

Rimoldi[®]

instructions hanbook

BELT LOOPS CUTTING DEVICE
172-50

n. 278
999819-5-00

WARNINGS

All RIMOLDI products referred to in this instructions booklet are equipped with all safety devices provided by the laws in force.

Therefore the safety devices must not be removed except for maintenance operations, always to be carried out with the motor switched off at the mains.

The pneumatic mufflers are also considered safety devices and must therefore be cleaned if malfunctioning, but not cut out.

When replacing the needle, presser foot, needle plate, looper, or during threading operations and whenever necessary to enter the machine, the motor must be switched off at the mains.

Failure to observe these basic rules may compromise the operator's physical integrity and he must inevitably accept the relevant responsibility.

The information given in this booklet is indicative. ROCKWELL-RIMOLDI S.p.A. may modify the products described herein at any time for technical or commercial reasons.

FOREWORD

This booklet contains some information on the installation, setting and ordinary maintenance of RIMOLDI modular electronic device 172-50 for cutting the belt loops fitted on RIMOLDI sewing machines 261-40-2MN-11 (needle gauge 4,5 mm) and 261-40-2MN-12 (needle gauge 6 mm)

This device is suitable for cutting the belt loops in lengths which vary from 20 to 250 mm with variations of 2,5 mm

The length of the belt loop, set on the presetter, is independent from the stitch and the speed of the machine.

The rotating blade that cuts the length for the belt loops effectuates a good cut even on tough and heavy materials such as Denim for jeans.

RIMOLDI products are submitted to accurate, rigorous controls and inspections to guarantee durability and efficiency, but these performances depend to a large extent on the way these products are used and their precise maintenance.

Using only RIMOLDI ORIGINAL SPARE PARTS, the only ones which offer the same quality guarantee as those originally mounted, you can be sure that the RIMOLDI sewing machines will maintain their functionality and value.

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COMPOSITION

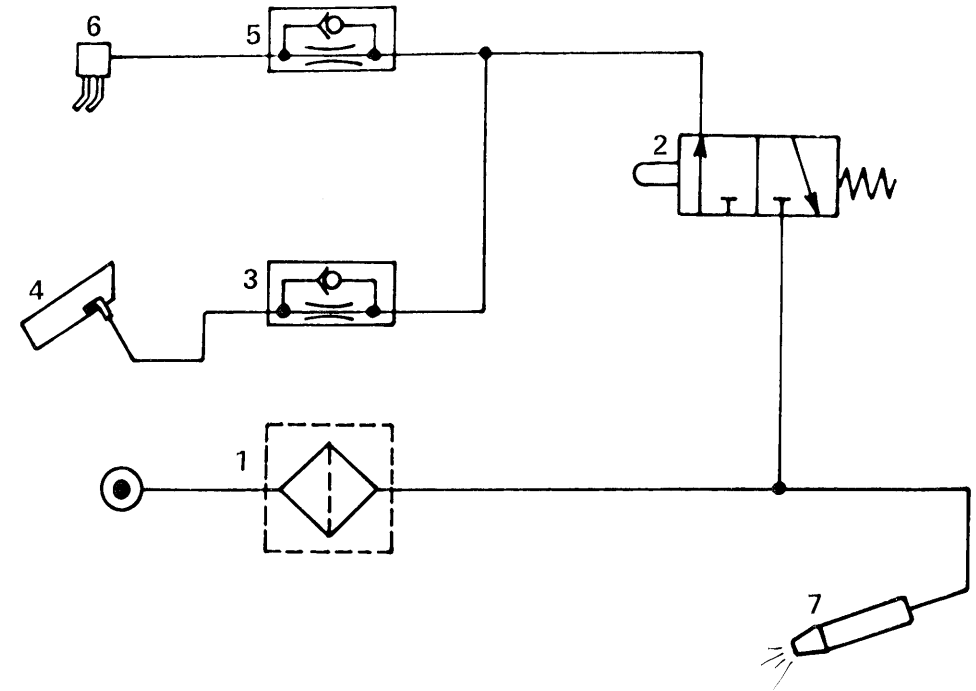
The device is composed of:

- a control box;
- a cutter with rotating blade (360°) driven by an electromagnetic winding spring clutch;
- a rear roller conveyor unit, with upper roller motorized and lower roller connected to an opto-electronic system to determine the length of the belt loops;
- a safety microswitch which interrupts cutter drive when the protecting crankcase is opened;
- a needle-cooling device composed of:
 - two blowers;
 - a filter unit;
 - a motor track rod, with pneumatic valve.

