

MAINTENANCE HANDBOOK

EFN - 928

This booklet and all the enclosures mentioned herein make up an integral part of the machine and contain information regarding safety as laid down in EEC directive 89/392.

Before using the machine, the purchaser must make sure that the staff who will use it know the contents of this booklet above all as regards warnings on the subject of safety.

The manufacturer declines all both legal and criminal liability for accidents which derive from failure to comply with even only one of the instructions and warnings contained in this booklet.

MARKINGS

Machine series: see compliance declaration
CE markings pursuant to EEC directives:
89/392, 91/368, 93/44 and 93/68

CONDITIONS OF GUARANTEE

Rimoldi Necchi guarantees that all Rimoldi Necchi machines (hereafter defined as "the products") will be free from defects in material or workmanship for one shift per day for twelve months from the date the invoice is issued to the end user (client). During the guarantee period, RIM, the AGENT or the RETAILER of the Rimoldi Necchi machine (hereafter defined as the "Seller"), will repair or replace any defective parts of the products covered by this guarantee and sold by them on behalf of Rimoldi Necchi free of charge. The repaired or replaced parts are only guaranteed for the remaining period of the product guarantee. Any maintenance operations and repairs carried out during the guarantee period do not modify the expiry date of the guarantee itself.

The guarantee operations are carried out on the client's premises, or, if necessary, at the seller's. In this case, the client must assume all transport costs and risks. Any replaced parts removed from the product become property of Rimoldi Necchi. Final decisions regarding the validity of the guarantee service requests and/or technical methods involved are taken by the Rimoldi Necchi Quality Management. This guarantee does not cover breakdowns due to normal wear, unauthorized operations or modification, improper or inexperienced use of the product, lack of, incorrect or insufficient maintenance and/or lubrication, inadequate supply systems (electric and pneumatic), use of non-original spare parts and/or accessories and, finally, it

does not cover damage to electronic parts caused by natural atmospheric events. Therefore, components which are worn due to normal use of the machine are not replaced under guarantee, such as needles, feed dogs, plates, presser foots, knives, loopers, etc.

This guarantee only ensures the client for the repair and replacement of defective parts. All other claims and requests are excluded, including those related to loss of production or damage to things or people due to the use of a Rimoldi Necchi machine, even if due to the breakdown of the machine itself. Requests to replace the product itself are also excluded. This guarantee replaces any other guarantee or condition, either explicit or implicit, including therein any guarantee that the product is suitable for particular purposes.

This is the unique and complete agreement which regulates the relationship between the client, the seller, and Rimoldi Necchi, relating to the guarantee. No employee or organization of the seller is authorized to modify it on behalf of the seller or Rimoldi Necchi.

In the case of dispute regarding the contents, limits of application and anything else concerning the guarantee, the Italian version of these regulations will apply, since translations into other languages are only provided out of courtesy.

The competent law court is Milan, Italy.

Rimoldi Necchi S.r.l. reserves the right to modify or vary, for technical or commercial reasons, the information printed in this brochure.

WARNINGS

Rimoldi Necchi S.r.l. machine-shop spreading machines are designed for professional use (industrial, commercial or workshop) in the garment making, shirt-making, knitwear, lingerie, glove-making and soft furnishings industries.

Use of the machines in industries not mentioned above or by non-professional users may lead to risks which were not foreseen during the design stage.

The machines were designed and manufactured in order to meet safety requirements for operation in dry, very clean surroundings and to spread and work dry fabric.

The machines must not be installed in an explosive environment.

N.B.:

- Test certificate
- EEC compliance certificate
- Electric diagrams

are enclosed with the machine and therefore should be considered an integral part thereof.

The machines are fitted with accident-prevention protections: the user must not, for any reason, dismantle, remove, deform or disable the above mentioned protections even partially since risks could arise for the operator himself and any third parties.

Before proceeding with the replacement of worn parts (for example cutting blades, sharpening grindstones, etc.), routine or special maintenance, and also before leaving the work place, disconnect the devices from the power supply and make sure the machine does not start up when the start button is pressed.

BEFORE RECONNECTING TO THE POWER SUPPLY, MAKE SURE ALL COVERS ARE CLOSED AND ALL PROTECTION COMPONENTS WHICH MAY HAVE BEEN REMOVED HAVE BEEN FITTED BACK.

Special maintenance operations and any repairs (including changing the blade and the sharpening unit) must be carried out by specialized staff.

The machine is fitted with a cutting system which sometimes opens by more than the amount laid down in the international regulations (8 mm) due to particular cutting requirements (fabric feed, extremely thick fabrics, upholstery, etc.); there may consequently be risks in the cutting area.

Therefore, in these cases, the operator must be informed of the consequent risks and suitably trained.

In any case an operator, before becoming such, must know the basic information written in this instructions for use booklet. The machine can be used by one operator only.

