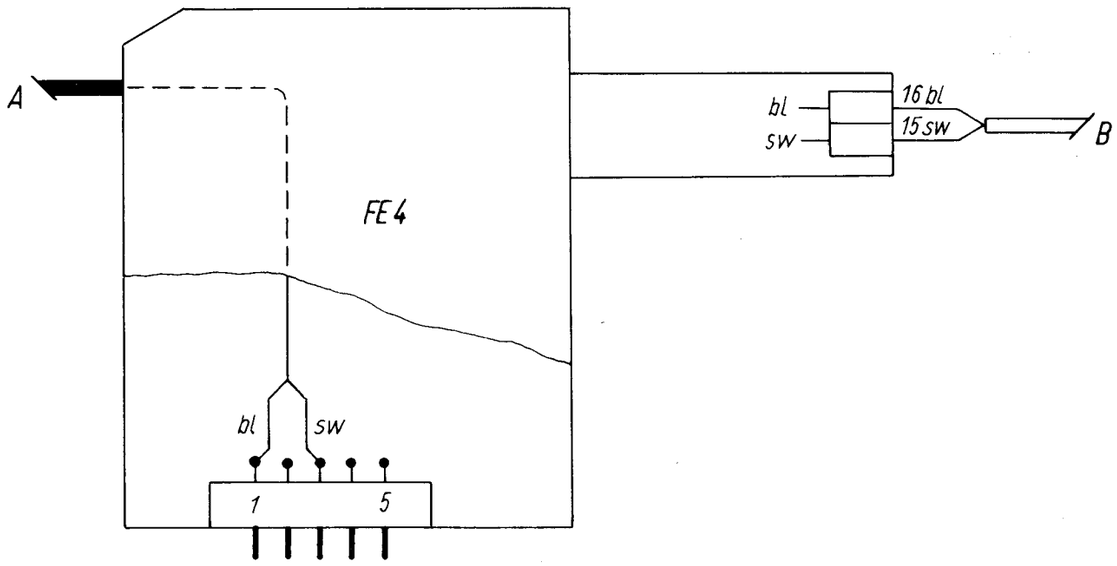


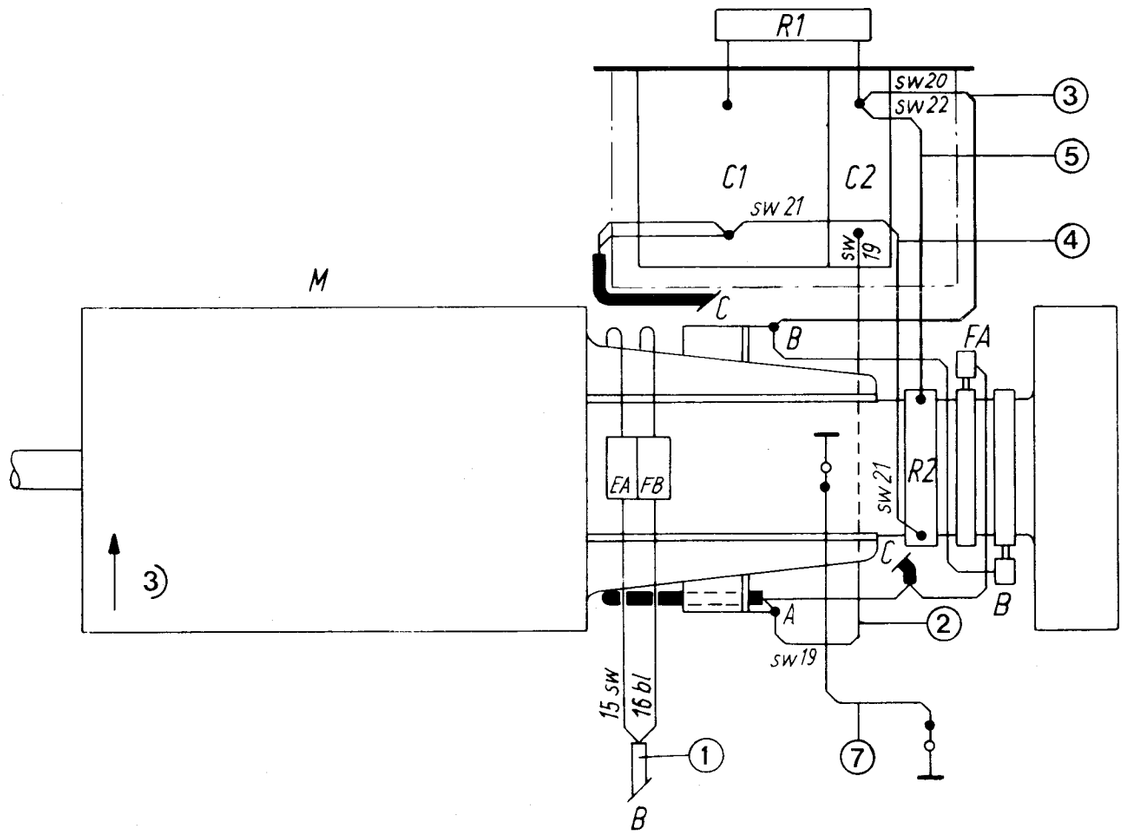
A22211-A100-A52-4-12

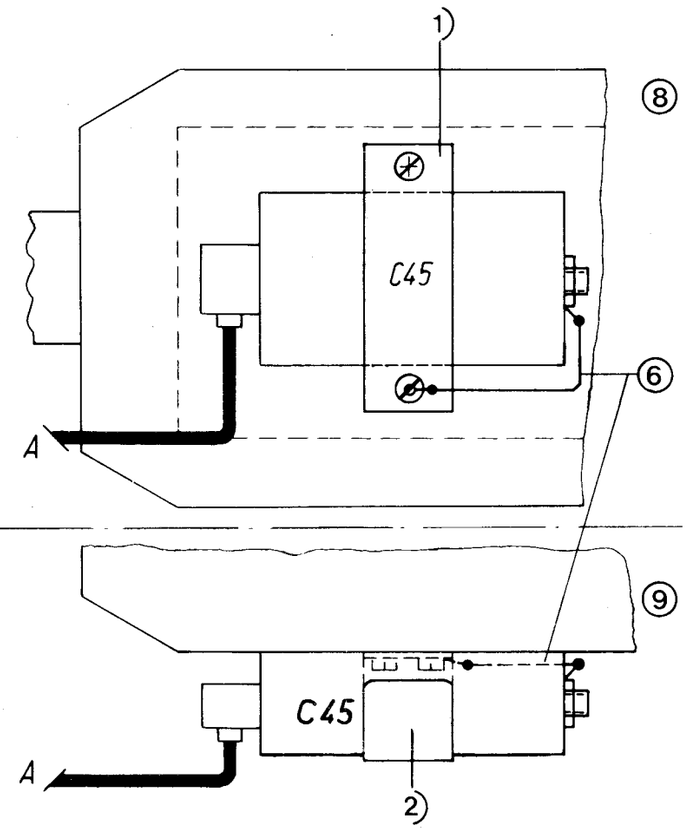
Commutator motor

Wiring diagram T22211-D100-C301-*-02

No.	Item	Ordering No.
(1)	cable	T22211-D100-C301
(2)	strap	T22211-D100-C302
(3)	strap	T22211-D100-C303
(4)	strap	T22211-D100-C304
(5)	strap	T22211-D100-C305
(6)	wire	C22247-A2-B18
(7)	wire	C20247-A41-B10
(8)	layout for desk-model cover 175	
(9)	layout for desk-model covers 76 and 130	
1)	Clamp	C20247-A49-C11
2)	Clamp	C22247-A2-C4
3)	Direction in which motor rotates.	







T22211-D100-C301-2-02

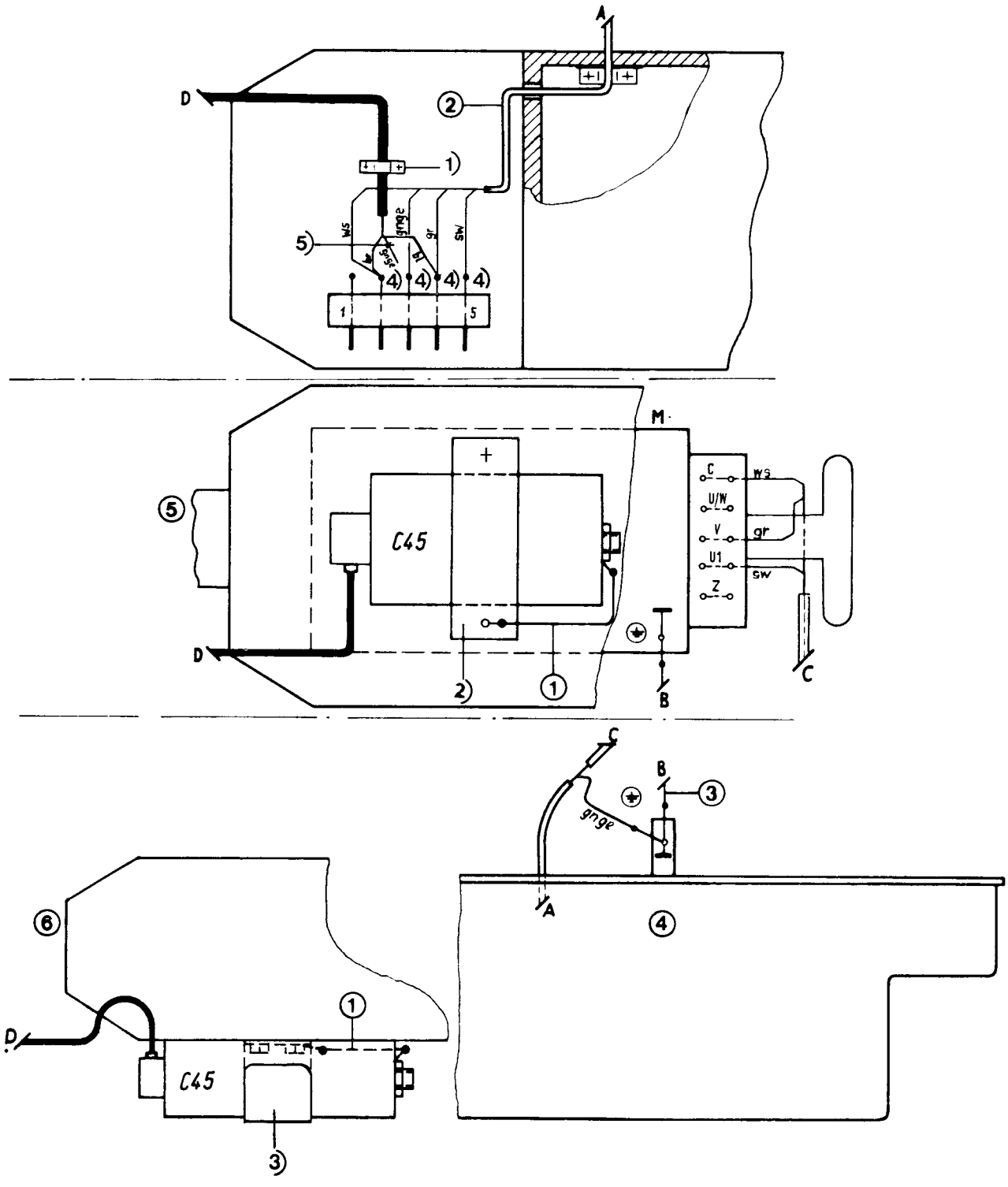
Synchronous motor

Wiring diagram T22211-D100-E301-*-02

No.	Item	Ordering No.
(1)	wire	C22247-A2-B18
(2)	cable	T22211-D100-E301
(3)	wire	C20247-A41-B10
(4)	lower motor casing	
(5)	layout for desk-model cover 175	
(6)	layout for desk-model covers 76 and 130	
1)	cable clamp	H78550-B60
2)	clamp	C20247-A49-C11
3)	clamp	C22247-A2-C4

4) solder terminals covered with insulating tubing ge, 3 x 0.5 mm, 12 mm long

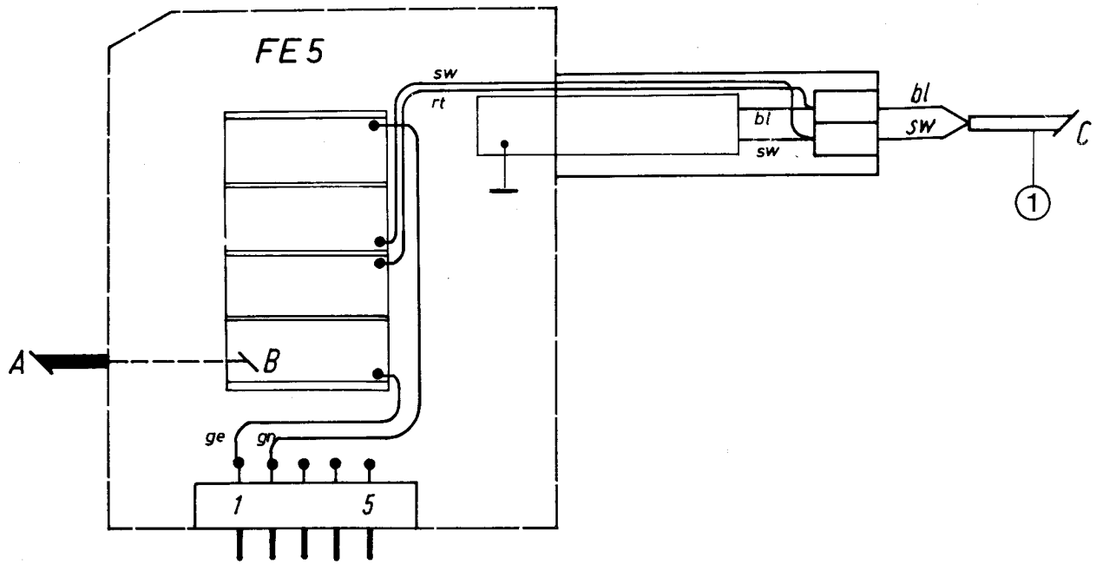
5) Insulate wire gnge from C45 and lace it.

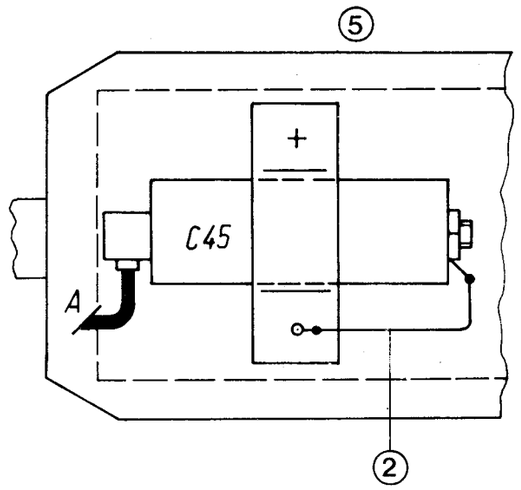

A
D
2
1
5
WS
gr
sw
4
4
4
4
1
5
M
C45
+
C
U/W
V
U1
Z
ws
gr
sw
5
D
2
1
B
C
B
3
gnge
A
4
6
1
D
C45
3

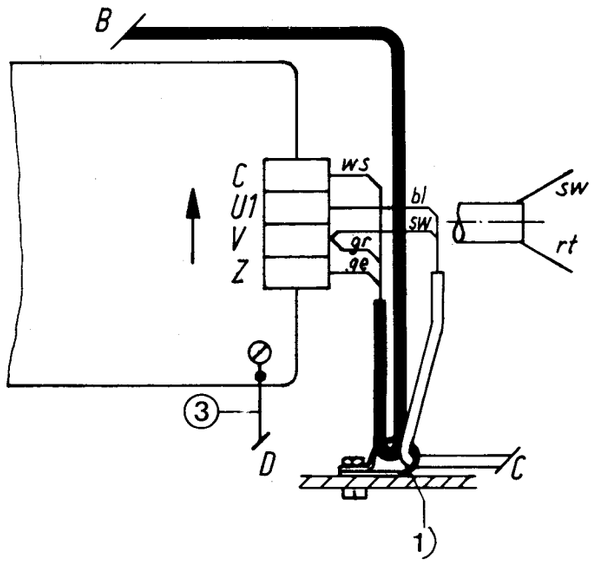
Speed regulated asynchronous motor

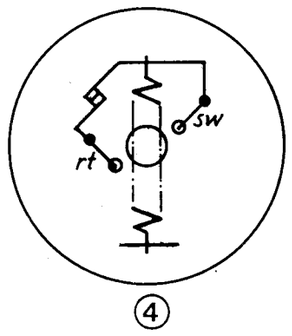
Wiring diagram T22211-D100-E321-*-02

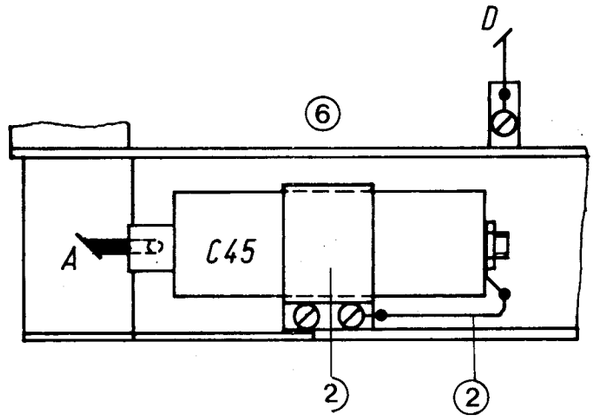
No.	Item	Ordering No.
(1)	cable	T22211-D100-C301
(2)	wire	T22211-D100-C306
(3)	wire	C20247-A41-B10
(4)	governor	
(5)	layout for desk-model cover 175	
(6)	layout for desk-model covers 76 and 130	
1)	cable clamp	C22195-Z21-C64
2)	clamp	C22247-A2-C4


FE 5
sw
rt
bl
sw
bl
sw
C
1
A
B
ge
gn
1
5


5
+
C45
A
2


B
C
U1
V
Z
ws
bl
sw
gr
ge
sw
rt
3
D
C
1)


sw
rt
4

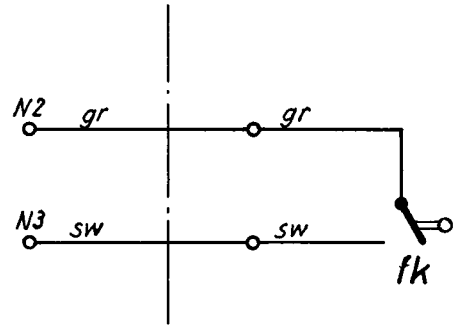

D
6
A
C45
2
2

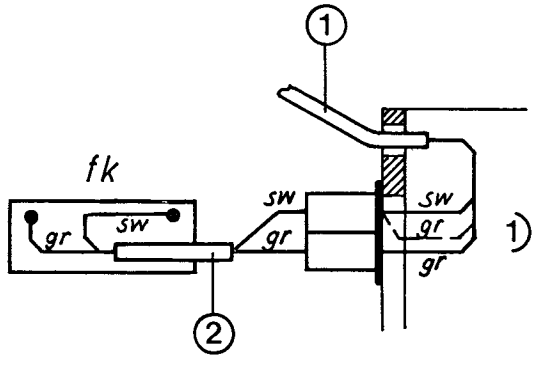
Remote control switch

Wiring diagram T22211-N100-L1-*-02

No.	Item	Ordering No.
(1)	cable	T22211-E100-F102
(2)	cable	T22211-N100-L101

1) To short out the remote control switch, connect wire gr to wire sw.

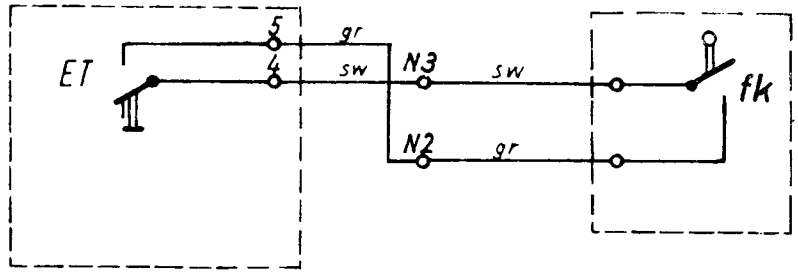

N2
gr
gr
N3
sw
sw
fk

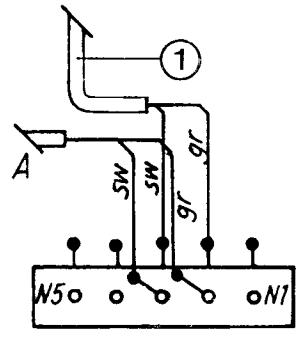

1
fk
gr
sw
sw
gr
sw
gr
gr
1)
2

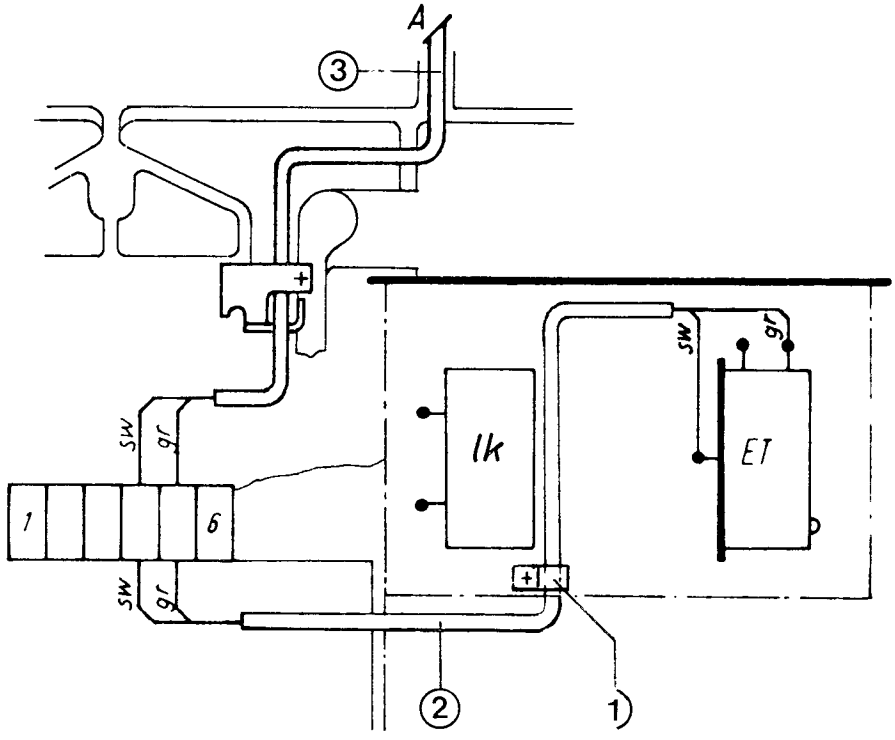
Motor starting key ET in parallel with remote control switch

Wiring diagram T22211-N100-L32-*-02

No.	Item	Ordering No.
(1)	cable	T22211-E100-F102
(2)	cable	T22211-N100-L106
(3)	cable	T22211-N100-L108
1)	cable clamp	C22195-Z21-C61


ET
5
4
gr
sw
N3
sw
N2
gr
fk

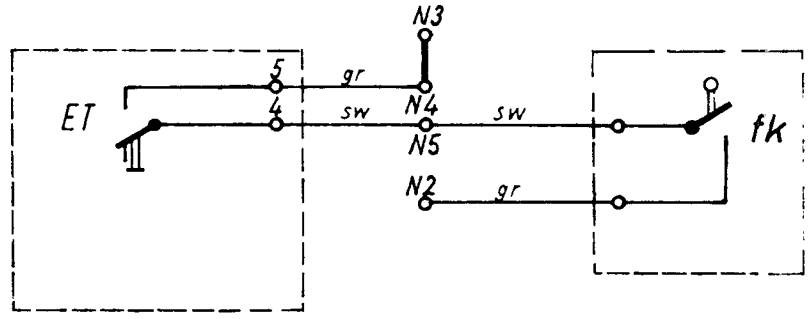

1
A
sw
sw
gr
gr
N5
N1

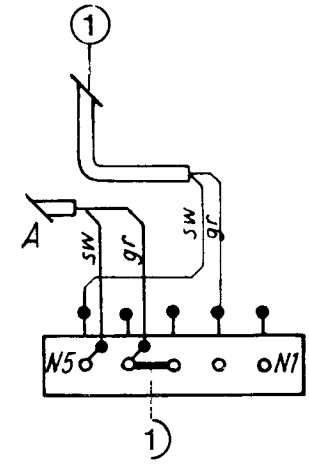

A
3
sw
gr
1
6
sw
gr
lk
sw
gr
ET
2
1

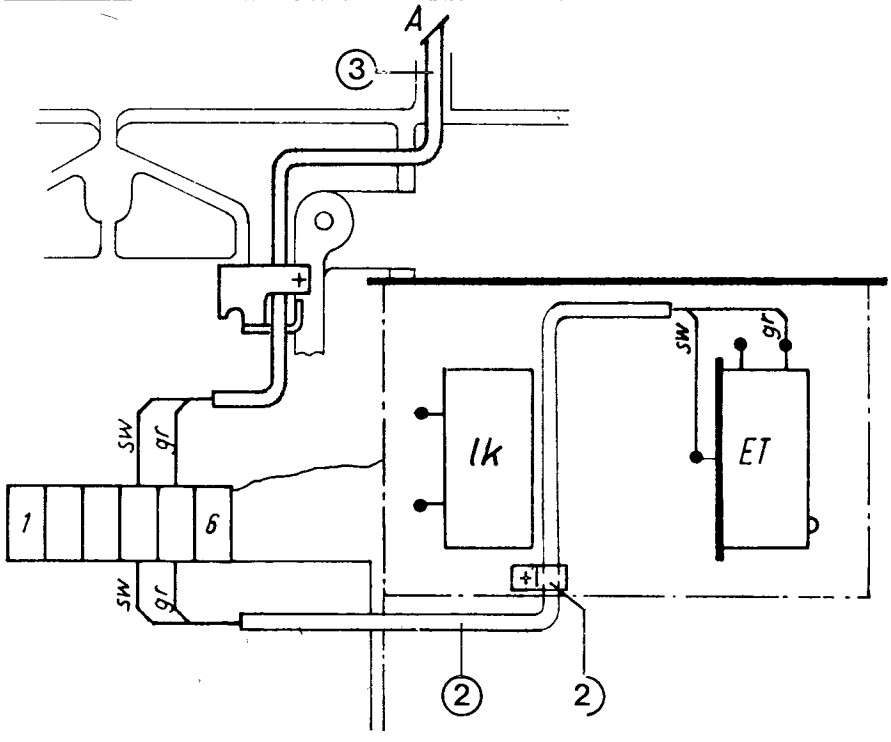
Motor starting key ET, in series with remote control switch

Wiring diagram T22211-N100-L31-*-02

No.	Item	Ordering No.
(1)	cable	T22211-E100-F102
(2)	cable	T22211-N100-L106
(3)	cable	T22211-N100-L108
1)	shorting link	C30104-A92-C2
2)	cable clamp	C22195-Z21-C61


N3
5
gr
ET
4
sw
N4
sw
fk
N5
N2
gr

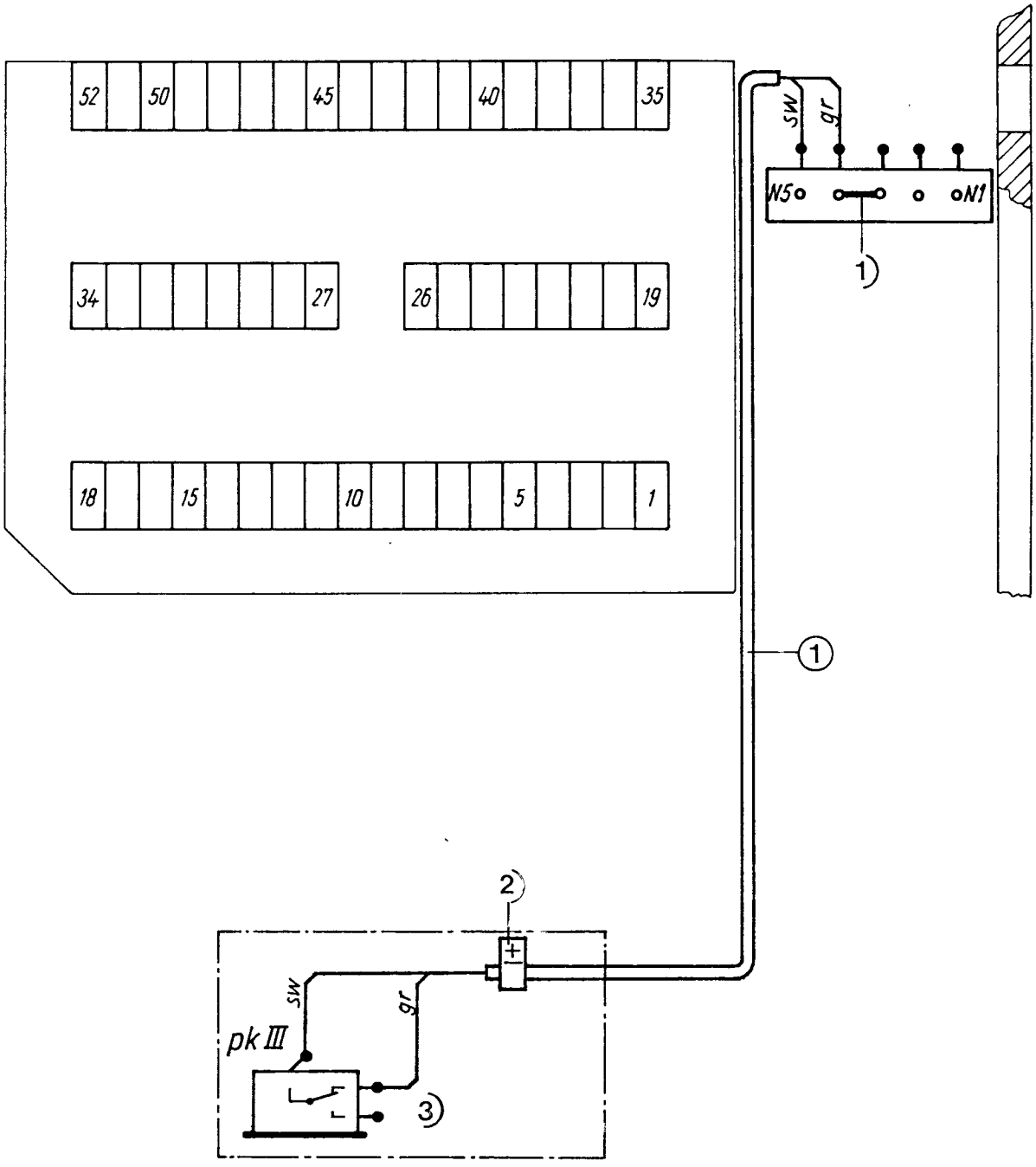

1
A
sw
gr
sw
gr
N5
N1
1


A
3
sw
gr
1
6
sw
gr
lk
sw
gr
ET
2
2

Paper supervision device - motor switched off via contact pk^{III}

Wiring diagram T22211-N100-E310-*-02

No.	Item	Ordering No.
(1)	cable	T22211-N100-E310
1)	shorting link	C30104-A92-C2
2)	cable clamp	C22195-Z21-C61
3)	position of contact pk^{III}: teleprinter paper inserted	


52
50
45
40
35
34
27
26
19
18
15
10
5
1
sw
gr
W5
N1
1)
1
2
+
sw
gr
pk III
3

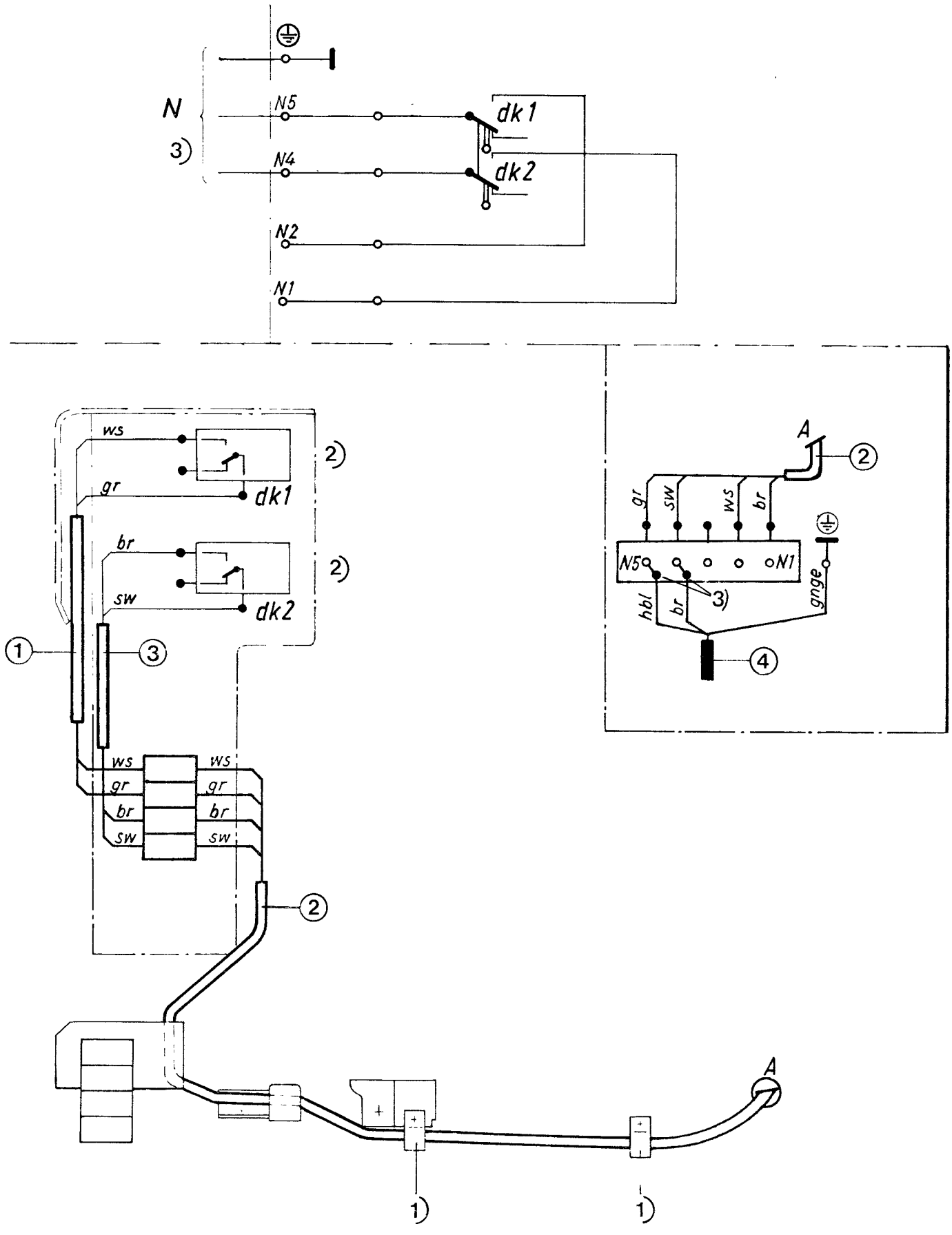
Lid contact for power line and desk-model cover 130

Wiring diagram T22211-N100-L310-*-02

No.	Item	Ordering No.
(1)	cable	T22211-N100-L103
(2)	cable	T22211-N100-L104
(3)	cable	T22211-N100-L105
(4)	power line	-
1)	cable clamp	C22195-Z21-C61

2) contacts dk1 and dk2 are shown with the lid open

3) wires br and hb1 connected to points 4 and 5 contrary to the basic circuit T22211-C100-L301-*-02 in wiring diagram "Telegraph circuit A106, chapter V-2, page 9"



T22211-N100-L310-2-02

Electrical components (see pages 7, 9, 11)

Item	Ordering No.
C1 - 1 µF	B25214-J6105-K
C2 - 0.1 µF	B25214-A6104-M
C45- 16 µF	B25833-J4166-K72
- 25 µF	K25833-K4256-K62
- 40 µF	B42030-A6406-K1
- 80 µF	B42030-S5806-K3
- 3.2/10.8 µF	B25833-S4146-K19
- 12/39 µF	B25841-S9516-K2
Fe 4	B84602-A10
Fe 5	B84602-A20
consisting of	
choke	B82523-C-A10
capacitor	B81362-A-B1
R1 - 25 ohms	V22212-Z999-A2
R2 - 800 ohms	V22212-Z999-A7
1.6 k 1)	V22212-Z999-A11
1.6 k 2)	V22212-Z1-A569
2 k 3)	V22212-Z999-A13

1) only for 220 V 40 to 60 Hz 35 W

2) only for 240 V 40 to 60 Hz 45 W

3) only for 240 V 40 to 60 Hz 35 W

Contents

Circuit Arrangements for the Telegraph Circuit as per Overall Circuit Diagram A22211-L100-A106-*-12

The circuit documentation for the built-in remote control units (page 6) is included in the pertinent manuals.