PNEUMATIC DATA

The pressure of the compressed air, dry and filtered, is between 4,5 and 7 bar; air consumption is $59 \div 92$ NI/min with batcher completely open.

PNEUMATIC CIRCUIT



- 1 Filter unit
- 2 Needle cooling and belt loop suction control valve
- 3 Belt loop suction unit batcher
- 4 Belt loop suction unit
- 5 Needle cooler batcher
- 6 Needle cooler
- 7 Washing gun

PRESETTING CONTROLS

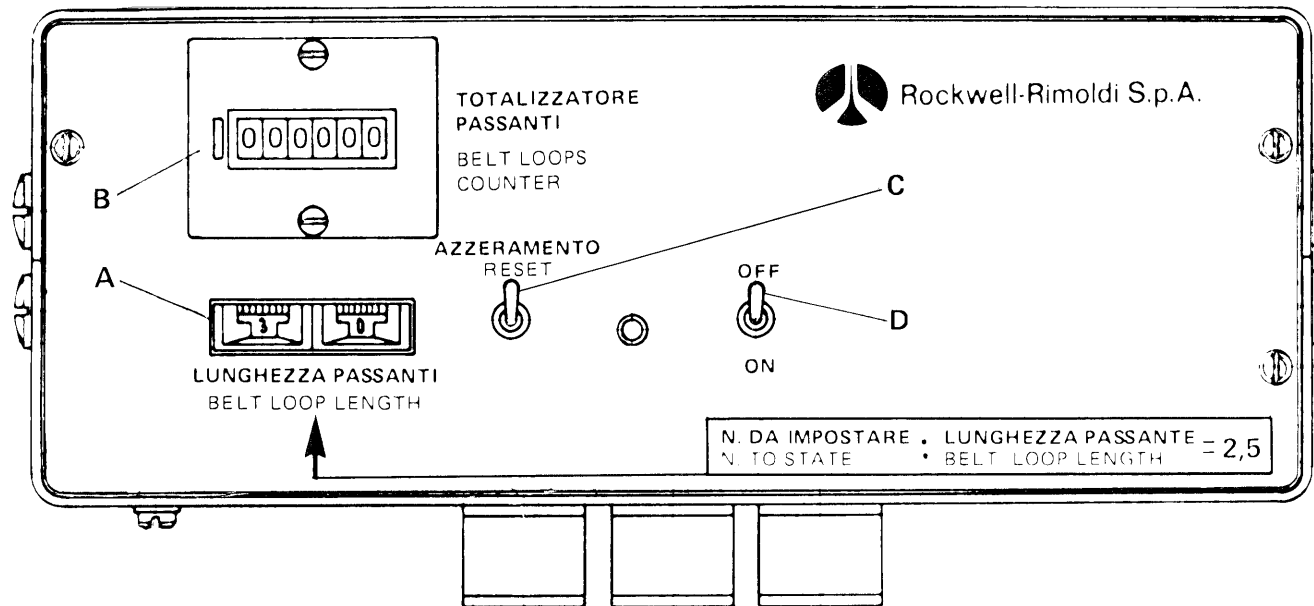
- Two-digit setting device (A)** : Fixes the length of the belt loops: divide the belt loop length required by 2,5 and insert the number obtained, from right to left, in the two counters.
- Totalizer (B)** : Displays the quantity of belt loops cut.
- Zeroing lever (C)** : To be used each time the numbers pre-set must be varied.
- Switch (D)** : Ignites/extinguishes the control box.

CONTROL BOX

The control box is connected with the motor protector of the machine and may be fed at the different mains single-phase voltages.

$$E = 220-240-380-415V \quad 35VA \quad 50/60 \text{ Hz}$$

It is generally connected to receive 380V.



CUTTER

(fig. 1-2-3)

The cutter is composed of:

- winding spring clutch 1 controlled by electromagnet 2;
- transmission with toothed belt 3, pulleys 4 and 5 and rotating blade 6;
- fixed blade 7.