It is forbidden to use the machine for purposes other than those for which it was manufactured and/or in a way other than that shown in this booklet. In particular, the machine must never be used:

- with damp or wet fabric, due to the possibility of risks of electrocution
- wearing loose flying clothing, which may lead to the risk of them getting caught up in the machine parts
- with any part (blade guard, etc.) removed, due to the risk of accidents involving the fingers.
- when standing in the working area of the machine and/or sitting on the spreading table of the machine itself.
- while passing on the side opposite the controls. For this purpose, the user must surround the table (around the whole machine path perimeter) with barriers able to prevent staff members and/or trolleys from occasionally passing.

It is possible to avoid placing these barriers by purchasing the special supplementary cams for the side opposite the operator.

- starting a work cycle if the spreading table is being used by staff and/or materials.
- starting a work cycle if there are people and/or materials in the machine working area.
- by loading rolls of cloth of greater dimensions and, above all, greater weights than those shown in the technical specifications.
- carrying other people on the operator conveying footboard (if the machine is fitted with one) and/or climbing on part of the machine.
- with the mechanical parts provided with the machine table which act as safety end-stops removed.
- if a table (with the same characteristics as Rimoldi Necchi S.r.l.) is purchased from another company, the client must obtain and fit the mechanical stops.
- with the machine installed near columns and/or architectural elements which are detrimental to its correct operation and obstruct the view, even only partially, of the operator and/or staff from outside the department or unfamiliar with the type of work.
- after tampering with the original settings, increasing the machine speed to the detriment of the stopping distances above all in case of Emergency.

NOISE AND VIBRATIONS

- The air transmitted noise emitted by the machine is less than 70 dB (A).
- In order to keep the sound levels down to the levels shown on the certificate, place the machine correctly as shown in the **INSTALLATION INSTRUCTIONS** paragraph. The use of non-original tables and/or incorrect placings can be detrimental to the values shown.

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CHARACTERISTICS

General EFN - 928 MATIC characteristics

The 928-MATIC spreading machine can spread open woven, warp and weft, fabric made from any type of thread. It is fitted with a CM 92 computer as standard for programming 50 different sizes and 50 different colours. Thanks to its versatility, it can spread the fabric with various different spreading systems without having to dismantle and replace mechanical units or having to move clamps or cams. Zigzag spreading is obtained by cutting at the head and foot of the stack thanks to a new-design cutting unit (patented). The fabric feed is independent of the transverse movement of the machine; this is obtained using an electronic control unit and with the aid of a system of chains (patented) which ensure constant gradual unrolling; the chains feed the fabric to the feed roller, which is also driven by a direct current motor and electronically controlled. It can also spread rolls rolled in the opposite direction. If there is a power failure while a program is being run, the spreader stops instantaneously, and, when the power supply returns, the spreader is ready to start exactly where it left off and complete the previously programmed cycle. In order to start the machine up again after an emergency stop has been pressed or after a power failure, it is necessary to switch the power back on at the machine controls by pressing **POWER ON** (see chapter "FABRIC ALIGNMENT" and "MANUAL SPREADING"). One noteworthy characteristic is that it has two electronically controlled backward-turning rollers located under the cutter (patented)

In order to lay and stroke the spread fabric and smooth out the slack for a spread without creases. Besides not using clamps and cams, the machine can spread from the zero point to the maximum point; or from any point to any other point. This peculiarity gives considerable advantages when carrying out the work and leads to a considerable reduction in costs and idle time. The 928 MATIC spreading machine allows high spreading speeds: from 10 to 70 metres per minute. The operator is helped by the fact that the cloth is loaded semiautomatically on the feed chains with a rotating arm loader always supplied as standard (see chapter "CONTROL AND SETTINGS PANEL").

General EFN characteristics - 928 S.S.A.

Special version for spreading large dimension (up to 80 cm in diameter) and very heavy (up to 350 kg) rolls. This version is identical to the EFN-928 with, in addition, a special trolley for spreading large dimension cloths and cloth positioners, instead of the loader, able to form a cradle suitable for receiving the cloth. It is ideal for denim. The main and supplementary feeders are each driven by their own motors and controlled electronically. A feeler system checks the tension extremely precisely; if the tension is anomalous, it balances the speeds of the two motors until the tension is correct.

