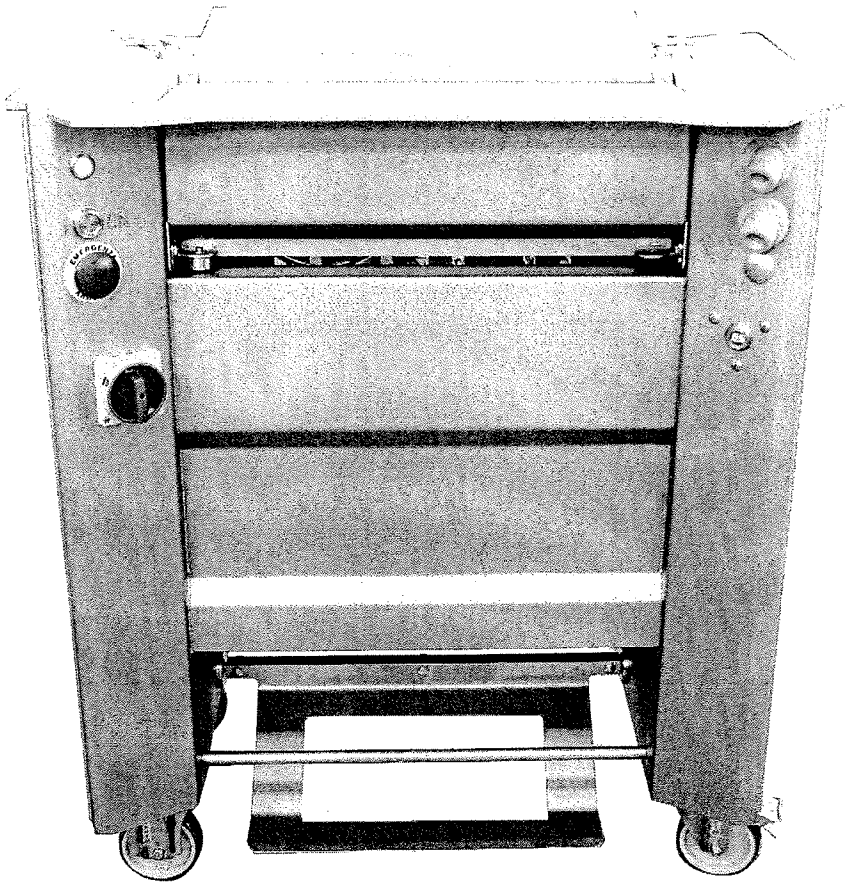
GRASSELLI SPA
EXCELLENCE THROUGH TECHNOLOGY
Via Salvo D'Acquisto 2/C - 42020 Albinea (RE) Italy
Tel. +39 0522 599745 Fax +39 0522 598147 - Web: www.grasselli.com E-mail: info@grasselli.com

USE AND MAINTENANCE INSTRUCTIONS
MEMBRANE SKINNER

MS520PM
CLO SAFETY SYSTEM (OPTIONAL)



This manual must be kept carefully and accompany the machine throughout its life cycle. Carefully read the manual in its entirety before conducting any operation on the machine.

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CONTENTS

USE AND MAINTENANCE INSTRUCTIONS

CERTIFICATE OF CONFORMITY

CE

In accordance with Machinery Directive 2006/42/EC and subsequent amendments and integrations, annex II section A

GRASSELLI S.P.A.

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Tel. + 39 0522 599745 r.a. Fax + 39 0522 59.81.47
http:/ www.grasselli.com E-mail info@grasselli.com

declares under its sole responsibility, that the machine

Type: **MEMBRANE SKINNER**

Model: **MS520PM** /CLO

Serial number: 225R04/M2509

Year of Manufacture: 2019

complies with all relevant provisions of Directive 2006/42/EC as amended and added, implemented in Italy by Legislative Decree no. 17/2010 – Machinery Directive and also complies with directive 2014/30/EU - Electromagnetic compatibility.

and also complies with European Standards

- EN 12355 Food processing machinery - Derinding, skinning and membrane removal machines - Safety and hygiene requirements

The manufacturer also declares that the technical construction dossier is held by:
GRASSELLI S.P.A. Via S. D'Acquisto, 2/C - 42020 Albinea (RE) Italy

The person in charge of composing the technical file is:
Luca Panciroli - Certifications Manager
Via I. Calvino 10
42010 Quattro Castella (RE) - Italy

Albinea (RE) (Date) 29/05/2019

Giuliano Gemmi
Product Compliance Manager,
Grasselli S.p.A.