Adjustment of rotating blade starting position:

- move the elastic ring B of clutch 1 from its seal position;
- remove collar 9 from the grooves and rotate rotating blade 6 until it lies at a slope of approx. 30° to the fixed blade,
- re-insert collar 9 in the grooves so that the stop tooth 10 engages the pawl 11 of electromagnet 2;
- replace elastic ring B.

WARNING – When the protecting crankcase opens, the safety microswitch 12 breaks the power connection with the electromagnet 2; for this reason any test on the cutter must be performed with crankcase closed.

Cutter power connection - module M006.0

(fig. 3)

The cutter power connection is obtained with cable 1 equipped with plug J which is inserted in socket D of the module.

The cable terminal **a** coming from the safety microswitch 12 is connected to the corresponding terminal **a** of electromagnet 2; the cable terminal **b** of cable 1 is connected to terminal **b** of the same electromagnet.

Hints on blade sharpening

When sharpening blades 6 and 7, we recommend that no grinding is carried out on the reciprocal slip surfaces, but only on those marked with an X in figs. 2 and 3.

Blades dismantling - assembly

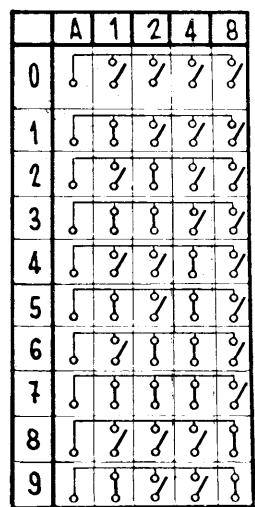
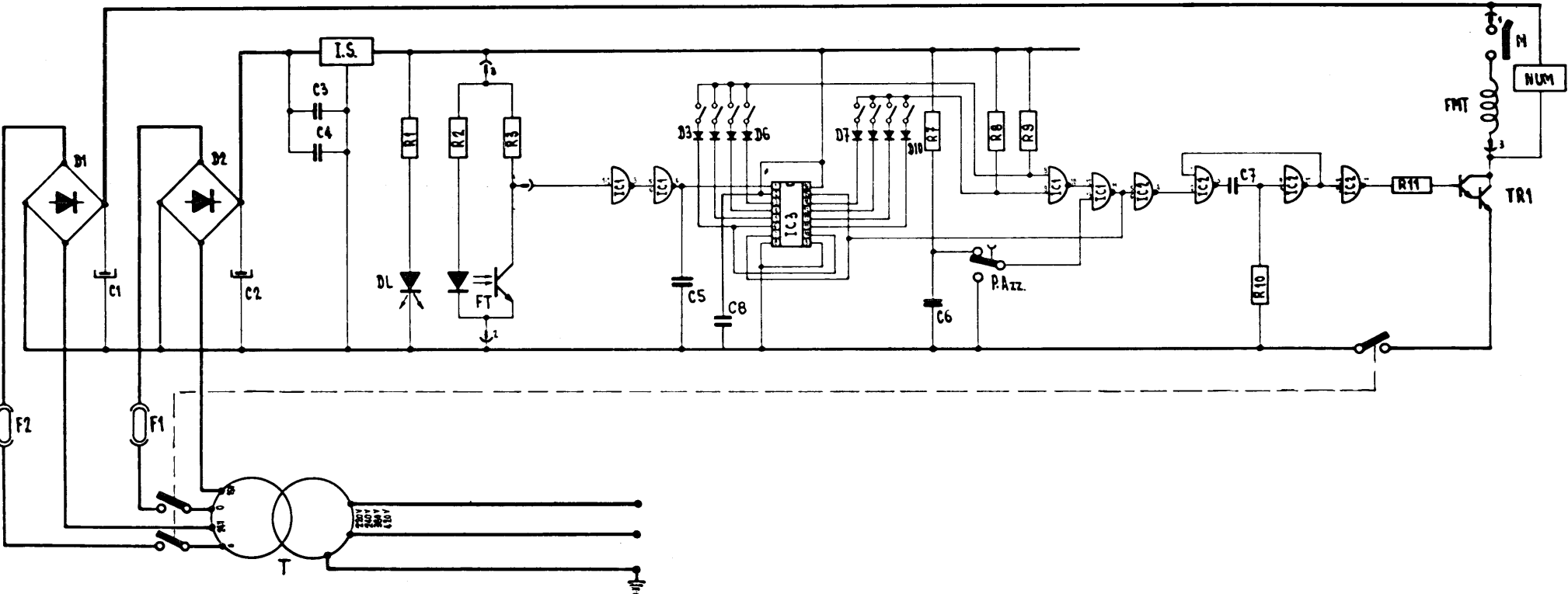
Dismantling

- slacken belt stretcher 14,
- unscrew and remove cap 15;
- push out pin 16 and remove pulley 5 of knife 6, taking care not to let the flexible washers 17 fall.