1. Information relating to the circuit and wiring diagrams

The positions of the contacts in the circuit and wiring diagrams correspond to the following operating condition:

Teleprinter 100:	teleprinter paper inserted
Tape punch attachment:	paper tape inserted
Tape transmitter attachment 86:	paper tape not inserted

Commercial power and telegraph plugs are inserted.
Motor is not cut in.

In the circuit and wiring diagrams the technical status of the document is indicated by the edition number appearing as the fourth part of the product code. On the facing page the edition number is replaced by an asterisk *.

1.1. Abbreviations

All abbreviations used in the circuit and wiring diagrams are contained in the following list:

C	capacitor
ELMA	tape punch attachment switch-off magnet
EM	selector magnet
ET	motor starting key
FE	RF suppressor
G	rectifier/diode
GM	automatic break magnet
klk	bell contact
L	choke
La	copy lamp
lk	lamp contact
lpk	tape punch attachment end-of-tape contact
lsk	tape transmitter attachment send contact
pk	paper supervision contact
R	resistor
rmk	position indicator contact
s	control contact in tape transmitter attachment
sk	send contact
sofu	special function contacts
uk	motor monitoring contact
ZFM	two-color printing magnet
Ziff. G	contact for upper case G

1.2. Plug connector designations

II
III
IV
V

connecting lines from teleprinter to built-in remote control unit

VI — plug connector for subscriber line (red)

VII — plug connector for operation with repetition of call signal (grey)

1.3. Circuit symbols

blade contact

clip contact

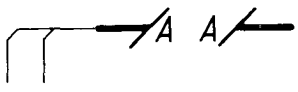
chassis connection

protective ground terminal

contact, normal

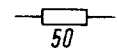
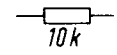
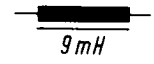
contact, cam-controlled

contact, manually actuated



cable cut-off point

1.4. Units

Resistance		50 ohms
		10 kilohms
Capacitance		16 microfarads
		2500 picofarads
Inductance		9 millihenries

1.5. Basic colors of the insulated circuit wires

ws	white	rs	pink
br	brown	bl	blue
gn	green	rt	red
ge	yellow	sw	black
gr	grey	vi	violet

Telegraph circuit for Teleprinter 100 with built-in remote control unit as per overall circuit diagram A22211-L100-A106-*-12

(1) Connecting cables
telegraph circuit and additional lines

(2) Built-in remote control unit

(3) Connections
built-in remote control unit terminal board

Straps between the terminal points of the basic circuit:

2 - 27	10 - 34
4 - 28	11 - 30
8 - 32	12 - 31
9 - 33	25 - 26

in addition, the following straps are inserted:

1) 5 - 47, 6 - 48, 7 - 49
in built-in remote control unit NDL, S22311-D7-A100
NL, S22311-D9-A100
NL, S22311-D10-A100
TL, S22311-D16-A100
TL, S22311-D19-A100

2) 17 - 45 - 52, 18 - 46 - 51
in built-in data telegraph
unit D200 S1 S22381-D23-A100

3) 17 - 45 - 52, 18 - 46 - 51, 23 - 24
in built-in remote control
unit NL, S22311-D11-A100

4) 15 - 37, 16 - 38
in built-in remote control
unit TL S22311-D15-A100

5) 28 - 29
in version "additional choke bypassed" or "without additional choke"

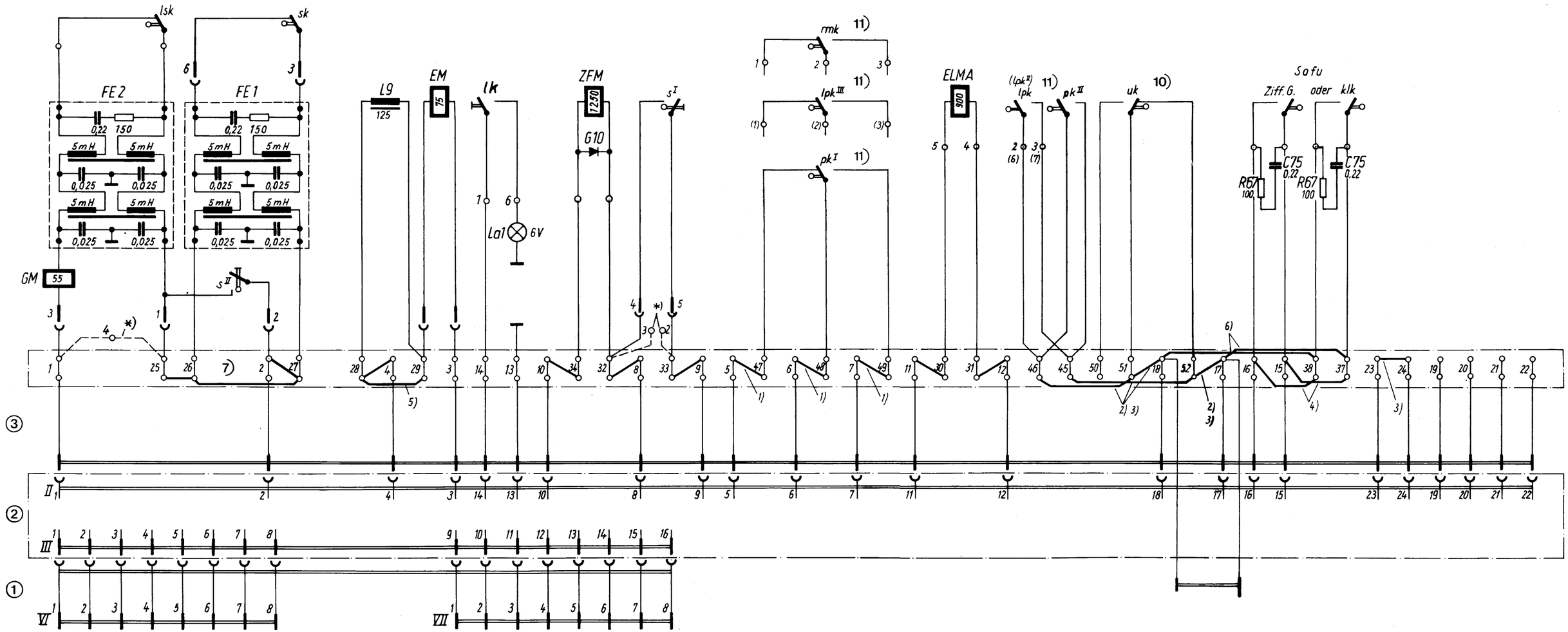
6) 17 - 37, 18 - 38
in built-in remote control
unit NL, S22311-D9-A100
only in conjunction with 2-wire connecting cable

7) 26 - 27
in version "receive-only teleprinter"

10) contact is shown in the position assumed when motor is not cut in

11) contacts are shown in the positions assumed when teleprinter paper and tape are inserted

* straps when no tape transmitter attachment is installed

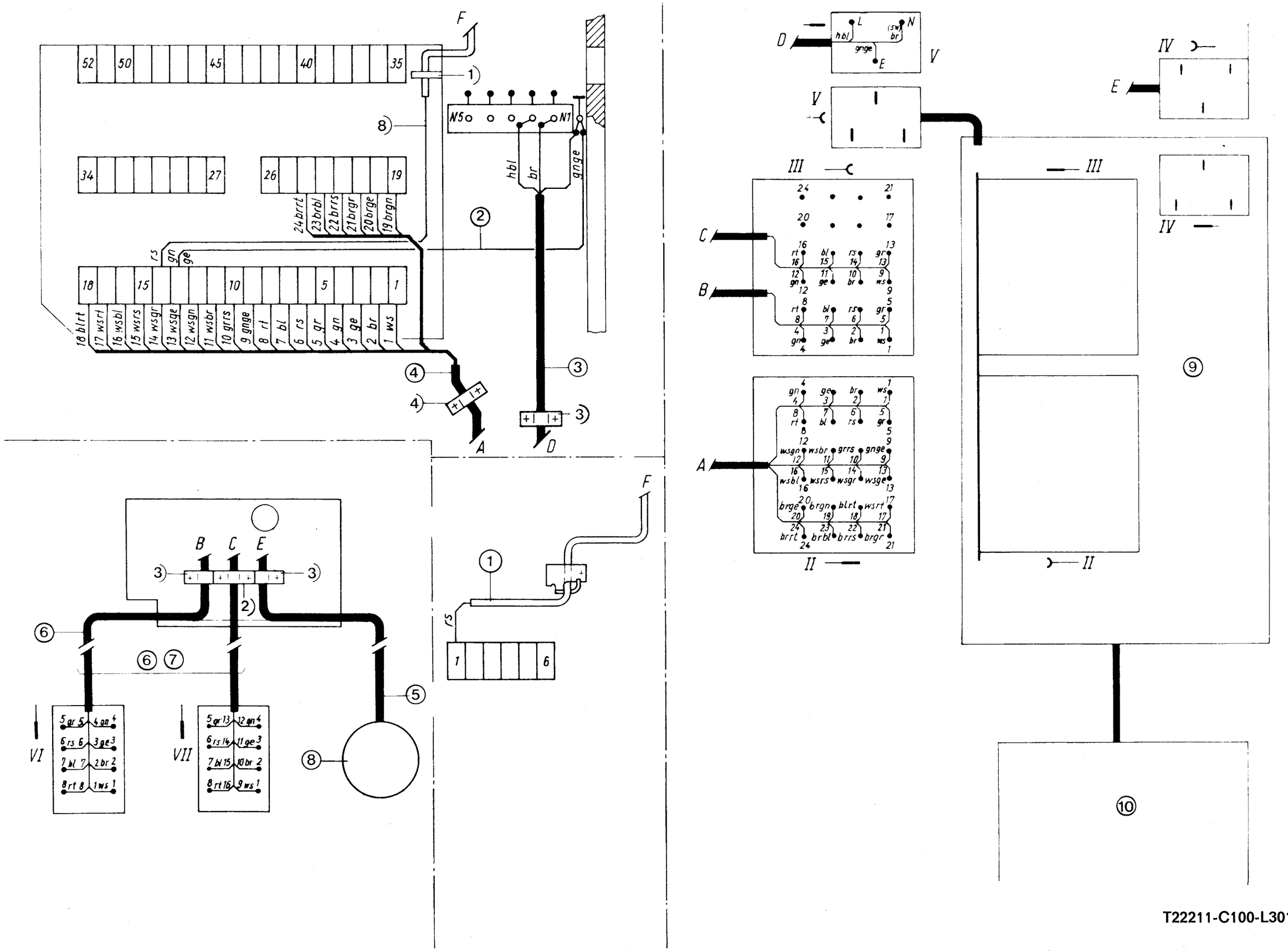

lsk
sk
FE 2
FE 1
0,22
150
5 mH
0,025
GM
55
sII
L9
125
EM
75
lk
La1
6V
ZFM
1250
G10
sI
rmk
11)
lpkIII
pkI
ELMA
500
(lpkII)
lpk
pkII
uk
10)
Sofu
Ziff. G.
oder
klk
R67
100
C75
0,22
*)
7)
1)
2) 3)
4)
5)
6)
I
II
III
VI
VII

Telegraph circuit for Teleprinter 100 with built-in remote control unit, version as per A22211-L100-A106-*-12

Wiring diagram T22211-C100-L301-*-02

No.	Item	Ordering number
(1)	cable	T22211-C100-L301
(2)	strap	T22211-C100-L302
(3)	cable plus: 1 equipment plug	V22113-A2-A125 C22334-Z18-C3
(4)	connecting cable plus: 1 plug	V22111-A24-A2 C30334-A29-A1
(5)	power connecting cable	V45594-F8-A223
(6)	telegraph connecting cable (for operation without repetition of call signal)	S22211-C100-L8
(6) (7)	telegraph connecting cable (for operation with repetition of call signal)	S22211-C100-L9
(8)	power plug	-
(9)	built-in remote control unit (page 6)	-
(10)	control board	-
1)	cable lacing	H60810-K1020
2)	cable clamp	H78550-B50
3)	cable clamp	H78550-B60
4)	cable clamp	H78550-B70

8) cable omitted when power supply is installed

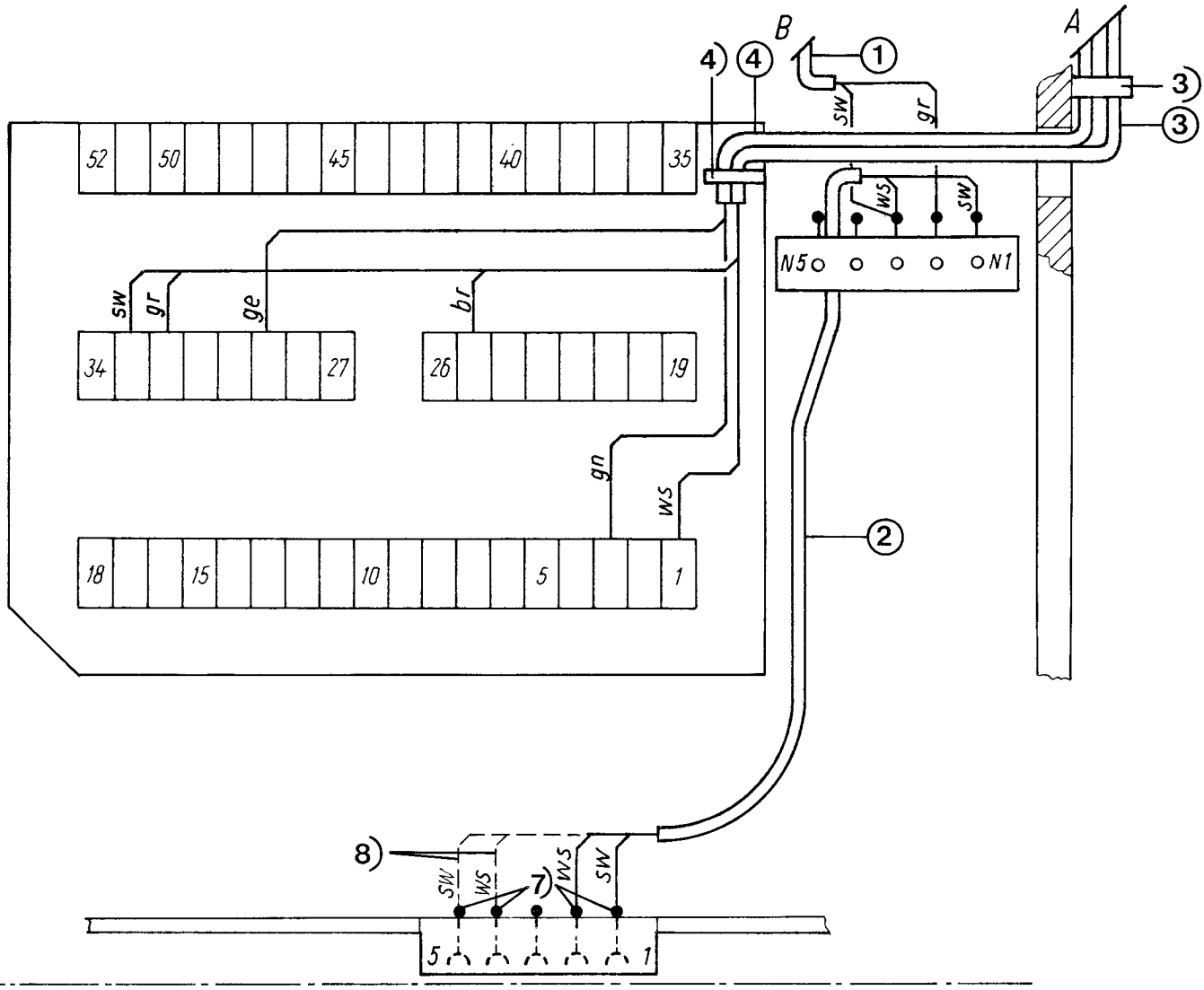


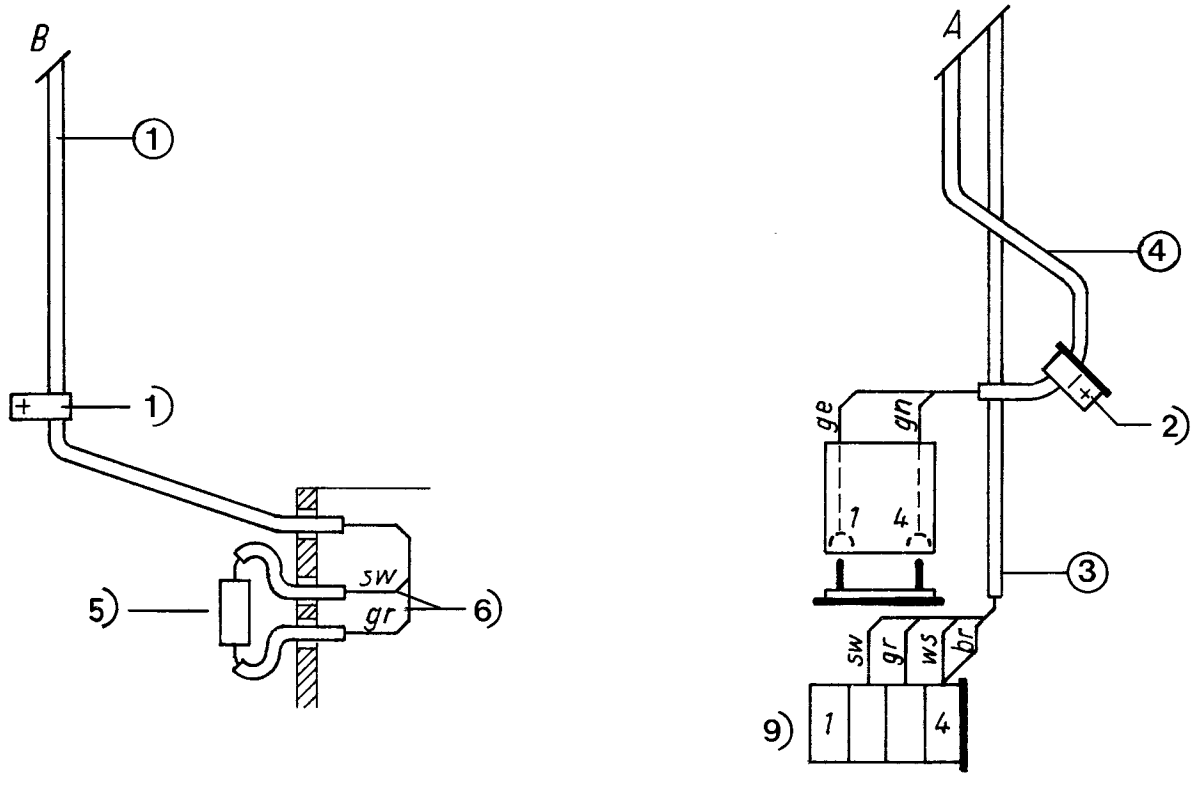
T22211-C100-L301-4-02

Base plate

Wiring diagram T22211-E100-F301-*-02

No.	Item	Ordering number
(1)	cable	T22211-E100-F102
(2)	cable	T22211-E100-F104
(3)	cable	T22211-E100-F301
(4)	cable (to selector magnet) plus: 1 plug 2 plug connectors	T22211-E100-F306 C20156-A100-B355 C39334-A48-A1
1)	cover plate	C20170-A82-C114
2)	cable clamp	C22195-Z21-C61
3)	cable clamp	C22195-Z21-C64
4)	cable lacing	H60810-K1020
5)	terminal block, single-point, strap for remote control switch	C22104-Z1-C21
6)	wires covered with insulating sleeving 2.5 x 0.4 mm, white, 20 mm in length	
7)	solder terminals covered with insulating sleeving 3 x 0.5 mm, yellow, 12 mm in length	
8)	wires black, white inserted when synchronous motor is installed	
9)	terminals on mounting frame, provided for tape punch attachment	



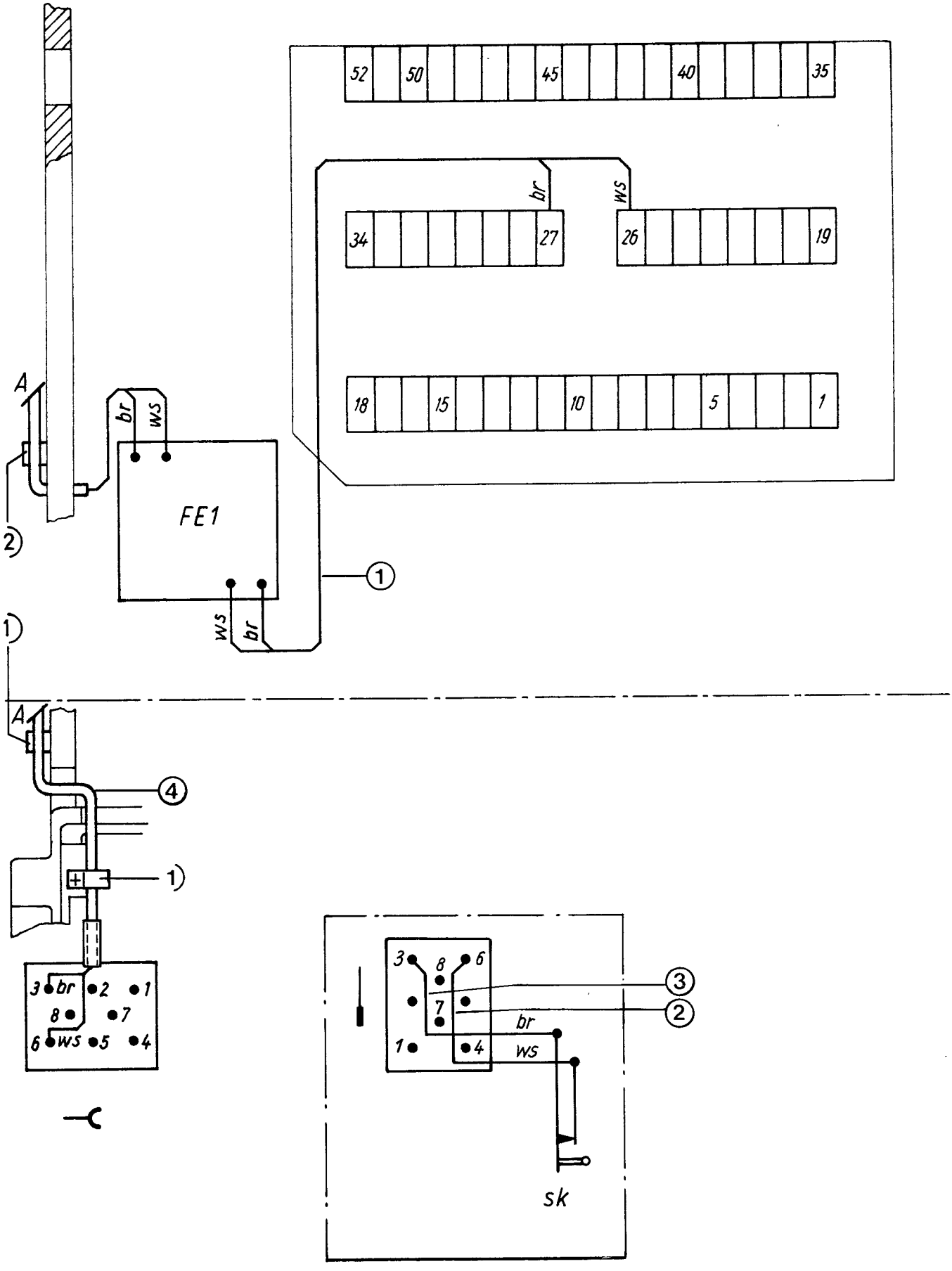


T22211-E100-F301-4-02

Transmitter

Wiring diagram T22211-G100-D301-*-02

No.	Item	Ordering number
(1)	cable	T22211-E100-F302
(2)	strap	T22211-G100-D301
(3)	strap	T22211-G100-D302
(4)	cable with plug	S22211-G100-D304
1)	cable clamp	C22195-Z21-C62
2)	cable clamp	C22195-Z21-C63


52
50
45
40
35
br
ws
34
27
26
19
18
15
10
5
1
A
br
ws
FE1
2
1
ws
br
1
A
4
1
3
br
2
1
8
7
6
ws
5
4
3
8
6
7
br
1
4
ws
3
2
sk

Additional choke L9

Wiring diagram T22211-E100-S320-*-02

No.	Item	Ordering number
(1)	cable	T22211-E100-S320

1) Additional choke in receive circuit

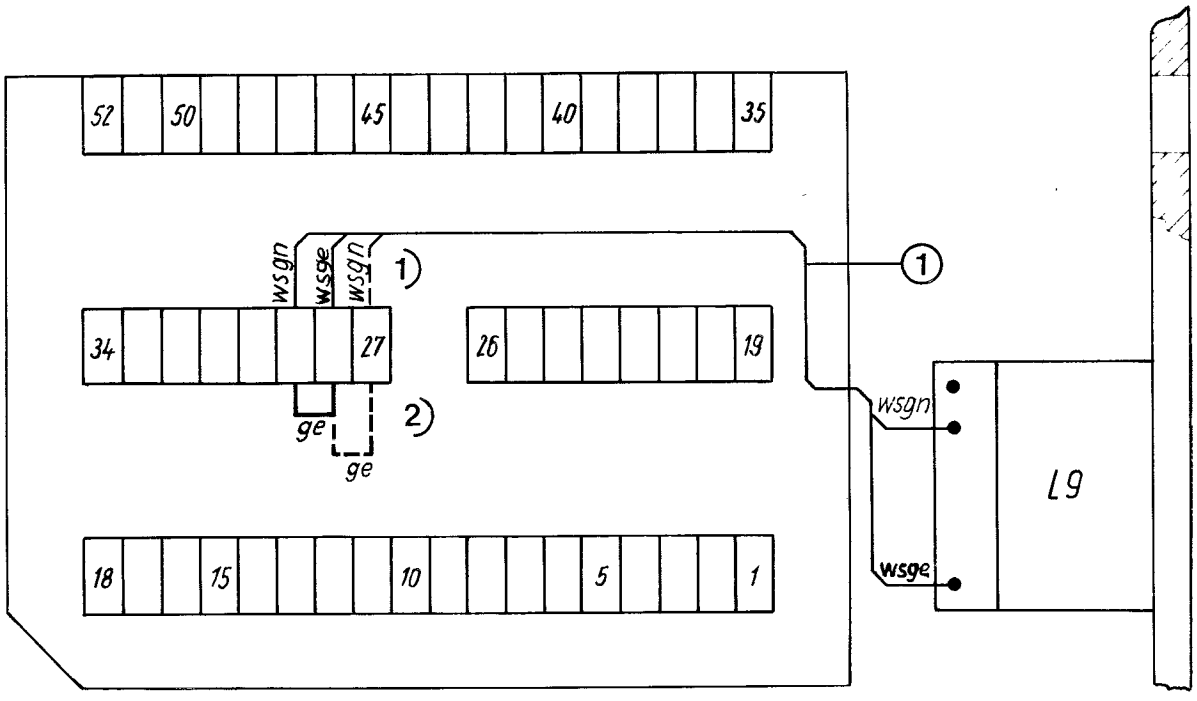
wsge	terminal 28
wsgn	terminal 29

Additional choke in send circuit

wsge	terminal 28
wsgn	terminal 27

2) Additional choke bypassed

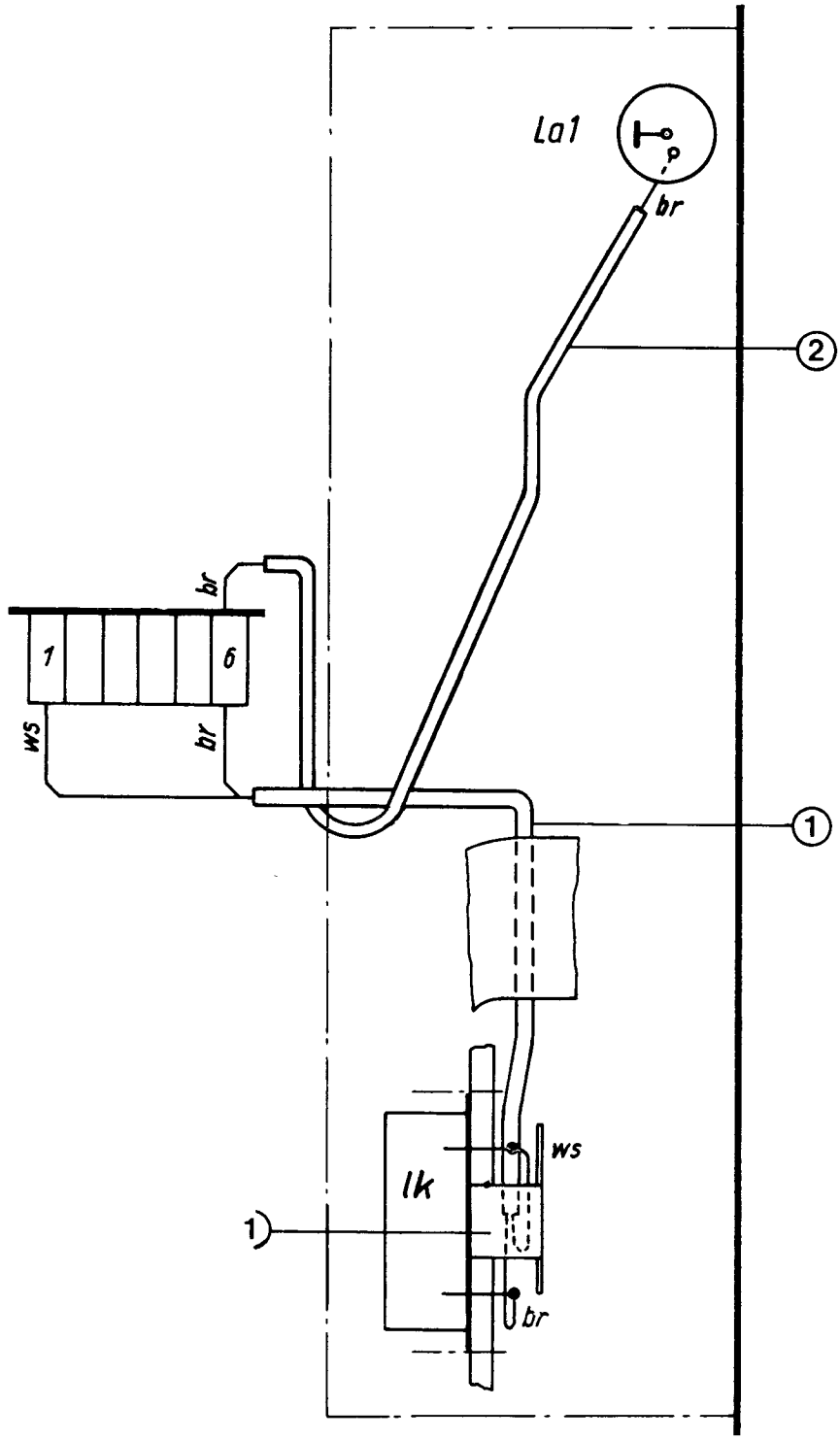
receive circuit:	strap 28 - 29
send circuit:	strap 27 - 28


52
50
45
40
35
wsgn
wsge
wsgn
1)
34
27
26
19
ge
ge
2)
18
15
10
5
1
1
wsgn
wsge
L9

Special function key bank - lamp contact lk

Wiring diagram T22211-F100-N301-*-02

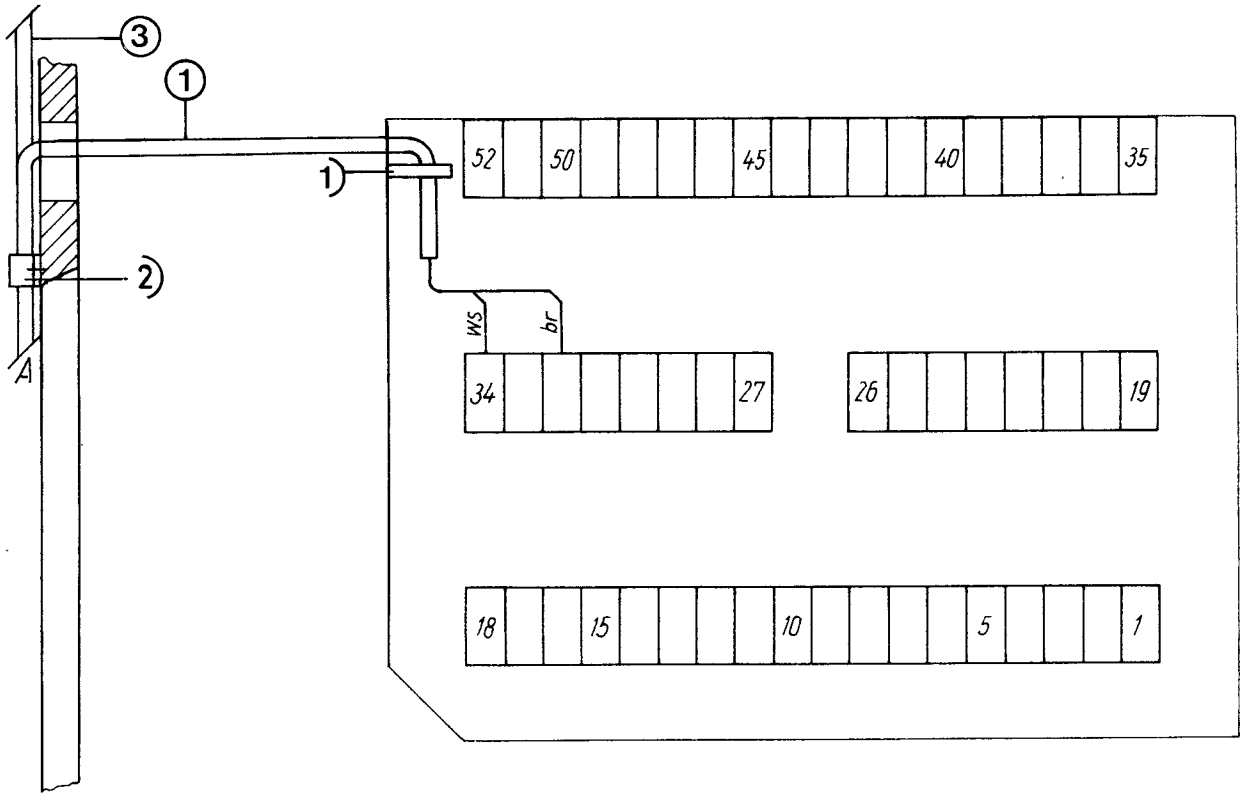
No.	Item	Ordering number
(1)	cable	T22211-F100-N301
(2)	cable	T22211-F100-N302
1)	clamp	C20156-A100-C108