Gemmi Giuliano

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Declaration of conformity

« AGRIFOOD »

In compliance with regulations and decrees in force

Date : _____

We hereby declare that the whole machine

model: MS520PM **with serial no.:** _____

has been constructed in conformity with :

Regulation No. 1935/2004 of 27 October 2004
Decree No. 2007-766 of 10 May 2007

We also declare that all materials and objects intended to come into direct or indirect contact with food products are in conformity with Ministerial Decree 21/03/1973.

Signature

Gemmi Giuliano

Stamp

GRASSELLI S.p.A.
Via S. D'Acquisto, 2/c
42020 Albinea (RE) Italy (A)

DECLARATION OF CONFORMITY FOR FOODSTUFFS IN CONTACT WITH COMPOSITE STEEL / PLASTIC SURFACES

We hereby declare that the components destined to come into contact with foodstuffs, installed on all models of SLICING, SKINNING and DERINDING MACHINES made by **GRASSELLI spa**

comply:

PARTS IN PLASTIC: with all relevant legislation, with particular reference to the following European community regulations:

- Regulation CE No.1935/04
- Regulation CE No.1895/05
- Regulation CE No.2023/2006
- Regulation CE No.10/2011 and subsequent amendments

and with the following Italian legislation:

- Ministerial Decree 21/3/73 and subsequent amendments and modifications
- Presidential Decree 777/82 and subsequent amendments and modifications

Plastic components destined to come into contact with foodstuffs are manufactured using the following materials:

- POM-C (Acetal copolymer grade C)

We hereby declare that:

the material contains substances subject to restrictions in the legislations cited and respects the global migration limits and specific restrictions.

The global migration limit, as well as the other specific restrictions that may apply to the manomers and/or additives present in the material, are respected in the conditions of use stated above. The statement is supported by analytical tests conducted in accordance with the above specifications or based on calculations assuming that 1kg of foodstuff comes in contact with 6 dm2 of packaging material.

PARTS IN STEEL: with all relevant legislation, with particular reference to the following European community regulations:

- Regulation CE No.1935/04
- Regulation CE No.2023/2006

and with the following Italian legislation:

- Ministerial Decree 21/3/73 and subsequent amendments and modifications
- Presidential Decree 777/82 and subsequent amendments and modifications

Metal components intended to come into contact with foodstuffs are manufactured using the following materials:

- AISI 420 steel - 1.4028 mod. (X35Cr14)
- AISI 630 steel - 1.4542 (X5CrNiCuNb16.4)
- AISI 304 steel - 1.4301 (X5CrNi 18-10)

We hereby declare that:
the material does not contain substances subject to restrictions under the legislations cited above and respects the global migration limits.

The global migration limits, together with the specific restrictions that may be applied to the articles, have indicated that the articles are suitable for contact with foodstuffs, under the conditions described by the legal method, in compliance with the limits defined by decree 777/1992 and 21/03/73 and subsequent amendments and integrations.

The conditions of use of the stainless steel product are as follows:
Wash thoroughly with hot water and soap, rinse and dry before use. Do not leave foodstuffs containing citric, acetic or lactic acid in contact with the product for long periods of time.
When cleaning, avoid using detergents containing chlorine (such as bleach).

Avoid strong impacts and extreme changes in temperature. To eliminate iridescent rings caused by overheating, use products specifically produced for stainless steel; to eliminate white marks caused by calcium build up, boil a solution of water and vinegar, let cool and wash as normal. Articles with steel grips require particular attention as the heat is conveyed to all steel parts. For this reason, it is advisable to use hand protection.

Warning!
It is good practice to advise the writer if the conditions of use of the article do not comply with the instructions provided.

The company declares that the material is technically suitable for the intended use, i.e. for use with fresh refrigerated meat for a period greater than the shelf-life assigned by the client.

The company declares that all necessary supporting documentation required under Regulation Framework 1935/2004 CE article 16 comma 1, is available to the competent legal authority.

This declaration is valid as of the date shown below and will be replaced in the event of significant changes in the production of the material that may alter the product's ability to meet the requirements of conformity or if the legislations cited are amended or updated in such a way that further verification of conformity is required.

Date **Albinea**, ...
Signature.....