Assembly

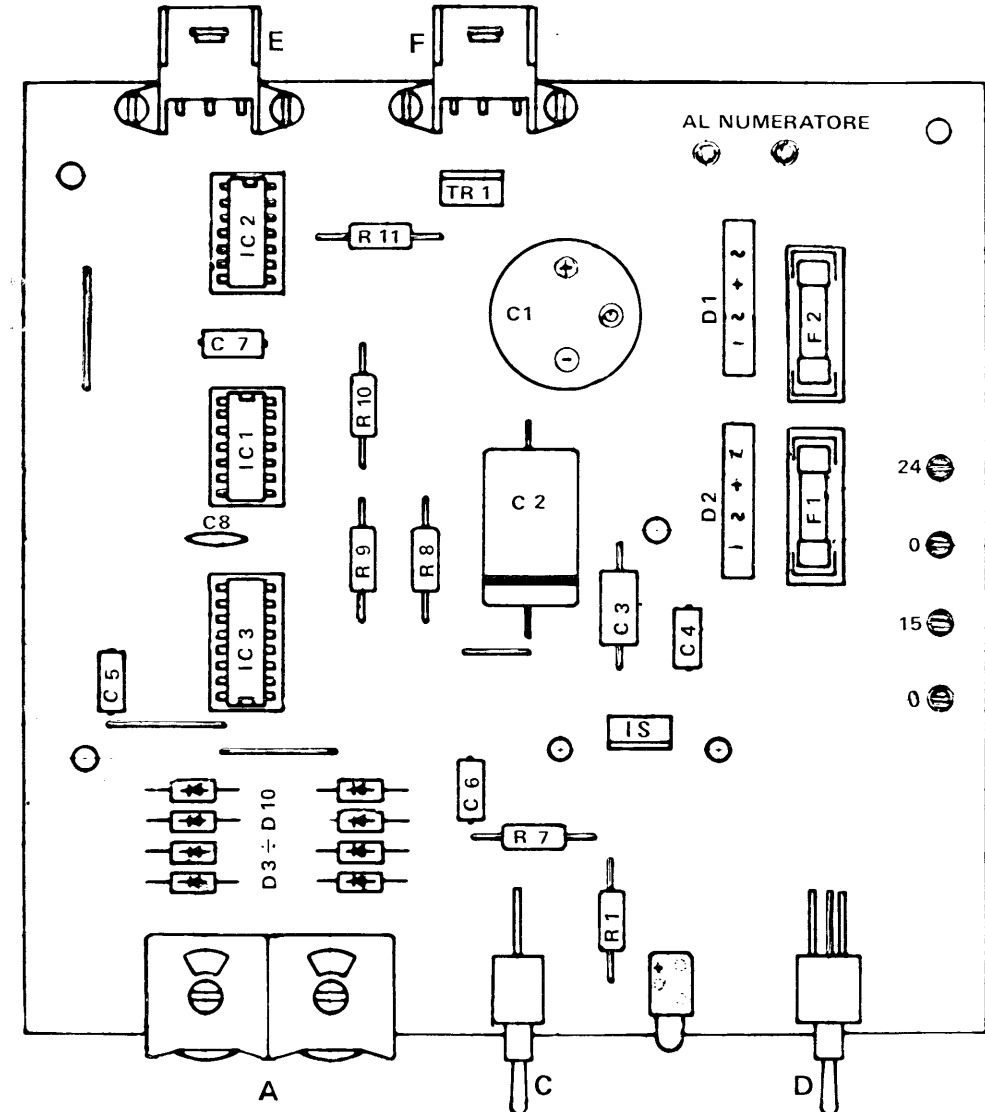
- assemble the toothed belt 3 on the pulley 5 of the rotating knife 6;
- rescrew cap 15 and bring the rotating blade 6 against the fixed blade 7, checking reciprocal alignment;
- screw cap 15 another 1 or 2 turns (to connect alignment, slacken screws 18 and lightly push the fixed blade 7 against the rotating blade 6);
- reset the correct tension on the toothed belt 3 by means of belt stretcher 14.

