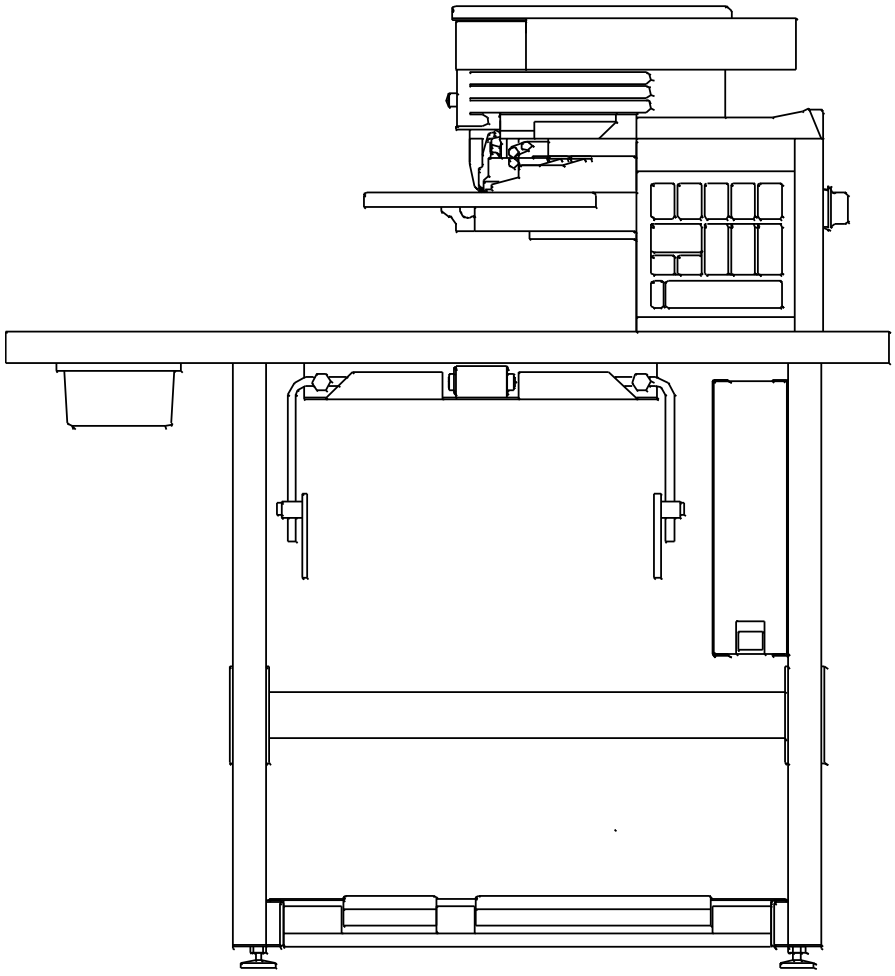
COMPUTERIZED THERMOCEMENTING AND FOLDING MACHINE

COM52

INSTRUCTION MANUAL



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Model	**COM52**
Serial No.	
Manufactured in	

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ITALIA

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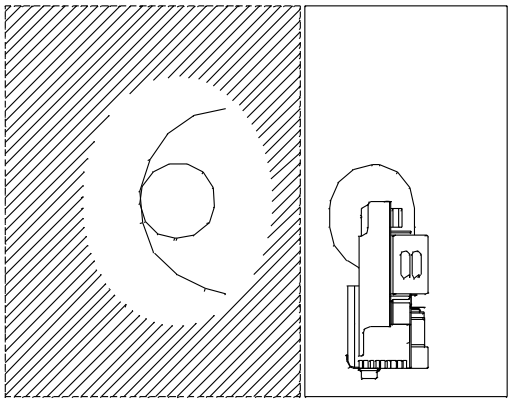
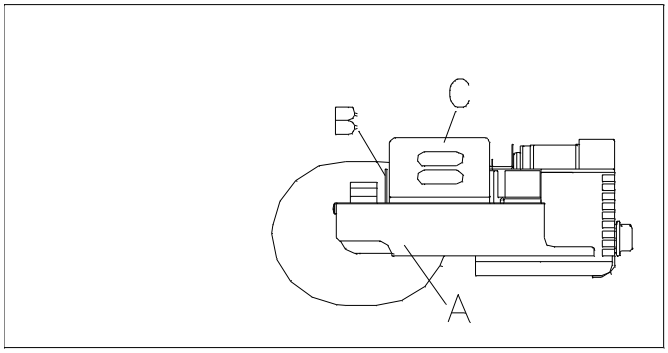
1 DESCRIPTION OF THE MACHINE



Picture 1

The Computerized Folding Machine COM52 manufactured by COMELZ and outlined in picture 1, is used to fold and at the same time cement the edge of leather components and other materials of similar nature.
The operator guides the component piece against a guide and under a creaser foot that holds the material and spreads the cement.
Twin hammers fold, press and feed the component.