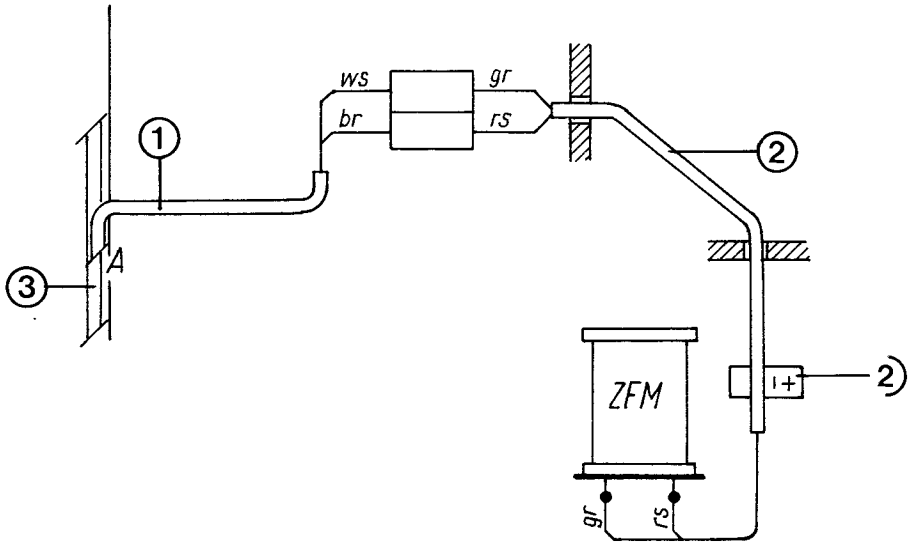

La1
br
2
br
1
6
ws
br
1
lk
ws
br

Two-color printing magnet ZFM

Wiring diagram T22211-J100-Z301-*-02

No.	Item	Ordering number
(1)	cable	T22211-J100-Z301
(2)	cable	T22216-J150-Z3
(3)	transmitter cable	S22211-G100-D304
1)	cable lacing	H60810-K1020
2)	cable clamp	C22195-Z21-C62


3
1
1)
2
A
52
50
45
40
35
ws
br
34
27
26
19
18
15
10
5
1

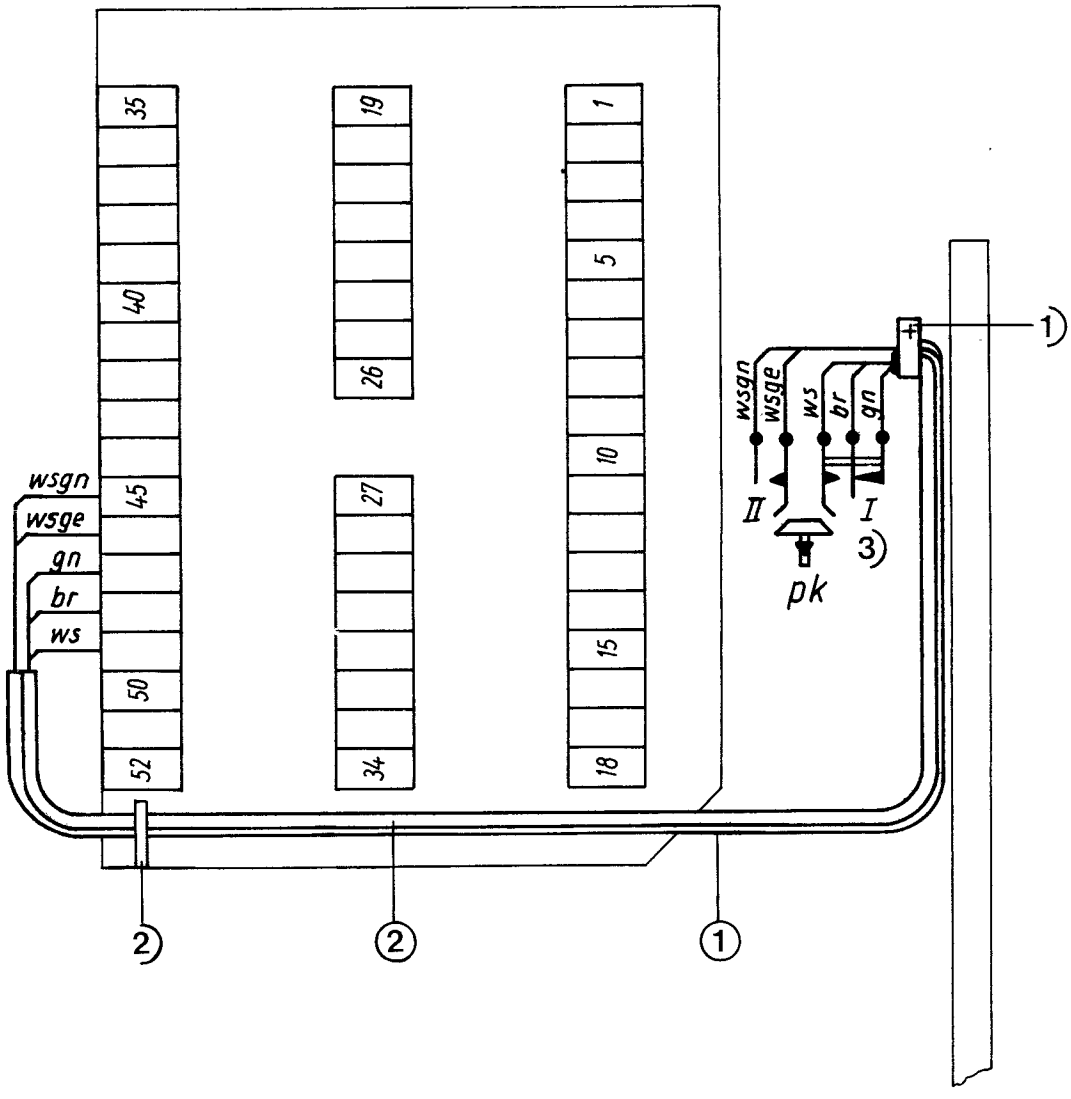

ws
br
gr
rs
1
2
3
A
ZFM
1+
2
gr
rs

Paper supervision device - contacts pk^{I}, pk^{II}

Wiring diagram T22211-N100-E301-*-02

No.	Item	Ordering number
(1)	cable	T22211-N100-E301
(2)	cable	T22211-N100-E302
1)	cable clamp	C22195-Z21-C61
2)	cable lacing	H60810-K1020

3) contact positions correspond to: paper inserted.


35
40
45
50
52
19
26
27
34
1
5
10
15
18
wsgn
wsge
gn
br
ws
II
I
3)
pk
1)
2)
2)
1)

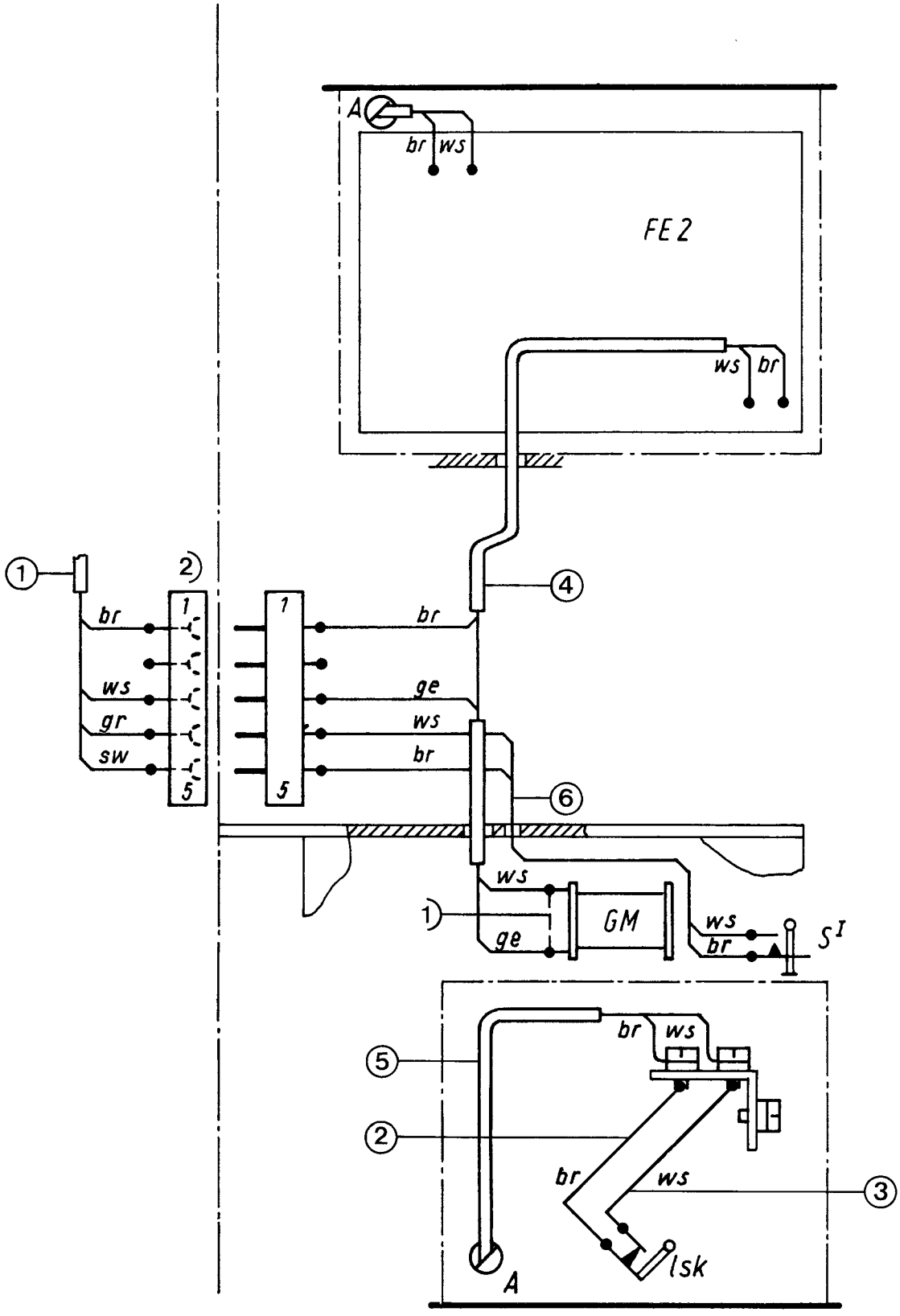
Tape transmitter attachment 86

Wiring diagram T22211-G100-K301-*-02

No.	Item	Ordering number
(1)	cable	T22211-E100-F301
(2)	strap	T22211-G100-K301
(3)	strap	T22211-G100-K302
(4)	cable	T22211-G100-K307
(5)	cable	T22211-G100-K308
(6)	cable	T22211-G100-K309

1) strap for operation without automatic break magnet GM

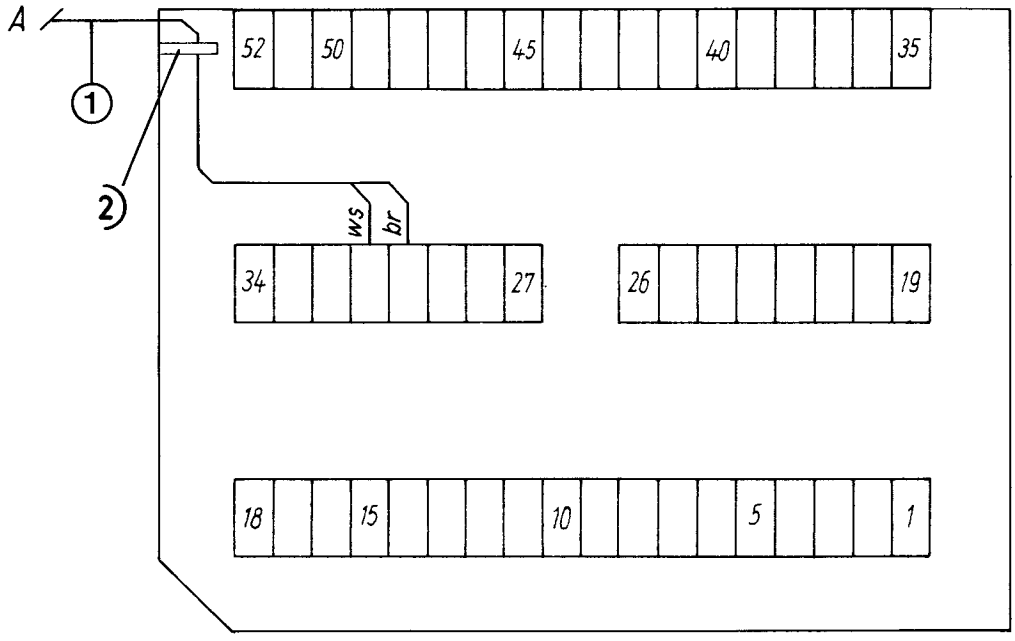
2) 5-point clip connector in place of a 4-point clip connector only in "version with tape transmitter attachment 86"

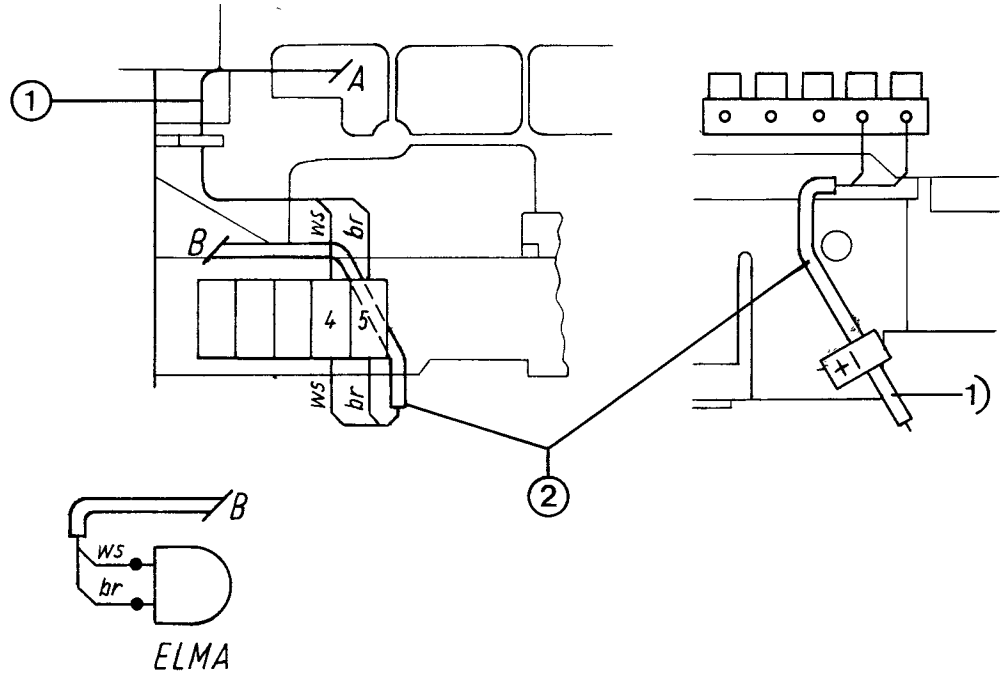

A
br
ws
FE 2
ws
br
1
2
4
6
br
ge
ws
br
sw
gr
1
5
5
ws
1
GM
ge
ws
br
SI
br
ws
5
2
br
ws
3
A
lsk

Switch-off magnet ELMA (60 V dc) for tape punch attachment

Wiring diagram T22211-H100-L305-*-02

No.	Item	Ordering number
(1)	cable	T22211-H100-L305
(2)	cable	T22211-H100-L306
1)	cable clamp	C22195-Z21-C60
2)	cable lacing	H60810-K1020

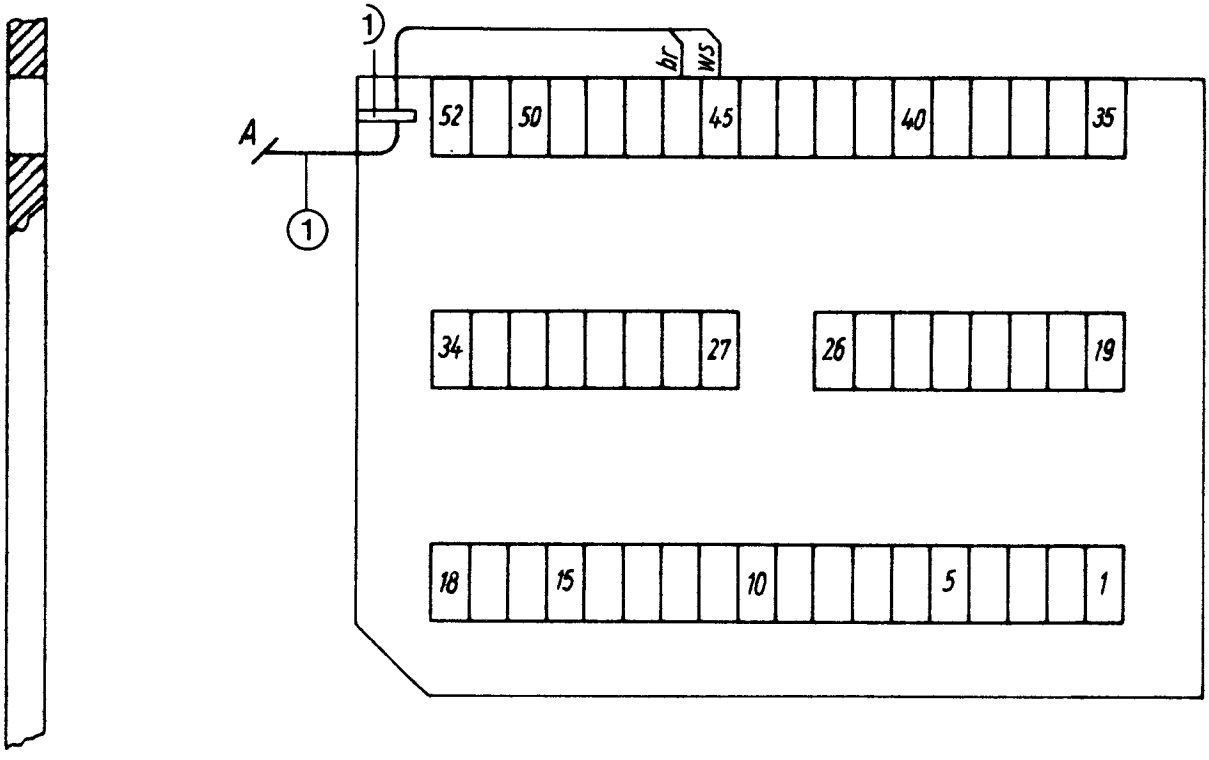

A
1
2
52
50
45
40
35
ws
br
34
27
26
19
18
15
10
5
1

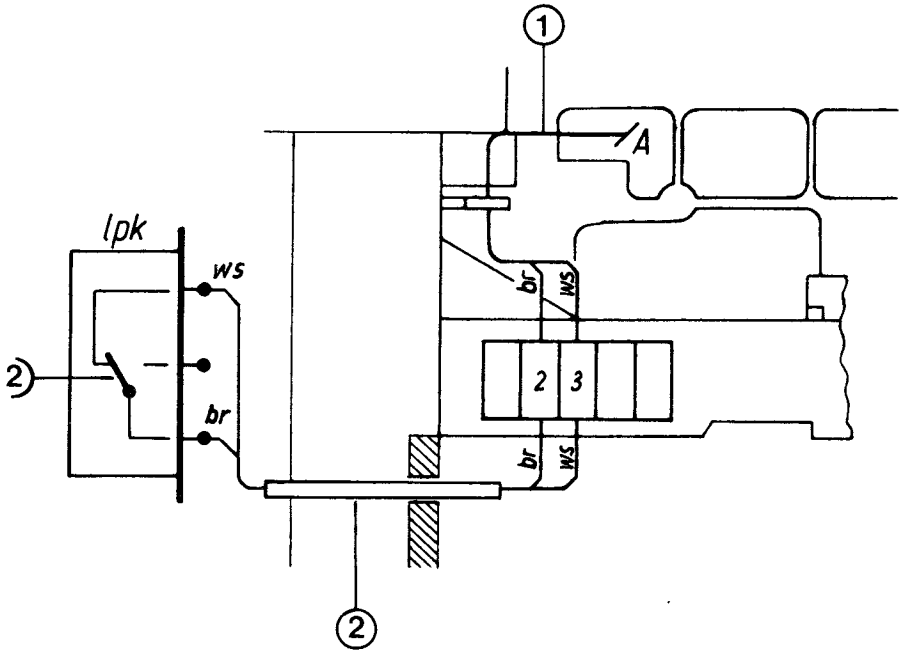

1
A
B
ws
br
4
5
2
+
1)
B
ws
br
ELMA

End-of-tape contact lpk for tape punch attachment

Wiring diagram T22211-H100-L309-*-02

No.	Item	Ordering number
(1)	cable	T22211-H100-L309
(2)	cable	T22211-H100-L310
1)	cable lacing	H60810-K1020
2)	contact lpk closed: paper not inserted	

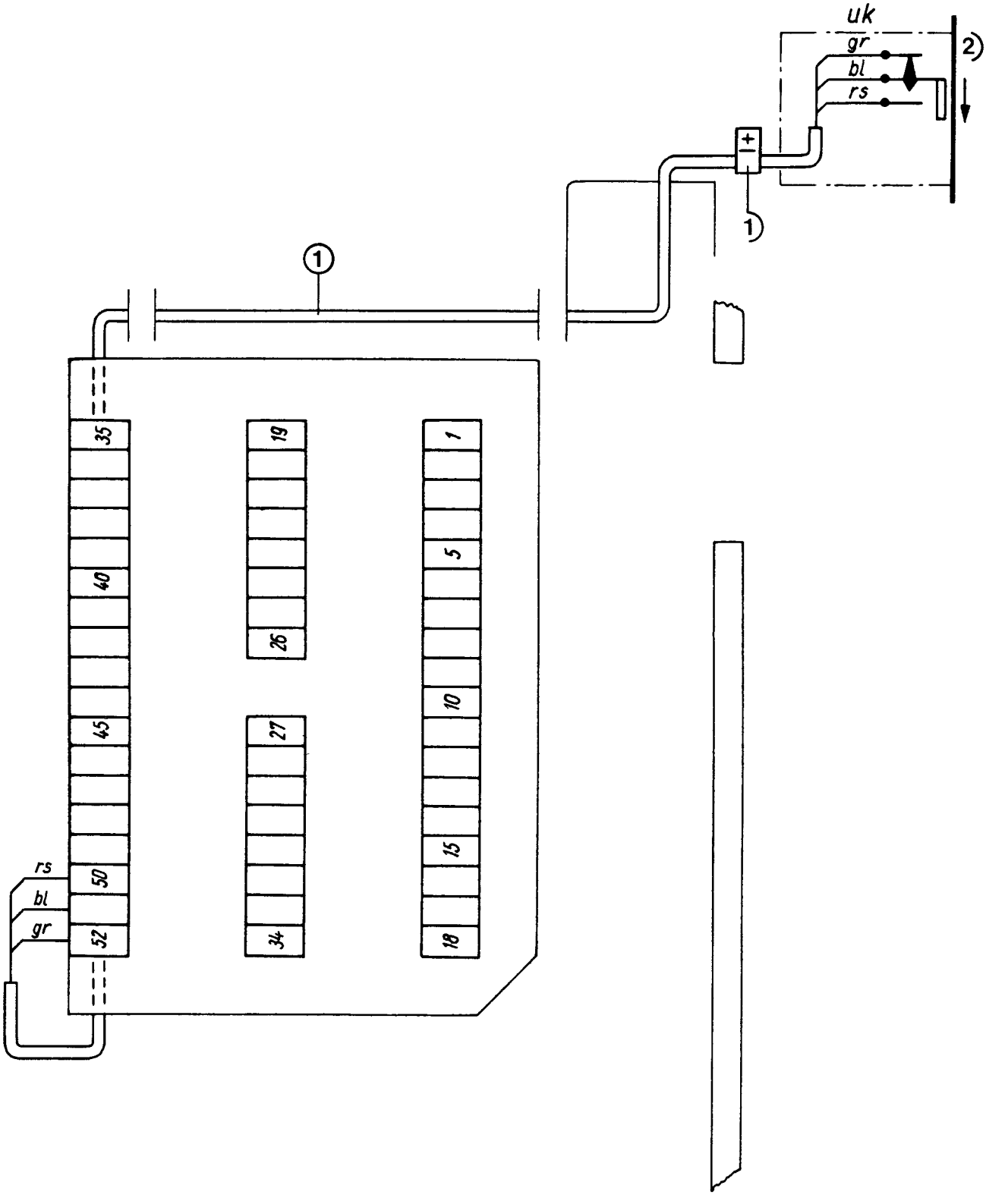

1
br
ws
A
52
50
45
40
35
1
34
27
26
19
18
15
10
5
1


1
A
lpk
ws
br
2
br
ws
2
3
br
ws
2

Motor monitoring contact uk

Wiring diagram T22211-N100-N301-*-02

No.	Item	Ordering number
(1)	cable	T22211-H100-L301
1)	cable clamp	C22195-Z21-C60
2)	contact positions correspond to: motor not cut in	

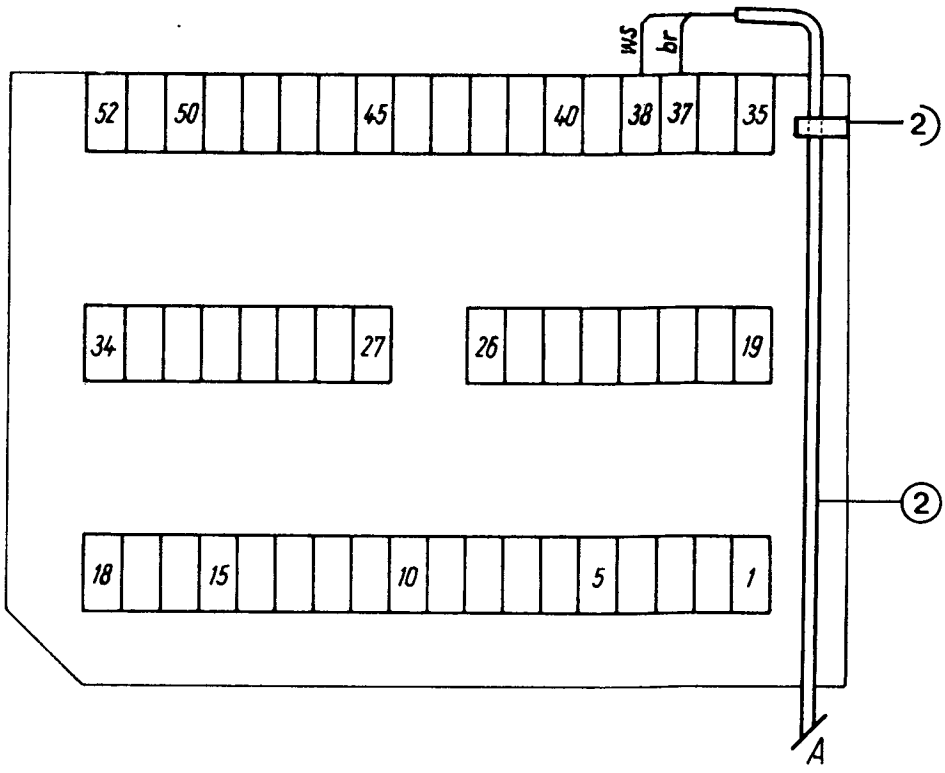

uk
gr
bl
rs
2)
+
–
1)
1)
35
40
45
50
52
19
26
27
34
1
5
10
15
18
rs
bl
gr

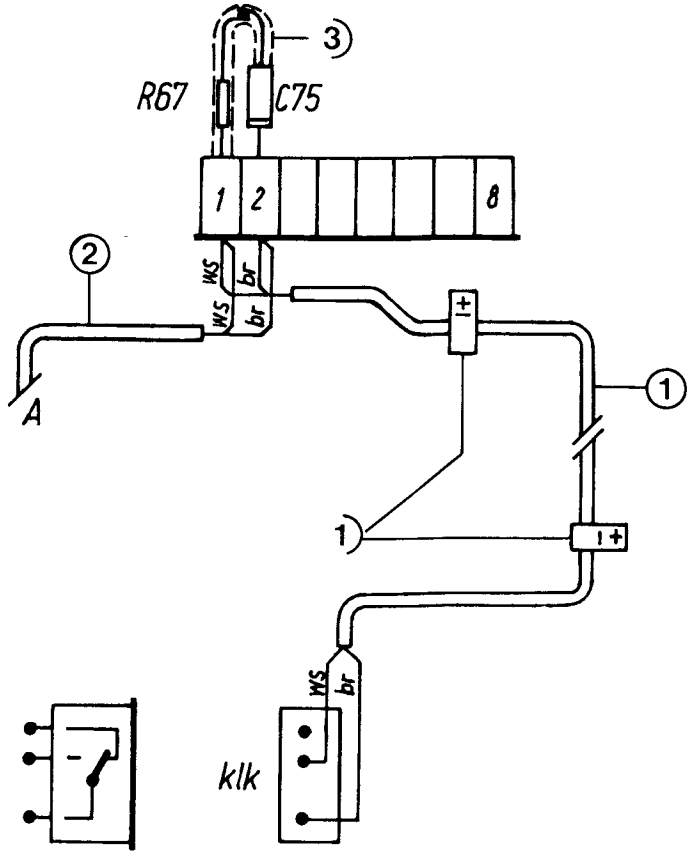
Bell contact klk

Wiring diagram T22211-J100-S401-*-02

No.	Item	Ordering number
(1)	cable	T22211-J100-S325
(2)	cable	T22211-J100-S401
1)	cable clamp	C22195-Z21-C62
2)	cable lacing	H60810-K1020
3)	see page 41 for ordering number	

R67 and connecting wires covered with insulating sleeving, 2.5 x 0.4 mm, transparent, 40 mm in length.


ws
br
52
50
45
40
38
37
35
2
34
27
26
19
2
18
15
10
5
1
A

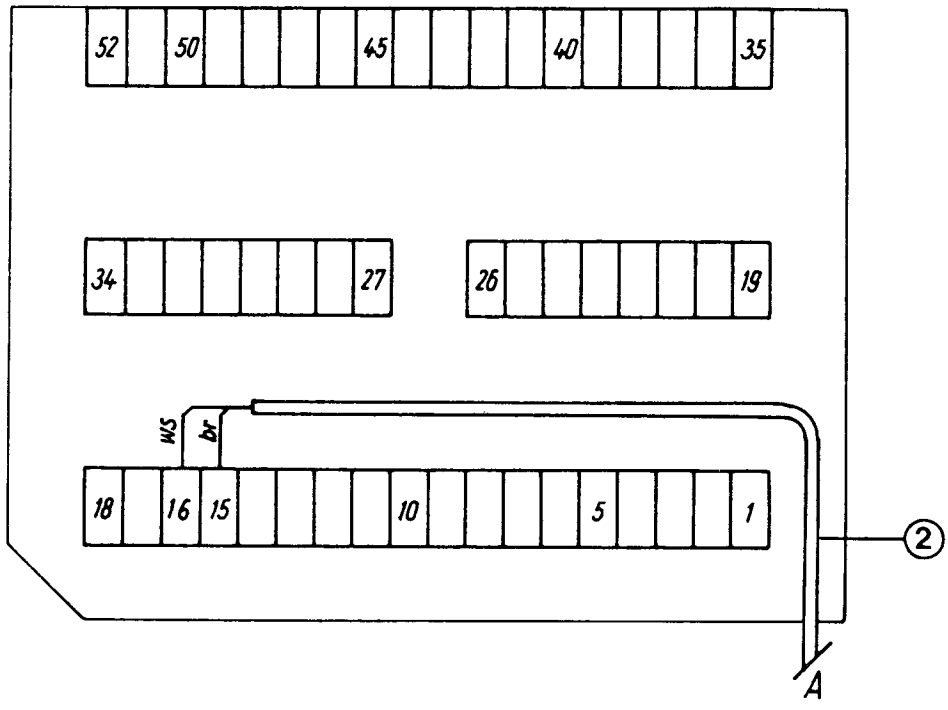

3
R67
C75
1
2
8
2
ws
br
ws
br
A
1+
1
1
1+
ws
br
klk

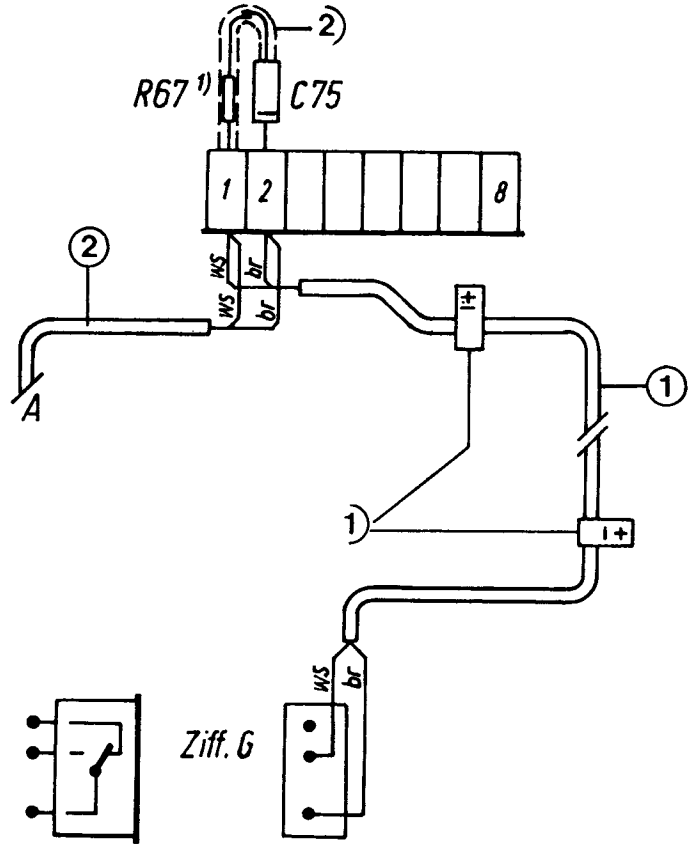
Contact for upper case G

Wiring diagram T22211-J100-S402-*-02

No.	Item	Ordering number
(1)	cable	T22211-J100-S325
(2)	cable	T22211-J100-S402
1)	cable clamp	C22195-Z21-C62
2)	see page 41 for ordering number	

R67 and connecting wires covered with insulating sleeving, 2.5 x 0.4 mm, transparent, 40 mm in length.