Electric circuit

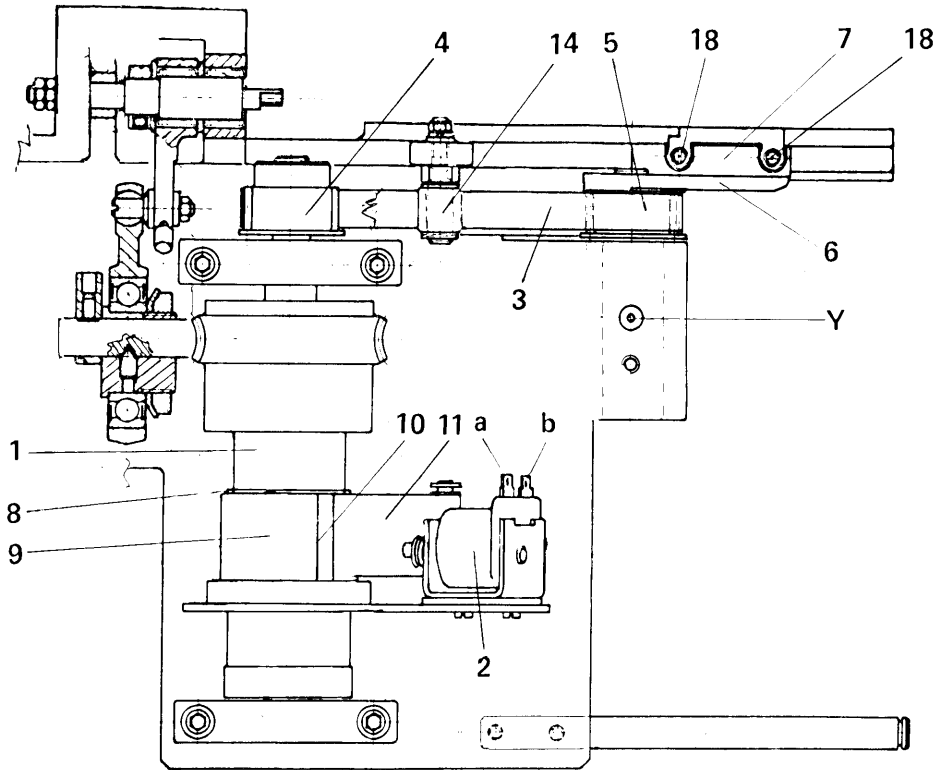


Wiring diagram of one section of the commutators

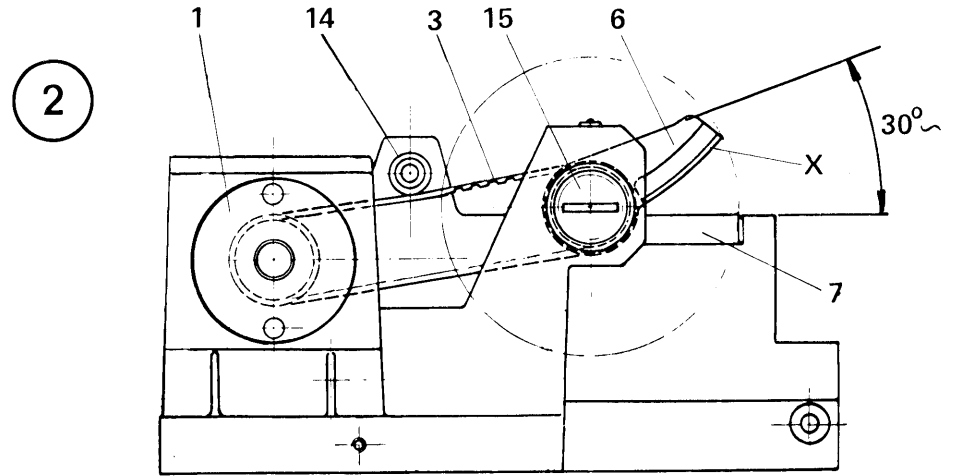
- N.B. Resistors R2 and R3 are assembled on the opto-electronic system
- | | | | |
|----------|---|--------|-------------------------------------|
| I.G. | Main switch | C3 | Condensator 0,33 μ F - 63V |
| T | Transformer 38VA E = 220-240-380-420 U = 0-15V (15VA) 0-24V (20VA) | C4 | Condensator 10nF - 400V |
| F1 | 1A fuse | C5-6-7 | Condensator 22nF - 400V |
| F2 | 1A fuse | C8 | Condensator 0,1 μ F - 63V |
| D1-2 | Rectifier B40 - C 1500/1000 | IS | Integrated stabilizer MC 7815 CP |
| D3 ÷ D10 | Diode BAY 72 | DL | Green LED diode |