2 PROTECTIONS USED FOR SAFETY PURPOSES, picture 2



Picture 2

A) Handling
The low weight of the machine does not cause handling problems.
Correct procedures to handle the machine are described in chapter 5.
B) Use
Covers fixed to the frame with screws protect from electrical and mechanical hazards.

- The container for the high temperature cement is located on the back of the machine, far from the operator. Covers A - B - C prevent the operator from unintended contact with the hot container.

Caution! Cover C gets hot during operations and must be opened very cautiously.
Caution! The operator must guide the work-piece very near the creaser foot that spreads the cement and has a working temperature of 120-140 degrees.
Caution! Never use the machine without its covers.
C) Maintenance
Specific preventive maintenance servicing is not necessary.
Caution! Maintenance servicing, for its very own nature, might be necessary when the machine does not work correctly. For this reason, as a rule during maintenance operations, it is extremely hazardous to rely on the correct functioning of safety devices, even when they appear to be perfectly working.

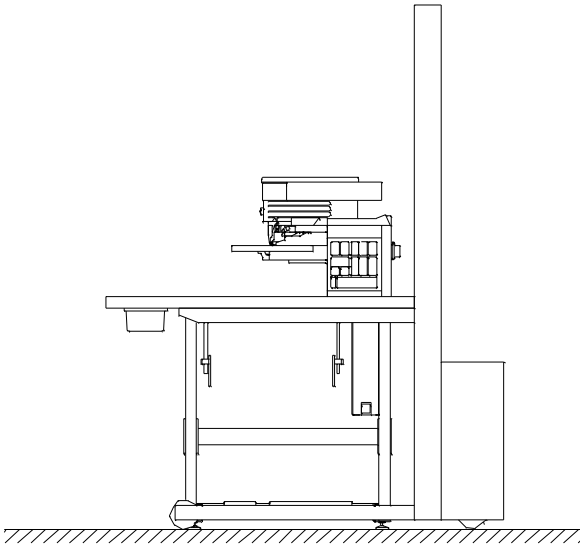
3 TECHNICAL SPECIFICATION

- **Folding width**
  adjustable from 3 through 7 mm
- **Rotation speed**
  adjustable from 0 through 3000 rpm
- **Feed pitch**
  adjustable from 0,5 through 5,5 mm
- **Overall dimensions**
  height 1200 mm
  width 1100 mm
  depth 550 mm
- **Mass**
  net weight 80 kg

4 INTENDED AND UNINTENDED USE OF THE MACHINE

The COM52 machine was designed to fold and cement the edge of leather pieces and other materials with similar features. It is commonly used to manufacture shoes, leather-ware and leather garments.
Unconventional use can cause serious injuries to the operator and damage the machine.

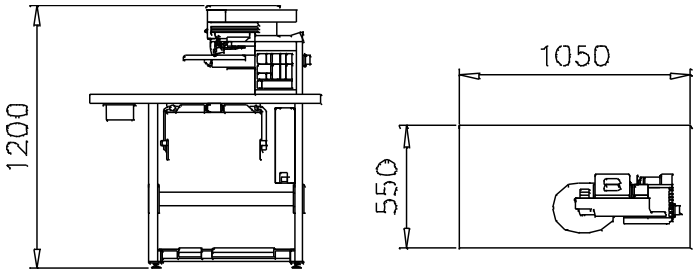
5 HANDLING AND TRANSPORTATION



Skilled personnel with adequate equipment to deal with its dimensions and weight must perform the lifting and transportation of the machine.
The machine must be secured as indicated in picture 3.

Picture 3

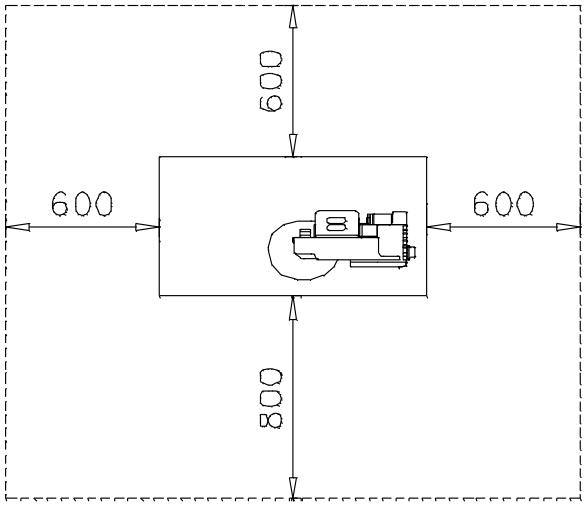
6 INSTALLATION OF THE MACHINE



6.1 OVERALL DIMENSIONS

The overall dimensions of the COM52 folding machine are shown in picture 4.

Picture 4



6.2 REQUIRED CLEARANCE

Position the machine to leave enough clearance to allow servicing, as shown in picture 5.