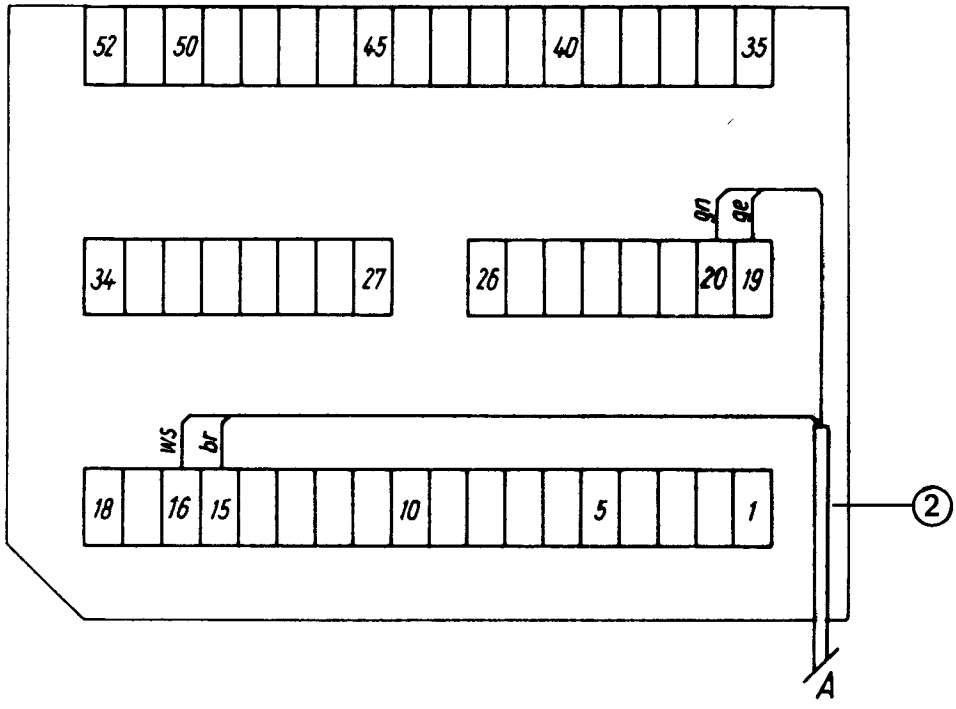
T22211-J100-S402-2-02

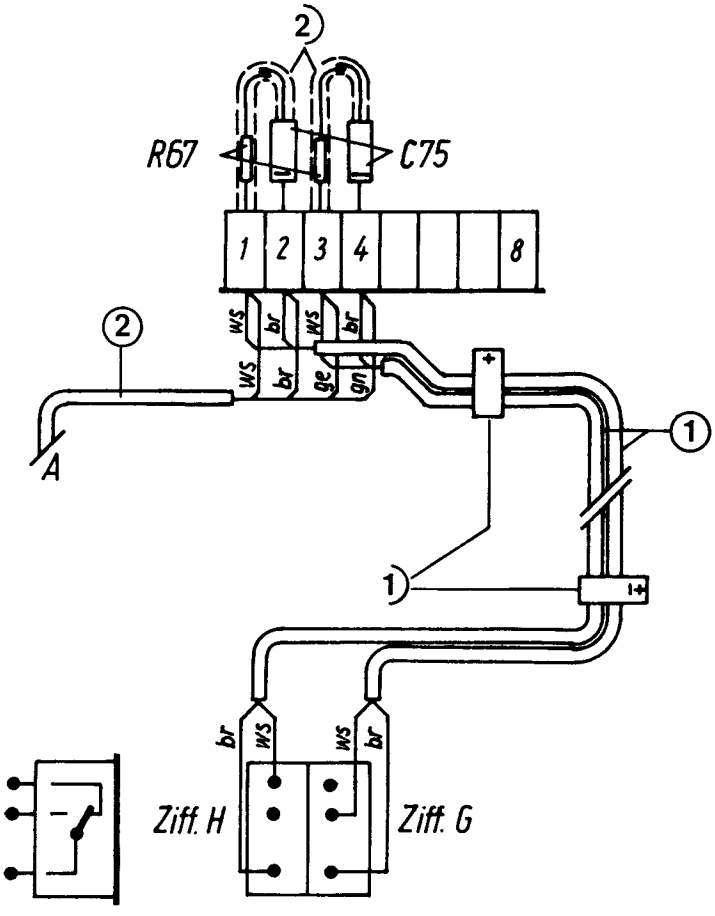
Contact for upper case G and upper case H

Wiring diagram T22211-J100-S403-*-02

No.	Item	Ordering number
(1)	cable	T22211-J100-S325
(2)	cable	T22211-J100-S403
1)	cable clamp	C22195-Z21-C62
2)	see page 41 for ordering number	

R67 and connecting wires covered with insulating sleeving, 2.5 x 0.4 mm, transparent 40 mm in length.


52
50
45
40
35
34
27
26
20
19
gn
ge
ws
br
18
16
15
10
5
1
2
A

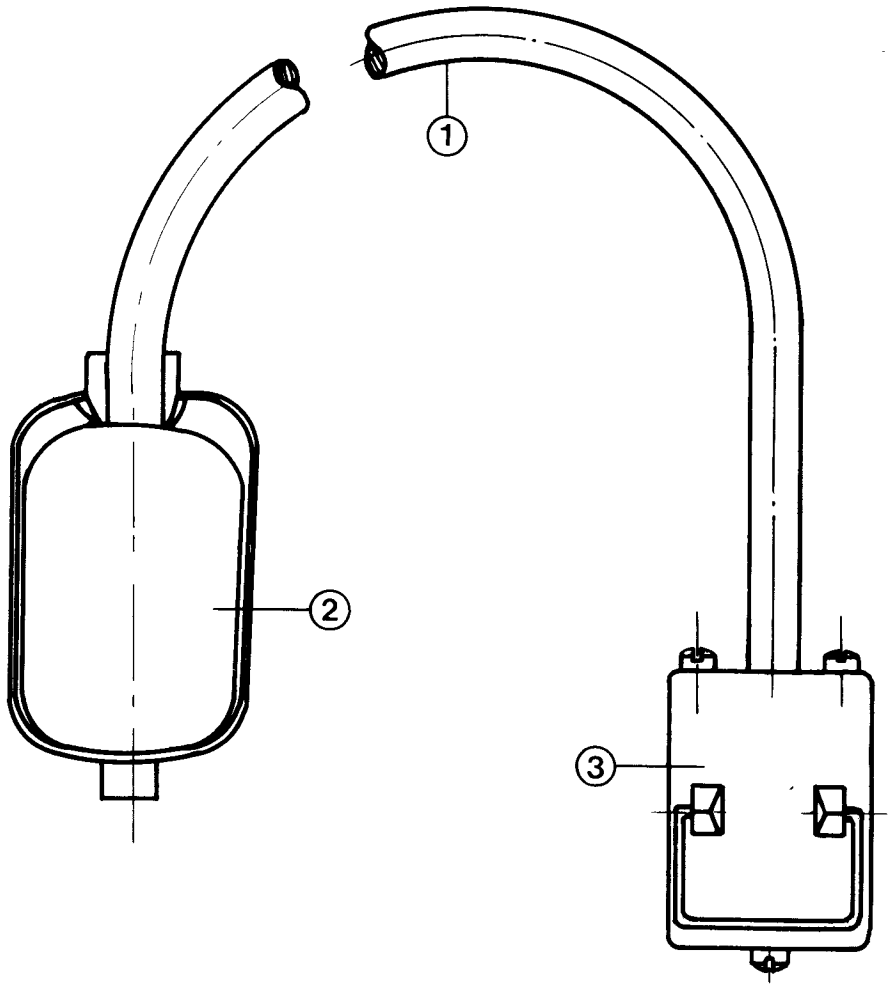

2
R67
C75
1
2
3
4
8
ws
br
ge
gn
A
1
br
Ziff. H
Ziff. G

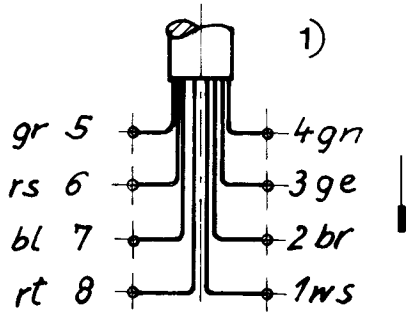
Telegraph connecting cable S22211-C100-L8 (for operation without repetition of call signal)

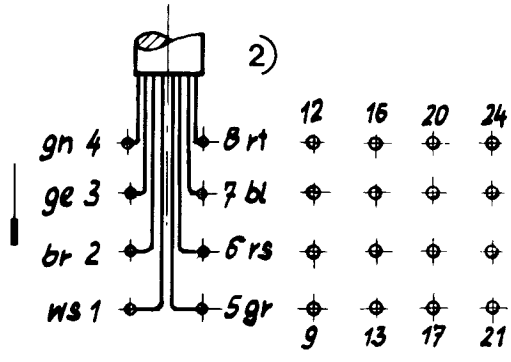
No.	Item	Ordering number
(1)	1 connecting cord	C22195-A50-B21
(2)	1 telecommunications plug	C20334-Z149-A8
(3)	1 plug connector	S22211-C100-L31

1) wire connecting order for telecommunications plug (2)

2) wire connecting order for plug connector (3)


1
2
3


1)
gr 5
rs 6
bl 7
rt 8
4 gn
3 ge
2 br
1 ws


2)
gn 4
ge 3
br 2
ws 1
8 rt
7 bl
6 rs
5 gr
12
16
20
24
9
13
17
21

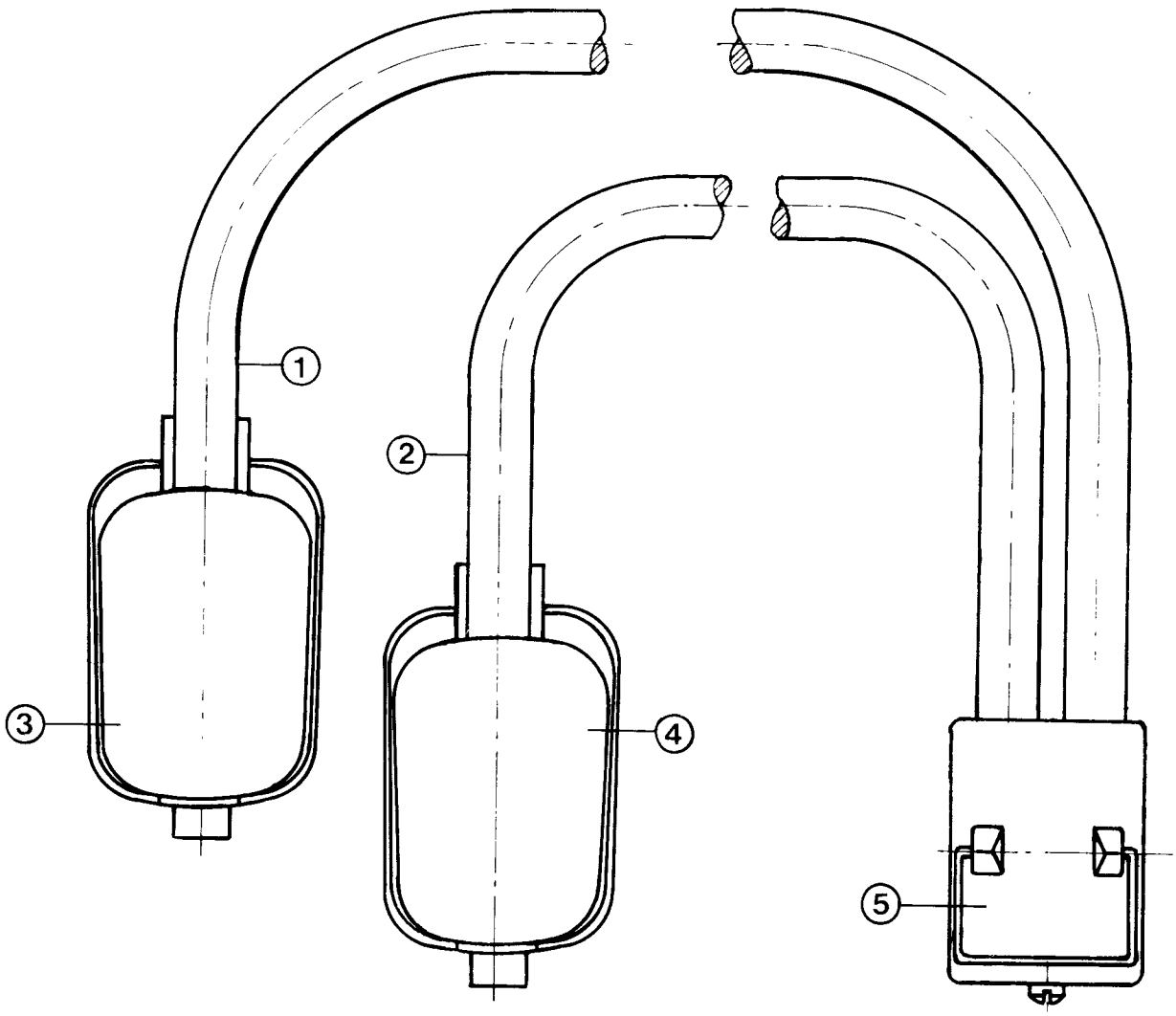
Telegraph connecting cable S22211-C100-L9 (for operation with repetition of call signal)

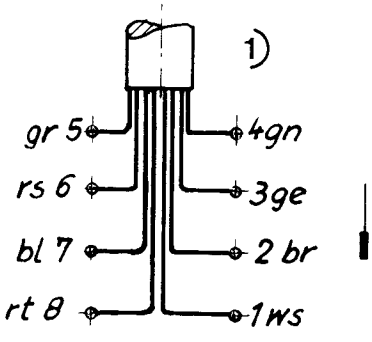
No.	Item	Ordering number
(1) (2)	2 connecting cords	C22195-A50-B21
(3)	1 telecommunications plug	C20334-Z149-A8
(4)	1 telecommunications plug	C20334-Z149-A5
(5)	1 plug connector	S22211-C100-L51

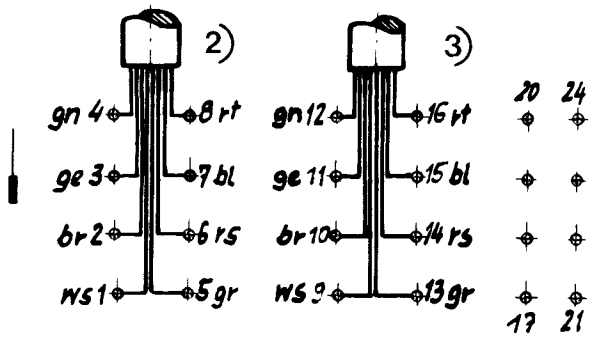
1) wire connecting order for telecommunications plugs (3) and (4)

2) wire connecting order for connecting cord (2)

3) wire connecting order for connecting cord (1)


1
2
3
4
5


1)
gr 5
rs 6
bl 7
rt 8
4 gn
3 ge
2 br
1 ws


2)
gn 4
ge 3
br 2
ws 1
8 rt
7 bl
6 rs
5 gr
3)
gn 12
ge 11
br 10
ws 9
16 rt
15 bl
14 rs
13 gr
20
24
17
21

Electrical components

Item	Ordering number	Page
C75 - 0.22 µF	B32100-D0224-M	7, 31, 33, 35
FE 1	B84502-A30	7, 13
FE 2	B84502-A30	7, 23
G 10	Q60201-Y46	7
La1-6V	C22230-Z7-C3	7, 17
R67-100 Ohm	B51371-A4101-J	7, 31, 33, 35

Wartung

Maintenance

Entretien

Mantenimiento

Manutençao

Contents

1. General

Careful and regular maintenance is a prerequisite for the troublefree operation of the Model 100 Teleprinter.

A mechanical operation time counter indicating the maintenance units (WE) is built into the teleprinter to determine the frequency of maintenance checks. At a telegraph speed of 50 bauds one maintenance unit is equal to one hour.
Attachments (tape punch, tape reader) are included in every maintenance check performed on the teleprinter.

Maintenance should be carried out:

1. Before placing the equipment in service for the first time
2. Regularly at intervals of 1000 maintenance units
3. General overhaul after every 10,000 maintenance units.

Extreme site conditions may necessitate shorter maintenance intervals. In the case of low calling-rate subscribers routine maintenance should be carried out at least once a year.

1.1. Cleaning agents

The following selection of cleaning agents are recommended:

For parts to be reoiled:

Freon TF	(manufacturer Du Pont)
Kaltron 113	(manufacturer Kali Chemie, Hannover)

For parts that must remain free of oil:

Spirit *	
White Spirit K60 *	(manufacturer Shell AG)

For cleaning the equipment during the general overhaul:

Benzine with 5 % oil additive *	(teleprinter oil K)
Trulit L *	(manufacturer Tru-Chemie, Oberursel)
Freon TF	(manufacturer Du Pont)
Ascal Fsa with	
Super Ascusol *	(manufacturer Ascalia GmbH, Hamburg)
Kaltron 113	(manufacturer Kali Chemie, Hannover)

For contacts:

Pure benzine *	
White Spirit K60 *	(manufacturer Shell AG)

Agents marked * are inflammable! Note the supplier's safety instructions!

1.2. Lubricants

The following lubricants are recommended as being particularly suitable. If they are not available, substitutes should be chosen bearing the same characteristics:

Teleprinter oil K
(Isoflex oil PDP 61A, manufacturer Klüber, Munich)

Viscosity at 20°C	13°E (99 cSt)	at an ambient temperature of
at 50°C	5°E (37 cSt)	-15°C to +50°C

Retinax G grease (manufacturer Shell AG)

Before commencing any maintenance work pull power and telegraph plugs out of their sockets. Note the instructions in the Operator's Manual, Order No. D221/121.19, Section 6.

2. Servicing the teleprinter

Dust collecting on the equipment should be removed at suitable intervals with a dust cloth and brush. However, when doing this ensure that no dirt reaches important operational points in the machine.

Normal household cleaning agents may be used to clean the plastic parts (cover, keys).
The types of the teleprinter are cleaned in just the same way as those of a normal typewriter.
It is recommended not to use a brush for this purpose, but instead one of the well-known plastic cleaners.
Clean the surface of the platen with spirit only.
Chad waste may be removed from the paper guide of the tape punch with the accompanying chad remover.

3. Maintenance

Cleaning instructions:

Remove deposits of oil and grease as well as dirt and dust. However when doing this ensure that no dirt reaches important operational points in the machine.

Lubricating instructions:

Do not over-oil! One small drop per oiling point is sufficient. In places which must remain free of oil, after lubrication pull a strip of lint-free paper, e.g. paper tape, between the contacts and between the magnet armature and the pole shoes.

Before installation soak new lubricating felts, including those with pressure plates, for a considerable time in oil until they are saturated.

3.1. Installation servicing

Carry out maintenance on the site before placing the teleprinter in service. For this purpose remove the cover (see Chapter III).

Oil or grease all frictional, sliding and bearing surfaces as well as lubricating felts (see also Figs. 1 to 5).

3.2. Routine maintenance after 1000 maintenance units

Carry out maintenance on the site.
Clean teleprinter and check the following:

Send contact and contact control in the transmitter and tape reader
Expanding spring clutches in the transmitter and printer
Shock absorbers (Ensure that the lubricating felt in the brake cylinder is soaked in teleprinter oil K.)
Torque of the receiver clutch
Governor contact

OILING GREASING

Oil or grease all frictional, sliding and bearing surfaces as well as lubricating felts (see also Figs. 3 to 42).

Also lubricate the following:
Receiver clutch as well as suspension points of the tension springs and the points of contact of the pressure and torsional springs. (When the teleprinter was assembled in the factory the suspension points and the points of contact of the springs were greased with Shell Retinax G grease).

Before connecting the teleprinter to the signalling line, perform a functional check as outlined in Chapter III, Section 4.

3.3. Recommendations for the general overhaul after 10,000 maintenance units

The general overhaul should be carried out in a workshop in which the necessary facilities and testing devices are available.

DISASSEMBLY

Disassemble the teleprinter to its major assemblies and strip these down into individual parts. Stops marking the positions of assemblies and individual parts in the teleprinter should not be loosened.

CLEANING

For the preliminary cleaning of the teleprinter we recommend that large workshops acquire a special washing device. This can be used for washing the individual assemblies.

A list of washing device suppliers can be supplied if required.
Electrical components, cables and leads, magnet coils, motor etc., shock absorber sealing ring and all other rubber parts must be removed beforehand.

Clean individual mechanical parts with the agents listed in Section 1.1 and lightly oil them with teleprinter oil K before replacing.
Remove dirt from electrical components, connectors, cables, and leads.
Clean contact spring sets with pure benzine or white spirit K 60.

WEARING PARTS

Check all parts for wear, play and corrosion and replace if necessary.
This also applies to the punch guides of the tape punch.
Check the cables and leads for faults.

It is absolutely necessary to replace:

Damaged screws and all springs, lubrication felts and washers, frictional felt washers, felt washers in the receiver clutch, ball bearings and needle bearings.

Touch up damaged enamelled parts visible from the outside. The enamel paints required may be obtained from SIEMENS AG, Fs De V1 VA I Ed, D-8 München 70, Postfach 70 00 72, Germany.

OIL REPELLENT

A film of oil repellent (5% stearic acid + 95% toluene) must be applied to the send contacts as well as the selector armature and start-stop armature of the receiver. These parts were marked in the factory with a red dot.

WARNING: The solvent toluene is inflammable. It should be obtained only from a recognised stockist.

Parts which have been dipped in oil repellent should be dried at once with a lint-free cloth.

GREASING

Grease all the suspension points of the tension springs as well as the points of contact of the pressure and torsional springs (marked in yellow in the Figs. relaing to the 1000 maintenance units overhaul) and the points marked in green in Figs. 3 to 49.

Spare ball bearings, frictional felt washers in the receiver clutch, in the platen and in the contact control in the transmitter and tape reader have already been pressure greased to last for a period of 10,000 maintenance units.

OILING

Oil all parts as well as frictional, sliding and bearing surfaces (see also Figs. 3 to 42).
The ball bearings of the type carriage basket and the spring suspension points of the pawls in the ribbon spool carrier must also be oiled.

INSTALLATION

Mount and adjust assemblies as per Chapters IV and III. Install and connect up cables and leads as per the wiring diagrams in Chapter V. They must not be damaged by revolving or moving parts or chafe on sharp corners or edges.

TESTING

Carry out functional test as per Chapter III, Section 4.

In addition, the following electrical measurements must be made:

insulation resistance
dielectric strength
leak current
power consumption
motor speed
start-stop distortion
receive margin
lower current limit

Details of the electrical measurements are contained in the manual "Teleprinter 100, Inspection instructions", Order No. D221/140.41.101.

CONTINUOUS OPERATION

It is recommended to carry out two hours' continuous operation.
The teleprinter, controlled by the transmitter of another teleprinter or by its tape reader, should operate faultlessly. For the test code, see Inspection instructions, Order No. D221/140.41.101.

4. Accessories

An accessories pack (S22211-C100-D41) is delivered with the teleprinter.
It contains the following items:

Quantity	Nomenclature	Order No.
1	Dust brush	V22199-Z-A31
1	Type cleaner	V22199-Z-A34
1	Polishing cloth	V22199-Z-A33

Instead of the accessories pack, an accessories box (S22211-C100-D321) may be supplied.
It contains the following items:

Quantity	Nomenclature	Order No.
2	Governor contact spring	C20302-A10-B3
1	Tube Retinax G grease	Z22211-C100-D2
1	Dust brush	V22199-Z-A31
1	Oil can with teleprinter oil K	Z22211-C100-D3
1	Polishing cloth	V22199-Z-A33
1	Type cleaner	V22199-Z-A34
1	Ink ribbon black/red	C20136-Z14-C695

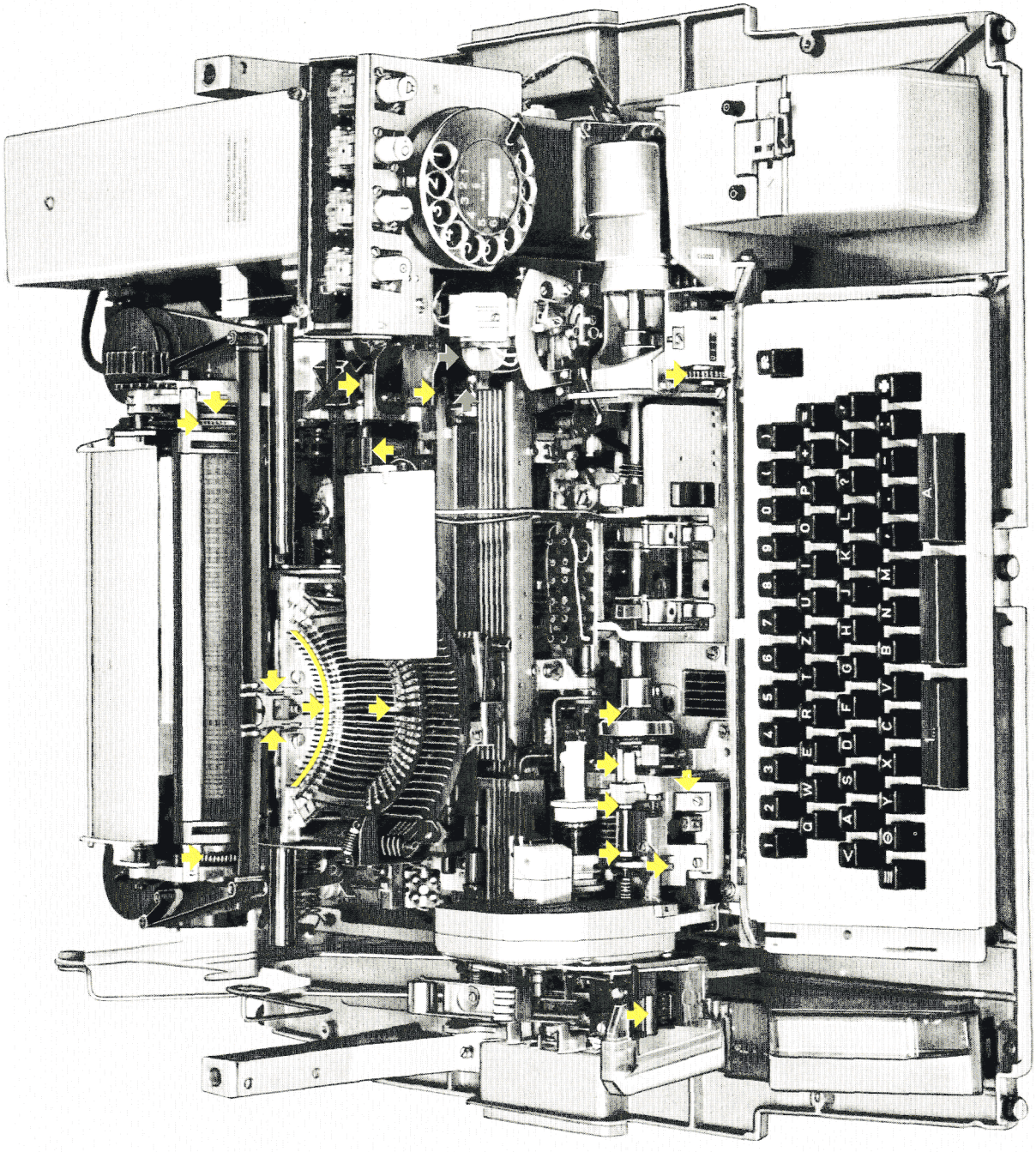
A chad remover (C20234-A18-C196) is included for teleprinters equipped with tape punches.

5. Comments to the figures

For easier location of the points to be lubricated, they are marked in colour in Figs. 1 to 49.
The colour indicates the lubricant to be used:

- Teleprinter oil K
- Retinax G grease

In some cases major assemblies are shown after removal from the machine, so that the lubricating points are more easily visible.



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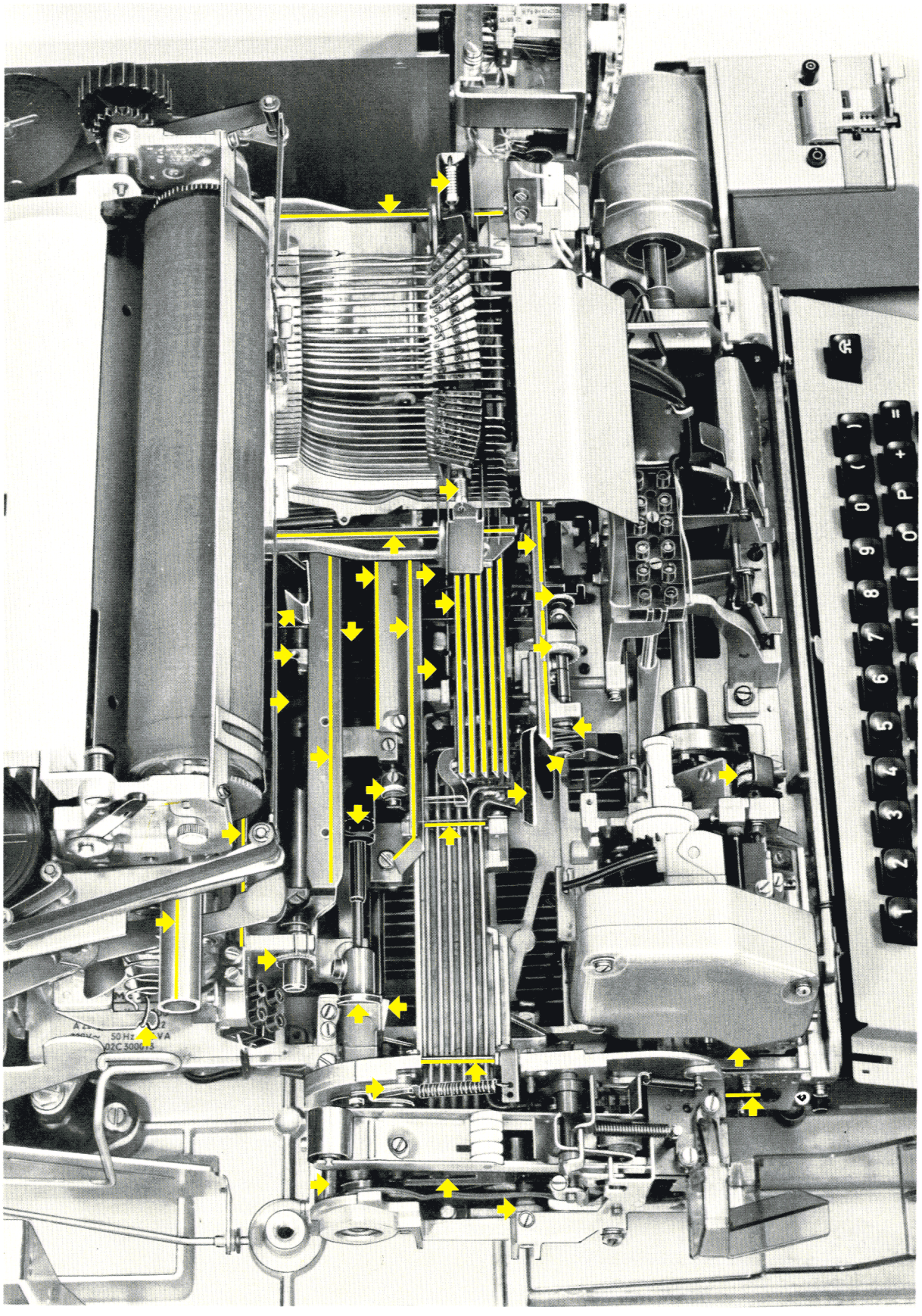

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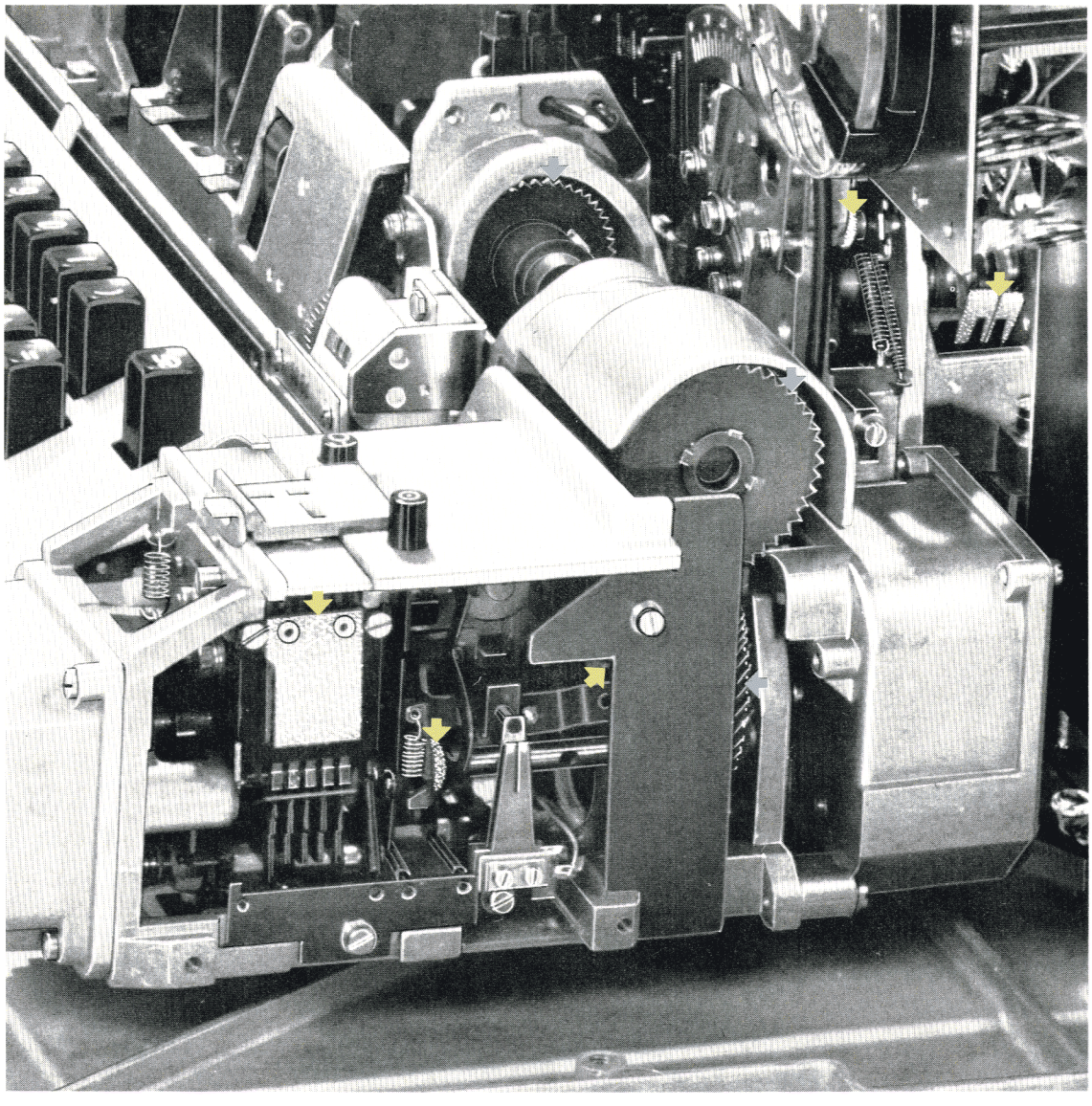

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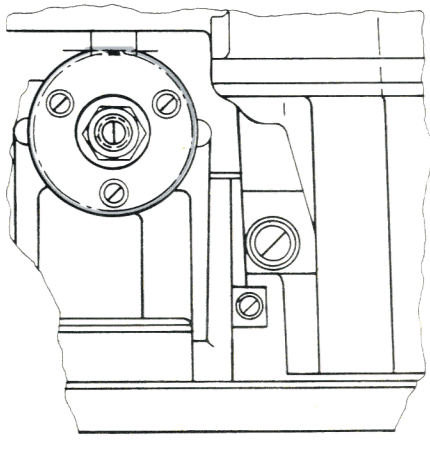

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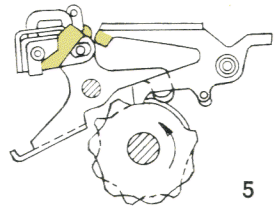