| R1-2 | Resistor 680 Ω - 1/2 W | FT | Phototransistor |
| R3 | Resistor 82K - 1/2 W | TR1 | Transistor Darlington BDX33 |
| R8-9 | Resistor 10K - 1/2 W | IC2 | Integrated circuit C/MOS HCF 4011BE |
| R7-10 | Resistor 1M - 1/2 W | IC3 | Integrated circuit C/MOS HCF 4518BE |
| R11 | Resistor 5,6K - 1/2 W | P.azz | Zeroing button |
| C1 | Condensator 2.200 μ F - 63V | FMT | Cutter spring clutch |
| C2 | Condensator 470 μ F - 63V | M | Safety microswitch |
| | | NUM | Numerator |
| | | IC1 | Integrated circuit C/MOS HCF 4093BE |



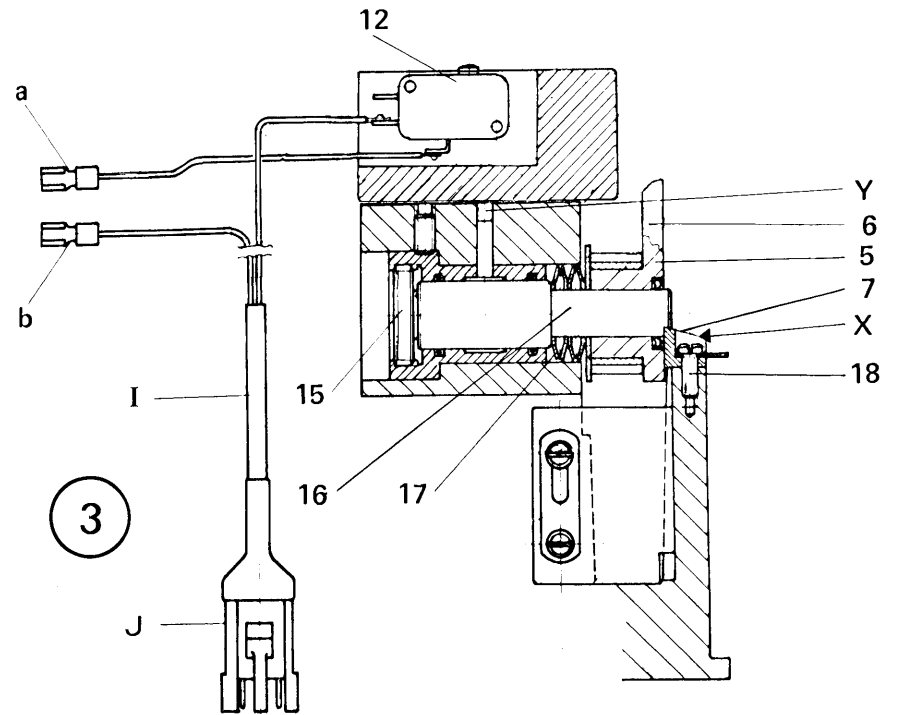
- E - Connection socket with the opto-electronic system to determine the length of the belt slots.
- F - Connection socket with the cutter clutch.