Picture 5

6.3 ENVIRONMENT

- Do not place the machine in rooms with explosion or fire hazard.
- Shelter the machine from bad weather.

7 PREPARATION OF THE MACHINE FOR THE INSTALLATION

7.1 CLEANING AND INSPECTING

- Make sure that the various components of the machine were not damaged during transportation and handling.
- Accurately clean the machine from dust and smearing substances, if any.
- Make sure the machine lays flat on the floor. Level the machine through its adjustable foot, picture 6, if necessary.

7.2 ELECTRICAL CONNECTION

- Make sure the voltage and frequency values of the machine, indicated on a label on the back of the control unit near the power supply cable input, picture 6, match those of the mains. Then connect the machine through its cable.

The voltage of the machine is fixed and cannot be changed.
Important! The machine is single phase.

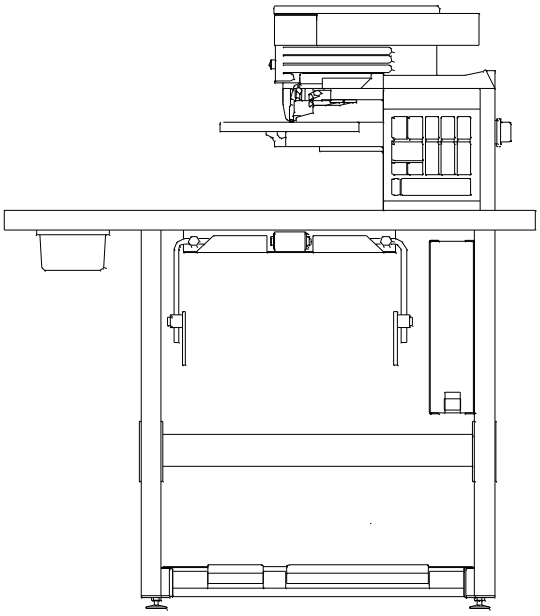
- maximum electrical consumption 600 W
- medium electrical consumption 350 W
- allowed tension +/- 10 of the rated voltage

7.3 OIL FILLING

- Remove the cover, picture 6.
- Fill the oil sump of the machine through the plug up to the mark on the oil window, picture 6. The oil level must not exceed the red mark.
- Use SAE10 viscosity lubricating oil.

8 INSTALLATION OF THE MACHINE

CONTROL MEMBERS AND THEIR FUNCTIONS



Picture 6

8.1 MAIN SWITCH, picture 6.

Press the I button to turn both the heating and the whole electric system on.

8.2 START PEDAL, picture 6.

It controls the start of the machine and adjusts its rotation speed.

8.3 CEMENT TOGGLE SWITCH, picture 6.

It opens and closes cement flow.

8.4 CREASER FOOT LIFTING TOGGLE SWITCH, picture 6.

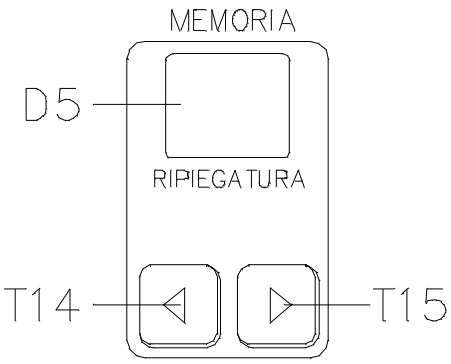
It controls the lifting of the creaser foot, picture 13.

8.5 KNIFE ACTIVATION AND PITCH REDUCTION PEDAL, picture 6.

- Press it with the toe to activate feed pitch reduction.
- Press it with the heel to activate the snipping knife.

8.6 CONSOLE

8.6.1 MEMORY, picture 7.



Picture 7

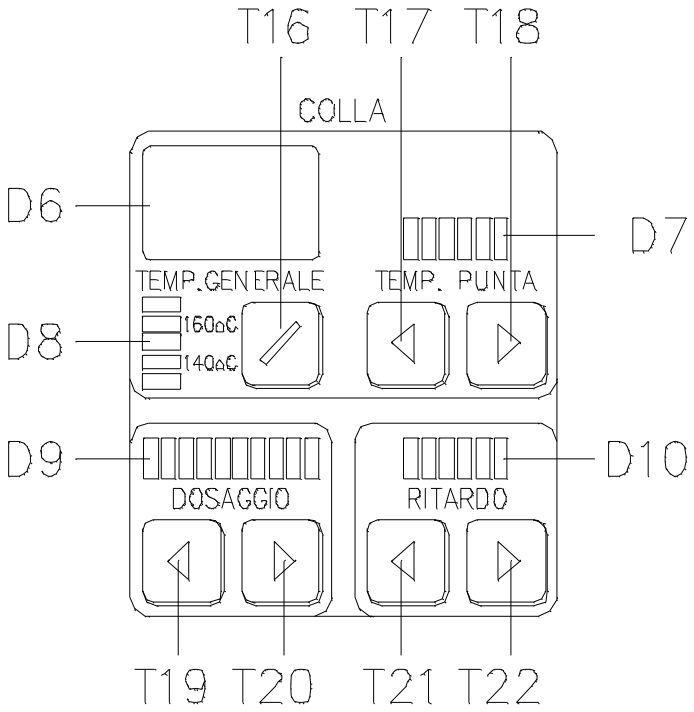
The machine can store in memory the parameters for 99 types of folding.
When the machine is turned on, the D5 display shows a number that indicates the selected folding style.
T14 and T15 - To select one recorded folding style.
D5 - It shows the selected folding style.