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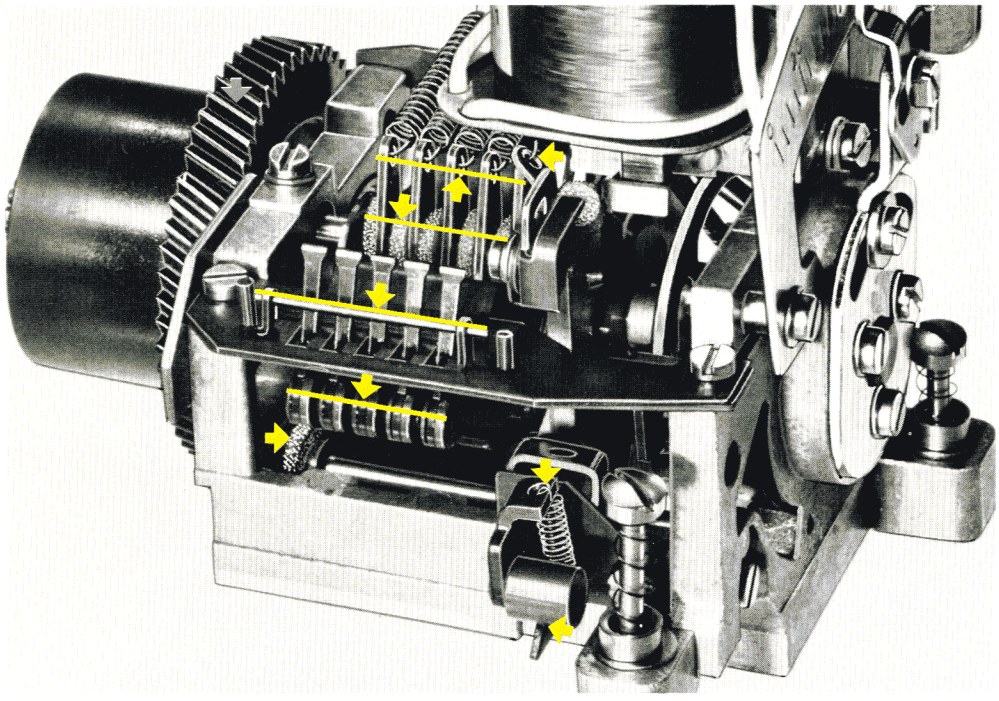

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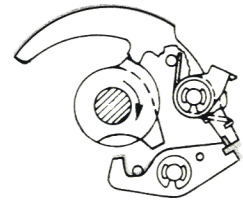

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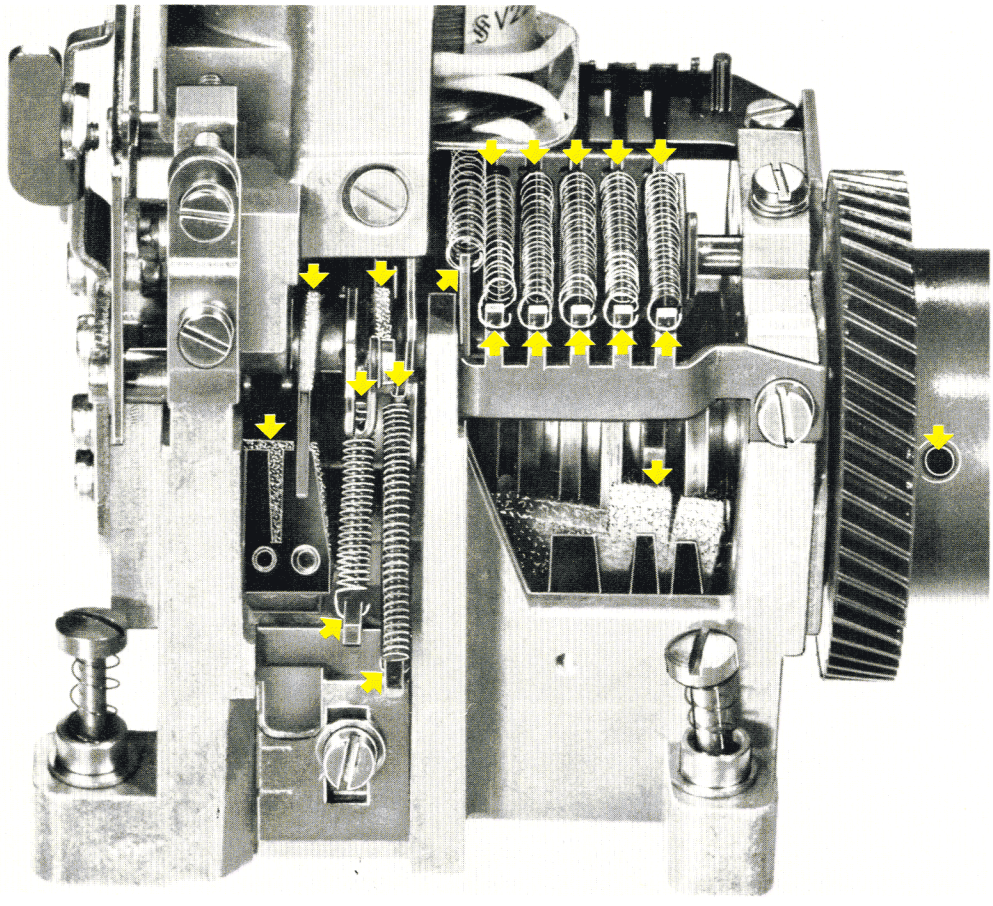

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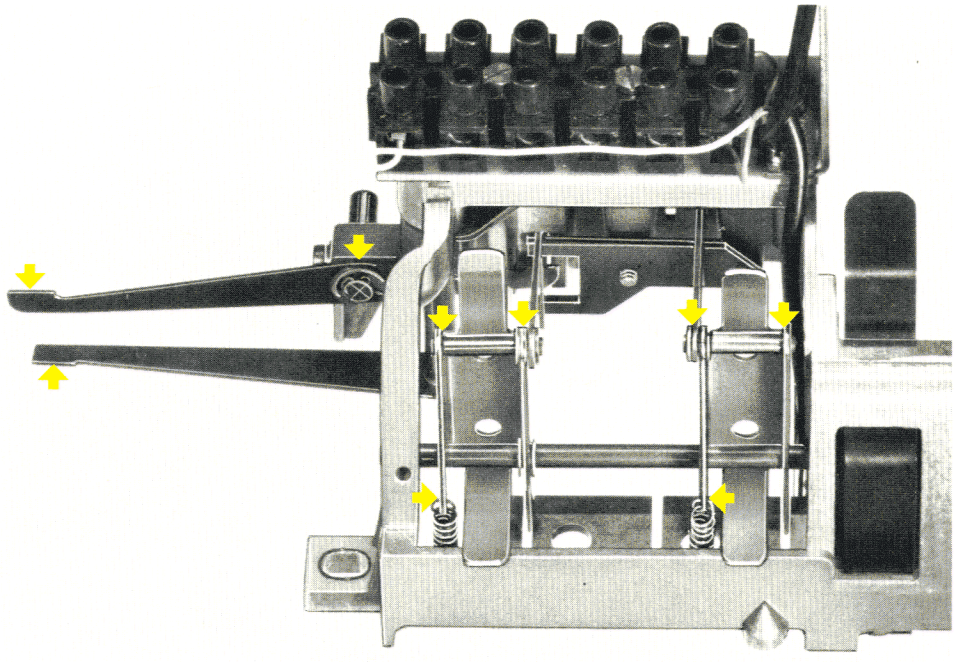

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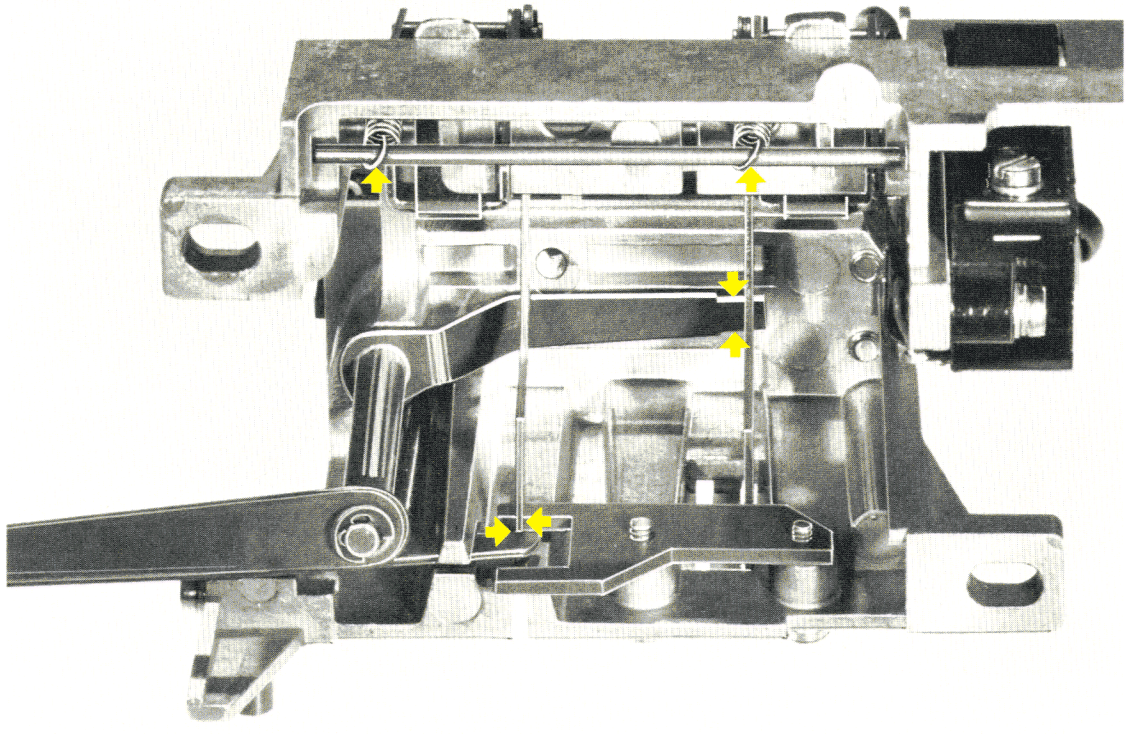

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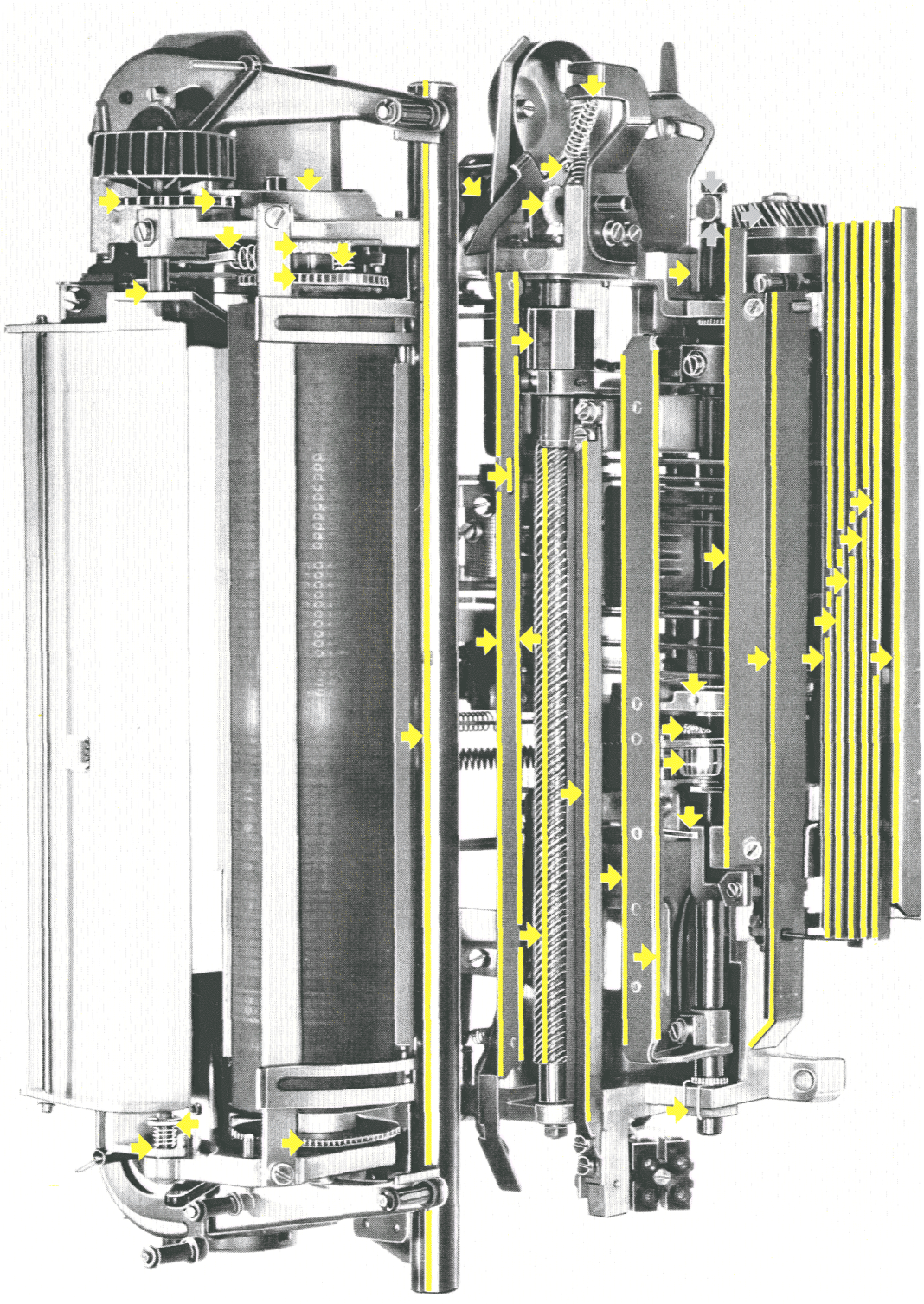

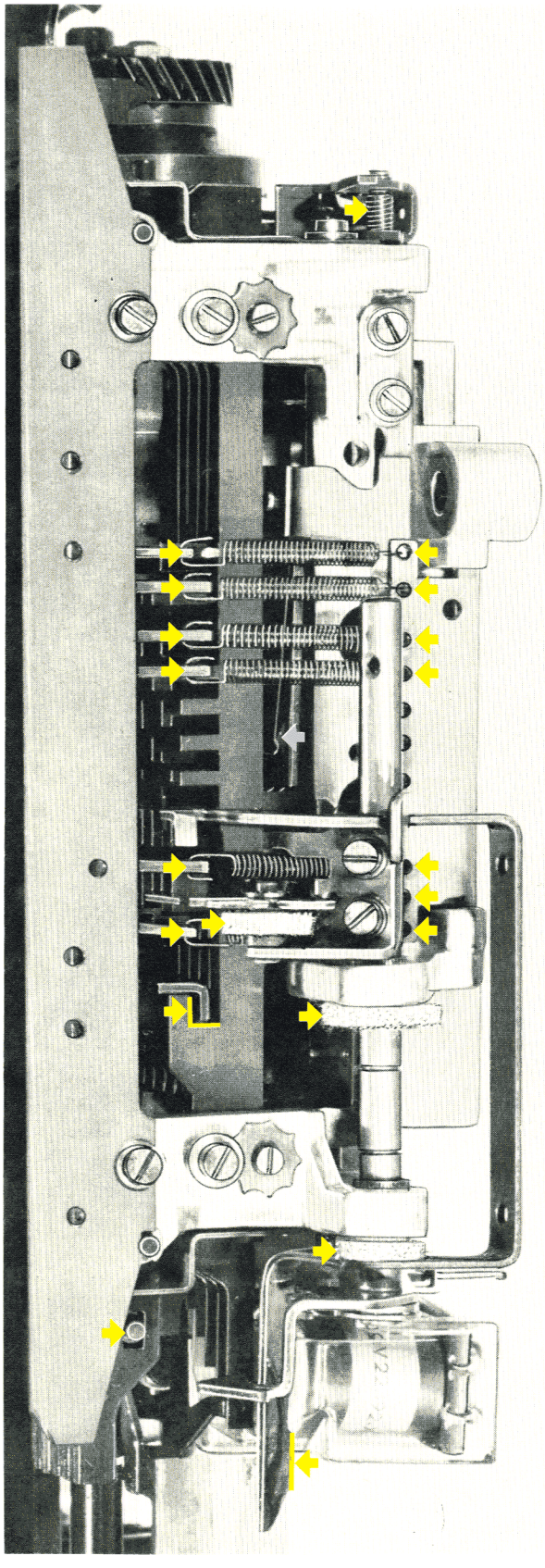

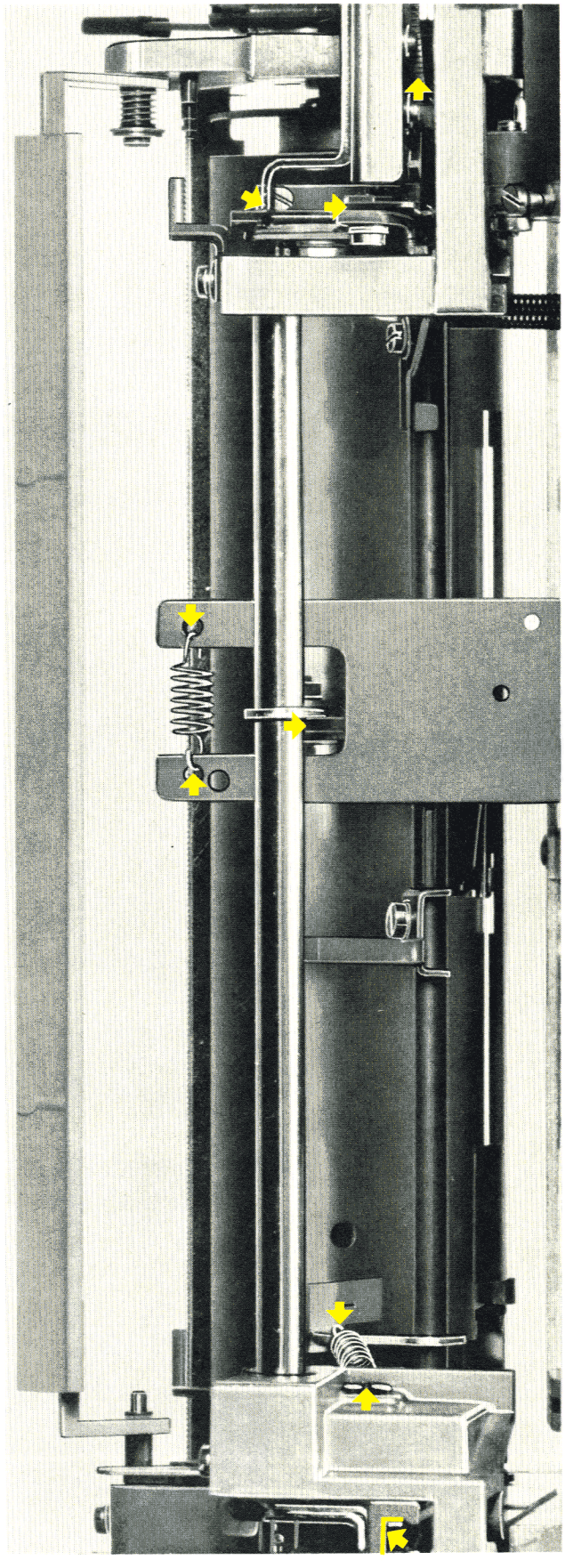

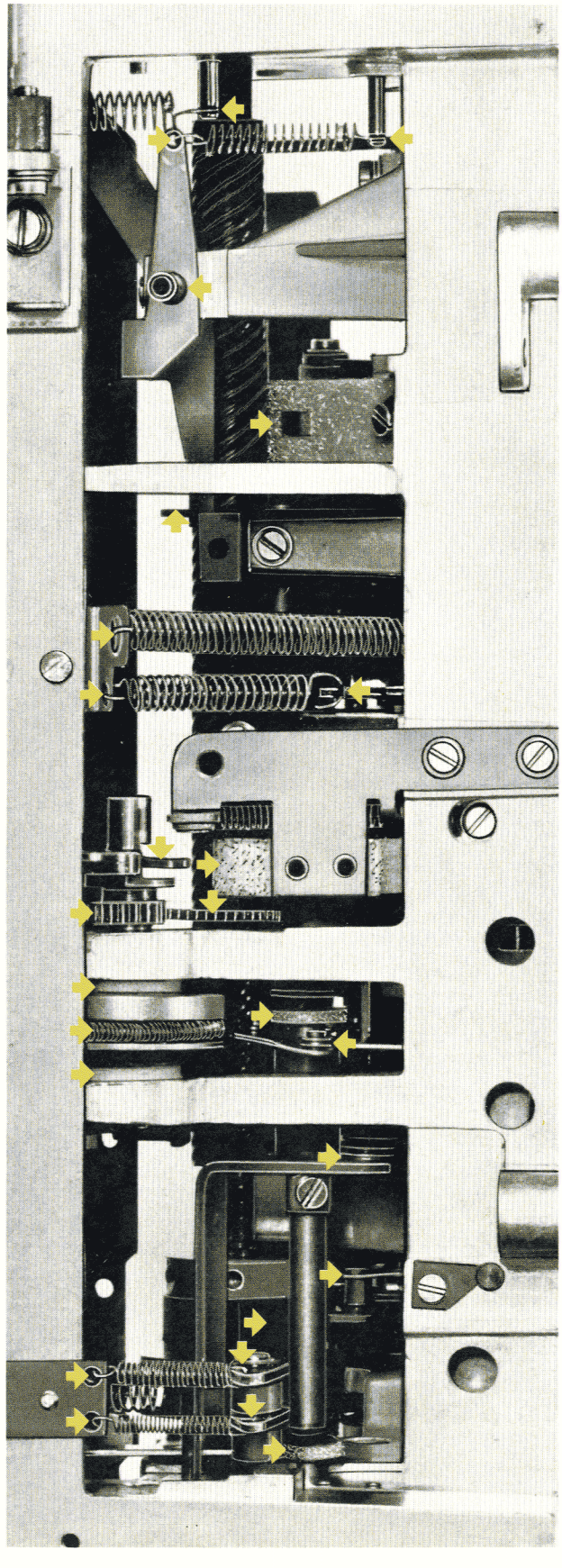

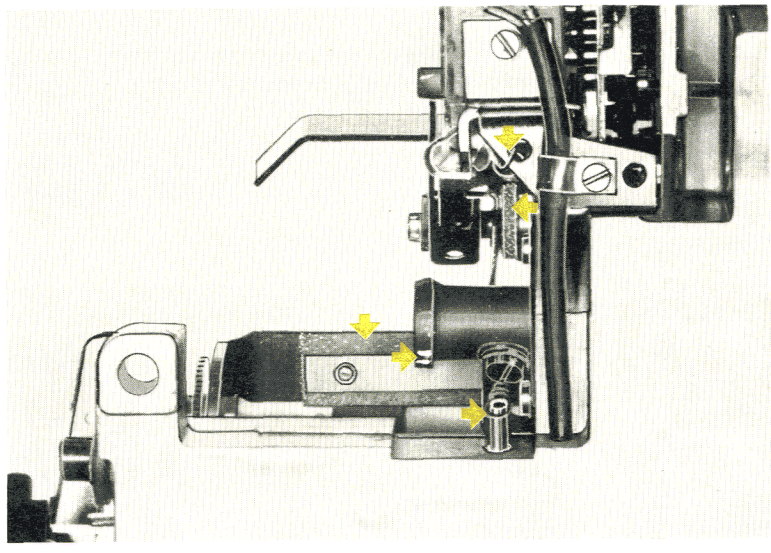

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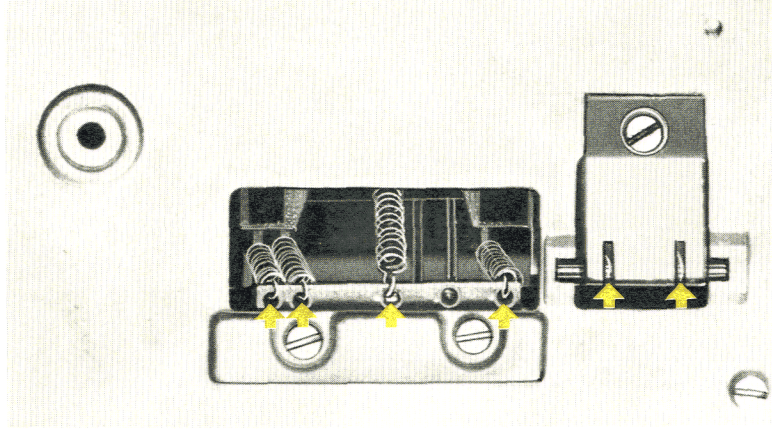

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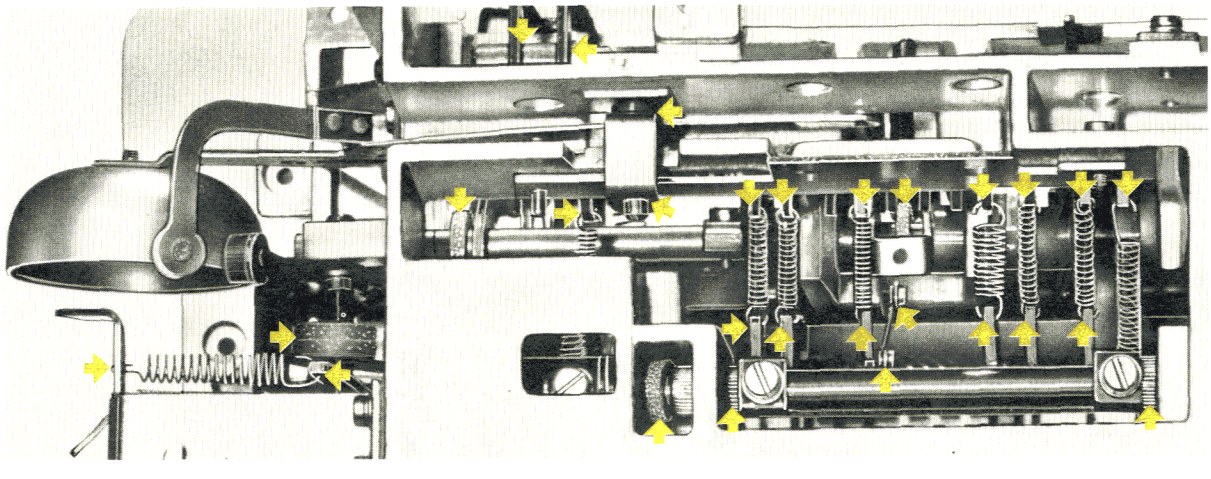

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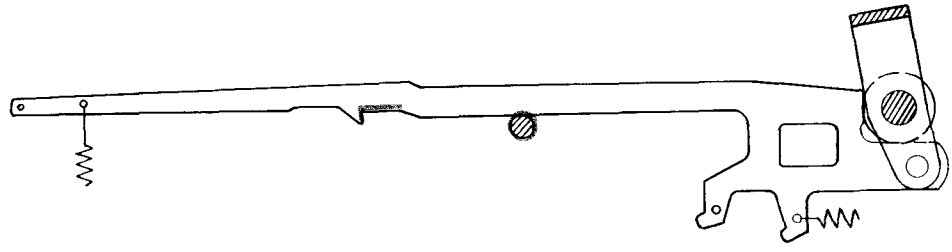

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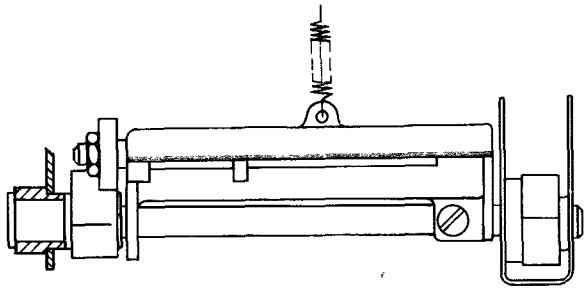

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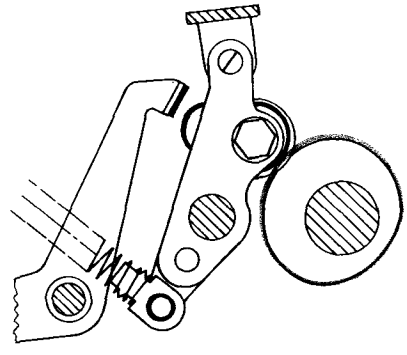

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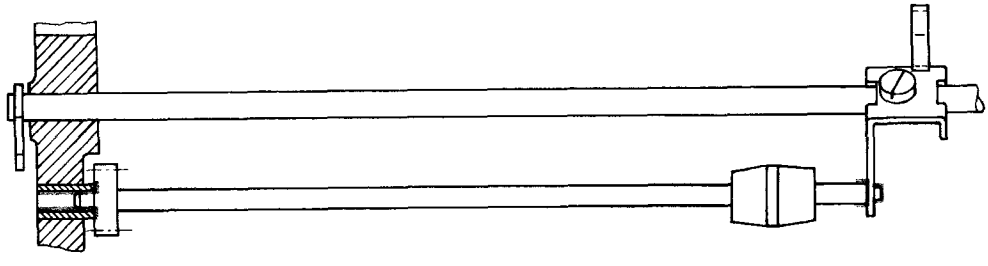

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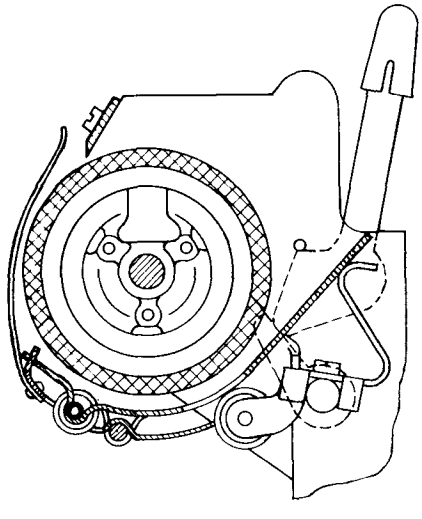

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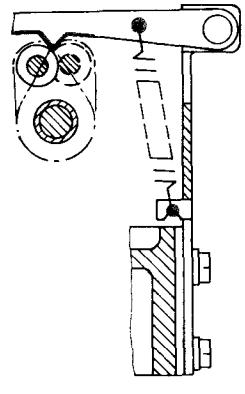

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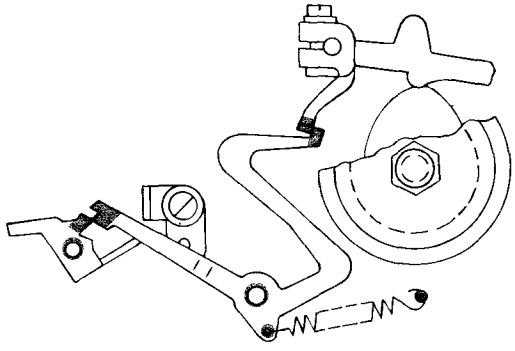

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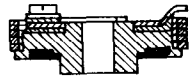

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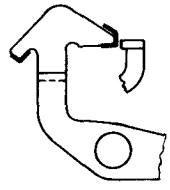

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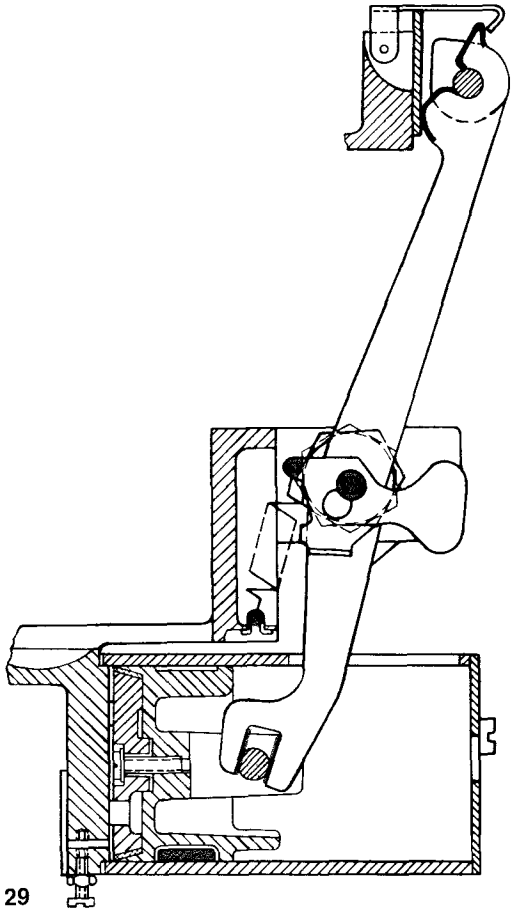

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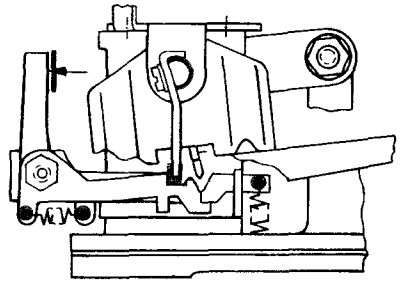

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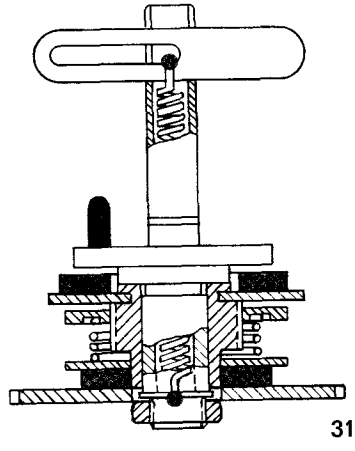

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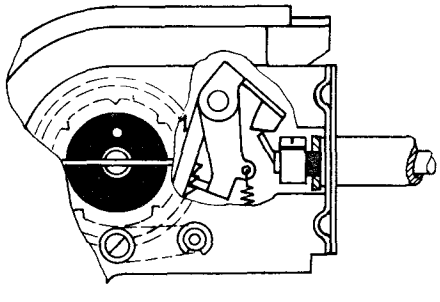