GRASSELLI S.p.A.
Via S. D'Acquisto, 8/C
42020 Albinea (RE) - Italy (A)
(company stamp)

Surname and name: Panciroli Luca

Position: Safety Manager

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1 GENERAL INFORMATION

1.1 Description of the machine

The MS520PM membrane skinner has been designed to remove very thick rinds on round products that rotate during processing.
The machine is electrically powered with three-phase voltages, on request 220V to 480V, 50Hz or 60Hz and pneumatically via connection to the company compressed air system.

1.1.1 CLO Safety system (optional)

The machine can be equipped with the CLO safety system (optional) that increases operator safety during processing. The system consists of a control circuit, conductive gloves and insulating gloves.
In the event the glove make contact with any part of machine, the machine stops immediately.

1.2 Definitions

The manual defines certain figures who are authorised to operate on the machine in different ways:
Operator: person in charge of running the machine with operational knowledge about how it works
Specialised personnel: person with specific knowledge about the routine maintenance of the machine
Technical assistance: person in charge of special maintenance and repairing the machine, expressly appointed by the manufacturer.

2 FIELD OF APPLICATION

2.1 Intended use

The MS520PM membrane skinner has been designed to remove very thick rinds on round products that rotate during processing.
IT IS PROHIBITED TO REMOVE SKIN AND/OR MEMBRANES FROM FLAT PRODUCTS.
IT IS PROHIBITED TO PROCESS PORK GORGES.
Flat products must only be processed with automatic membrane skinning machines.
The product (fresh meat or fish) must weigh less than 15 Kg and is processed manually.

2.2 Reasonably foreseeable misuse

- Incorrect installation of the membrane skinner
- Processing on an open machine without using the recommended gloves
- Tampering with safety systems
- the use of cleaning solvents or detergents not recommended in the instructions for use.

2.2.1 CLO safety system (optional) reasonably foreseeable misuse

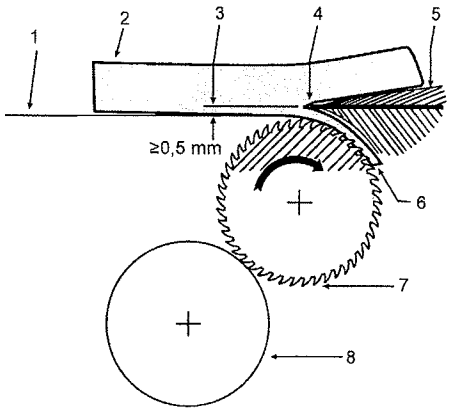
The CLO safety system is an optional device which must be factory-installed directly by the manufacturer and becomes an essential part of the machine.
The CLO system is not intended for separate use from the machine on which it is installed.

People with pacemakers or other lifesaving devices are forbidden from using the CLO safety device.

The manufacturer cannot be held liable for any damage caused by improper use of the machine or equipment connected to it.

2.3 Residual risks

With reference to European Standard UNI EN ISO 12355:2003



1 Feed table
2 Product
3 Cutting thickness <= 0.5 mm
4 Blade
5 Blade holder
6 Membrane
7 Toothroll
8 Cleaning counter-roller

- Mechanical risks

- Zone 1
Rotating toothroll and blade holder with height adjustable blade.
Risk of skinning or dragging of the fingers into the cutting device.

- Zone 2
Presser rollers or rotary sensors and protective cover.
Risk that the fingers or hand are dragged into the mechanism.

- Zone 3
Rotating toothroll/combs/cleaning counter-roller.
Risk that the fingers or hand are dragged into the mechanism.

- Zone 4
Rotary toothroll/conveyor roller and fixed parts of the machine.
Risk that the fingers, hand or forearm are dragged into the mechanism.

- Zone 5
Conveyor belt running, motor and idler rollers.
Risk that the fingers or hand are dragged into the mechanism and crushed.

- Zone 6
Rotary circular blade.
Risk of cutting fingers or hand.

- Zone 7
Machine components.
Accidental closing of covers and protections.
Risk of crushing hands.