Memorized parameters

For each of the 99 folding styles the machine stores in memory the data input received from the touch-pad, from the following sections:

- **Cement (except overall temperature)**
- **Feed rate: outside corners, straight edges, inside corners**
- **Photocells**
- **Folding members: creaser foot, width guide, lip turner**
- **Operation mode: feed, cement, creaser foot, knife**

8.6.2 CEMENT, picture 8.



8.6.2.1 Pot temperature

T16 - To select the cement pot temperature. Press repeatedly to select.
Standard temperature is 140 degrees C.
D8 - It shows the pre-set temperature.
D6- It shows the actual pot temperature.
The setting of this parameter is generally valid for all recorded folding styles.

8.6.2.2 Creaser foot temperature

T17-T18 - To adjust the temperature of the cement spreading foot.
D7 - They show the pre-set temperature.
Standard adjustment is obtained with 2 - 4 lights on.

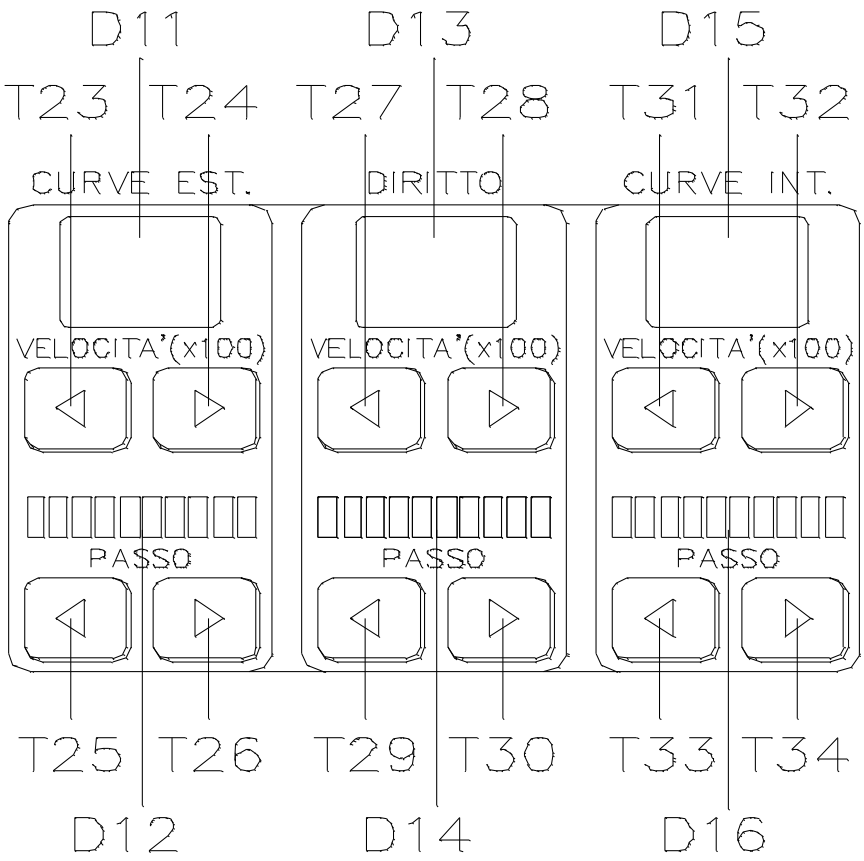
8.6.2.3 Flow rate

T19-T20 - To adjust the quantity of cement.
D9 - They show the pre-set quantity.
Standard adjustment is obtained with 3 - 5 lights on.

8.6.2.4 Delay

T21-T22 - To delay the start of cement application, when required, leaving a dry bit at the start.
D10 - It shows the pre-set delay.
No light on indicates no delay.
Each light on indicates one turn without cement application.

8.6.3 FEED, picture 9.



Picture 9

Feed parameters are distinguished as:

- OUTSIDE CORNER
- STRAIGHT
- INSIDE CORNER

which indicate the operating conditions that can be met while folding a work-piece.
The following parameters can be set:

8.6.3.1 Top speed

The top rotation speed of the machine can be limited to suit the complexity of work-pieces.
T23-T24 – T27-T28 – T31-T32 – They adjust the top speed.
D11 – D13 – D15 – They show the set speed.