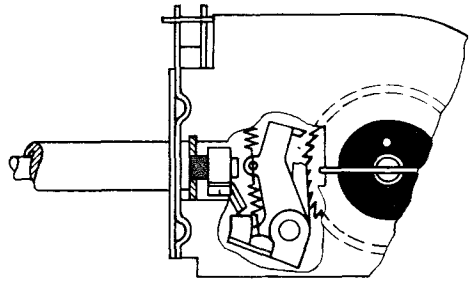

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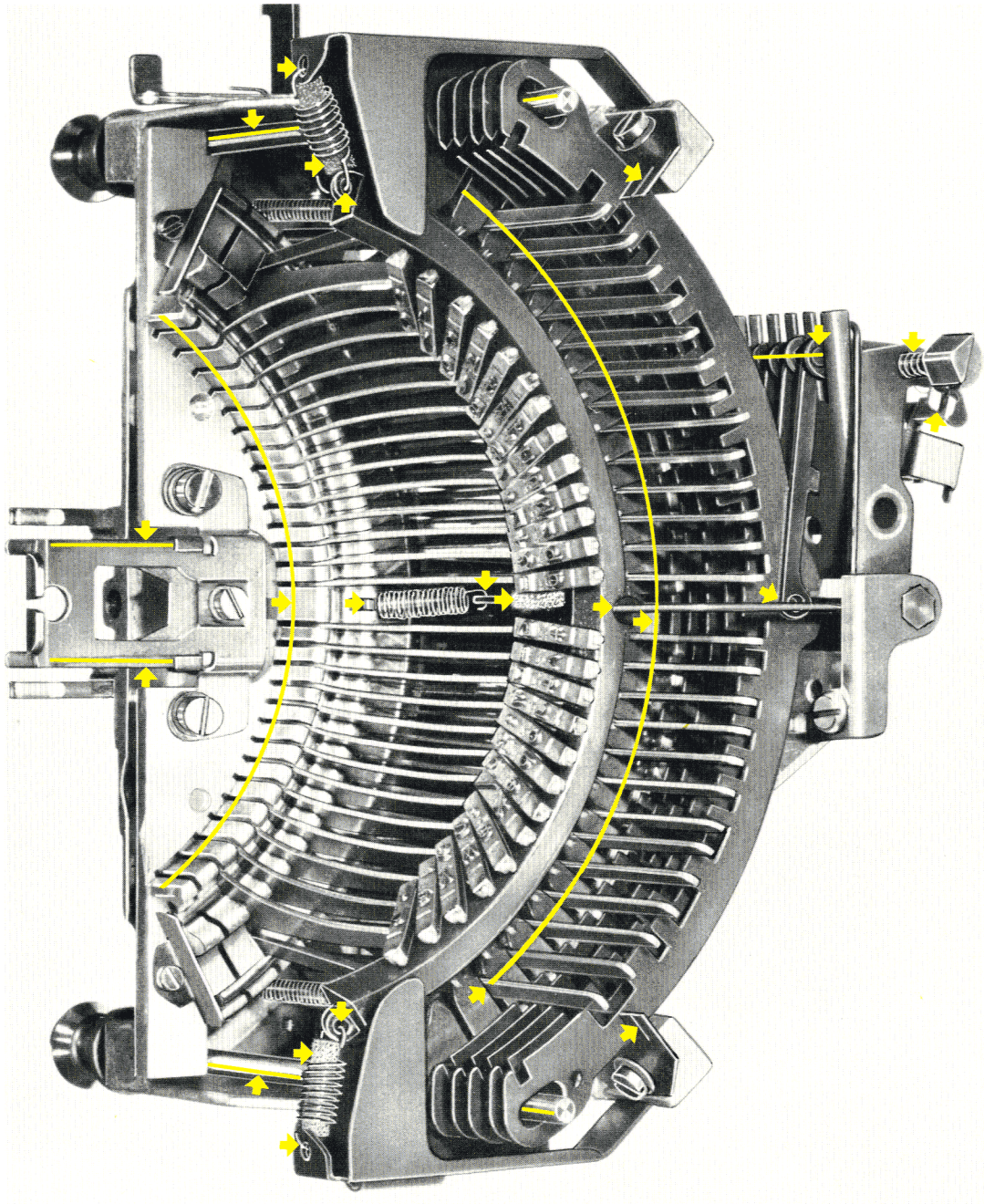

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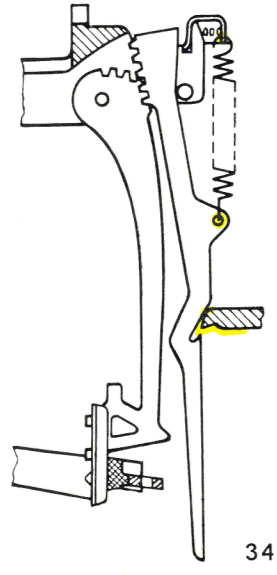

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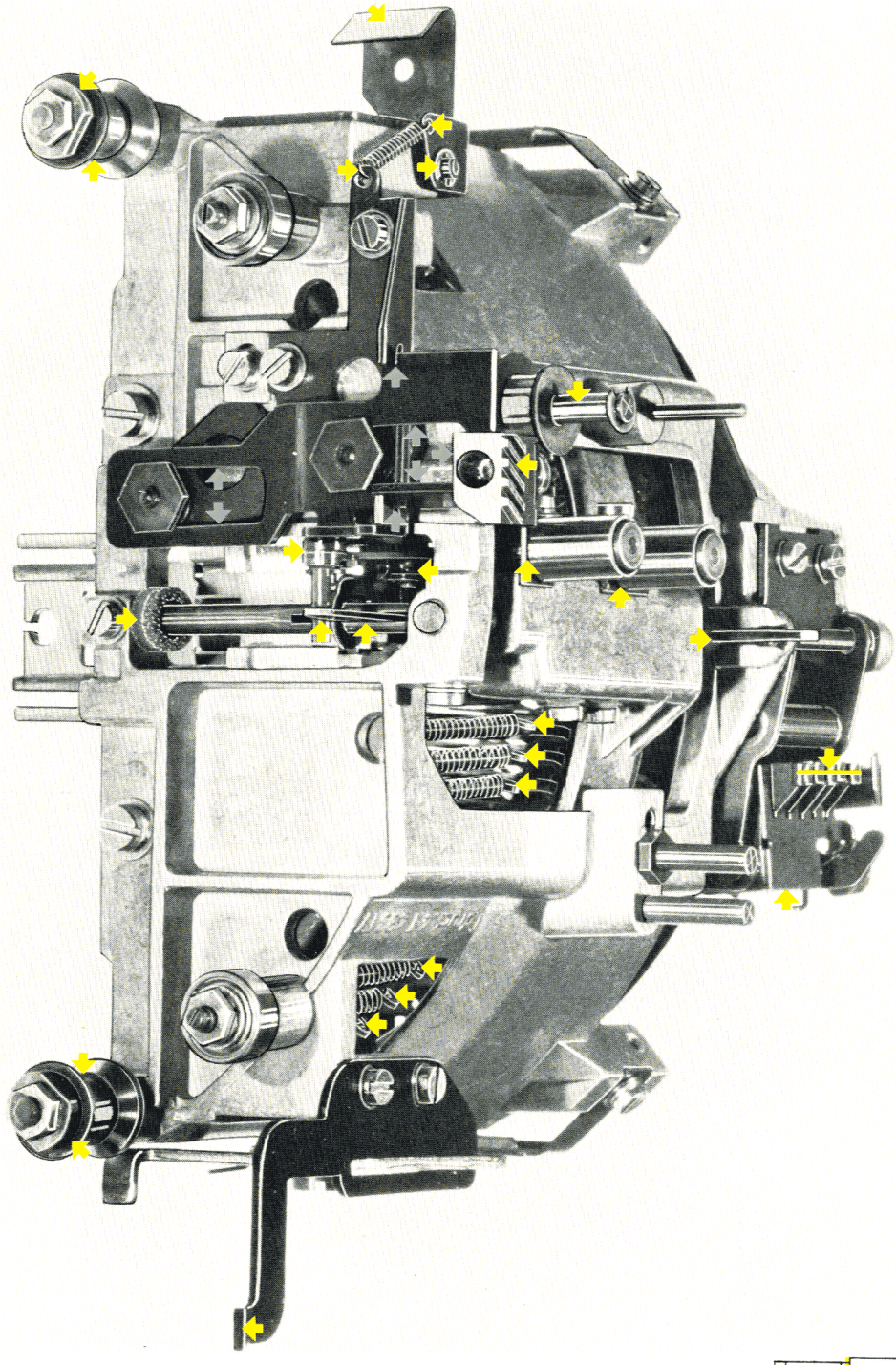

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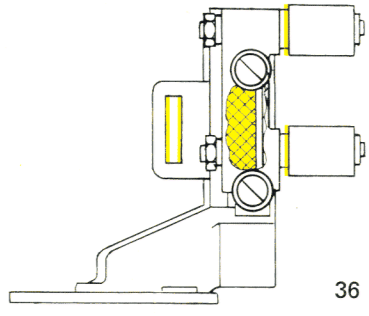

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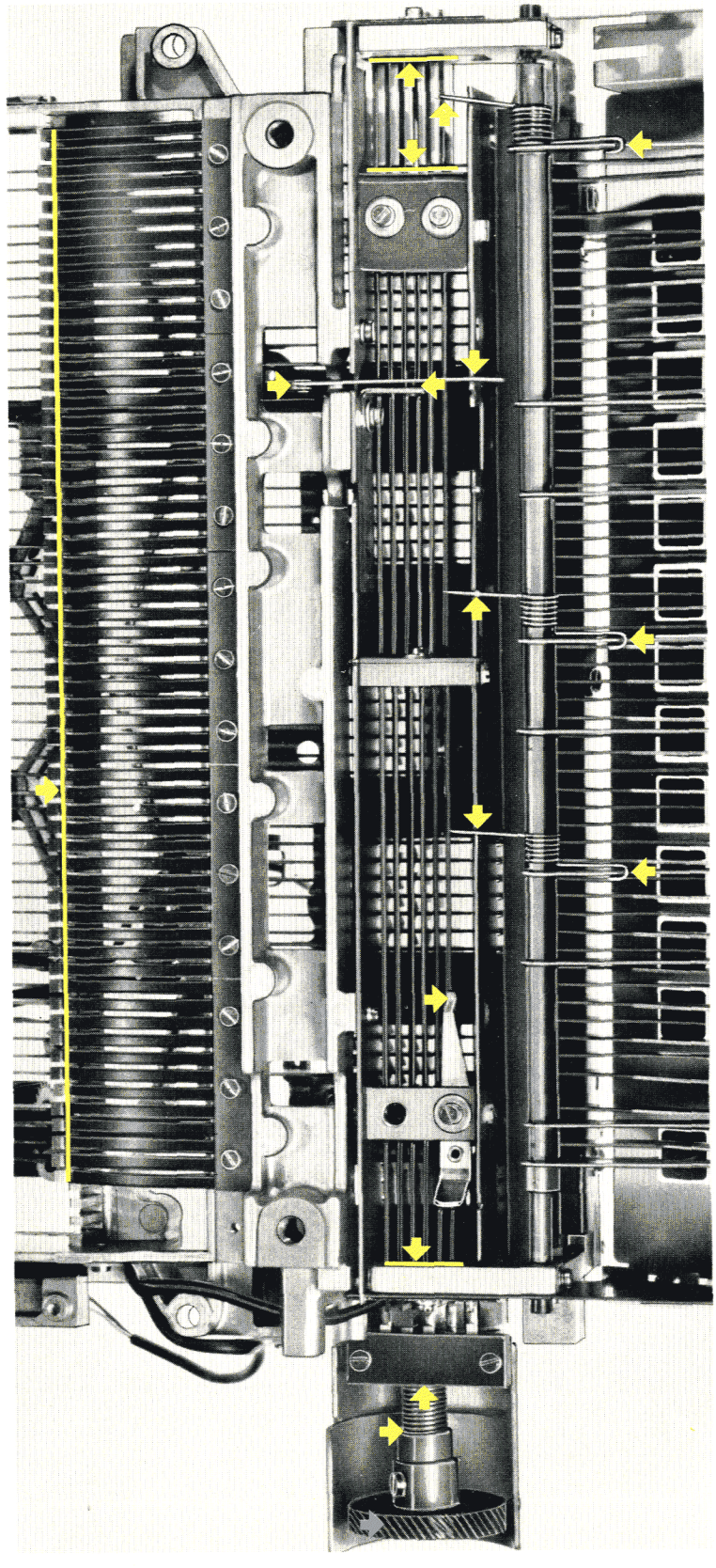

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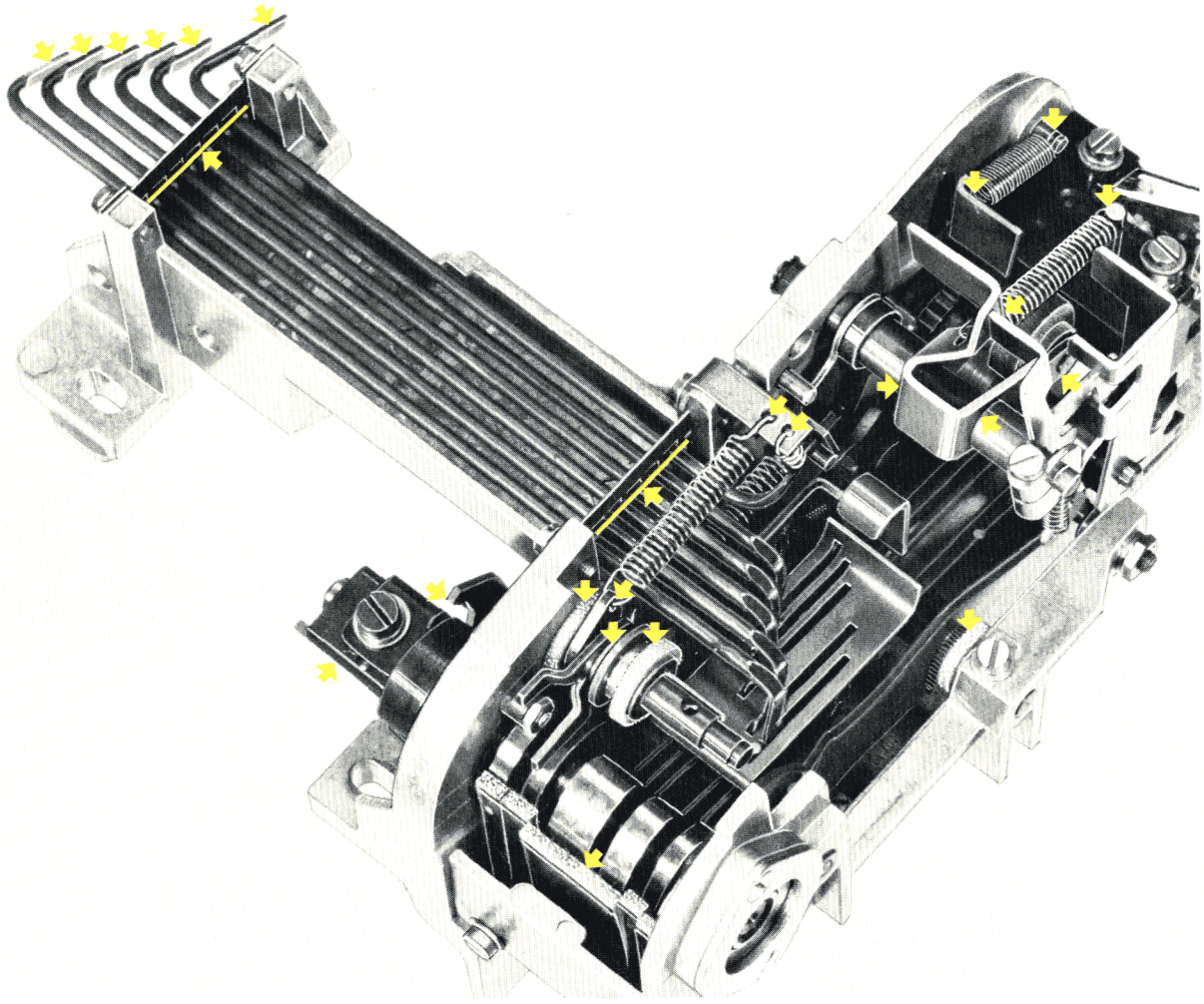

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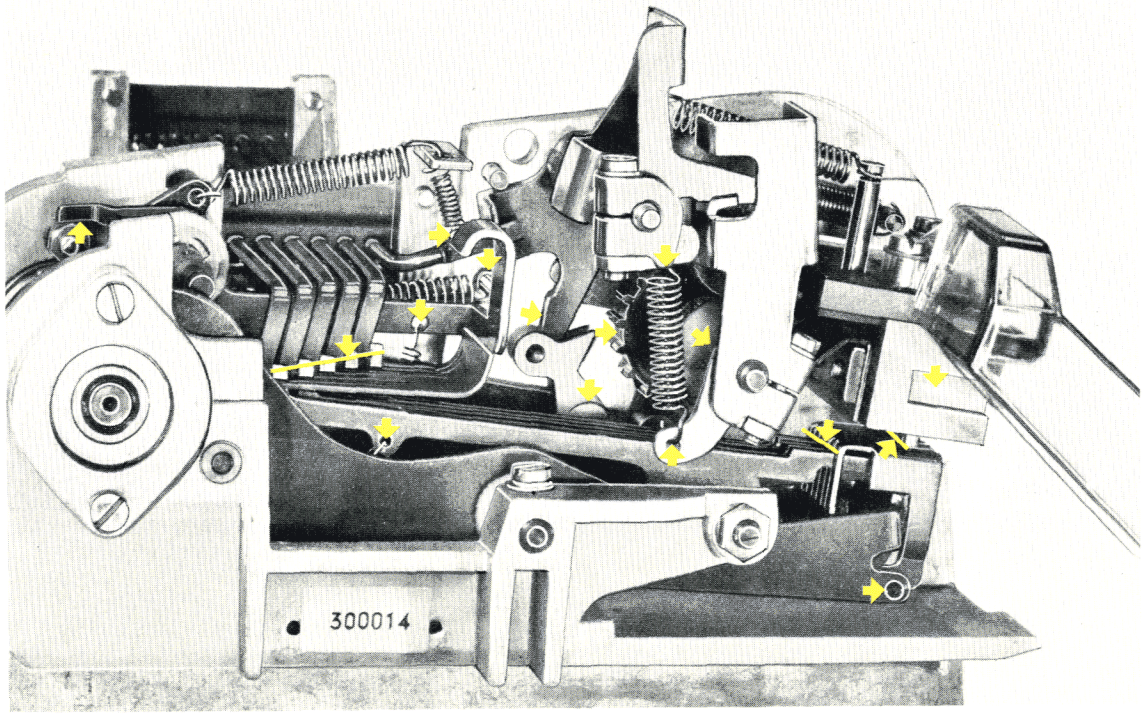

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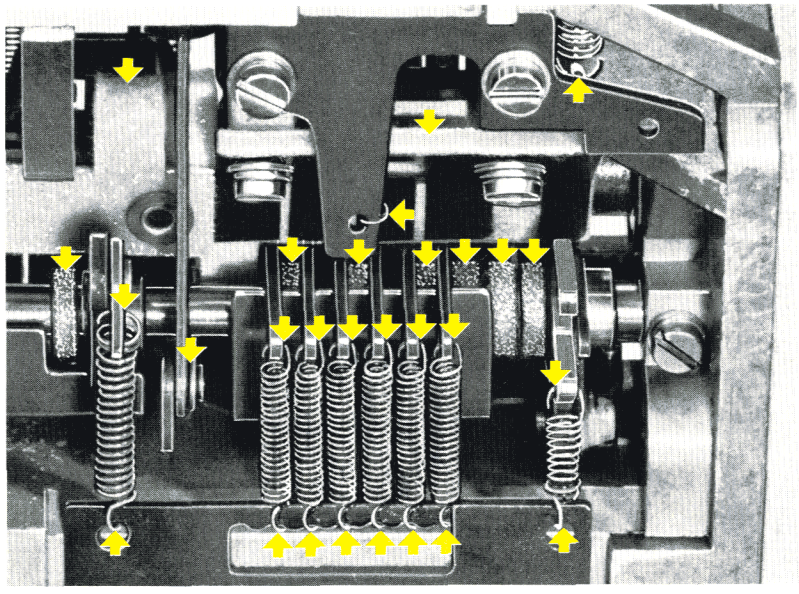

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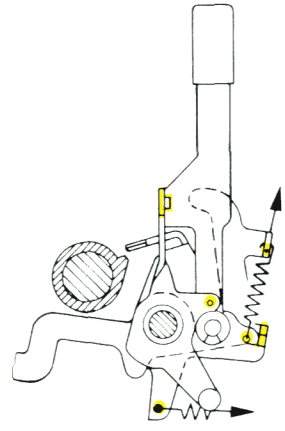

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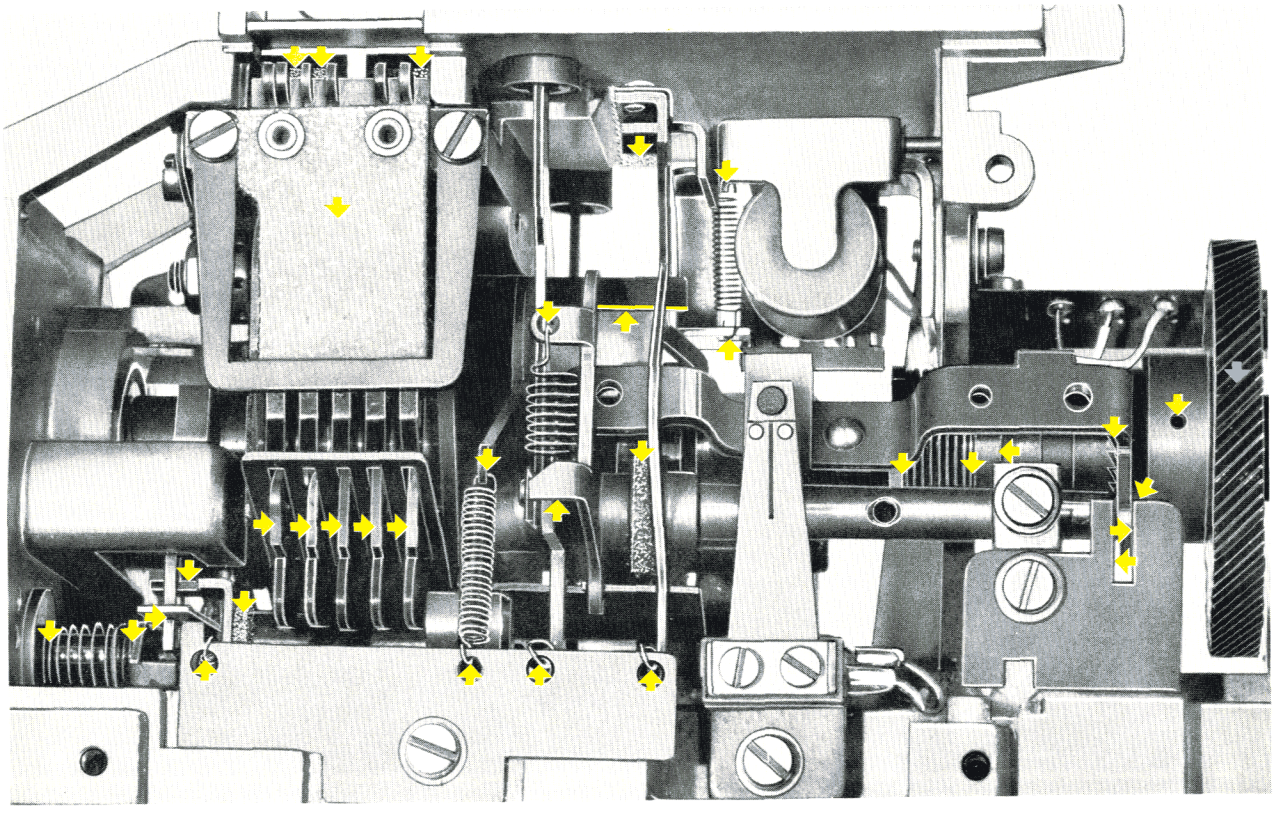

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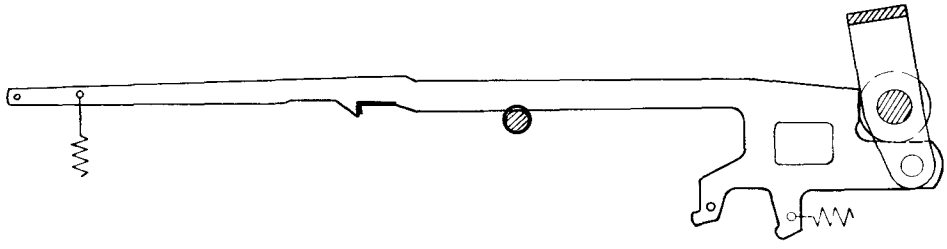

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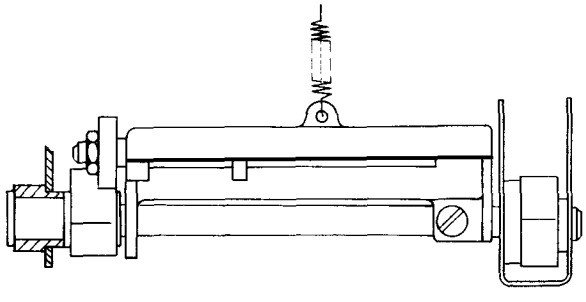

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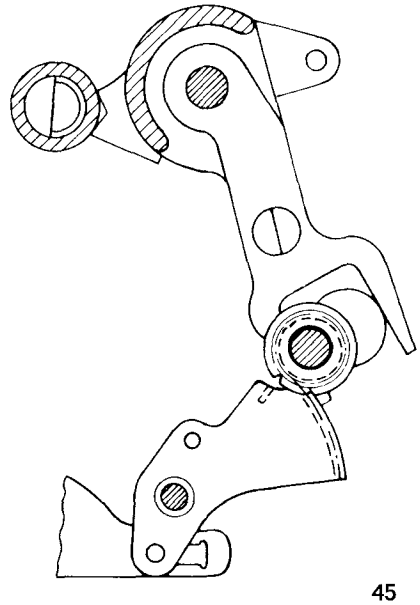

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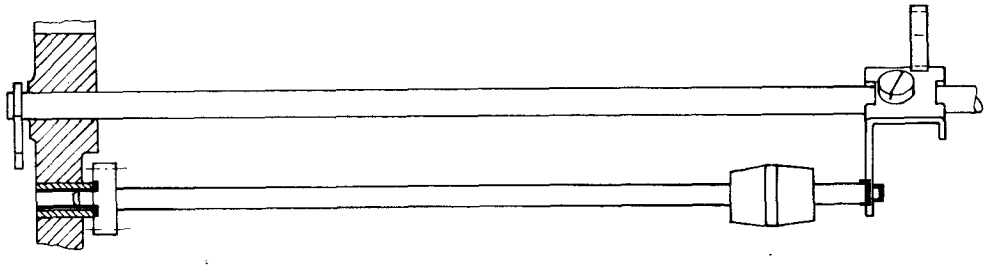

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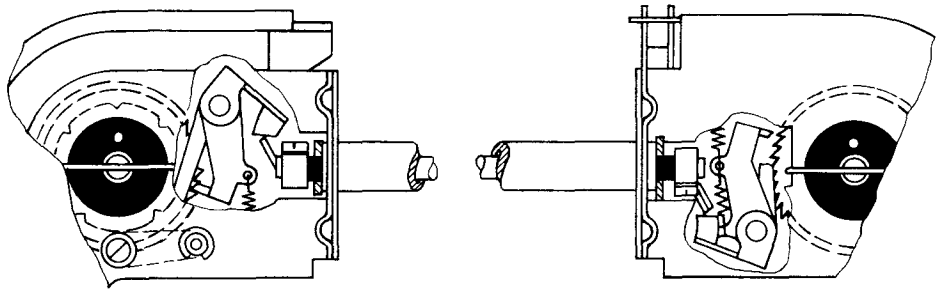

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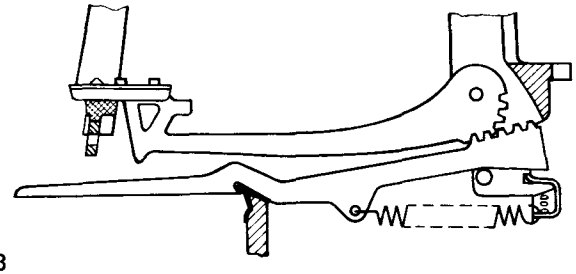

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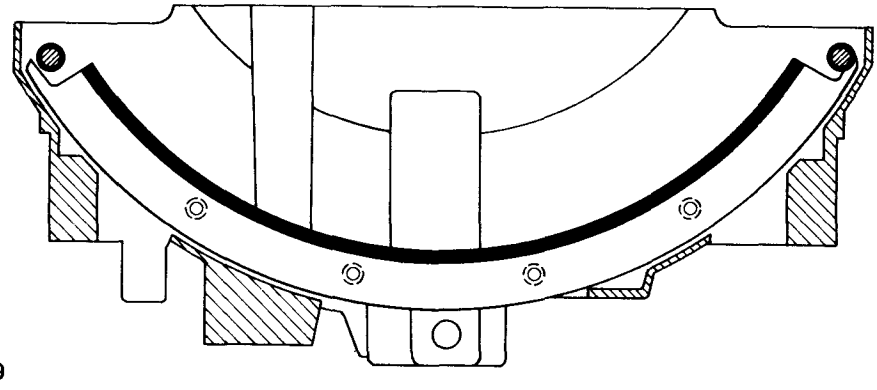

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Teileliste

Parts List

Nomenclature

Lista de piezas

Lista de peças

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks

Contents

The parts list contains ordering numbers and the names of all the parts designated by consecutive numbers in chapters II to VI. Next to the "nomenclature" column are given the chapter and the page where the part is illustrated (with the exception of the standard parts section). If the chapter is not indicated before the page reference, then the page reference always refers to chapter IV.

The Quantity/Unit column shows the number of times each part is contained in the Model 100 teleprinter. In each case the weight given is for one only of the part in question, and is given in grams (g).

The CONSECUTIVE NUMBERS given in the text and the illustration are NOT ORDERING NUMBERS. Please place orders for spare parts using only the ordering numbers given in this parts list.

Notes on standard parts

All the measurements shown next to the nomenclature are given in mm. Screws, threaded studs and nuts of all kinds have a metric thread.

The significance of these measurements is, for example, as follows:

Cons. No. 2	Cylindrical pin	1 h8 x 8	8 mm long fit according to ISO diameter of pin 1 mm
Cons. No. 5	Countersunk screw (and any other screws)	2.3 x 3	3 mm long outer diameter of thread 2.3 mm
Cons. No. 84	Hexagon nut (and any other nuts: DIN 439- .. low type DIN 934-... high type)	8	for screws with outer diameter of thread 8 mm
Cons. No. 61	Washer	4.3x9	outer diameter 9 mm inner diameter 4.3 mm
Cons. No. 64	Lock washer	2.3	for screws with outer diameter of thread 2.3 mm
Cons. No. 75	Spring washer	3	for screws with outer diameter of thread 3 mm
Cons. No. 91	Retainer ring	9 x 1	thickness of ring diameter of shaft 9 mm
Cons. No. 93	Retainer ring	19 x 1	thickness of ring diameter of hole 19 mm
Cons. No. 112	Retainer	1.5	diameter of groove in shaft 1.5 mm
Cons. No. 131	Spacer	5x0.75x4.5	length of spacer in mm wall thickness outer diameter

Cons. No.	Ordering No.	Nomenclature		Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1	D1-D120-W865	Taper pin	1.5x12		1		
2	D7-B8080-S865	Cylindrical pin	1h8x8		2		
3	D7-L8300-S865		3h8x30		2		
4	D7-Q9280-S1		5h9x28		2		
5	D63-H30-S1	Countersunk screw	2.3x3		2		
6	D63-H100-S1		2.3x10		1		
7	D63-L60-R		3x6		2		
8	D63-L80-S1		3x8		6		
9	D63-L160-S1		3x16		1		
10	D84-F100-S1	Panhead screw	1.7x10		2		
11	D84-H30-S1	Panhead screw	2.3x3		10		
12	D84-H40-G865		2.3x4		1		
13	D84-H40-S1		2.3x4		6		
14	D84-H50-S1		2.3x5		5		
15	D84-H60-S1		2.3x6		1		
16	D84-H70-S1		2.3x7		2		
17	D84-H80-S1		2.3x8		7		
18	D84-H120-S1		2.3x12		13		
19	D84-H7080-S1 *)		2.3x8		3		
20	D84-H7100-S1 *)		2.3x10		1		
21	D84-L30-S1	Panhead screw	3x3		7		
22	D84-L40-S1		3x4		5		
23	D84-L50-S1		3x5		13		
24	D84-L60-S1		3x6		64		
25	D84-L80-S1		3x8		77		
26	D84-L100-S1		3x10		20		
27	D84-L120-S1		3x12		13		
28	D84-L140-S1		3x14		4		
29	D84-L150-S1		3x15		5		
30	D84-L180-S1		3x18		4		
31	D84-L220-S1	Panhead screw	3x22		1		
32	D84-L400-S1		3x40		1		
33	D84-L7060-S1 *)		3x6		12		
34	D84-L7080-S1 *)		3x8		70		
35	D84-L7100-S1 *)		3x10		23		
36	D84-L7120-S1 *)		3x12		19		
37	D84-L7160-S1 *)		3x16		2		
38	D84-P50-S1		4x5		1		
39	D84-P60-S1		4x6		3		
41	D84-P80-G865	Panhead screw	4x8		2		
42	D84-P80-S1		4x8		7		
43	D84-P100-G865		4x10		1		
44	D84-P100-S1		4x10		3		
46	D84-P150-S1		4x15		7		
47	D84-P250-S1		4x25		1		
48	D84-P7080-S1 *)		4x8		15		
49	D84-P7100-S1 *)		4x10		16		
50	D84-P7120-S1 *)		4x12		12		

*) see page 6

Cons. No.	Ordering No.	Nomenclature		Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
51	D84-P7160-S1 *)	Panhead screw	4x16		2		
52	D84-P7180-S1 *)		4x18		3		
53	D84-P7250-S1 *)		4x25		2		
54	D84-R250-S1		6x25		2		
55	D85-L180-S1	Flat-head screw	3x18		2		
56	D91-L100-S1	Oval head screw	3x10		1		
57	D125-A25-S1	Washer	2.5x6		3		
58	D125-A32-P		3.2x7		2		
59	D125-A32-S1		3.2x7		24		
60	D125-A37-S1		3.7x8		2		
61	D125-A43-S1	Washer	4.3x9		20		
62	D125-A53-S1		5.3x10		2		
63	D125-A64-S1		6.4x12.5		2		
64	D127-B23-R60	Lock washer	2.3		2		
65	D127-B23-R60		2.3		7		
67	D127-B30-R60		3		79		
68	D127-A40-R60		4		3		
69	D127-B40-R60		4		32		
70	D127-B40-S1		4		1		
71	D127-B50-R60	Lock washer	5		1		
72	D127-B60-R60		6		3		
75	D137-A30-R60	Spring washer	3		3		
76	D137-B30-R60		3		1		
77	D137-A40-R60		4		2		
78	D433-A25-S1	Washer	2.5x5		9		
79	D433-A28-S1		2.8x5.5		1		
80	D433-A32-P		3.2x6		2		
81	D433-A32-S1	Washer	3.2x6		28		
82	D433-A43-S1		4.3x8		16		
83	D433-A53-S1		5.3x9.5		2		
84	D439-A80-A2	Hexagon nut	8		1		
85	D439-A80-S1		8		1		
86	D439-B30-S1		3		6		
87	D439-B40-S1		4		7		
88	D439-B50-S1		5		1		
89	D439-B60-S1		6		3		
90	D439-B100-S1		10		1		
91	D471-A90-S79	Retainer ring for shafts	9x1		1		
92	D471-A140-S79		9x1		2		
93	D472-A190-S79	Retainer ring for holes	19x1		1		
94	D472-A300-S79		30x1.2		1		
95	D472-A310-R60		31x1.2		1		
97	D562-A23-S1	Square nut	2.3		1		
98	D933-L7040-S1 *)	Hexagon screw	3x4		1		
99	D933-L7050-S1 *)		3x5		6		
100	D933-L7060-S1 *)		3x6		5		

*) see page 6

Cons. No.	Ordering No.	Nomenclature		Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
101	D933-L7080-S1 *)	Hexagon screw	3x8		3		
102	D933-Z98-S1 *)		6x20		4		
103	D934-A30-S1	Hexagon nut	3		6		
104	D934-A40-S1		4		7		
105	D934-A80-S1		8		1		
106	D2103-B1354-S	Ribbon spool empty	13x54S		1		
107	D91496-B1312-M691	Soldering tag			2		
108	D5401-C15-S	Ball	1.5 mm		60		
109	D5402-Z100	Roller			13		
110	D5402-Z101				12		
111	D6797-J82-S1	Toothed disk			1		
112	D6799-A15-R60	Retainer	1.5		2		
113	D6799-A19-R60		1.9		10		
114	D6799-A23-R60		2.3		34		
115	D6799-A32-R60		3.2		19		
116	D6799-A40-R60		4		10		
117	D6799-A50-R60		5		7		
118	D7971-B3913-S1	Sheet metal screw	3.9x13		14		
119	D9021-B32-S1	Washer	3.2x9		6		
120	H60110-L140-S1	Recessed-neck screw	3x14		3		
121	H60110-L160-S1	Recessed-neck screw	3x16		6		
122	H60110-L180-S1		3x18		2		
123	H60110-P200-S1		4x20		1		
124	H60110-P220-S1		4x22		2		
125	H60110-P250-S1		4x25		3		
126	H60110-P320-S1		4x32		1		
127	H60110-R380-S1		6x38		2		
128	H60302-A50	Spring washer	5.3		2		
129	H60310-L45-S1	Spacer	5x0.75x4.5		2		
130	H60310-L50-S1		5x0.75x5		2		
131	H60310-L60-S1	Spacer	5x0.75x6		2		
132	H70110-S3	Washer			2		
133	H78550-A30	Cable clamp			2		
136	H78550-B60				3		

The following additional items were included during printing:

138	D63-L60-G865	Countersunk screw	3x6		2		
139	D84-P80-S664	Panhead screw	4x8		2		
140	D137-H23-R60	Spring washer	2.3		2		
142	D137-B50-R60	Spring washer	5		3		
143	D137-B80-R60		8		1		
144	D91-L120-S1	Oval head screw	3x12		6		
145	D137-A40-R	Spring washer	4		1		
146	H60302-A50-B648		5.3		2		
147	H60711-A65-Z9	Manufacturer's emblem			1		
148	D9021-B43-S1	Washer	4.3x12		10		
149	D9021-B64-S1		6.4x18		4		
150	D63-L60-S1	Countersunk screw	3x6		2		

*) see page 6

Cons. No.	Ordering No.	Nomenclature		Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
151	D84-Q7250-S1 *)	Panhead screw	6x25		3		
152	H60110-Q180-S1	Recessed-neck screw	5x18		2		
153	D84-L200-S1	Panhead screw	3x20		2		
154	H60310-L100-S649	Spacer	5x0.75x10		2		

Combination screws marked with *) have captive washers. The parts shown in the following list can be used instead, but these parts are not connected permanently to each other.