Spreading systems and technical characteristics

- semiautomatic threading
- feed with system of chains (patented)
- two-directional spreading with speed adjustment
- electronically controlled rollers (patented) under the cutter with feed correction potentiometers (even when the spreader is working)
- precise selvage alignment. Cloth unrolling and rolling wound in any way.
- Single sheet spreading start from right to left or vice versa
- versatile using a selector to choose single cut, length on length, cut, and zig-zag cut on both sides
- fast cutter
- increased productivity and reduction in labour costs thanks to automation and not having to fit units in order to change the spreading systems.
- emergency brake which stops the spreader instantaneously once the emergency button is pressed or when the power supply fails
- the machine spreads material from 50 cm diameter rolls.
- maximum weight 55 kg for the standard version
- maximum spreading height: 22 cm

Qt.	Installed standard power motors	Kw.
1	Main motor	M1 1,85
1	Feed roller turning motor	M2 0,3
1	Chain turning motor	M3 0,6
1	Cutting roller turning motor	M4 0,18
1	Blade turning motor	M5 0,15
1	Cutter transverse motor	M6 0,3
1	Trolley transverse motor (photoceall)	M7 0,18
1	Cutting unit lift motor	M8 0,18
1	Rotary arm loader motor	M9 0,24
	TOTAL INSTALLED POWER approx.	Kw. 3,98

	Type	160 /1	180 /2	200 /3	220 /4
Width	mm.	2650	2850	3050	3250
Height	mm.	1080	1080	1080	1080
Length	mm.	1550	1550	1550	1550
Machine weight	Kg.	540	610	680	760

- maximum spreading speed: 70 metres per minute.
- Electric power supply: 110 V 50 Hz A.C.

It can be fitted with a CM94 computer instead of the CM92 on request at additional cost.

The CM 94 is able to store 10 complete programs with 20 sizes and 20 colours. The CM 94 computer also makes it possible to carry out six types of cut.

- 1 - Length on length starting the spread from the left of the machine with cut on the right.
- 2 - Length on length starting the spread from the right of the machine with cut on the left.
- 3 - Start laying the spread face to face or zigzagging from the left of the machine with cut on the right.

- 4 - Start laying the spread face to face or zigzagging from the right of the machine with cut on the left

ATTENTION

Then fix the safety brackets (6) in figure 10.

- 5 - Start laying the spread face to face or zigzagging from the left of the machine without cut

Fitting the intermediate sections (fig. 3)

- 6 - Start laying the spread face to face or zigzagging from the right of the machine without cut

Take 2 intermediate crosspieces (4) and 4 long bars (5) and fit them to each other and to the previous section; slip on an intermediate table section (7) and lock everything with screws and nuts (3). Proceed in the same way with all the other intermediate sections.

N.B. Incorrect assembly can cause problems with correct spreading machine operation and change the declared noise emission levels.

This computer is fitted with an RS232 serial port where it is possible to connect a PC for automatically inputting and managing programs. On request, we can enable the serial port and provide programs for use with a 286-386-486 PC with DOS 3 or later operating system.

Also, again on request, we can study links with already existing work networks for inputting programs and automatically controlling several machines.

If a table (with the same characteristics as Rimoldi Necchi S.r.l.) is purchased from another company, the client must obtain and fit the mechanical stops (the safety brackets (6) in figure 10).

ASSEMBLY AND TABLE POSITIONING (fig. 1)

Fitting the end section (fig. 4)

Installation must be carried out by specialized staff in compliance with all the instructions in **this booklet**. The table is partially dismantled for transport purposes. Before assembling it, decide the exact area where it must be placed and at the same time decide on which side of the table the spreading machine controls are to go. The table consists of several sections which must be assembled according to the numerical order assigned to them by the manufacturer. The first section of the table must be placed on the left of the area chosen, looking from the side of the spreading machine controls. **The table must be assembled by specially trained skilled staff.**

Take an intermediate crosspiece (4), end crosspiece (8), 4 bars (6) and assemble everything; slip on the last table section (9) and fix with screws and nuts (3). Then proceed with levelling the whole table by adjusting the feet (10) and locking them, once correctly adjusted, with the nuts provided.

N.B. Incorrect assembly can cause problems with correct spreading machine operation and change the declared noise emission levels.

If a table (with the same characteristics as Rimoldi Necchi S.r.l.) is purchased from another company, the client must obtain and fit the mechanical stops (the safety brackets (6) in figure 10).

Assembly of the first, intermediate and end sections must be carried out by specialized staff in compliance with all the instructions in this USE BOOKLET.

Fitting the first section (fig. 2)

Then fix the safety brackets (6) in figure 10.

Take the end cross bar (1), two intermediate cross bars (4), 2 short bars (2) and 2 long bars (5) and assemble them as shown in the figure; slip the first section (6) onto the table cross bars and lock everything with screws and nuts (3).

Fitting the stop carrying guide (figs. 2, 3 and 4)

N.B. Incorrect assembly can cause problems with correct spreading machine operation and change the declared noise emission levels.

If a table (with the same characteristics as Rimoldi Necchi S.r.l.) is purchased from another company, the client must obtain and fit the mechanical stops (the safety brackets (6) in figure 10).

The stop carrying guide (11) runs along the whole length of the table on the control panel side. The guide is fitted by starting from the left, inserting each section of the guide L section bar in the block provided (12) and locking it with the two nuts inserted in the block itself.

The stop carrying guide must be fitted by specialized staff in compliance with the instructions in this booklet.