8.6.3.2 Feed pitch

The length of the feed pitch can be adjusted to suit the complexity of work-pieces.
The number of lights on indicates the length of the feed pitch.
T25-T26 – T29-T30 – T33-T34 - They adjust the feed pitch.
D12 – D14 – D16 – They show the set feed pitch.
Standard working conditions (indicative) are:

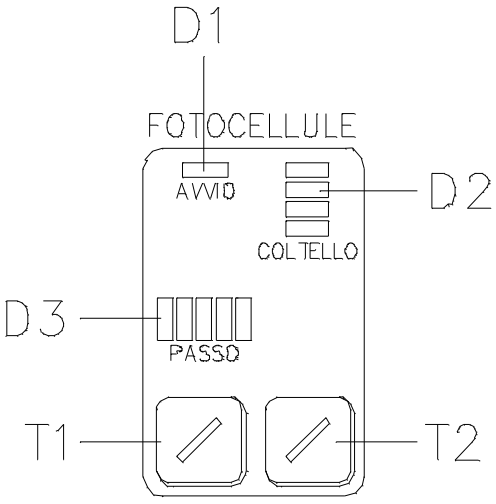
- OUTSIDE CORNER: 3 – 4 lights on
- STRAIGHT: 5 – 8 lights on
- INSIDE CORNER: 4 – 7 lights on

Combining these two adjustments (TOP SPEED and FEED PITCH) allows making operations substantially simpler, as the machine automatically changes the speed and the feed pitch as the shape of the work-piece changes.

8.6.4 PHOTOCELLS, picture 10

8.6.4.1 Start

D1 – Pilot lamp for the start photocell



Picture 10

8.6.4.2 Knife activation

T2 – It defines the amplitude of inside corners, by selecting which photocell starts the adjustment of feed parameters for inside corners and the automatic activation of the snipping knife. Press repeatedly to select.
D2 - They indicate the selected photocell.

- All D2 lights off. The adjustment of feed parameters for inside corners and the automatic activation of the knife are excluded.

The operator controls the activation of the knife by heeling on the left pedal.

- One of the D2 lights is on. When the material covers the selected photocell, the adjustment of feed parameters for inside corners is made active and the knife automatically snips the edge of the component piece.

When the lowest D2 light is selected, the adjustment of feed parameters for inside corners and the automatic activation of

the knife are started also while folding ample corners, whereas the selection of segments on top makes the adjustments only in correspondingly tighter corners.
Generally, select bottom D2 lights when processing rigid materials and top D2 lights when processing soft materials.
The operator can override and activate the knife at any time, by heeling on the left pedal.

8.6.4.3 Feed pitch

T1 – It defines the amplitude of outside corners, by selecting which photocell starts the adjustment of feed parameters for outside corners. Press repeatedly to select.
D3 - They indicate the selected photocell.

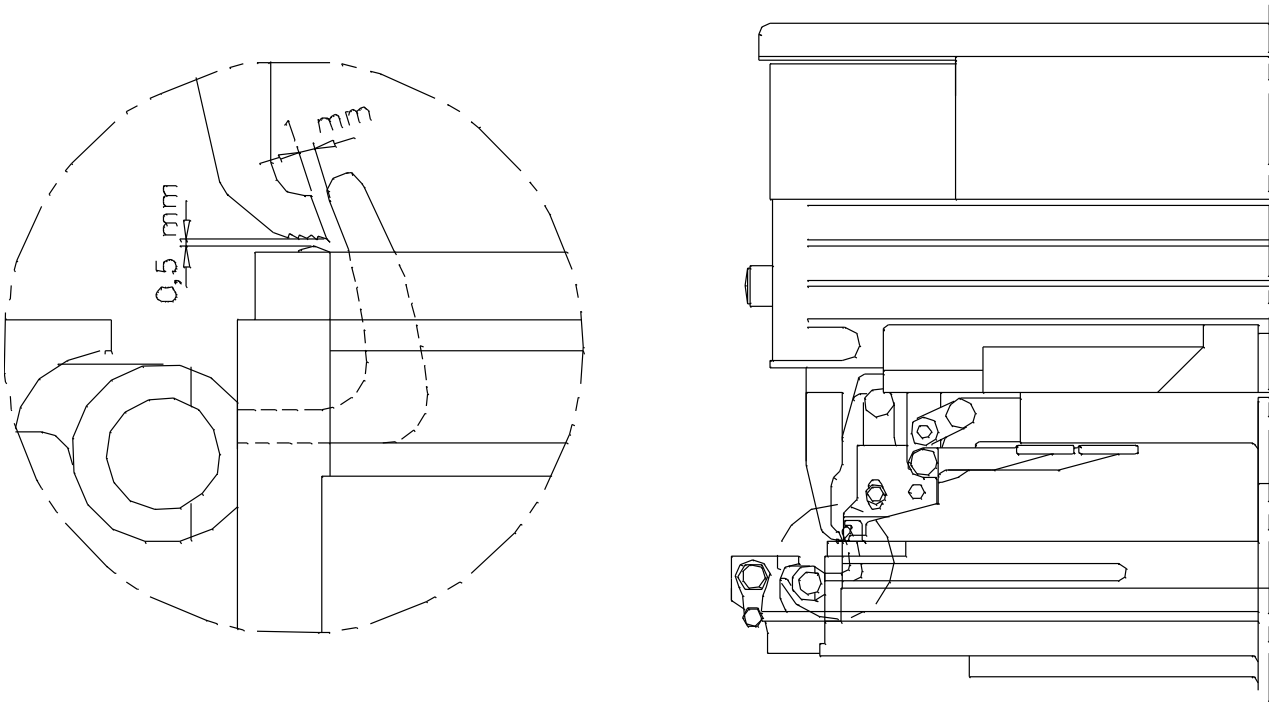
- All D3 lights off. The adjustment of feed parameters for outside corners is excluded.