Cons. No.	Screw	Washer/Lock washer
19	D84-H80-S1	D125-A25-S1
20	D84-H70-S1	D127-B23-R60
33	D84-L60-S1	
34	D84-L80-S1	D125-A32-S1
35	D84-L100-S1	D127-B30-R60
36	D84-L120-S1	
37	D84-L160-S1	
48	D84-P80-S1	
49	D84-P100-S1	
50	D84-P120-S1	D125-A43-S1
51	D84-P160-S1	D127-B40-R60
52	D84-P180-S1	
53	D84-P250-S1	
98	D933-L40-S1	
99	D933-L50-S1	D125-A32-S1
100	D933-L60-S1	D127-B30-R60
101	D933-L80-S1	
102	D933-R200-S1	D125-A64-S1 D127-B60-R60
151	D84-Q250-S1	D125-A53-S1 D127-B50-R60

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
201	B25833-S4146-K009	Capacitor with mounting parts (C45)	195	1	251	
202	B81362-A-B1	Capacitor with mounting parts (FE5)	195	1	30	
203	B84502-A30	Module (FE1, FE2)	221, 279	2	48	
204	B84602-A20	RF suppressor bracket (FE5)	195	1	263	
205	B82523-C-A10	Choke	195	1	78	
210	C20136-A4-B15	Bracket	115	1	4	
211	C20136-A4-B16	Lever	113	1	2	
212	C20136-A4-B17	Lever	113	1	2	
213	C20136-A4-B28	Operating lever	91	1	230	
214	C20136-A4-B42	Paper guide pan	89	1	111	
215	C20136-A4-B43	Paper guide	89	1	167	
216	C20136-A4-B45	Lever	89	1	7	
217	C20136-A4-B46	Pressure roller	89	1	3	
218	C20136-A4-B47	Axle with pressure roller	89	1	16	
219	C20136-A4-B54	Axle with spur gear	89	1	83	
220	C20136-A4-B55	Lever	97	1	5	
221	C20136-A4-B61	Shock absorber	91	1	330	
222	C20136-A4-B62	Piston	91	1	20	
223	C20136-A4-B64	Lever	89	1	7	
224	C20136-A4-B65	Comb	105	1	16	
225	C20136-A4-B70	Carriage feed lever	103	1	10	
226	C20136-A4-B71	Bar with lever	103	1	5	
227	C20136-A4-B73	Lever	95	1	1	
228	C20136-A4-B74	Lever	95	5	1	
229	C20136-A4-B75	Detent	101	1	16	
230	C20136-A4-B78	Control lever	103	1	14	
231	C20136-A4-B79	Anti-bounce pawl	105	1	7	
232	C20136-A4-B82	Lubricating assembly	105	1	12	
233	C20136-A4-B87	Impact adjuster	93	1	21	
234	C20136-A4-B90	Printer bail	101	1	84	
235	C20136-A4-B91	Cam roller	101	1	25	
236	C20136-A4-B95	Parallel guide	97	1	73	
237	C20136-A4-B96	Sleeve with ratchet	95	1	45	
238	C20136-A4-B97	Lubricating assembly	95	1	4	
239	C20136-A4-B98	Latching lever	97	1	8	
240	C20136-A4-B99	Lever	97	1	8	
241	C20136-A4-B105	Latching lever with bracket	103	1	16	
242	C20136-A4-B106	Knob	87	1	17	
243	C20136-A4-B113	Tension spring	85	1	11	
244	C20136-A4-B117	Lubricating assembly	101	1	2	
246	C20136-A4-B119	Guide pin	111	1	4	
247	C20136-A4-B121	Type basket	113	1	205	
248	C20136-A4-B122	Pressure roller	115	2	7	
249	C20136-A4-B125	Roller carrier	115	1	1	
250	C20136-A4-B136	Lever	95	1	2	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
251	C20136-A4-B137	Bar	95	1	37	
252	C20136-A4-B144	Type bar segment assembly	109	1	127	
253	C20136-A4-B149	Feed rack	113	1	10	
254	C20136-A4-B175	Segment	103	1	20	
255	C20136-A4-B179	Platen	89	1	399	
256	C20136-A4-B180	Platen	89	1	395	
257	C20136-A4-B181	Spool carrier	87	1	299	
258	C20136-A4-B185	Detent	87	1	2	
259	C20136-A4-B189	Lever	87	1	13	
260	C20136-A4-B190	Changeover lever	89	1	9	
261	C20136-A4-B192	Ribbon feed linkage	103	1	29	
262	C20136-A4-B197	Lever	89	1	16	
263	C20136-A4-B200	Tensioning lever	87	1	11	
264	C20136-A4-B210	Detent	87	1	2	
265	C20136-A4-B212	Lever	101	1	6	
266	C20136-A4-B213	Shaft with lever	101	1	26	
267	C20136-A4-B217	Pull bar	113	1	3	
268	C20136-A4-B220	Latching lever	87	1	3	
269	C20136-A4-B221	Control bar	95	1	33	
270	C20136-A4-B224	Eccentric screw	101	2	5	
271	C20136-A4-B231	Lever	101	1	5	
272	C20136-A4-B236	Armature holding plate	101	1	4	
273	C20136-A4-B237	Lever	101	1	4	
274	C20136-A4-B239	Guide plate	89	1	50	
275	C20136-A4-B259	Tension spring	101	1	8	
276	C20136-A4-B260	Line feed pawl with pin	89	1	2	
277	C20136-A4-B281	Lever	113	1	9	
278	C20136-A4-B286	Rocker lever	111	1	15	
279	C20136-A4-B297	Push lever	107	1	3	
280	C20136-A4-B298	Lever with axle	89	1	61	
281	C20136-A4-B347	Bell dome	93	1	42	
282	C20136-A4-B350	Lever	89	1	19	
283	C20136-A4-B351	Arresting mechanism	97	1	22	
284	C20136-A4-B361	Lever	101	1	5	
286	C20136-A4-B394	Feed rack with guide	113	1	28	
287	C20136-A4-B395	Ink ribbon lifter	107	1	5	
288	C20136-A4-B396	Pusher	113	1	87	
289	C20136-A4-B407	Lever	101	1	3	
290	C20136-A4-B473	Transfer bar	95	5	12	
291	C20136-A4-B505	Lubricating assembly	105	1	9	
292	C20136-A4-B511	Pivot axle	87	1	174	
293	C20136-A4-B512	Driver	87	2	8	
294	C20136-A4-B513	Pawl	87	2	1	
295	C20136-A4-B543	Pull bar (Bell)	103	1	9	
296	C20136-A4-B549	Lever	103	1	4	
297	C20136-A4-B550	Lever	103	1	10	
298	C20136-A4-B553	Release lever	97	1	6	
299	C20136-A4-B556	Roller	113	1	5	
300	C20136-A4-B568	Special function axle	105	1	27	

Cons. No.	Ordering No.		Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
302	C20136-A4-B749		Support plate	89	1	3	
303	C20136-A4-B798		Paper saddle	87	1	55	
304	C20136-A4-B861		Roller lever	105	1	22	
305	C20136-A4-B862		Lubricating assembly	105	1	5	
306	C20136-A4-B864		Printer frame	105	1	1484	
307	C20136-A4-B872		U-lever	103	1	17	
308	C20136-A4-B873		Pull bar	103	1	8	
309	C20136-A4-B910		Plate	101	1	10	
310	C20136-A4-B928		Pusher assembly	115	1	27	
311	C20136-A4-C9		Roller	115	2	5	
312	C20136-A4-C43		Link	111	5	1	
313	C20136-A4-C45		Tension spring	285	2	1	
314	C20136-A4-C48		Type guide	109	1	10	
315	C20136-A4-C57		Type bar hinge bow	109	1	6	
316	C20136-A4-C58		Type bar hinge bow	109	1	8	
317	C20136-A4-C68		Pin	113	1	1	
318	C20136-A4-C73		Axle	107	1	5	
319	C20136-A4-C139		Guide bar	95	1	46	
320	C20136-A4-C	*)	Code bar	101	1	8	
322	C20136-A4-C	*)	Code bar	101	1	8	
324	C20136-A4-C	*)	Code bar	101	1	8	
326	C20136-A4-C	*)	Code bar	101	1	8	
328	C20136-A4-C	*)	Code bar	101	1	8	
329	C20136-A4-C	*)	Code bar	101	1	8	
330	C20136-A4-C147		Washer	103	1	1	
331	C20136-A4-C148		Axle	95	1	2	
332	C20136-A4-C152		Bracket	101	1	1	
333	C20136-A4-C153		Comb	101	1	16	
334	C20136-A4-C155		Cover	101	1	4	
335	C20136-A4-C159		Plate	101	1	7	
336	C20136-A4-C161		Transfer bar	95	1	11	
337	C20136-A4-C171		Roller	103	1	2	
338	C20136-A4-C172		Plate	103	1	11	
339	C20136-A4-C182		Fork	91	1	11	
340	C20136-A4-C183		Eccentric screw	91	1	3	
341	C20136-A4-C184		Axle	91	2	1	
342	C20136-A4-C188		Operating lever	91	1	108	
343	C20136-A4-C193		Axle	91	1	103	
344	C20136-A4-C194		Clampling piece	91	2	7	
345	C20136-A4-C197		Axle	87	1	28	
346	C20136-A4-C198		Reversing arm	87	1	2	
347	C20136-A4-C199		Reversing arm	87	1	2	
348	C20136-A4-C216		Axle	103	1	2	
349	C20136-A4-C217		Ring	103	2	1	
350	C20136-A4-C218		Lever	97	1	8	

*) State keyboard layout plan when ordering

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
351	C20136-A4-C221	Axle	97	1	9	
352	C20136-A4-C222	Support plate	97	1	7	
353	C20136-A4-C224	Bracket	93	1	7	
354	C20136-A4-C225	Washer	103	1	1	
355	C20136-A4-C226	Plate	103	1	1	
356	C20136-A4-C249	Torsion spring	89	1	1	
357	C20136-A4-C258	Axle	89	1	11	
358	C20136-A4-C271	Washer	89	2	1	
359	C20136-A4-C274	Ratchet	89	1	21	
360	C20136-A4-C275	Gear	89	1	17	
361	C20136-A4-C279	Bell	93	1	9	
362	C20136-A4-C284	Axle	87	1	7	
363	C20136-A4-C304	Strip	91	1	1	
364	C20136-A4-C307	Rod	87	1	13	
365	C20136-A4-C309	Pin	91	1	5	
366	C20136-A4-C310	Disk	91	1	1	
367	C20136-A4-C318	Felt washer	105	1	1	
368	C20136-A4-C322	Felt	107	2	1	
369	C20136-A4-C326	Cylinder foot	91	1	40	
370	C20136-A4-C327	Braking cylinder	91	1	51	
371	C20136-A4-C328	Piston	91	1	25	
372	C20136-A4-C329	Disk	91	1	11	
373	C20136-A4-C330	Gasket	91	1	1	
374	C20136-A4-C334	Tension spring	101, 103, 105	9	1	
375	C20136-A4-C335 *)	Feed screw	95	1	158	
376	C20136-A4-C336	Pawl	-	-	(under Cons. No. 225)	
377	C20136-A4-C343	Guide comb	103	1	10	
378	C20136-A4-C344	Axle	103	1	23	
379	C20136-A4-C345	Adjusting plate	103	1	1	
380	C20136-A4-C347	Ring	103	3	2	
381	C20136-A4-C350	Spur gear	89	1	4	
382	C20136-A4-C352	Washer	89	1	1	
383	C20136-A4-C353	Plate	87	1	5	
384	C20136-A4-C357	Tear-off plate	87	1	31	
385	C20136-A4-C367	Eccentric bush	91	1	17	
386	C20136-A4-C378	Axle	103	1	13	
387	C20136-A4-C379	Axle	103	1	7	
388	C20136-A4-C380	Axle	105	1	22	
389	C20136-A4-C381	Square	105	2	1	
390	C20136-A4-C382	Lever comb	105	1	7	
391	C20136-A4-C385	Comb	105	1	7	
392	C20136-A4-C398	Ring	105	1	3	
393	C20136-A4-C408	Axle	101	1	105	
394	C20136-A4-C409	Support	113	1	1	
395	C20136-A4-C410	Guide	113	1	13	
397	C20136-A4-C423	Bushing	101	1	1	
398	C20136-A4-C424	Roller	101	1	4	
399	C20136-A4-C425	Washer	101	1	1	
400	C20136-A4-C426	Axle	103	1	6	

*) 69 characters/line, 2.6 mm character spacing

Cons. No.	Ordering No.		Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
401	C20136-A4-C431		Bar	95	1	29	
402	C20136-A4-C439		Axle	97	1	3	
404	C20136-A4-C446		Lever	103	1	6	
405	C20136-A4-C447		Pin	103	1	3	
406	C20136-A4-C449		Support bar	95	1	98	
407	C20136-A4-C450		Stop	95	2	1	
408	C20136-A4-C451		Support plate	97	1	7	
409	C20136-A4-C459		Eccentric pin	97	1	5	
410	C20136-A4-C460		Plate	97	1	3	
411	C20136-A4-C463		Felt washer	89	1	1	
412	C20136-A4-C464		Felt washer	55, 95, 101, 113, 257	13	1	
413	C20136-A4-C465		Felt washer	97, 103, 257	7	1	
414	C20136-A4-C466		Felt washer	87, 97, 101, 103, 105, 255	11	1	
415	C20136-A4-C467		Felt washer	89, 101, 103	3	1	
416	C20136-A4-C468		Felt washer	89	1	1	
417	C20136-A4-C469		Felt washer	101, 103	3	1	
418	C20136-A4-C470		Felt washer	91, 103, 105, 257	6	1	
419	C20136-A4-C473		Tension spring	105	1	1	
420	C20136-A4-C486		Bushing	101	1	4	
421	C20136-A4-C487		Spring anchor	89, 91, 185, 281	5	1	
422	C20136-A4-C488		Tension spring	101	1	1	
423	C20136-A4-C501		Axle	113	1	12	
424	C20136-A4-C503		Tension spring	97	1	1	
425	C20136-A4-C511		Spring suspension segment	109	1	6	
426	C20136-A4-C512		Spring suspension segment	109	1	6	
427	C20136-A4-C513		Felt washer	103, 257	3	1	
428	C20136-A4-C515		Comb	111	1	2	
429	C20136-A4-C517		Axle	111	1	3	
430	C20136-A4-C518		Guide comb	111	1	6	
431	C20136-A4-C519		Pusher segment	115	1	27	
432	C20136-A4-C	*)	Code segment	111	1	8	
433	C20136-A4-C	*)	Code segment	111	1	8	
434	C20136-A4-C	*)	Code segment	111	1	8	
435	C20136-A4-C	*)	Code segment	111	1	8	
436	C20136-A4-C	*)	Code segment	111	1	8	
437	C20136-A4-C530		Roller carrier	115	1	6	
438	C20136-A4-C538		Tube	91	1	121	
439	C20136-A4-C542		Guide comb	111	2	1	
440	C20136-A4-C546		Spring anchor	89, 97	2	1	
441	C20136-A4-C577		Support	113	1	2	
442	C20136-A4-C578		Roller	113	1	1	
443	C20136-A4-C579		Roller	113	1	1	
444	C20136-A4-C580		Washer	113	2	2	
445	C20136-A4-C589		Lever	101	1	6	
446	C20136-A4-C590		Lever	101	1	9	
448	C20136-A4-C604		Tension spring	101, 113	2	1	
449	C20136-A4-C622		Eccentric pin	113	2	4	
450	C20136-A4-C625		Pull bar	109	26	3	