Fitting the rack for devices CM 92 and/or 94 (figs. 2, 3 and 4)

Fix the blocks (14) to the holes in the legs of the crosspieces, insert the rack and lock it with nuts.

The rack must be fitted by specialized staff in compliance with the instructions in this booklet.

Fitting the trolley busway (fig. 8)

The trolley busway (6) consists of a series of elements which are connected to each other using joints (7). The trolley busway runs along the whole table on the opposite side from the spreading machine controls and is fixed to the cross-bars with supports (8) and screws (5).

The electric connection, fitting of the trolley busway, assembly of the end and power supply boxes and insertion of the trolley (4) are described in detail in the instructions enclosed with each component. Make sure that the two plates (9 - 10) located on the joint and busway parts respectively always face the operator. Then connect the trolley on the busway to the spreading machine by fitting the arm (3) and fixing it to the machine with screws and washers (2). The connect the cable (1) to terminals L1 - L2 - L3 + earth on the terminal board located on the spreading machine.

Then electric system must be connected by specialized staff in compliance with the IEC regulations and all the regulation laid down.

Fitting the power supply box (fig. 9)

The power supply box (1) is fitted as shown in the figure to the power supply section of the trolley busway; it is connected according to the instructions provided by the trolley busway manufacturer. The box is then connected to the electric grid. The box must be connected by specialized staff in compliance with the IEC regulations and all the instructions in this booklet.

BLOW TABLE

The blow table allows very heavy stacks to be moved easily and without effort, thanks to the air cushion created by the blower motors which send air through a series of holes in the table.

Fitting the blower motors (fig. 5)

For transport purposes, the compressors are partially dismantled. In order to place the compressors under the spreading table, proceed as follows.

Take 2 cross bars (1) and insert them on the lower bar of the crosspieces (3).

Place the compressor on the cross bars (1) and fix it with the screws and nuts provided (4). Fix the cross bars with screws and nuts (2). Fit the brackets (5) on the upper section bars of the cross bars (3), fix them with the screws provided and thread the air supply tube (6) through the brackets (5). Attach the main tube (6) and thin tubes (8) to the holes in the wooden boards.

Electric connection of the blower motors (fig. 6)

Place the control box (2) in the most convenient point for the operator and fix it to a crosspiece with screws and nuts as shown in figure 6. Make the connections as shown in diagrams A and B (380 Volt) and A and C (220 Volt).

The control box consists of one or more switches (1) which control the respective compressors.

When the box has been connected, it is necessary to turn the system on and try each compressor one at a time. If the air flows in the wrong direction, swap wires 2 and 3, if all the compressors turn in the wrong direction, swap two of the 3 phases in the power supply plug.

The blower motors must be connected by specialized staff in compliance with the IEC regulations and all the instructions in this booklet.

FITTING THE MACHINE

The machine is placed on the table with the controls on the stop carrying guide side.

It must be fitted by specialized staff in compliance with the instructions in this booklet.

Fitting the encoder for the CM 92 and/or CM 94 (fig. 11)

Place the safety end-stop cam (1) on the stop carrying guide and lock it with a nut (2). Fit the encoder unit (3) onto the machine and connect it electrically using the plug (4). Make sure that the gear (5) engages the rack (6) perfectly.

If necessary drill holes in the legs on the crosspieces in order to position the rack (6) at exactly the right height.

Once this operation has been carried out, lower the encoder unit in order to go on to the machine control and sliding adjustments. It is necessary to set a distance on the CM (see CM instructions).

Sliding check (fig. 7)

Slide the machine manually along the whole length of the table and check the gauge between the wheels and the rails, which should normally vary from 0.5 to 1.5 mm. The gauge can be adjusted by raising the machine with a jack at the wheel which is to be adjusted, removing the nut (4) and moving the various spacers (1, 2 and 3) to the left or right of the machine support (5) until the required measurement is achieved.

In order to carry out the raising and adjusting operation, it is necessary to disconnect the electricity supply and check whether the encoder unit is lowered. Once the gauge is adjusted and the encoder gear is reengaged, check, again manually, the alignment of the gear itself along the whole length of the table; if necessary, position the rack correctly along the whole length of the table. It is possible for skilled staff to do this operation with the electricity supply on (see paragraph "FABRIC ALIGNMENT").

The adjustment operation must be carried out by specialized staff in compliance with the instructions in this booklet.

TROLLEY BUSWAY AND SPREADING MACHINE OPERATION CHECK (fig. 12-13)

Preliminary operations

THIS OPERATION MUST BE CARRIED OUT BY SPECIALIZED STAFF.

ATTENTION

Before turning the voltage to the busway and the machine on, unscrew the Allen screws which keep the electromagnetic unit disconnected with the "3" key. On each brake unit, there is a label.

PAY UTMOST ATTENTION TO THE INSTRUCTIONS SHOWN ON THE LABEL.