The operator makes the feed pitch reduction active by pressing the right pedal with the toe.

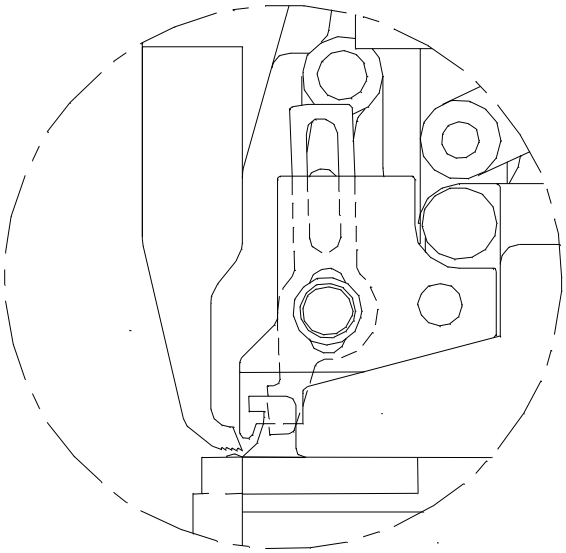
- One of the D3 lights is on. When the material uncovers the selected photocell, the adjustment of feed parameters for outside corners is made active.

When the rightmost D3 light is selected, the adjustment of feed parameters for outside corners is started also while folding ample corners, whereas the selection of segments on the left makes the adjustments only in correspondingly tighter corners.
Generally, when processing work-pieces that do not require feed pitch reduction, it is preferable to adjust the machine with all light off.
The operator can override and activate feed pitch reduction at any time by pressing the right pedal with the toe.

8.6.5 FOLDING MEMBERS, picture 11



Picture 11



Picture 12

8.6.5.1 Creaser foot, pictures 11, 12 and 13

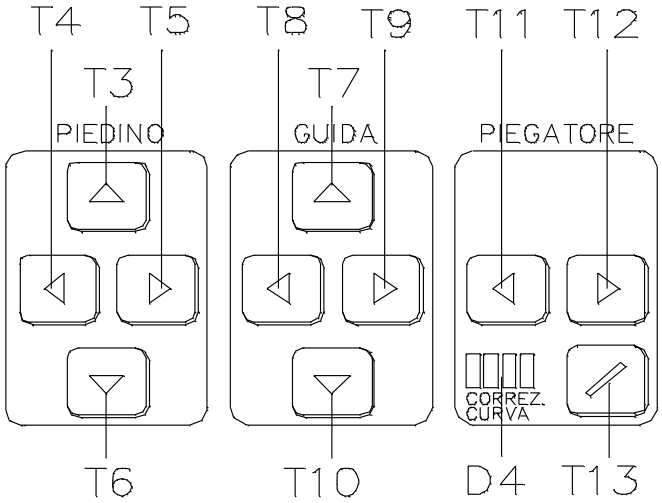
Adjust the position of the creaser foot by means of the directional buttons T3-T4-T5-T6:

- Adjust the foot vertically, leaving a clearance of approximately 0,5 mm from the work release arm when this is in its higher position.
- Adjust the creaser foot horizontally, aligning it to the right corner of the work release arm.

8.6.5.2 Guide, pictures 12 and 13

Adjust the position of the guide by means of the directional buttons T7-T8-T9-T10:

- Adjust the guide vertically to obtain the required folding width.
- Adjust the guide horizontally to obtain a gap between the guide and the cutting block that is about double of the thickness of the material being processed.