*) When placing an order for such a part please state keyboard layout plan

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
451	C20136-A4-C637	Support	115	2	1	
452	C20136-A4-C638	Support	115	2	3	
453	C20136-A4-C668	Axle	115	1	1	
454	C20136-A4-C670	Lever	111	5	1	
456	C20136-A4-C681	Threaded block	113	1	4	
457	C20136-A4-C699	Plate	89	1	38	
458	C20136-A4-C703	Felt	115	1	1	
459	C20136-A4-C704	Pinion with eccentric	103	1	20	
460	C20136-A4-C708	Washer	103, 51	2	1	
461	C20136-A4-C719	Washer	89	1	7	
462	C20136-A4-C721	Lever	89	1	3	
463	C20136-A4-C722	Guide stop	89	1	3	
464	C20136-A4-C731	Roller	87	2	2	
465	C20136-A4-C738	Lever	87	2	2	
466	C20136-A4-C746	Washer	87	2	2	
467	C20136-A4-C752	Tension spring	257	1	1	
468	C20136-A4-C756	Lever	89	1	2	
469	C20136-A4-C758	Retaining bracket	87	1	4	
470	C20136-A4-C759	Retaining bracket	87	1	6	
471	C20136-A4-C760	Feed pawl	89	1	1	
472	C20136-A4-C761	Bushing	89, 101	3	1	
473	C20136-A4-C762	Plate	89	1	1	
474	C20136-A4-C773	Shoulder sleeve	89	1	2	
475	C20136-A4-C774	Slotted nut	91	1	1	
476	C20136-A4-C775	Washer	97	1	1	
477	C20136-A4-C776	Pin	91	1	4	
478	C20136-A4-C777	Lock	85	1	2	
479	C20136-A4-C785	Tension spring	55	1	1	
480	C20136-A4-C786	Plate	89	1	2	
481	C20136-A4-C787	Pressure piece	101	1	1	
482	C20136-A4-C788	Pin	113	1	3	
483	C20136-A4-C795	Tension spring	89	1	1	
484	C20136-A4-C804	Spring anchor	87	2	1	
485	C20136-A4-C805	Torsion spring	87	1	1	
486	C20136-A4-C815	Pin	113	1	3	
487	C20136-A4-C817	Washer	7	1	1	
488	C20136-A4-C820	Tension spring	89	1	1	
489	C20136-A4-C821	Tension spring	95, 107, 281, 285	5	1	
490	C20136-A4-C831	Tension spring	91	2	1	
491	C20136-A4-C835	Lever	101	1	16	
492	C20136-A4-C838	Felt washer	87	2	1	
493	C20136-A4-C844	Tension spring	87, 89	2	1	
494	C20136-A4-C846	Lever	89	1	2	
495	C20136-A4-C851	Pawl	101	1	5	
496	C20136-A4-C857	Stop	109	1	1	
497	C20136-A4-C866	Tension spring	101, 49	2	1	
498	C20136-A4-C867	Tension spring	103, 113	2	1	
499	C20136-A4-C869	Tension spring	101	1	1	
500	C20136-A4-C872	Blocking bracket	105	1	1	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
501	C20136-A4-C877	Magnet yoke	101	1	8	
502	C20136-A4-C879	Bracket	101	1	11	
503	C20136-A4-C889	Push lever	105	1	4	
504	C20136-A4-C897	Clamp	101	1	2	
507	C20136-A4-C907	Bracket	89	1	4	
508	C20136-A4-C915	Arm	95	1	6	
509	C20136-A4-C932	Latch lever	97	1	9	
510	C20136-A4-C934	Axle	97	1	5	
511	C20136-A4-C935	Tension spring	101	1	1	
512	C20136-A4-C938	Spring suspension plate	91	1	4	
513	C20136-A4-C945	Compression spring	111	1	1	
514	C20136-A4-C946	Guide comb	113	1	13	
515	C20136-A4-C952	Washer	95	1	1	
516	C20136-A4-C968	Bearing pin	87	1	1	
517	C20136-A4-C972	Ring	111	1	1	
518	C20136-A4-C977	Feed pawl	89	1	1	
519	C20136-A4-C987	Ink ribbon lifter	107	1	2	
520	C20136-A14-C18	Shoulder screw	113	1	4	
521	C20136-A14-C21	Torsion spring	113	1	1	
522	C20136-A14-C61	Bushing	103	1	2	
523	C20136-A14-C63	Tension spring	103	1	1	
524	C20136-A14-C153	Lever	101	1	4	
525	C20136-A14-C154	Switching bracket	101	1	1	
526	C20136-A14-C239	Tension spring	89	1	1	
527	C20136-A14-C276	Plate	87	2	1	
528	C20136-A14-C277	Tension spring	87	2	1	
529	C20136-A14-C287	Wire clip	101	1	1	
531	C20136-A14-C373	Pawl	97	1	3	
532	C20136-A14-C374	Pivot clamping lever	101	1	3	
533	C20136-A14-C379	Torsion spring	97	1	1	
534	C20136-A14-C385	Compression spring	89	1	5	
535	C20136-A14-C386	Plate	89	1	1	
536	C20136-A14-C475	Washer	283	1	1	
537	C20136-A14-C495	Tension spring	97, 255	2	1	
539	C20136-A14-C557	Comb	103	1	8	
540	C20136-A14-C559	Tension spring	103	1	1	
541	C20136-A14-C586	Ring	105	1	1	
542	C20136-A14-C589	Washer	87	2	2	
544	C20136-A14-C590	Compression spring	87	2	1	
545	C20136-A14-C591	Ratchet	87	2	7	
546	C20136-A14-C598	Washer	101	1	1	
547	C20136-A14-C654	Pull bar (carriage return)	103	1	13	
548	C20136-A14-C656	Pull bar	103	1	10	
549	C20136-A14-C659	Tension spring	103	1	1	
550	C20136-A14-C661	Pull bar (letters)	103	1	11	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
551	C20136-A14-C662	Pull bar (Figures)	103	1	12	
552	C20136-A14-C664	Comb	105	1	15	
553	C20136-A14-C671	Coupling plate	103	1	1	
554	C20136-A14-C672	Coupling plate	103	1	1	
555	C20136-A14-C675	Pull bar (Who are you?)	103	1	9	
556	C20136-A14-C685	Sliding weight	103	2	13	
557	C20136-A14-C692	Pin	87	1	3	
558	C20136-A14-C693	Compression spring	87	1	1	
559	C20136-A14-C703	Felt washer	89	2	1	
560	C20136-A14-C718	Axle	101	1	1	
561	C20136-A14-C719	Bracket	101	1	2	
562	C20136-A14-C769	Tension spring	103	1	1	
563	C20136-A14-C770	Tension spring	89	1	1	
564	C20136-A14-C810	Axle	95	1	3	
565	C20136-A14-C812	Rocker lever	105	1	46	
566	C20136-A14-C813	Axle	105	1	10	
567	C20136-A14-C945	Paper saddle	87	1	37	
568	C20136-A14-C948	Bracket	107	1	3	
569	C20136-Z14-C695	Ink ribbon black/red with metal spool	85	1	30	
570	C20136-A114-C45	Tension spring	85	1	1	
571	C20136-A114-C93	Pull bar	103	1	7	
572	C20136-A114-C105	Tension spring	109, 49	27	1	
573	C20136-A114-C154	Felt washer	87	2	1	
574	C20136-A114-C168	Roller	87	2	1	
575	C20136-A114-C177	Pawl	87	1	1	
576	C20136-A114-C178	Washer	87	1	1	
577	C20136-A114-C209	Detent	93	1	15	
578	C20136-A114-C230	Screw	101	1	2	
579	C20136-A114-C238	Plate	101	1	4	
580	C20136-A114-C247	Pin	91	3	1	
581	C20136-A114-C248	Plate	91	1	9	
582	C20136-A114-C321	Guide bracket	87	1	2	
583	C20136-A114-C322	Guide bracket	87	1	2	
584	C20136-A114-C330	Retaining plate	109	2	1	
585	C20136-A114-C331	Bearing frame	89	1	4	
586	C20136-A114-C332	Bushing	89	1	1	
587	C20136-A114-C342	Bushing	101	1	1	
588	C20136-A114-C346	Comb	101	1	8	
589	C20136-A114-C347	Type bar segment assembly	109	1	111	
590	C20136-A114-C353	Tension spring	103	1	1	
591	C20136-A114-C359	Bracket	95	1	5	
592	C20136-A114-C502	Pawl	115	1	5	
593	C20136-A114-C657	Bracket	105	1	12	
594	C20136-A114-C658	Roller	105	1	4	
595	C20136-A114-C659	Washer	105	2	1	
597	C20136-A114-C660	Bushing	105	1	2	
598	C20136-A114-C663	Hexagon screw	105	2	1	
599	C20136-A114-C666	Comb	105	1	3	
600	C20136-A114-C669	Pin	105	1	1	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
601	C20136-A114-C679	Tension spring	105	2	1	
602	C20136-A114-C680	Camshaft	105	1	62	
603	C20136-A114-C682	Axle	105	1	1	
604	C20136-A114-C691	Stop	115	1	5	
605	C20136-A114-C696	Roller	85	1	2	
606	C20136-A114-C697	Braking lever	85	1	20	
607	C20145-A43-B8	Selector armature	29	1	3	
608	C20145-A43-B24	Guide plate	29	1	10	
609	C20145-A43-B25	Stop plate	29	1	4	
610	C20145-A43-B28	Lever	31	1	16	
611	C20145-A43-B41	Selector lever	29	1	7	
612	C20145-A43-B43	Lever with sword	29	5	2	
613	C20145-A43-B44	Pointer	29	1	12	
614	C20145-A43-B58	Friction clutch	31	1	193	
615	C20145-A43-B64	Release armature	29	1	6	
616	C20145-A43-B81	Lubricating assembly	31	1	2	
617	C20145-A43-B82	Lubricating assembly	31	1	1	
618	C20145-A43-B92	Release armature	29	1	6	
619	C20145-A43-B110	Adjusting disk	31	1	56	
620	C20145-A43-B111	Adjusting disk	31	1	44	
621	C20145-A43-B113	Clutch body	31	1	144	
622	C20145-A43-B116	Locking lever	31	1	2	
623	C20145-A43-B117	Lever	31	1	3	
624	C20145-A43-B118	Mount	31	1	3	
625	C20145-A43-B119	Mount	31	2	2	
626	C20145-A43-B124	Plate	29	1	2	
627	C20145-A43-C25	Annular spring	31	1	1	
628	C20145-A43-C27	Cover plate	31	1	10	
629	C20145-A43-C28	Axle	29	1	1	
630	C20145-A43-C46	Axle	31	1	1	
631	C20145-A43-C49	Tension spring	49, 257, 283, 285	4	1	
632	C20145-A43-C50	Guide plate	31	1	1	
633	C20145-A43-C55	Lubricating washer	29, 31	7	1	
634	C20145-A43-C56	Lubricating washer	29, 101	5	1	
635	C20145-A43-C60	Tension spring	29	1	1	
636	C20145-A43-C63	Tension spring	103, 257	2	1	
637	C20145-A43-C64	Tension spring	29, 53, 97	4	1	
638	C20145-A43-C69	Bushing	31	1	6	
639	C20145-A43-C86	Pin	29	1	1	
640	C20145-A43-C87	Comb	29	1	3	
641	C20145-A43-C105	Tension spring	87, 89, 285	5	1	
642	C20145-A43-C107	Level	31	1	2	
643	C20145-A43-C108	Scale	29	1	11	
644	C20145-A43-C131	Plate	29	1	2	
645	C20145-A43-C132	Tension spring	87	2	1	
646	C20145-A43-C133	Tension spring	29	5	1	
647	C20145-A43-C137	Tension spring	29	5	1	
648	C20145-A43-C138	Tension spring	103	5	1	
650	C20145-A43-C142	Adjusting plate	29	1	1	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
651	C20145-A43-C145	Screw	31	1	1	
653	C20145-A43-C148	Plate	29	1	1	
654	C20145-A43-C178	Washer	31	1	8	
655	C20145-A43-C179	Washer	31	1	9	
656	C20145-A43-C180	Pin	31	1	1	
657	C20145-A43-C181	Pin	31	2	1	
658	C20145-A43-C182	Bush	31	3	1	
659	C20145-A43-C183	Felt strip	31	1	1	
660	C20145-A43-C184	Threaded disk	31	1	7	
661	C20145-A43-C191	Tension spring	31, 101	2	1	
662	C20145-A43-C212	U-bracket	29	1	1	
663	C20145-A43-C213	Lubricating felt	29	1	1	
665	C20145-A43-C266	Tension spring	31	1	1	
666	C20145-A43-C275	Washer	29, 87, 89, 115, 219	10	1	
667	C20145-A43-C279	Felt washer	31	2	1	
668	C20145-A43-C281	Lock washer	31, 285	2	1	
669	C20145-A43-C285	Compression spring	31	3	1	
670	C20145-A43-C288	Lever	29	1	1	
671	C20145-A43-C289	Axle	29	1	9	
672	C20145-A43-C323	Camshaft	31	1	59	
673	C20145-A43-C324	Washer	31	1	8	
674	C20145-A43-C329	Mounting frame	31	1	137	
675	C20145-A43-C344	Release lever	31	1	2	
676	C20145-A43-C347	Torsion spring	31	1	1	
677	C20145-A43-C348	Torsion spring	31	1	1	
678	C20145-A43-C349	Compression spring	31	2	1	
679	C20145-A43-C350	Bushing	31	2	1	
680	C20145-A43-C354	Cover	29	1	4	
681	C20145-A43-C356	Tension spring	29	1	1	
682	C20145-A43-C357	Plate	29	1	2	
683	C20145-A43-C358	Plate	29	1	2	
684	C20156-A100-B8	Switch	185	1	14	
685	C20156-A100-B28	Lever	185	1	9	
686	C20156-A100-B29	Mounting frame	185	1	112	
688	C20156-A100-B336	Tape magazine	239	1	461	
689	C20156-A100-B337	Bracket	239	1	47	
690	C20156-A100-B355	Plug	V-2	1	2	
691	C20156-A100-B360	Lamp holder	185	1	119	
692	C20156-A100-B364	Sleeve	105, 257	2	12	
693	C20156-A100-B368	Shaft	257	1	18	
694	C20156-A100-B369	Intermediate shaft	257	1	34	
695	C20156-A100-C18	Plate	185	1	4	
696	C20156-A100-C19	Lever	185	1	4	
697	C20156-A100-C22	Lever (Here is)	185	1	5	
698	C20156-A100-C23	Lever	185	1	3	
699	C20156-A100-C24	Lever	185	2	9	
700	C20156-A100-C25	Pin	185	2	1	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
701	C20156-A100-C26	Axle	185	1	6	
702	C20156-A100-C27	Pin	185	1	2	
703	C20156-A100-C32	Switching plate	185	1	4	
704	C20156-A100-C42	Axle	185	1	3	
705	C20156-A100-C55	Helical gear	195	1	26	
706	C20156-A100-C57	Helical gear, 50 bauds	215	1	1	
707	C20156-A100-C65	Gear body	215	1	12	
708	C20156-A100-C92	Felt	257	2	1	
709	C20156-A100-C108	Clamp	185	1	3	
710	C20156-A100-C142	Tension spring	97,185	3	1	
711	C20156-A100-C220	Shoulder screw	95	1	1	
712	C20156-A100-C297	Shoulder screw	185	2	1	
713	C20156-A100-C334	Intermediate plate	185	1	2	
714	C20156-A100-C344	Bracket	185	1	34	
715	C20156-A100-C345	Cover plate	185	1	14	
716	C20156-A100-C415	Spring plate	215	1	2	
717	C20156-A100-C438	Plate	215	2	1	
718	C20156-A100-C439	Pinion	215	1	4	
720	C20156-A100-C585	Plate	239	1	391	
721	C20156-A100-C589	Core	239	1	19	
722	C20156-A100-C611	Compression spring	215	1	2	
723	C20165-A175-B9	Paper roll axle	11	1	130	
724	C20165-A175-C18	Spring	11	2	2	
725	C20165-A175-C21	Shaft	11	1	20	
726	C20165-A175-C24	Compression spring	11	6	1	
727	C20165-A175-C64	Compression spring	7	2	1	
730	C20165-A175-C304	Plug	7	2	1	
731	C20170-A82-B25	Helical gear	215	1	32	
732	C20170-A82-B41	Gear bush	215	1	45	
733	C20170-A82-B73	Gear pair	215	1	33	
734	C20170-A82-B112	Clip connector	221	1	21	
735	C20170-A82-B178	Terminal plate	221	1	270	
736	C20170-A82-B179	Mounting bracket	239	2	195	
737	C20170-A82-B206	Helical gear	215	1	41	
738	C20170-A82-C11	Intermediate shaft	215	1	281	
739	C20170-A82-C28	Pin	221	1	21	
740	C20170-A82-C29	Bracket	221	1	11	
741	C20170-A82-C37	Stop	113	1	1	
742	C20170-A82-C40	Cover	215	2	6	
743	C20170-A82-C50	Mounting frame	215	1	84	
744	C20170-A82-C63	Rubber shoe	239	4	7	
745	C20170-A82-C74	Helical gear	215	1	21	
746	C20170-A82-C86	Bracket	221	1	1	
747	C20170-A82-C98	Stop	221	1	1	
748	C20170-A82-C107	Bracket	215	1	11	
749	C20170-A82-C109	Nut	215	1	8	
750	C20170-A82-C110	Insulating plate	221	1	1	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
751	C20170-A82-C114	Cover plate	221	2	1	
752	C20170-A82-C137	Cover plate	215	1	46	
753	C20170-A82-C165	Stop	221	1	1	
754	C20170-A82-C254	Bracket	221	1	44	
755	C20170-A82-C264	Shoulder screw	215, 221	4	1	
756	C20170-A82-C265	Solder terminal block	221	1	7	
757	C20170-A82-C306	Bracket	221	1	38	
758	C20170-A82-C307	Cover	221	1	13	
759	C20170-A82-C356	Shaft	215	1	138	
760	C20170-A82-C357	Plate	221	1	177	
761	C20170-A82-C361	Plate	221, 279	2	36	
762	C20170-A82-C371	Base tray	239	1	820	
763	C20170-A82-C372	Cover plate	239	1	80	
764	C20170-A82-C373	Metal strip	241	1	8	
765	C20170-A82-C374	Metal strip	241	2	6	
766	C20170-A82-C376	Roller	239	2	2	
767	C20170-A82-C377	Plate	239	2	7	
768	C20170-A82-C381	Bracket	239	1	6	
769	C20170-A82-C515	Plate	239	4	8	
770	C20170-A82-C517	Bracket	241	1	76	
771	C20170-A82-C518	Tension spring	239	1	1	
772	C20234-A18-B1	Mounting frame with pins	257	1	410	
773	C20234-A18-B2	Feed lever	257	1	11	
774	C20234-A18-B4	Resetting lever with pawl	257	1	8	
775	C20234-A18-B5	Resetting lever	257	1	6	
776	C20234-A18-B6	Lever with sleeve	255	1	6	
777	C20234-A18-B9	Lubricating felt	257	1	10	
778	C20234-A18-B11	Punch guide	255	1	80	
779	C20234-A18-B13	Connecting bar	257	1	5	
780	C20234-A18-B14	Paper guide	255	1	35	
781	C20234-A18-B16	Pressure roller	255	1	12	
782	C20234-A18-B23	Lever with axle	257	1	7	
783	C20234-A18-B29	Pressure plate	255	1	9	
784	C20234-A18-B31	Punch lever with returning arm	257	1	50	
785	C20234-A18-B48	Zero-setting lever	257	1	4	
786	C20234-A18-B49	Braking lever	257	1	3	
787	C20234-A18-B50	Lever with sleeve	257	1	8	
788	C20234-A18-B71	Chad chute	255	1	8	
789	C20234-A18-B82	Chad waste bin	III/25	1	110	
790	C20234-A18-C3	Nut	101, 255	3	1	
791	C20234-A18-C6	Washer	257	1	1	
792	C20234-A18-C7	Comb	257	1	12	
793	C20234-A18-C16	Pawl	257	1	1	
794	C20234-A18-C17	Lever	257	1	7	
795	C20234-A18-C22	Punch setting lever	257	1	3	
796	C20234-A18-C23	Punch setting lever	257	1	3	
797	C20234-A18-C24	Punch setting lever	257	1	3	
798	C20234-A18-C25	Punch setting lever	257	1	3	
799	C20234-A18-C26	Punch setting lever	257	1	3	
800	C20234-A18-C31	Cover	257	2	4	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
801	C20234-A18-C33	Tension spring	257	5	1	
802	C20234-A18-C34	Washer	255	1	1	
803	C20234-A18-C35	Ratchet	255	1	18	
804	C20234-A18-C37	Spring	255	1	1	
805	C20234-A18-C38	Axle	257	1	8	
806	C20234-A18-C43	Lubricating felt	255	2	1	
807	C20234-A18-C46	Tension spring	257	1	1	
808	C20234-A18-C49	Control lever	255	1	5	
809	C20234-A18-C50	Transfer lever	255	1	6	
810	C20234-A18-C51	Transfer lever	255	1	6	
811	C20234-A18-C52	Transfer lever	255	1	6	
812	C20234-A18-C53	Transfer lever	255	1	6	
813	C20234-A18-C54	Transfer lever	255	1	6	
814	C20234-A18-C55	Bracket	255	1	1	
815	C20234-A18-C56	Comb	255	2	2	
816	C20234-A18-C57	Tension spring	257	1	1	
817	C20234-A18-C58	Spacer	255	1	1	
818	C20234-A18-C64	Tension spring	255, 257	2	1	
819	C20234-A18-C72	ON lever	255	1	9	
820	C20234-A18-C73	OFF lever	255	1	4	
821	C20234-A18-C89	Felt washer	257	1	1	
822	C20234-A18-C92	Pin	257	1	1	
823	C20234-A18-C106	Eccentric axle	257	1	4	
824	C20234-A18-C114	Bracket	255	1	4	
825	C20234-A18-C139	Axle	255	1	5	
826	C20234-A18-C155	Eccentric	257	1	1	
827	C20234-A18-C191	Lever	257	1	3	
828	C20234-A18-C193	Compression spring	257	1	1	
829	C20234-A18-C195	Segment	255	1	1	
830	C20234-A18-C199	Threaded plate	255	1	3	
831	C20234-A18-C204	Tension spring	257	1	1	
832	C20234-A18-C206	Tension spring	255	1	1	(2) IV-10/254
833	C20234-A18-C219	Punch	255	5	1	
834	C20234-A18-C222	Punch	255	1	1	
835	C20234-A18-C235	Camshaft	257	1	65	
836	C20234-A18-C237	Bracket	257	1	4	
837	C20234-A18-C247	Clutch sleeve	257	1	20	
838	C20234-A18-C248	Pawl	257	1	2	
839	C20247-A41-B10	Wire	195	1	1	
840	C20247-A41-C11	Clamp	195	2	11	
841	C20247-A41-C52	Pin	199	1	500	
842	C20247-A49-C2	Cover	195	1	487	
843	C20302-A10-B3	Contact spring	197	2	2	
844	C20302-A10-C6	Retaining spring, left	197	1	1	
845	C20302-A10-C7	Retaining spring, right	197	1	1	
846	C20302-A10-C10	Bimetallic strip	197	1	9	
847	C20302-A10-C15	Leaf spring	197	1	1	
848	C20302-A10-C65	Pressure plate	197	2	1	
849	C20302-A10-C129	Cover	197	1	82	
850	C20326-A61-C840	Sprocket wheel	281	1	3	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
851	C20326-A64-C87	Tension spring	105	1	1	
852	C20326-A64-C176	Tension spring	185	1	1	
853	C20326-A64-C313	Tension spring	87, 97	3	1	
854	C20326-A64-C403	Tension spring	103	1	1	
855	C20326-A64-C478	Felt washer	285	1	1	
856	C20326-A64-C479	Felt washer	95	1	1	
857	C20326-A70-B3	Zero-setting lever	53	1	4	
858	C20326-A70-B4	Contact control lever	53	1	8	
859	C20326-A70-B5	Lever with rocker	53	1	4	
860	C20326-A70-B7	Lever with sleeve	49	1	4	
861	C20326-A70-B36	Lubricating assembly	49	1	1	
862	C20326-A70-B54	Lever with release pawl	49	1	4	
863	C20326-A70-B63	Tension spring	53	1	1	
864	C20326-A70-B103	Lever	49	1	10	
865	C20326-A70-B104	Locking lever	49	1	4	
866	C20326-A70-B105	Locking lever	53	1	10	
867	C20326-A70-B170	Contact spring set	55, 281	2	16	
868	C20326-A70-B171	Drive system	49	1	7	
869	C20326-A70-B179	Contact switching assembly	55	1	16	
870	C20326-A70-B180	Lever	49	1	10	
871	C20326-A70-B185	Answerback drum	49	1	13	
872	C20326-A70-B186	Mounting frame	55	1	337	
873	C20326-A70-B188	Lubricating washer	53	1	5	
874	C20326-A70-B189	Lever	55	1	9	
876	C20326-A70-C12	Support plate	53	2	5	
877	C20326-A70-C20	Guide comb	55	1	2	
878	C20326-A70-C21	Axle	53	1	2	
879	C20326-A70-C23	Lever	55	1	5	
880	C20326-A70-C24	Lever	55	1	5	
881	C20326-A70-C25	Lever	55	1	5	
882	C20326-A70-C26	Lever	55	1	5	
883	C20326-A70-C27	Lever	55	1	5	
884	C20326-A70-C28	Axle	53	1	2	
885	C20326-A70-C29	Lever	53	1	1	
886	C20326-A70-C30	Lever	53	1	1	
887	C20326-A70-C31	Lever	53	1	1	
888	C20326-A70-C32	Lever	53	1	1	
889	C20326-A70-C33	Lever	53	1	1	
890	C20326-A70-C34	Tube	53	1	6	
891	C20326-A70-C35	Felt washer	53, 101, 103, 107, 283, 285	17	1	
892	C20326-A70-C38	Code lever	53	6	3	
893	C20326-A70-C39	Felt washer	49, 53, 285	5	1	
894	C20326-A70-C43	Control lever	53	1	3	
895	C20326-A70-C47	Retaining plate	53	1	1	
896	C20326-A70-C48	Felt washer	49, 285	4	1	
897	C20326-A70-C49	Lever	49	1	1	
898	C20326-A70-C50	Spacer	49	1	1	
899	C20326-A70-C51	Guide comb	49	1	4	
900	C20326-A70-C52	Bearing pin	49	1	4	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
901	C20326-A70-C53	Release lever	49	1	5	
902	C20326-A70-C112	Tension spring	257	1	1	
903	C20326-A70-C131	Cover	55	1	83	
904	C20326-A70-C174	Axle	55	1	5	
905	C20326-A70-C187	Washer	49, 87	2	1	
906	C20326-A70-C191	Tension spring	49	2	1	
907	C20326-A70-C201	Spacer	51	1	1	
908	C20326-A70-C210	Axle	49	1	2	
909	C20326-A70-C225	Tension spring	49	1	1	
910	C20326-A70-C252	Resetting lever	55	1	10	
911	C20326-A70-C346	Tension spring	53	1	1	
912	C20326-A70-C347	Tension spring	53	6	1	
913	C20326-A70-C372	Lock washer	53, 257	2	1	
914	C20326-A70-C452	Answerback comb	49	20	1	
915	C20326-A70-C471	Camshaft	53	1	97	
916	C20326-A70-C474	Pin	55	1	3	
917	C20326-A70-C476	Torsion spring	55	1	1	
918	C20326-A70-C477	Plate	55	1	1	
919	C20326-A70-C478	Lever	53	1	3	
920	C20326-A70-C479	Pawl	53	1	2	
921	C20326-A70-C480	Bushing	49, 53, 55	3	1	
922	C20326-A70-C481	Tension spring	53	1	1	
923	C20326-A70-C486	Pawl	55	1	3	
924	C20326-A70-C487	Stop	49	1	3	
925	C20326-A70-C488	Bracket	49	1	6	
926	C20326-A70-C489	Pawl	49	1	2	
927	C20326-A70-C495	Washer	49	1	1	
928	C20326-A70-C496	Torsion spring	49	1	1	
929	C20326-A70-C497	Locking lever	49	1	1	
930	C20326-A70-C511	Plate	53	1	2	
931	C20326-A86-B2	Guide comb	285	1	17	
932	C20326-A86-B3	Contact control lever	283	1	12	
933	C20326-A86-B4	Lever with rocker	283	1	5	
934	C20326-A86-B5	Zero-setting lever	283	1	5	
935	C20326-A86-B6	Feed lever assembly	285	1	15	
936	C20326-A86-B7	Locking lever	285	1	4	
937	C20326-A86-B8	Stop lever	285	1	11	
938	C20326-A86-B9	Trailing lever	285	1	9	
939	C20326-A86-B10	Transfer lever	285	1	5	
940	C20326-A86-B11	Helical gear	285	1	68	
941	C20326-A86-B12	Retaining plate	281	1	3	
942	C20326-A86-B14	Lubricating felt	283	1	4	
943	C20326-A86-B22	Armature	283	1	4	
944	C20326-A86-B23	Contact spring set	281	1	7	
945	C20326-A86-B27	Contact frame	281	1	8	
946	C20326-A86-B28	Tension spring	283	1	1	
947	C20326-A86-B33	Bracket	283	1	9	
948	C20326-A86-B39	Cover	279	1	46	
949	C20326-A86-B40	Lubricating felt	281	1	3	
950	C20326-A86-B42	Contact switching assembly	281	1	16	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
951	C20326-A86-B48	Paper guide	281	1	36	
952	C20326-A86-B93	Mounting frame	285	1	403	
953	C20326-A86-B104	ON button	281	1	4	
954	C20326-A86-B108	OFF button	281	1	4	
955	C20326-A86-B113	Cover with sealing strips	279	1	178	
956	C20326-A86-C13	Camshaft	285	1	112	
957	C20326-A86-C15	Support plate	285	1	5	
958	C20326-A86-C16	Axle	285	1	2	
959	C20326-A86-C17	Lever	285	1	2	
960	C20326-A86-C18	Retaining plate	285	1	1	
961	C20326-A86-C19	Axle	283	1	16	
962	C20326-A86-C22	Control lever	283	1	5	
963	C20326-A86-C23	Code lever	285	5	3	
964	C20326-A86-C24	Code lever	285	1	2	
965	C20326-A86-C26	Axle	285	1	16	
966	C20326-A86-C27	U-lever	285	1	7	
967	C20326-A86-C28	Bearing pin	285	1	7	
968	C20326-A86-C29	Eccentric sleeve	285	1	2	
969	C20326-A86-C38	Axle	281	2	3	
970	C20326-A86-C39	Lid latching lever	281	1	3	
971	C20326-A86-C40	Guide plate	281	1	1	
972	C20326-A86-C41	Brake shoe	281	1	1	
973	C20326-A86-C42	Brake shoe	281	1	1	
974	C20326-A86-C45	Compression spring	281	1	1	
975	C20326-A86-C47	Trailing lever	281	1	2	
976	C20326-A86-C48	Sensing lever	281	1	2	
977	C20326-A86-C49	Torsion spring	281	1	1	
978	C20326-A86-C50	Sensing lever	281	2	2	
979	C20326-A86-C51	Sensing lever	281	1	2	
980	C20326-A86-C52	Sensing lever	281	1	2	
981	C20326-A86-C53	End-of-tape lever	281	1	1	
982	C20326-A86-C54	Bearing pin	281	1	6	
983	C20326-A86-C59	Tension spring	283	1	1	
984	C20326-A86-C60	Tension spring	285	1	1	
985	C20326-A86-C61	Guide comb	281	1	1	
986	C20326-A86-C62	Spring comb	281	1	1	
987	C20326-A86-C79	Axle	283	1	1	
988	C20326-A86-C80	Clamp	283	1	3	
989	C20326-A86-C81	Spring suspension plate	283	1	9	
990	C20326-A86-C82	Spring suspension plate	285	1	6	
991	C20326-A86-C93	Tension spring	283	6	1	
992	C20326-A86-C110	Spacer	283	2	2	
993	C20326-A86-C113	Retaining plate	285	1	1	
994	C20326-A86-C120	Felt washer	281	3	1	
995	C20326-A86-C126	Washer	285	2	1	
996	C20326-A86-C174	Plate	281	1	8	
997	C20326-A86-C207	Clutch member	285	1	9	
998	C20326-A86-C213	Guide plate	285	1	1	
999	C20326-A86-C216	Support	281	1	1	
1000	C20326-A86-C217	Lubricating felt	281	1	1	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1001	C20326-A86-C242	Grounding bracket	279	1	1	
1002	C20326-A86-C248	Lead-through bushing	279	2	1	
1003	C20326-A86-C250	Pawl	285	1	2	
1004	C20326-A86-C260	Cover plate	281	1	18	
1005	C20326-A86-C280	Tension spring	281	1	1	
1006	C20326-A86-C307	Tape guide	281	1	17	
1007	C20326-A86-C308	Tape retainer lid	281	1	16	
1008	C20326-A86-C309	Cover plate	283	1	3	
1009	C20326-A86-C318	Torsion spring	281	1	1	
1010	C20326-A86-C398	Spring	279	1	6	
1011	C20334-Z149-A8	Telegraph plug	241	1	34	
1012	C20372-A15-B5	Guide comb	219	1	238	
1013	C20372-A15-B7	Release lever	219	1	5	
1014	C20372-A15-B37	Bracket	219	1	7	
1016	C20372-A15-B46	Detent	219	1	5	
1017	C20372-A15-B69	Stop bar	219	1	41	
1018	C20372-A15-B232	Key lever set	217	1	148	
1019	C20372-A15-B242	Key lever with axle	217	1	73	
1020	C20372-A15-B251	Key lever with tube	217	1	49	
1021	C20372-A15-B257	Lever	217	1	13	
1022	C20372-A15-B267	Key lever set with tube	217	1	52	
1023	C20372-A15-B373	Mounting frame	221	1	1750	
1024	C20372-A15-B401	Support	217	2	3	
1025	C20372-A15-C10	Washer	217	2	1	
1026	C20372-A15-C16	Spring comb	219	15	4	
1027	C20372-A15-C18	Comb	219	1	86	
1028	C20372-A15-C19	Comb	219	1	90	
1029	C20372-A15-C20	Spacer	219	2	15	
1030	C20372-A15-C22	Spacer	219	1	14	
1031	C20372-A15-C28	Guide plate	221	1	1	
1032	C20372-A15-C30	Rod	219	2	43	
1033	C20372-A15-C87	Comb plate	217	2	10	
1034	C20372-A15-C88	Start bar	217	1	36	
1035	C20372-A15-C108	Torsion spring	217	3	2	
1036	C20372-A15-C110	Bracket	217	1	9	
1037	C20372-A15-C115	Wire	219	1	1	
1038	C20372-A15-C116	Pin	217	2	3	
1039	C20372-A15-C124	Comb	219	1	4	
1040	C20372-A15-C145	Bracket	217	1	3	
1041	C20372-A15-C233	Washer	31, 93, 219	3	1	
1042	C20372-A15-C234	Washer	217, 219, 239	8	1	
1043	C20372-A15-C246	Plate	219	5	4	
1044	C20372-A15-C292	Key lever	219	13	16	
1045	C20372-A15-C297	Key lever	219	12	18	
1046	C20372-A15-C302	Key lever	219	13	20	
1047	C20372-A15-C307	Key lever	219	14	20	
1048	C20372-A15-C312	Key lever	219	3	20	
1049	C20372-A15-C350 +)	Key top, blank	219	52	2	
1050	C20372-A15-C404	Plate	217	2	35	

+) State letter or symbol

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1051	C20372-A15-C *)	Keyboard plate	217	1	186	
1052	C20372-A15-C +)	Code bar, 1st code element	217	1	48	
1053	C20372-A15-C +)	Code bar, 2nd code element	217	1	48	
1054	C20372-A15-C +)	Code bar, 3rd code element	217	1	48	
1055	C20372-A15-C +)	Code bar, 4th code element	217	1	48	
1056	C20372-A15-C +)	Code bar, 5th code element	217	1	48	
1057	C20372-A15-C +)	Locking bar	217	1	47	
1059	C22104-F1-C2	Terminal block	95	1	9	
1060	C22104-F1-C6	Terminal block	185	1	25	
1061	C22104-Z1-C42	Terminal block	195	1	4	
1062	C22104-Z1-C48	Terminal block	221	2	15	
1063	C22104-Z1-C49	Terminal block	221	4	18	
1064	C22106-A6-C11	Compression spring	285	1	1	
1065	C22106-A13-A15	Clutch	51	1	107	
1066	C22106-A13-A27	Expanding spring clutch	97	1	74	
1067	C22106-A13-B23	Drum	51	1	65	
1068	C22106-A13-B55	Clutch drum	99	1	63	
1069	C22106-A13-B64	Bushing	99	1	16	
1070	C22106-A13-B65	Bushing	51	1	23	
1071	C22106-A13-C46	Cam sleeve	51	1	16	
1072	C22106-A13-C64	Plate	99	1	3	
1073	C22106-A13-C65	Spring	99	1	7	
1074	C22106-A13-C92	Plate	51	1	4	
1075	C22106-A13-C100	Clamp	51, 99	2	1	
1077	C22106-A13-C113	Washer	51, 99	2	1	
1078	C22106-A13-C114	Washer	51, 99	2	1	
1079	C22106-A13-C115	Torsion spring	99	1	1	
1080	C22106-A13-C123	Torsion spring	51	1	1	
1081	C22106-A13-C124	Retaining	51	1	1	
1082	C22106-A13-C125	Spring	51	1	5	
1083	C22106-A13-C128	Washer	99	1	1	
1084	C22106-A13-C130	Bushing	99	1	2	
1085	C22106-A13-C187	Lever	51, 99	2	3	
1086	C22106-A13-C190	Plate	99	1	1	
1087	C22106-A13-C208	Washer	51, 99	2	1	
1088	C22106-A13-C210	Screw	51, 99	4	1	
1089	C22106-Z2-C4	Ball bearing	51, 95, 105, 113	5	3	
1090	C22106-Z2-C6	Ball bearing	31	1	7	
1091	C22106-Z2-C9	Ball bearing	105	1	14	
1092	C22106-Z2-C15	Ball bearing	285	2	8	
1093	C22106-Z2-C17	Ball bearing	31, 53, 97, 257	6	12	
1094	C22106-Z2-C19	Ball bearing	215	3	20	
1095	C22106-Z2-C20	Ball bearing	105, 199	3	30	
1096	C22121-Z15-C23	Spiral pin	11	1	1	
1097	C22121-Z15-C26	Spiral pin	11	4	1	
1098	C22121-Z33-C17	Panhead screw	101, 103, 221	7	1	
1099	C22121-Z33-C18	Panhead screw	29, 55, 89, 95 113, 221, 239, 279, 281, 283	22	1	
1100	C22121-Z33-C19	Panhead screw	217, 285	4	1	

+) State letter or symbol

*) Key openings as per layout plan

Cons. No.	Ordering No.		Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1101	C22121-Z33-C20		Panhead screw	113, 185	3	1	
1102	C22121-Z33-C21		Panhead screw	101	1	1	
1103	C22121-Z33-C33		Panhead screw	109	2	2	
1104	C22121-Z33-C34		Panhead screw	215	3	2	
1105	C22121-Z33-C35		Panhead screw	91, 195, 215	9	2	
1106	C22121-Z33-C37		Panhead screw	101	1	2	
1107	C22121-Z47-C14		Retainer	239	2	1	
1108	C22122-A32-C3		Cover	279	1	127	
1109	C22123-Z14-C1		Shock mount	239	4	23	
1110	C22123-Z27-C5		Cap	239	1	1	
1111	C22136-A10-B18		Type bar rest	107	1	12	
1112	C22136-A10-B21	+)	Type bar, slot 1	109	1	1	
1113	C22136-A10-B22	+)	2	109	1	1	
1114	C22136-A10-B23	+)	3	109	1	1	
1115	C22136-A10-B24	+)	4	109	1	1	
1116	C22136-A10-B25	+)	5	109	1	1	
1117	C22136-A10-B26	+)	6	109	1	1	
1118	C22136-A10-B27	+)	7	109	1	1	
1119	C22136-A10-B28	+)	8	109	1	1	
1120	C22136-A10-B29	+)	9	109	1	1	
1121	C22136-A10-B30	+)	Type bar, slot 10	109	1	1	
1122	C22136-A10-B31	+)	11	109	1	1	
1123	C22136-A10-B32	+)	12	109	1	1	
1124	C22136-A10-B33	+)	13	109	1	1	
1125	C22136-A10-B34	+)	14	109	1	1	
1126	C22136-A10-B35	+)	15	109	1	1	
1127	C22136-A10-B36	+)	16	109	1	1	
1128	C22136-A10-B37	+)	17	109	1	1	
1129	C22136-A10-B38	+)	18	109	1	1	
1130	C22136-A10-B39	+)	19	109	1	1	
1131	C22136-A10-B40	+)	Type bar, slot 20	109	1	1	
1132	C22136-A40-B41	+)	21	109	1	1	
1133	C22136-A10-B42	+)	22	109	1	1	
1134	C22136-A10-B43	+)	23	109	1	1	
1135	C22136-A10-B44	+)	24	109	1	1	
1136	C22136-A10-B45	+)	25	109	1	1	
1137	C22136-A10-B46	+)	26	109	1	1	
1138	C22136-A10-B47	+)	27	109	1	1	
1139	C22136-A10-B48	+)	28	109	1	1	
1140	C22136-A10-C18		Support	107	1	11	
1141	C22136-A10-C19		Support	107	1	9	
1142	C22136-A10-C20		Wire	107	1	2	
1143	C22165-A17-C93		Roller	11	1	53	
1144	C22165-A17-C127		Pressure strip	11	2	8	
1145	C22165-A17-C135		Wire clip	11	1	2	
1146	C22165-A76-B21		Key	11	1	9	
1147	C22165-A76-B26		Key	11	1	10	
1148	C22165-A76-B31		Key	11	1	10	
1149	C22165-A76-B36		Key	11	1	10	
1150	C22165-A76-C8		Plate	9	1	1	

+) State assignment of type (letter, figure or symbol), No. engraved on type and No. embossed on side of bars

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1151	C22165-A76-C71	Button	11	1	1	
1152	C22165-A76-C76	Button	11	1	1	
1153	C22165-A76-C81	Button	11	1	1	
1154	C22165-A76-C86	Button	11	1	1	
1155	C22165-A76-C90	Push rod	11	1	7	
1156	C22165-A76-C91	Push rod	11	1	8	
1157	C22165-A76-C92	Push rod	11	1	8	
1158	C22165-A76-C93	Push rod	11	1	8	
1159	C22165-A76-C94	Compression spring	11	4	1	
1160	C22165-A76-C102	Plate only in connection with 1204	11	1	1	
1162	C22165-A76-C115	Washer	11	2	1	
1164	C22165-A76-C240	Rod	9	1	25	
1165	C22165-A76-C241	Bracket	9	1	8	
1166	C22165-A76-C242	Torsion spring	9	1	1	
1167	C22165-A76-C255	Key	11	3	5	
1168	C22165-A130-B1	Front cover section	11	1	995	
1169	C22165-A130-B8	Bracket	11	1	103	
1170	C22165-A130-B11	Rear cover section	9	1	1240	
1171	C22165-A130-B21	Side wall	9	2	530	
1172	C22165-A130-B51	Cover	7	1	1608	
1173	C22165-A130-B81	Support arm	9	1	85	
1174	C22165-A130-B91	Support arm	9	1	85	
1175	C22165-A130-C6	Window	11	1	4	
1176	C22165-A130-C8	Bushing	11	2	2	
1177	C22165-A130-C16	Cover	11	1	54	
1178	C22165-A130-C18	Bar	9	2	153	
1179	C22165-A130-C19	Stop	7	1	3	
1180	C22165-A130-C26	Sealing strip	11	1	11	
1181	C22165-A130-C27	Sealing strip	11	2	5	
1183	C22165-A130-C29	Plate	7	2	11	
1184	C22165-A130-C30	Axle	7	2	4	
1185	C22165-A130-C36	U-bracket	7	1	6	
1186	C22165-A130-C37	U-bracket	7	1	6	
1187	C22165-A130-C38	Lever	7	2	14	
1188	C22165-A130-C40	Plate	11	2	5	
1189	C22165-A130-C41	Cover	7	1	42	
1190	C22165-A130-C46	Lever	7	2	32	
1191	C22165-A130-C47	Bracket	11	2	8	
1192	C22165-A130-C48	Plate	7	2	1	
1193	C22165-A130-C49	U-wire	7	1	19	
1194	C22165-A130-C50	Clamp	7	4	3	
1195	C22165-A130-C51	Front cover	7	1	60	
1196	C22165-A130-C55	Plate	7	1	24	
1197	C22165-A130-C56	Plate	7	1	14	
1198	C22165-A130-C57	Plate	7	1	7	
1199	C22165-A130-C58	Plate	7	1	13	
1200	C22165-A130-C59	Hinge	7	1	101	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1201	C22165-A130-C60	Hinge	7	1	61	
1203	C22165-A130-C96	Bracket	7	1	9	
1204	C22165-A130-C99	Channel, only in connection with 1160	11	1	15	
1205	C22165-A130-C101	Cover	9	2	13	
1206	C22165-A130-C111	Button	7	2	16	
1207	C22165-A130-C120	Guide	11	2	78	
1208	C22165-A130-C161	Front cover plate	9	1	852	
1210	C22165-A130-C167	Bar	9	2	23	
1211	C22165-A130-C168	Plate	9	4	2	
1213	C22165-A130-C221	Bearing plate	9	2	33	
1214	C22165-A150-C3	Tape retainer lid	7	1	31	
1216	C22165-A150-C53	Sealing strip	7	2	3	
1217	C22165-A150-C54	Glass pane	7	1	197	
1218	C22165-A150-C58	Plate	7	2	1	
1219	C22165-A150-C135	Tension spring	7	2	1	
1220	C22170-A1-C4	Washer	215	1	1	
1221	C22195-A50-A20	Telegraph connecting cable	241	1	156	
1222	C22195-Z4-C7	Sleeve	195	1	2	
1223	C22195-Z4-C24	Sleeve	11	2	1	
1224	C22195-Z4-C33	Cable sleeve	221	1	1	
1225	C22195-Z4-C47	Sleeve	239	5	1	
1226	C22195-Z21-C60	Cable clamp	195, 221	3	2	
1227	C22221-Z3-C80	Bearing pin	281	1	1	
1228	C22230-Z7-C1	Lamp socket	185	1	36	
1229	C22230-Z7-C3	Spherical lamp	185	1	7	
1230	C22230-Z33-C3	Threaded bushing	185	1	4	
1231	C22234-A150-C8	Torsion spring	239	1	1	
1233	C22247-A2-C3	Duct	195	1	50	Spare Duct-C26
1234	C22247-A2-C4	Clamp	195	1	12	
1235	C22247-A2-C18	Recessed-neck screw	195	2	10	
1236	C22247-A2-C20	Cover	195	1	844	
1237	C22247-A2-C32	Stroboscopic disk	199	1	1	
1238	C22247-A2-C33	Stroboscopic disk	199	1	1	
1239	C22247-Z19-C1	Switching unit	197	1	44	
1240	C22302-A2-B20	Governor housing	197	1	64	
1241	C22302-A2-B22	Bracket with spring	197	1	19	
1242	C22302-A2-B23	Contact arm	197	1	4	
1243	C22302-A2-C36	Insulator	197	2	4	
1244	C22302-A2-C38	Cover plate	197	1	4	
1245	C22302-A2-C52	Contact arm	197	1	2	
1246	C22302-A2-C53	Spring support	197	1	1	
1247	C22302-A2-C54	Plate	197	2	1	
1248	C22302-A2-C55	Plate	197	2	1	
1249	C22302-A2-C58	Plate	197	1	2	
1250	C22315-Z13-C13	Micro-switch	185	1	10	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1251	C22326-A7-C91	Lubricating felt	281	1	1	
1252	C22334-Z18-C3	Receptacle	221	1	12	
1254	C22407-Z1-C1	Revolution counter	215	1	35	
1255	C30315-A323-C120	Nut	87	2	1	
1256	C30334-A29-A1	Plug	V-2	1	33	
1258	C42334-A19-A11	Blade terminal block	53	1	4	
1260	C42334-A91-B16	Plate	53	1	3	
1261	C42334-A91-C16	Cover	53	1	2	
1262	C42334-A226-A35	Blade terminal block	195, 283	2	6	
1263	C42334-A226-A36	Clip terminal block	221	2	6	
1264	C62122-A97-B1	Plate	195	1	141	
1300	S22211-C100-L8	Telegraph connecting cable	241	1	150	
1301	S22211-C100-L31	Telegraph plug-type distributor	241	1	42	
1307	S22211-D100-H301	Contact governor	195, 199	1	337	
1309	S22211-Q100-K320	RF suppressor case	279	1	211	
1310	S22211-H100-B1	Magnet with residual plate	29	1	118	
1311	S22211-J100-B...	Printer	85	1	6400	
1312	S22211-J100-B...	Type basket carriage	85	1	917	
1313	S22211-J100-B...	Line feed mechanism	103	1	38	
1314	S22211-J100-B...	Case shift mechanism	103	1	52	
1315	S22211-J100-B...	Segment with type bars	107	1	344	
1316	S22211-J100-Z301	Magnet	101	1	55	
1317	S22211-T100-B302	Special function key assembly	11	1	131	
1322	S22211-T100-H330	Key assembly	11	1	195	
1323	S22213-G106-K11	Magnet system	283	1	106	
1324	S22213-G106-K12	Magnet system	283	1	58	
1325	S22311-D...-A... +)	Remote control unit	III/11	1	5200	
1405	T22211-D100-C306	Wire	195	1	3	
1450	V22126-Z140	Key	217	1	8	

+) Layout according to overall circuit diagram of teleprinter

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
1451	V22126-Z141-A1	Key	217	1	8	
1452	V22126-Z141-A2	Key	217	1	8	
1453	V22311-M410-A16	Additional choke	221	1	162	
1454	V22392-X-A9	Magnet	101	1	24	
1455	V22411-S6430-R8	Centrifugal contact governor (stat. part)	199	1	53	
1456	V22411-A6620-R8	Rubber ring	199	2	10	
1457	V22411-E7630-C1	Asynchronous motor, speed regulated E220, 50 Hz, 45 W	199	1	3680	
1458	V22411-E7630-S1	Rotor assembly with governing unit S2 E 220, 50 Hz, 45 W	199	1	1180	
1459	V22411-E7630-S3	Cover plate	199	1	10	
1460	V22411-E7630-S4	Shrink sleeve	199	1	1	
1461	V22411-E7630-S6	Bearing frame AS	199	1	169	
1462	V22411-E7630-S7	Spring washer	199	1	1	
1463	V22411-E7630-S8	Bearing frame BS	199	1	135	
1464	V22411-E7630-S9	Terminal block, 4-point	199	1	14	
1465	V22411-E7630-S10	Plate	199	2	1	
1466	V22411-E7630-S11	Plate	199	1	1	
1467	V22411-E7630-S12	Wire	199	2	1	
1468	V22411-E7630-S13	Protector	199	1	4	
1469	V22411-E7630-S14	Spring	199	1	1	
1470	V22411-E7630-S16	Oval head screw	199	4	1	
1471	V22411-E7630-S501	Stator, wound, 50 Hz	199	1	2010	
1472	V45594-F8-A223	Power cable	241	1	174	
1473	Z22211-C100-T1	Plate	215	1	1	
1474	Z22211-F100-N7	Key	11	1	5	
1475	Z22211-F100-N15	Key	11	1	5	
1476	Z22211-F100-N39	Key	11	1	5	
The following additional items were included during printing:						
1600	C20136-A14-C674	Pull bar	103	1	12	
1601	C20136-A114-C137	Plate	113	1	11	
1602	C30363-A282-C125	Rubber shoe	239	1	2	
1603	C22165-A130-C141	Tape deflector	11	1	21	
1604	C22165-A130-C7	Window	11	1	2	
1605	C22234-A7-C501	Washer	11	6	1	
1606	C22165-A130-C9	Frame	11	1	1352	
1607	C22165-A130-C108	Sealing strip	7	1	6	
1608	C22195-Z21-C62	Cable clamp	221	1	3	
1609	C22165-A130-B191	Front cover plate	9	1	1100	
1610	C22165-A130-B201	Paper deflection plate	9	1	100	
1611	C22117-A104-C69	Screw	III/11	1	110	
1612	C22195-Z4-C46	Bushing	239	8	1	
1613	C20170-A82-B40	Lead	239/11	2	2	
1614	C42334-A91-A102	Line plug	III/15	1	12	

Cons. No.	Ordering No.	Nomenclature	Chapter/ Page	Qty./ Unit	Weight (g)	Remarks
2000	C20156-A100-B2	Operation time counter	215	1	65	
2001	C20156-A100-B63	Bracket	215	1	7	
2002	C22165-A130-C126	Pin	11	6	4	
2003	C20145-A43-B42	Lever	29	1	6	
2004	C20145-A43-B45	Lever	29	1	11	
2005	V22411-E7630-S2	Governor	201	1	60	
2006	V22411-E7630-S17	Oval cross head screw	201	4	1	replaceable by cons. no. 24