- Risks arising from the loss of stability

Risk of collision or crushing of the body in the event the machine should tip over

- Risks generated by noise

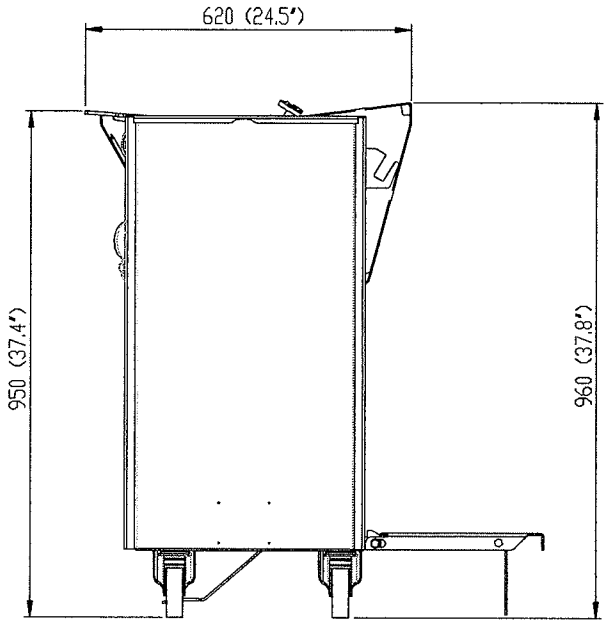
Skinning machines may generate noise which may damage hearing, may cause accidents due to interference with verbal communication or failure to perceive acoustic signals.

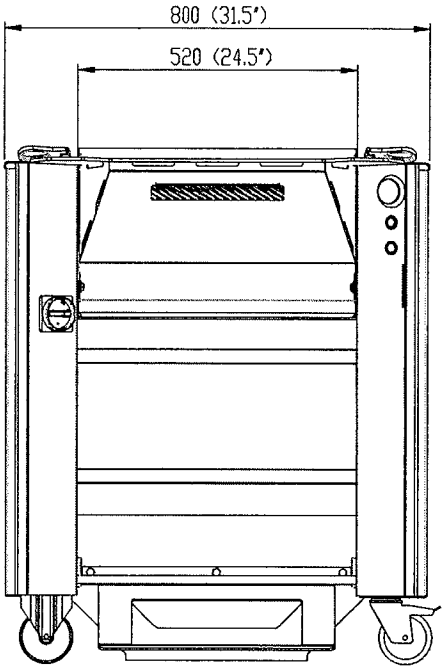
- Risks arising from failure to comply with hygienic principles

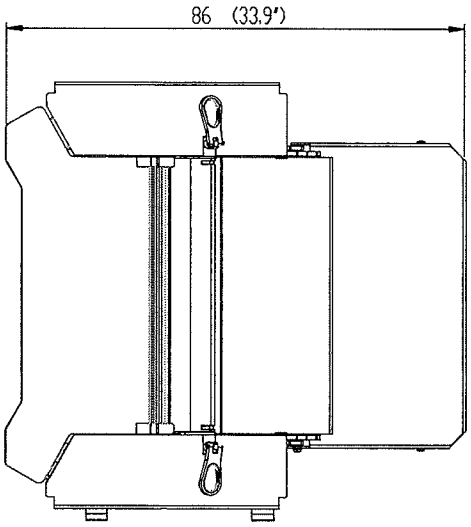
- Risk (deterioration) of food
- Risk of harming the consumer's health through food poisoning
- Infections suffered by the operator

- Chemical causes
Product contamination via residues of disinfecting or cleaning products which may cause harm to consumers

- Physical causes
Elements encapsulated in the fresh product, from machine parts or other sources which may cause harm to consumers.


620 (24.5")
950 (37.4")
960 (37.8")


800 (31.5")
520 (24.5")


86 (33.9")

Technical Data		
Description	**Data**	**U.M.**
Processing width	520	mm
Machine depth	660	mm
Machine height	950	mm
Machine width	700	mm
Weight	196	kg
Power	1.1	kW
	3	Ph
Rated current In	2.51	A
Start-up current Isp	15	A
Voltage drop ΔU	-4%	V
Air consumption	145	L/min
Maximum pressure	7	Bar
Operating speed	30	M/min
Pressure Level	77.2	dBA
Uncertainty K	2.5	
Pressure Level (operator position)	75.5	
Uncertainty K	2.5	
Auxiliary circuits power supply	24	V

VOLTAGE POWER SUPPLY (Volt 3P+T)** +/- 10%	MAX ABSORP-TION (A)
220	4.26
230	4.08
240	3.91
380	2.47
400	2.35
460	2.04
480	1.96