The machine is supplied with the electromagnetic unit disconnected, otherwise the machine would not move manually and all the assembly and check operations would be impossible. If this operation is not carried out, the machine will work in

any case, but a safety device is eliminated. Therefore it will no longer comply with the safety regulations. In order to carry out this operation it is necessary to remove the motor cover guard (on the opposite side from the control panel).

Operating check

Only after the checks and operations described in paragraphs 5 and 6 have been carried out by specialized staff and all covers and guards which may have been removed have been replaced, turn on the voltage to the trolley busway by pressing switch 2 (fig. 9). Start up the machine from the control panel (fig. 13) and check that push button (19) is disengaged. If this is not the case set a work cycle on the CM in order to disengage it.

SEE THE INSTRUCTIONS ON THE CM 92 or 94 INSTRUCTION BOOKLET

- Press the POWER ON (14) button; the green light comes on to show that the electric devices are on and the machine is ready to start working.
- Check that the machine is running in the correct direction by moving the RAISE-LOWER lever (11) upwards: the spreading surface should move upwards. If this is not the case, it is necessary to swap two of the power supply phases.

Disconnect the electricity supply and make the change.

Phase changing must be carried out by specialized staff in compliance with the IEC regulations. Then:

- Push the POWER ON button (14); the green light comes on to show that the electric devices are on and the machine is ready to start working.
- Check that the machine is running in the correct direction by moving the RAISE-LOWER lever (11) upwards: the spreading surface should move upwards.
- Turn the SPEED knob (3) until the pointer corresponds to the minimum speed on the graduated scale - position 2.
- Set the AUTOMATIC MANUAL selector (6) to MANUAL, set selector 9 to Zig-zag or Cut, and set the RAPID RETURN selector (7) to off.

Since the test is carried out without cloth, remember to put a piece of material over the photocell mirror in order to simulate the presence of fabric. If this is not done, the machine does not carry out the work cycle.

Try the machine using the MANUAL KNOB by turning it first to the left and then to the right.

During the outward and return stroke, it is necessary to check whether the encoder

gear has alignment problems and be ready to release the MANUAL KNOB quickly in order to stop the machine. For safety reasons, the knob is fitted with a return spring which takes the knob back to the neutral position and stops the machine as soon as the operator lets go of the MANUAL KNOB.

- Once these tests have been carried out, test operation in **automatic** mode.
- at the AUTOMATIC MANUAL selector (6) to AUTOMATIC, set selector 9 to Zigzag or Cut, and set the RAPID RETURN selector (7) to off.

Press START and check the operation together with the CM 92 or CM 94 instruction booklet.

During the first two or three outward and return strokes, it is necessary to follow the machine in order to act quickly with the STOP (1) or EMERGENCY STOP (19) buttons.

- Adjust the SPEED knob (3) in order to carry out tests at different speeds; set the RAPID RETURN knob (7) to on to check that the machine returns at maximum speed and that it carries out the spreading cycle at the set speed.

Cutting blade sharpening

In order to sharpen the blade, stop the machine, and make sure the cutting unit is on the operator's side. If this is not so, turn selector (5) (fig. 13) and allow the cutting unit to move to the control side.

Press and hold down the SHARPENING button (13) (fig. 13) and rest the grindstone unit gently against the blade holding it pressed for a few seconds.

FABRIC ALIGNMENT

The machine is fitted with a device for automatically aligning the selvages; it consists of photocells with adjustable reflection which ensure detection even in the case of light and transparent fabrics. In order to turn the alignment device on, it is necessary to turn the PHOTOCELL selector (10) (fig. 13) located on the control panel to the right.

THREADING (figs. 13, 14 and 15)

- Load the cloth on the loader (1) in such a way that the roll turns in a clockwise direction after laying it on the feed chains and take it into the working position by adjusting 20 (fig. 13) which controls the loader motor.

- Adjust the guide (5) by turning the handwheel (4) so that the maximum play between the cloth and the guide is not greater than 1 cm.
- Lift the feeler cylinder (6) until the bracket (7) comes into contact with the magnet (8).
- Set the UNWIND-REWIND lever (8, fig. 13) to UNWIND in order to run the chains and lower the fabric until it covers the photocells.
- uncouple the magnet from the feeler cylinder (6) and take it back to the working position in contact with the fabric.
- finally unwind the fabric until it is threaded between the two rollers at the bottom of the cutting device.

AUTOMATIC SPREADING

Set the AUTOMATIC MANUAL selector (6) to automatic, set selector 9 to Zigzag or Cut, and set the RAPID RETURN selector (7) to off.

Press START and check the operation, together with the CM 92 or CM 94 instruction booklet.

After starting the machine, it is necessary to follow it to check that the quantity of fabric supplied by the rollers is not greater than or less than required. In order to make sure the fabric is spread with the correct tension, it is necessary to adjust the FEED knob (12). By turning it in a clockwise direction, the quantity of fabric fed increases and by turning it anti-clockwise, it decreases. The adjustment of the two rollers at the bottom is similar to the description above, but with an adjuster (15, fig. 13).