1



2



3

REAR CONVEYOR UNIT

(figs. 4-5-6-7-8-9)

The rear conveyor unit is composed of:

- one-way mechanical clutch 1 controlled by cam 2, keyed on shaft 3, and by the connecting rod 4;
- group of conveyor rollers with upper roller 5 controlled by mechanical clutch 1 through a cardanic drive 6 and with lower roller 7 idle.
The lower roller 7 is connected with the opto-electronic system to determine belt loops length.
The opto-electronic system is bonded with the control box by cable G with plug H, which is inserted in socket C of module M001.1.
To raise the upper roller 5, turn lever 8;
- toothed conveyor belt 9, toothed pulley keyed on the lower shaft of the machine (alongside the handwheel) and pulley 10, of equal diameter, keyed on shaft 3.

Rear conveyance adjustment

This adjustment is made by means of screw 11 of mechanical clutch 1.

Remember that, to increase the quantity of belt loops conveyed by the rollers, you need only move pin 12 towards the inside of the clutch.

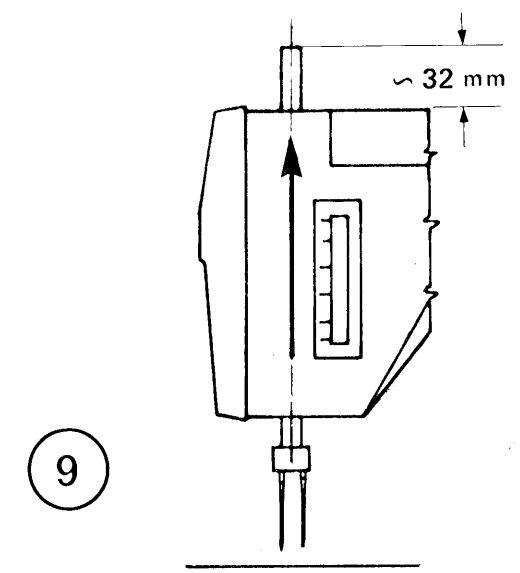
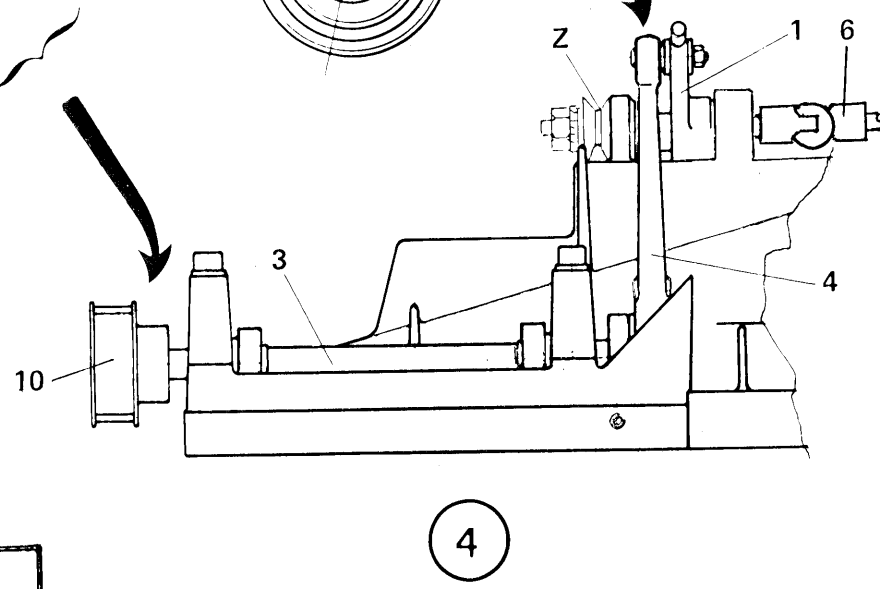
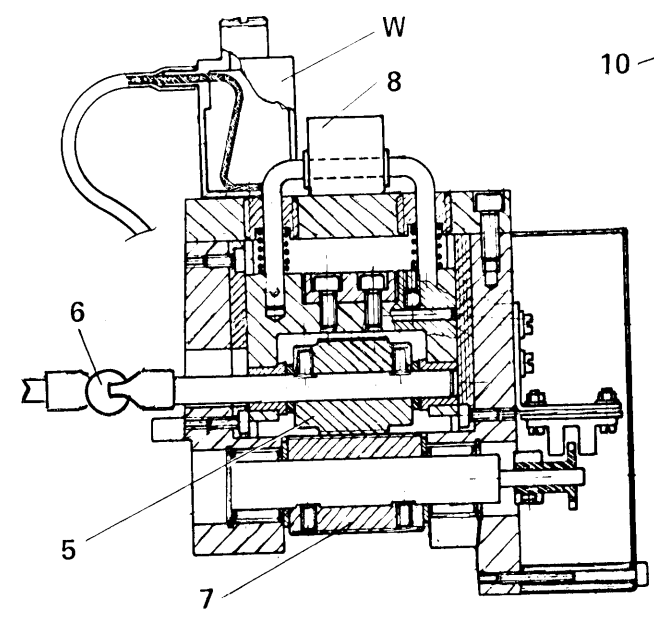
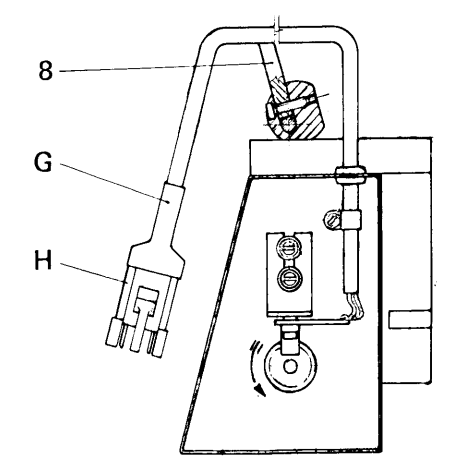