FREQUENCY (Hz)
50
60

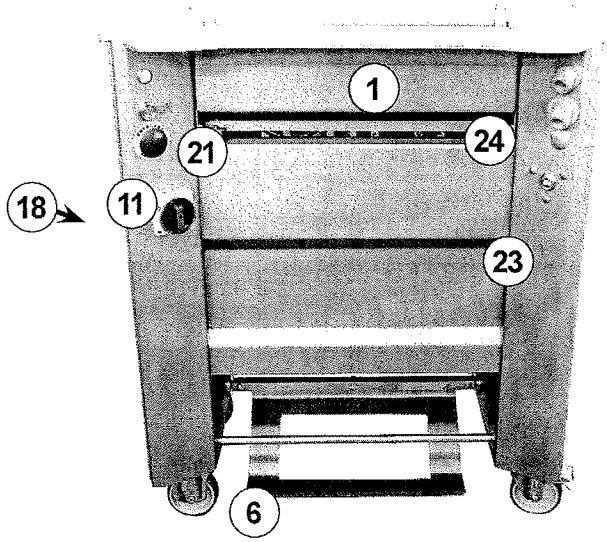
Sound pressure level test method

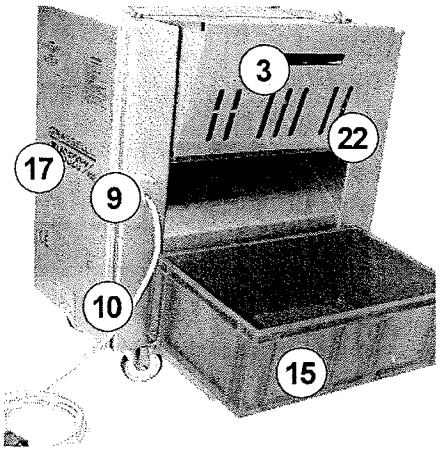
The parameter detected is the A-weighted equivalent continuous level (LpA); the measurement lasts long enough to detect the variability of the sound signal examined. The diffused noise of the examined machine is constant.
The emitted sound level in the operator positions was measured by placing the microphone of the instrument 1.60 m from the floor and 0.10 m from the right/left ear of the operator.
A further measurement was carried out pursuant to pr EN 12355, placing the microphone of the instrument 1.60 m from the floor and 1 m from the toothed roller of the machine.