Picture 13

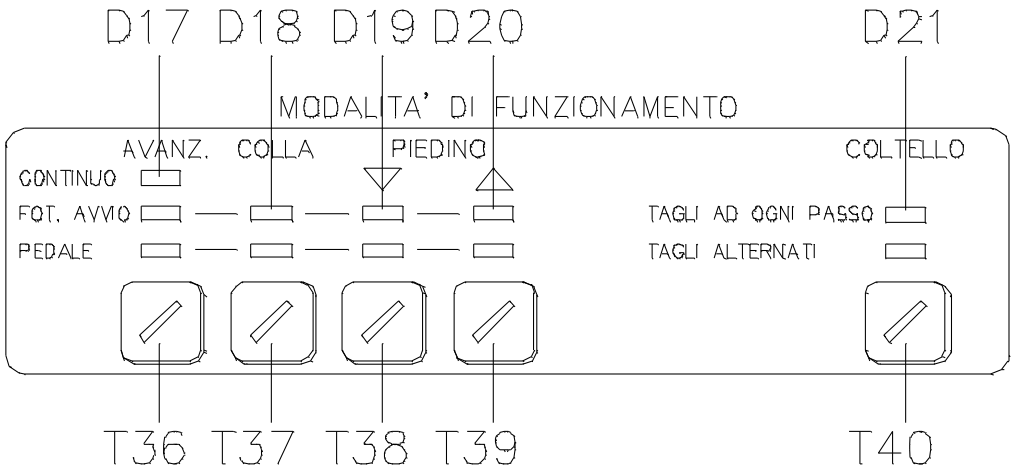
8.6.5.3 Lip turner, pictures 12, 13

Turn the pulley by hand to move the lip turner all the way up.
Through direction buttons T11-T12 adjust the lip turner approximately 1 mm away from the creaser foot.

Curve correction

T13 – To adjust the horizontal movement of the lip turner while folding corners, to compensate the width of the folding. Press repeatedly to select.
D4 – They show the value of the set correction.
No light on indicates that the correction is excluded.

8.6.6 OPERATION MODE, Picture 14



Picture 14

8.6.6.1 Feed

T36 – It selects various feed modes for the piece being processed.
D17 - They indicate the selected mode.

- **Pedal**
  The operator starts operations by pressing the pedal
- **Start photocell**
  The machine starts automatically when the work-piece is inserted and it will work at the pre-set rotation speeds (see paragraph **Feed**).
- **Continuous**
  The machine turns continuously at the speed and feed pitch set for the straight edge.

8.6.6.2 Cement

T37 – It selects various cement-spreading modes.
D18 - They indicate the selected mode.

- **No lights on**
  Cement spreading is excluded.
- **Pedal**
  The cement is spread while the pedal is pressed.
- **Start photocell**
  The cement is spread while the start photocell is covered. The spreading stops when the start photocell is uncovered.
- **Pedal + start photocell**
  The cement is spread while the pedal is pressed and the start photocell is covered. The spreading stops when the machine stops and the start photocell is uncovered.

When it is not excluded, the spreading of the cement starts only after the start of the machine.
In case the "start photocell" feed mode is selected, also the spreading of the cement will forcedly occur according to the "start photocell" mode, whichever mode was selected for the cement and provided that it is not excluded.
It is nevertheless possible to open and close the cement flow at any time, by pressing the left knee-switch.

8.6.6.3 Presser foot - dropping

T38 – It selects various presser foot dropping modes.
D19 - They indicate the selected mode.

- **Pedal**
  The creaser foot drops when the pedal is pressed.
- **Start photocell**
  The creaser foot drops when the start photocell is covered.
- **Pedal + start photocell**
  The creaser foot drops when the pedal is pressed and the start photocell is covered.

8.6.6.4 Presser foot - lifting

T39 – It selects various presser foot lifting modes.
D20 - They indicate the selected mode.

- **Pedal**
  The creaser foot goes up when the pedal is released.
- **Start photocell**
  The creaser foot goes up when the start photocell is uncovered.
- **Pedal + start photocell**
  The creaser foot goes up when the pedal is released and the start photocell is uncovered.

8.6.6.5 Knife

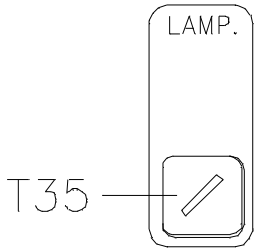
When the selected “knife” photocell is covered (see paragraph PHOTOCELLS), it starts the adjustment of feed parameters for inside corners. At the same time the knife is activated according to the following modes:
T40 – It selects the various knife activation modes.
D21 - They indicate the selected mode.

- **Snips at each feed step**
  The knife snips at each feed step.
- **Alternated snips**
  The knife snips every two feed steps.
- **No light on**
  The knife snipping is excluded, but feed parameters for inside corners are active.

Use “alternated snips” mode when the feed pitch set for inside corners is very short. This avoids lacerating the material because of snips very near one another.

8.6.7 WORK AREA ILLUMINATION, picture 15

T35 – It turns the illumination lamp for the work area on and off.



8.7 MECHANICAL ADJUSTMENTS

8.7.1 Snip length

Adjust snip length moving the knife up or down.

8.7.2 Creaser foot working pressure

Adjust the working pressure of the creaser foot through the knob (picture 11).

8.7.3 Manual lifting of the creaser foot

Button for manual lifting of the creaser foot.
Knee-switch for manual lifting of the creaser foot.