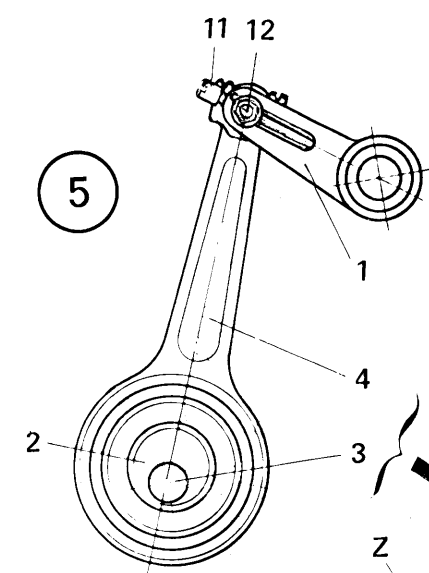
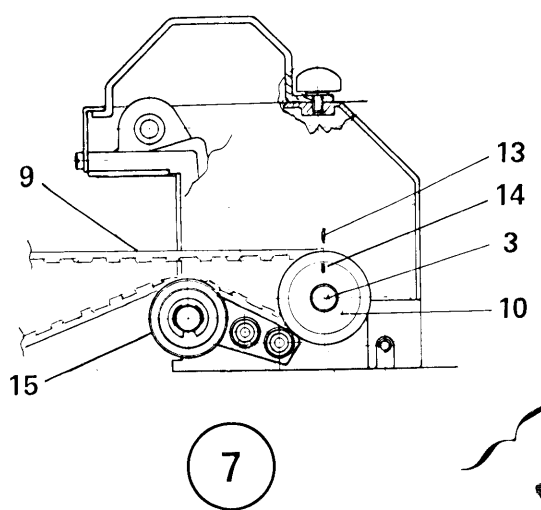
Feed dog synchronism - rear conveyance

When changing the toothed belt 9, to synchronize the feed dog and upper roller 5, proceed as follows:

- make the needle bar project approx. 32 mm above the arm of the machine;
- rotate pulley 10 until the mechanical clutch 1 is completely down in its lower dead point (in this position the two index lines 13 and 14 must coincide);
- assemble the toothed belt and adjust the belt stretcher roller 15 to obtain the correct tension.

WARNING – Add ATHESIA GREASE 2 periodically to greaser Y of rotating blade 6 (fig. 1-3), the worm screw-helical gear unit of the winding spring clutch 1 (fig. 1) and brake 7 of the one-way mechanical clutch 1 (fig. 4). Lubricate the double joints of the cardanic drive between the one-way mechanical clutch 1 and upper roller 5 (figs. 4-6) and pin 12 (fig. 5) with 1 or 2 drops of OIL Type 32 “Special for sewing machines”.

Keep the oil level topped up in oiler W, which lubricates the continuous friction zone of rotating blade 6 and fixed blade 7 (fig. 6).



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