Bear in mind that the closure space of these rollers at the beginning of each layer can be adjusted: they can be closed from 0 to 99 cm using the computer. The machine speed is adjusted (from 10 to 70 m per minute) by turning the SPEED knob (3) (fig. 13) which moves the pointer from number 1 to number 10 on the numbering shown on the dial. As the number increases, the speed gradually increases.

The lifting of the fabric spreading surface as the thickness of the stack increases is controlled automatically by a feeler which operates a microswitch; in order to lower it, however, it is necessary to use the RAISE-LOWER lever (11) (fig. 13).

MANUAL SPREADING

In the case of fabric flaws, press the STOP button (4) (fig. 13), leave the selector set to AUTOMATIC and, using the MANUAL knob, take the machine to the required position.

Cut the fabric using the CUT selector (5) (fig. 13). Press the START button.

SEE INSTRUCTIONS ON THE CM 92 or 94 INSTRUCTION BOOKLET.

LIFTING AND TRANSPORT

EFN-CAR/TO/1

This is used **solely** for carrying the operator during spreading.

Assembly and electric connections (fig. 16)

It is fitted by fixing the CAR/TO/1 to the spreading machine wheel pins. The connector from the CAR/TO/1 microswitches is then connected to terminals 52-53 on the spreading machine terminal board.

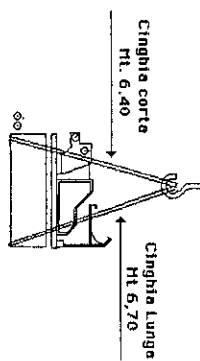
Starting work

Before starting work with the spreading machine fitted with CAR/TO/1, make sure that safety devices 1-3 (fig. 16) stop the machine if they are triggered.

LOADER (fig. 17)

Loader EFN 610, fitted as a standard device on spreading machine 928 Matic, serves to transfer a roll of cloth from the table plane into working position and vice versa. Its load capacity is 55 kg; upon request, it can be supplied with a double motor to handle 110 kg loads.

The cam wheels (2-3) (fig. 17) serve to regulate loader arm stops in both positions: beginning of loading on the spreading table and the unloading on the machine.



Cinghia corta = Short chain: 6.40 m

Cinghia lunga = Long chain: 6.70 m

CONTROL AND SETTINGS PANEL

1	Emergency switch	11	High/low cutting plane control
2	Manual Right Left control knob	12	Fabric feed adjuster
3	Machine speed adjuster	13	Blade rotation for sharpening button
4	Automatic start button	14	Electricity on indicator light-button
5	Cut control	15	Spreading roller pair speed adjuster
6	Manual Automatic selector	16	Button for setting the computer ready for programming
7	Rapid return on selector	17	Commutatore per Stendere da Dx a Sx 0 viceversa solo per CM 92
8	Fabric unwinding-winding control-	18	Switch for spreading from right to left or vice versa (CM 92 only)
9	Zigzag cut selector	19	Emergency stop with brake
10	Alignment photocells on control	20	Loader load - unload control

A1	SF 176 C board
U1	Main motor board
U2	Single roller turning motor board
U3	Chain turning motor board
U4	Cutting roller turning motor board

SEQUENCE FOR SETTING THE 928 MATIC

Seq.	Setting	Functions	Revs.	Terminals	D.C.	Notes
1°	Speed PWM 16/4 U1 MP	Maximum manual speed for main motor	230	74-75	96,8	Manual selector Clockwise knob
2°	P7 SF 176 C A1	Manual speed balancing in the two directions	230	74-75	96,8	Manual selector Clockwise or anticlockwise knob
3°	P1 SF 176 C A1	Maximum automatic speed for main motor	230	74-75	96,8	Automatic speed potentiometer on no. 10
4°	P6 SF 176 C A1	Minimum main motor speed	13	74-75	5,7	Automatic speed potentiometer on no. 0
5°	P2 SF 176 C A1	Dancer bar zero	1	approx.		Ten millimetre rest space at the back. Turn P2 until the chains stop.
6°	Speed PWM 16/4 U2 MRR	MRR roller speed Single Inatic	170	78-79	19,2	Feed potentiometer on no. 4. Maximum speed potentiometer on no. 10.
7°	Speed PWM 16/4 U3 MRC	MRC speed. Matic chain turning motor.	165	82-83	19,1	Dancer bar at rest. Automatic speed potentiometer on no. 10
8°	Speed PWM 16/4 U4 MRT	Cutting roller speed	260	14-18 su MRT	18,6	Cutting roller adjustment potentiometer in central position
	P3 SF 176 C A1	Threading speed with manipulator	30			MRC and MRR motors simultaneously
	P5 SF 176 C A1	Braking space	2			

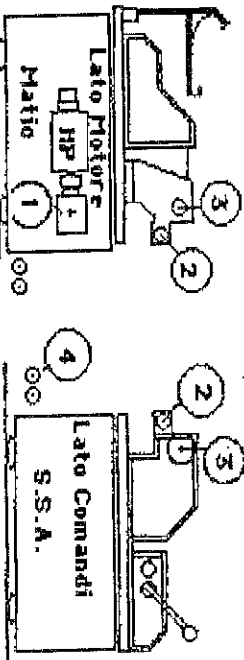
SEQUENCE FOR SETTING THE 928 S.S.A.