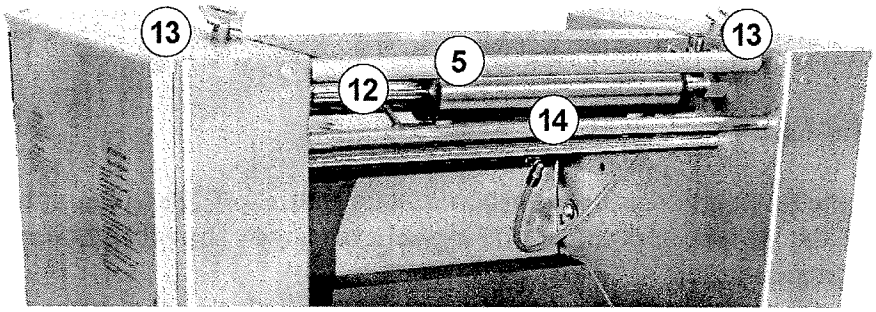
4 DESCRIPTION OF THE MACHINE

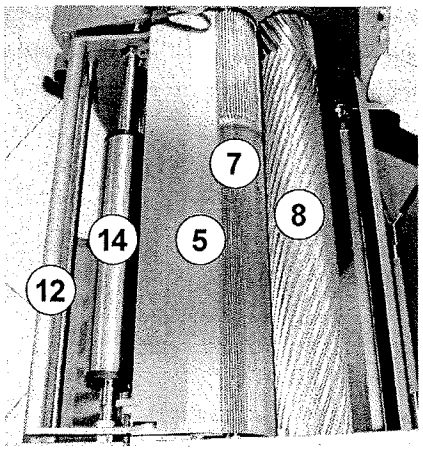
4.1 Machine and sensors

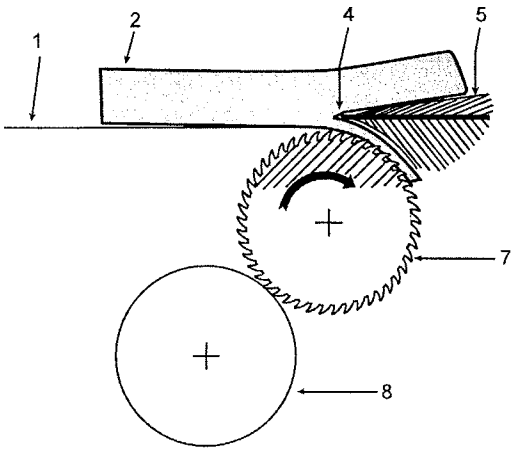
1 Product infeed table
2 Processed product
3 Product outfeed table (rear surface)
4 Blade
5 Blade holder
6 Start pedal
7 Toothroller
8 Cleaning counter-roller
9 Compressed air inlet
10 Power supply inlet
11 Controls
12 Blade locking lever
13 Blade holder coupling lever
14 Cleaning cylinder
15 Scraps collection box
17 Right side cover
18 Left side cover
21 Product infeed table opening guard sensor
22 Rear board opening guard sensor
23 Display CLO (optional)
24 CLO socket (optional)











5.1 Warnings

Carefully read this manual in its entirety before conducting any operations on the machine.
The operator must be able to use the machine safely, have adequate psychological and physical skills, must not be under the influence of alcohol or drugs and must be perfectly trained on how to use the machine itself.
Always wear adequate clothing, with no parts that may jam or get stuck in the machine. Use hygienic precautions and PPE prescribed by regulations in force.

Always wear cut-resistant protective safety gloves during processing, maintenance, adjustments, handling of the blade holder and when changing the blade.

Use only gloves approved by the manufacturer.

Metal mesh gloves or gloves reinforced with metal wire must not be used.

Before connecting the machine to the power supply system, make sure it is of TT type, equipped with circuit breaker having rated trip current not higher than 16A with breaking capacity equal to or higher than 1.7KA and residual current device with 30mA AC operating curve, according to standards in force.

The machine in question is considered dangerous. It is, therefore, strictly forbidden to move hands, other body parts or clothing at less than 2cm from the blade with machine in motion.

After each use of the machine, switch it off and set the master switch (17) back to 0-OFF.

Make sure the safety devices and integrity of the power supply cable are operating properly before restarting the machine after a period of inactivity and in any case perform this check on a daily basis.

Before performing any cleaning or maintenance, disconnect the power supply by pulling the plug or turning off the switch on the main electrical panel (0-OFF) upstream of the machine and the pneumatic supply.