8.7.4 Manual lifting of the guide

Button, picture 11.

8.8 REINFORCING TAPE

Place the reinforcing tape roll on the bar so that the tape unrolls in the lower part. Insert the tape in the eyelets, then into the grommet and through the specific hole in the creaser foot tip.

9 USE OF THE MACHINE

Personnel trained for its use must operate the machine.

- Turn the machine on by means of the switch on picture 6. Wait about 20 minutes to let the cement melt.
- Insert the work-piece edge under the creaser foot, all the way inside the gap between the guide and the cutting block.
- Start operations by pressing the pedal. (The machine will start automatically if the “start photocell” is selected).

While processing a work-piece, the operator must guide it without pushing or holding it, so that the edge constantly touches the back of the slot between the guide and the cutting block.
Caution! The operator must guide the work-piece with his or her fingers very near the creaser foot that spreads the cement at 120 - 140 degrees C.
During operations, the operator can lift the creaser foot to fold over a seam by pressing the toggle switch, picture 6, or by pressing the lever, picture 11.

- Fully release the pedal when folding is completed.
- Check the cement level in the pot now and then, and add cement before the pot is completely empty.

Minimum level should not be lower than 2 cm.

10 MAINTENANCE OF THE MACHINE

The machine does not require specific preventive maintenance.
Caution! Always turn the machine off when carrying out maintenance.

10.1 REPLACEMENT OF THE KNIFE, picture 12

- Disassemble the guide and knife assembly.
- Remove the worn knife.
- Fit the new knife.
- Assemble the guide and knife assembly.

10.2 CLEANING

Clean external mechanisms once a day, with compressed air if possible.

10.3 LUBRICATION

- **Daily**. Lubricate the main shaft of the machine through its ball oiler.
  Lubricate the machine overall, with special care for mechanical members.
- **Weekly**. Check oil level in the sump through its window.
- **Yearly**. Replace the oil in the sump. Empty it through the cap.

10.4 TESTING SAFETY DEVICES

Check the efficiency of safety devices once a week.

- When the machine is off, inspect shields A - B - C, picture 2, for possible damage.

11 PRODUCT FLAWS AND THEIR CAUSE

Follow the instructions given in the previous pages to adjust the machine.

- Cement comes out of the fold.
  Too much cement.
  Creaser foot too much to the left.
  Creaser foot too hot.
- The folded edge opens.
  Too little cement.
  Creaser foot too hot.
- Uneven cement distribution.
  Creaser foot too cold.
- The work-piece is not fed correctly.
  Creaser foot too low.
- The work-piece is loose.
  Creaser foot is too high.
- The snips of the knife are too long or too short.
  The knife is too low or too high.
- The component piece is stretched after processing.
  Too much pressure of the hammer.
  Guide too near to the cutting block.
- Double folding.
  Guide too far from the cutting block.
- Outside corners unevenly pleated.
  Feed pitch is too long.
  Hammer and anvil assembly too far from the creaser foot.
- Torn folded edge.
  Lip turner too near to the creaser foot.
- Reinforcing tape not in the throat of the fold.
  Lip turner too far from the creaser foot.

12 ERROR CODES

The following numbers appear on the D6 display in case of malfunctioning of the machine, alternating with the temperature of the cement:

E01 Short-circuit in the creaser foot heating-element
E02 Short-circuit in the pump heating-element
E03 Short-circuit in the cement container left heating-element
E04 Short-circuit in the cement container right heating-element

E05 Short-circuit in the illumination lamp
E06 Interruption in the connection of a heating-element
E07 Interruption in the connection of the thermistor
E08 Missing 12v power supply / Short-circuit in the thermistor
E09 Fan KV1B is not working

13 WEAR AND SPARE PARTS

- Lamp.
- Hammer.
- Lip turner.
- Knife.
- Guide.
- Cutting block.
- Cement filter.
- Cement container heating-element.
- Creaser foot heating element.
- Thermistor
- Creaser foot.

14 DISMANTLING THE COM52 FOLDING MACHINE

A few essential rules must be followed to protect the environment when it is necessary to dispose of the machine.

- All components made of plastic or other non-metallic materials must be disassembled and disposed of separately.
- Electric components (switches, transformers, motors and the like) must be re-used, if possible.
- Metallic parts of the machine must be disassembled and grouped according to the type of material. They must then be demolished and melted separately.

15 SOUND LEVEL OF THE COM52 FOLDING MACHINE

Under standard working conditions the sound level is:

Leq	at operator's place under working conditions	**80 dB(A)**
Lpc	at operator's place under working conditions	**<130 dB(C)**
Leq	at operator's place under idle conditions	84 dB(A)
Lpc	at operator's place under idle conditions	<130 dB(C)

Material features

Various leather components
Thickness before folding 0,6 mm
Thickness (after folding) 1,2 mm
Overall length (average of various components) 250 mm

16 WIRING DIAGRAM