Seq.	Setting	Functions	Revs.	Terminals	D.C.	Notes
1°	Speed PWM 16/4 U1 MP	Maximum manual speed for main motor	220	74-75	93.2	Manual selector Clockwise knob
2°	P7 SF 176 C A1	Manual speed balancing in the two directions	220	74-75	93.2	Manual selector Clockwise or anticlockwise knob
3°	P1 SF 176 C A1	Maximum automatic speed for main motor	220	74-75	93.2	Automatic speed potentiometer on no. 10
4°	P6 SF 176 C A1	Minimum main motor speed	137	4-75	5.7	Automatic speed potentiometer on no. 0
5°	P2 SF 176 C A1	Dancer bar zero				Ten millimeter rest Turn P2 until the chains stop.
6°	Speed PWM 16/4 U2 MRR	MRR roller speed Single Imatic	165	78-79	18.2	Feed potentiometer on no. 4. Maximum speed potentiometer on approx.
7°-10	Speed PWM 16/4 U3 MRC	MRC speed. Matic chain turning motor.	93	82-83	18.1	Dancer bar at rest. Automatic speed potentiometer on no. 10 approx.
8°	Speed PWM 16/4 U4 MRT	Cutting roller speed	260			Cutting roller adjustment potentiometer in central position
	P3 SF 176 C A1	Threading speed with manipulator	30			MRC and MRR motors simultaneously
	P5 SF 176 C A1	Braking space				

INSTRUCTIONS FOR USING THE 928

The diagram shows four potentiometer settings on a control panel:

- CM 92:** Scale 0-26. Labels: P1, P2, P3, P5, P6, P7.
- SF176 C:** Scale 0-26. Labels: MP, MRR, MRC, MRT.
- MRC:** Scale 0-26. Labels: FRUIT, PSHT, OK, FN, RP.
- MRT:** Scale 0-26. Labels: FRUIT, PSHT, OK, FN, RP.



Lato Motore Matic = Motor side Matic

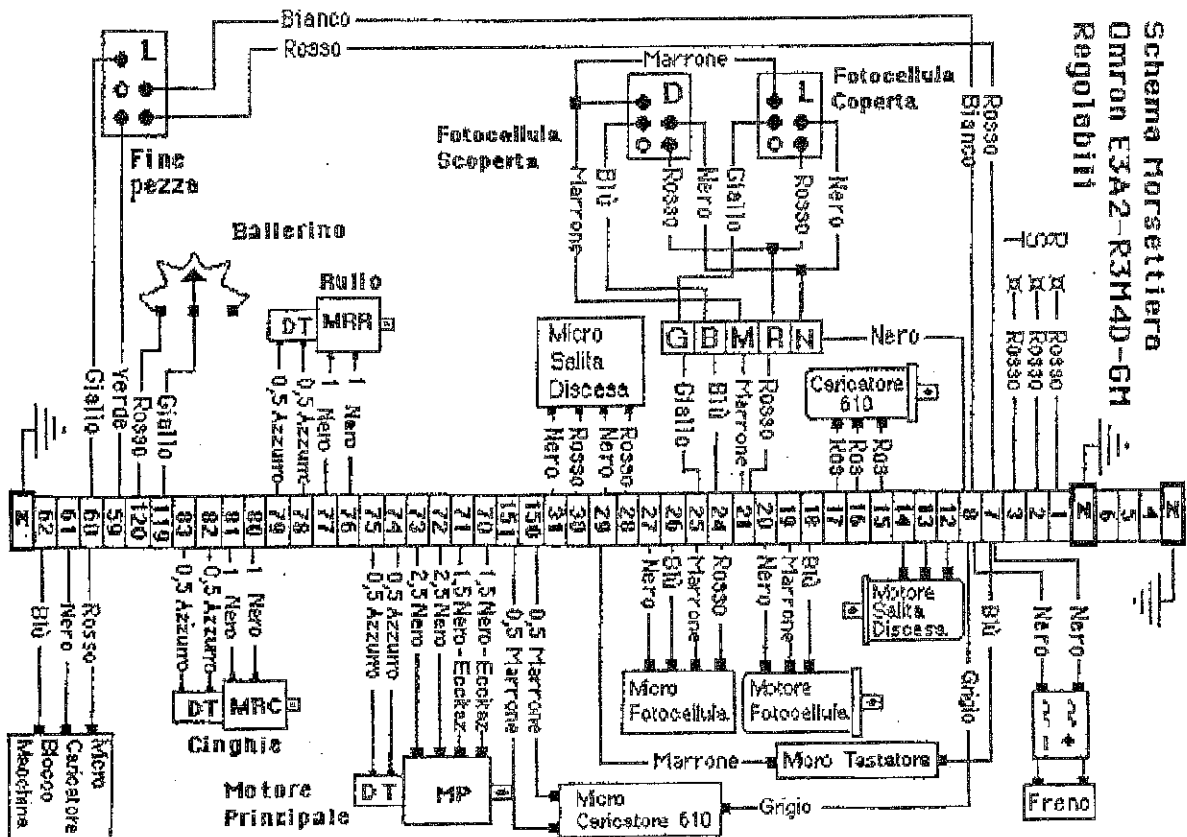
Lato Comandi S.S.A. = Control Side S.S.A.