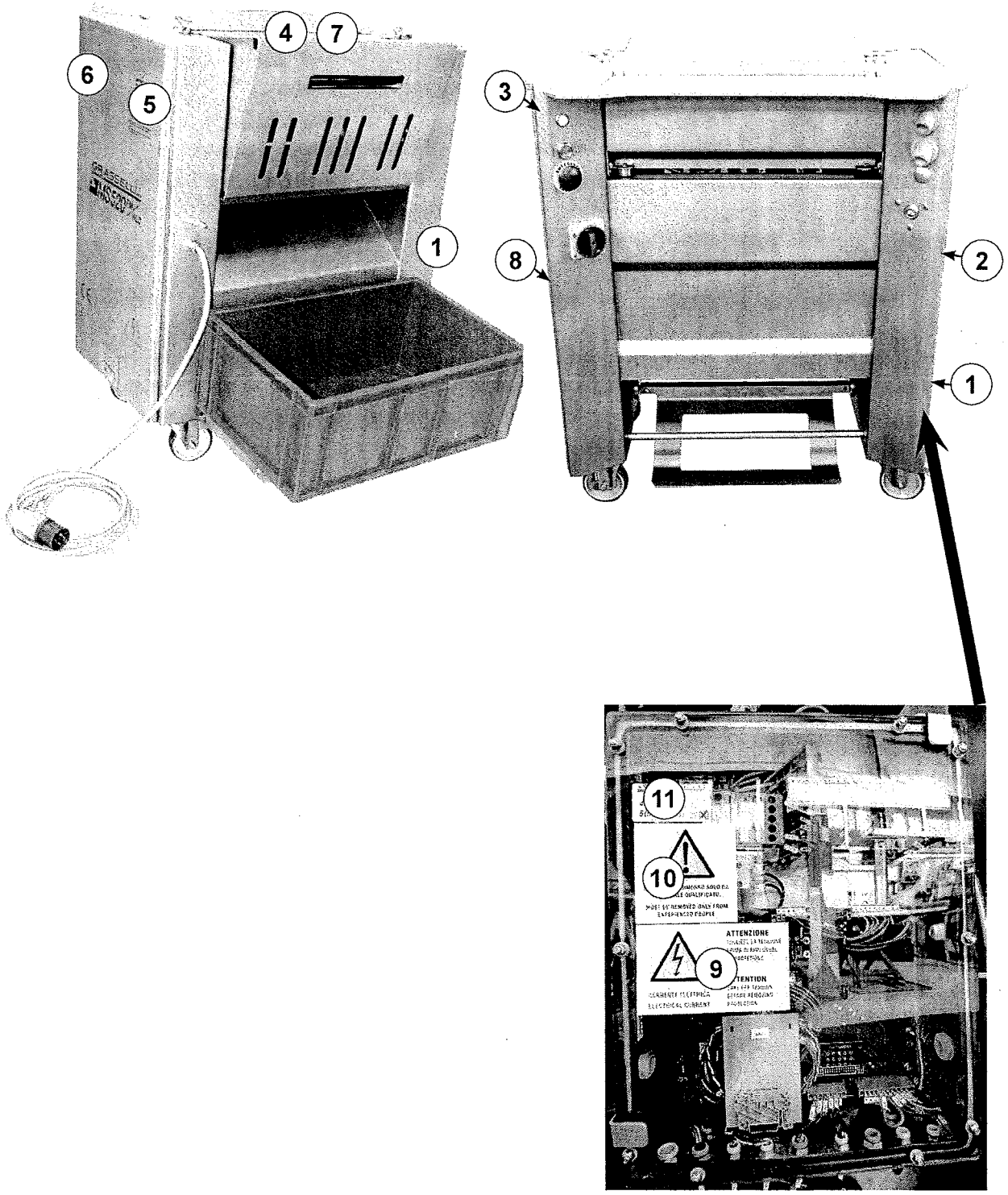
Clean and sanitise the machine when it is used for the first time and every day thereafter with the designated equipment and detergents using the PPE required by the regulations in force.

Only use original spare parts supplied by the manufacturer.

Maintenance and repair operations must be conducted only by specialised and perfectly trained personnel.

5.2 Pictograms

There are some pictograms applied or screen-printed on the machine, showing safety requirements, in addition to the CE marking and some directions for the proper use of the machine.
The stickers must be replaced if they become illegible.



MANUFACTURED BY

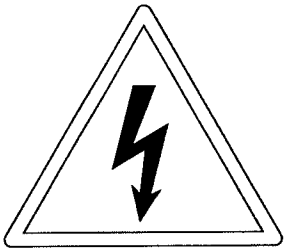
GRASSELLI S.p.A. CE

VIA S. D'ACQUISTO, 2/C -42020 ALBINEA - RE - ITALY
Tel. +39 0522 599745 www.grasselli.com

MODEL .....
SERIAL NUMBER
MANUFACTURING YEAR
VOLT ..... HZ ..... PH .....
MOTOR kW A
AIR PRESSURE ..... BAR

1

CE nameplate

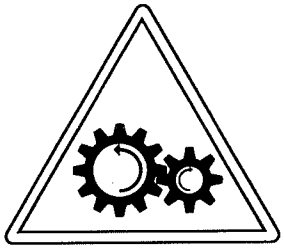


2

Electrocution hazard

3

moving parts hazard



4

Cutting hazard

IMPORTANT

CLO test instructions

1 Put on the CLO jacket.
2 Put the conductive gloves on and connect them to the jacket.
3 Connect the jacks from the jacket to the machine pluga.
4 Turn the main switch on and press START. The display will show a "1".
5 Press the foot pedal. "tt" appears on the display. Keep the pedal held down until "tt" disappear, then release the pedal.
6 The display shows "--" flashing. Press the foot pedal and after machine runs, touch the in feeding tray with the right hand conductive gloves fingertips.
The machine must stop.
Press the foot pedal again and touch the in feeding tray with the left hand conductive glove fingertips.
The machine must stop. Display shows "-".
Press again the foot pedal and touch the in feeding tray with any conductive glove.
The machine must stop. Display shows "EE".
Release the foot pedal. Display shows ".." and the unit is ready to work.
7 Put the insulating gloves over the conductive gloves and start operating the machine.
8 Remember that if the machine is left with the jacket's pluga removed for morethan 20 MINUTES the start-up procedure above must be repeated.