KEY OF THE ABBREVIATIONS USED ON THE ELECTRIC DIAGRAM

A1	SF 176 C board	A2	SF 177 B board ports	SM11	Right cutter stop microswitch	SM12	Loader safety microswitch
A3	Emergency board port	F	5A fuse	SM13	Loader lift stop microswitch	SM14	Stop microswitch
G1	Main motor speedometer	G2	Chain motor speedometer	SM15	Knob forward microswitch	SM16	Knob backward microswitch
G3	Green roller speedometer	G4	Cut roller motor speedometer	SP1	On button	SP2	Photozell selector
G5	XCH638-5-B-CM-R encoder	H1	On light	SP3	Raise-lower selector	SP4	Loader load-unload selector
H2	Running indicator light	H3	Photocell indicator light	SP5	Sharpening button	SP6	Stop button
K1	Emergency remote-control switch	K2	Right alignment remote-control switch	SP7	Cut-manual selector	SP8	Zigzag cut selector
K3	Left alignment remote-control switch	K4	Lift remote-control switch	SP9	Manual-automatic selector	SP10	Fast return selector
K5	Lowering remote-control switch	K6	Right cutter remote-control switch	SP11	Start button	SP12	Unwind-rewind selector
K8	Lift loader remote-control switch	K9	Loader lowering remote-control switch	SP13	Cycle reset button	SP14	Spreading inversion selector
KF1	Right alignment photocell	KF2	Left alignment photocell	SP16	Emergency button	T1VA	TM 125 VA P 110 transformer
KF3	End of cloth photocell	KR2	Emergency board	TT	380-110 V 1500 VA transformer	U1	Main motor board
M1	Main motor	M2	Green roller turning motor	U2	Green roller motor power supply board	U3	Chain feed motor board
M3	Chain turning motor	M4	Cutting roller turning motor	U4	Cut roller motor board	U5	MP excitation three-phase power rectifier
M5	Blade rotating motor	M6	Cutter rotating motor	U6	Cutting blade motor power rectifier	U7	Magnet power rectifier
M7	Photocell alignment motor	M8	Raise-lower motor	U8	Magnetic brake power supply	XA	Device terminals
M9	Loader motor	RR	Roller speed adjusting rheostat	XC	Computer connector	XPE	Electronic part connector
RRV	Automatic speed adjusting rheostat	RRVM	Manual speed adjusting rheostat	XPS	SF 176 C CM92 board port connector	XRT	Cutting roller connector
SM1	Emergency microswitch	SM4	Right photocell alignment stop	XT	Cutter connector	Y1	Magnetic brake
SM5	Left alignment stop photocell	SM6	Lift stop microswitch	Y20	Electromagnet V 110		
SM7	Lowering stop microswitch	SM8	Footboard emergency microswitch				
SM9	Lift feeler microswitch	SM10	Left cutter stop microswitch				

INSTRUCTIONS FOR USING THE 928

Schema Morsetiera
Omron E3A2-R3M4D-GM
Regolabili



Schema morsetiera
Omron E3A2-R3M4D-GM
Regolabili

Terminal board diagram
Omron E3A2-R3M4D-GM
Adjustables

Rosso = red
Bianco = white
Nero = black
Giallo = yellow
Blu = blue
Marrone = brown
Azzurro = light blue
Verde = green
Grigio = grey

Fotocellula coperta = Photocell covered
Fotocellula scoperta = Photocell uncovered
Fino pezza = End of cloth
Ballerino = Dancer Bar (Fabric tension monitory device)
Caricatore 610 = Loader 610
Micro salita discesa = Raise Lower Microswitch
Fullo = Roller
Motore salita discesa = Raise Lower Motor
Motore fotocellula = Photocell motor
Micro fotocellula = Photocell microswitch
Cinghie = Belts
Micro tastatore = Feeler microswitch
Freno = Brake
Micro caricatore 610 = Loader microswitch 610
Motore principale = Main motor
Micro caricatore blocco macchina = Loader machine stop microswitch