5

General information relating to safety

ATTENTION

BEFORE CONNECTING TO MAIN POWER SUPPLY MAKE SURE A GROUNDING SWITCH IS ON THE LINE

ATTENTION

AVANT DE BRANCHER LA MACHINE CONTROLEZ QU'IL Y AIT UN INTERRUPTEUR DIFFERENTIEL SUR LA LIGNE

6

Information relating to the electrical connection

ATTENTION

Do not wear metal wire gloves or metal and syntetic wire reinforced gloves.

7

Prohibition to use gloves not prescribed by the manufacturer

8

Absence of radioactive emission

CORRENTE ELETTRICA
ELECTRICAL CURRENT

ATTENZIONE
TOGLIERE LA TENSIONE
PRIMA DI RIMUOVERE
LA PROTEZIONE

ATTENTION
TAKE OFF TENSION
BEFORE REMOVING
PROTECTION

9

Maintenance instructions (on the electric control panel cover)

DEVE ESSERE RIMOSSO SOLO DA PERSONALE QUALIFICATO.
MUST BE REMOVED ONLY FROM EXPERIENCED PEOPLE.

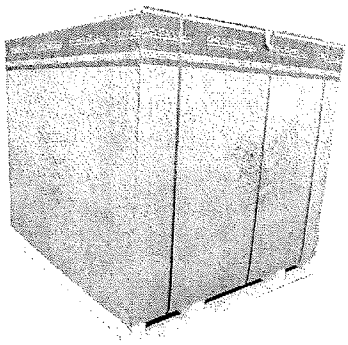
10

Maintenance instructions (on the electric control panel cover)

11

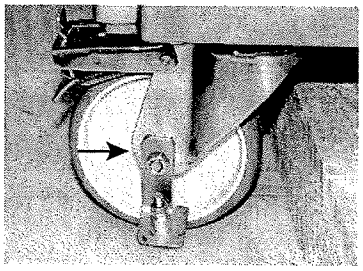
Information on the wiring diagram (on the electric control panel cover)

6 TRANSPORT AND INSTALLATION



6.1 Description of the packaging

The machine is secured to a special pallet with bolts
and protected with clear packaging film and cardboard.
Open the cardboard box and remove the film.
Inside, in addition to the machine, there is a box which contains, as well as this manual:
1 pack of lubricant
2 special guard wrenches (to be kept by the specialist staff)
3 spare blades (B356)
1 screwdriver
1 tool for mushroom adjustment (16378ASSY)
1 accessory bag
1 accessory sack
if CLO system provided (optional)
1 pairs of CLO gloves
1 pair of insulated gloves
1 CLO belt



If other accessories are provided (special versions or with optional extras) they are included in the same box.
Make sure that all machine parts, including any accessories, have been supplied and are undamaged.
Dispose of the packaging material in compliance with the regulations in force.

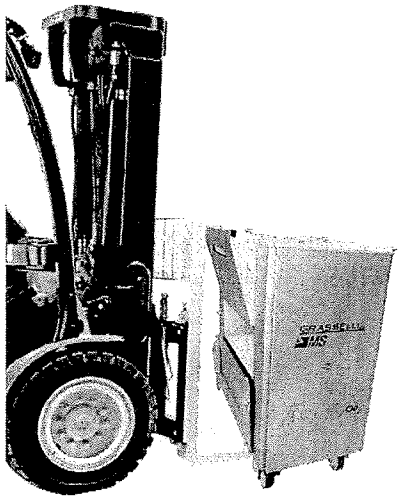
6.1.1 Storage

The packaging is made of material suitable for storing the machine in an environment protected from direct light, excessive heat or humidity. It must be stored at a temperature ranging from -15°C to +45°C.

6.2 Transport

Use a forklift or a pallet truck to carry the machine.
Before transporting the machine, make sure that:
- the transport device is able to withstand the load (see technical data of the machine)
- the machine is stable on the forks
- the adjacent area is clear of obstacles, people or animals that may create dangerous situations

Release the machine from the pallet, loosening the screws that secure it, and lift the machine inserting the forks of the forklift in the point shown in the picture.
Place the machine in the designated work area.



Before starting any movement, always check whether the machine is stable and make sure the area where the movement is conducted is clear of obstacles such as objects, animals or people.
Before moving the machine, it must be turned off (master switch at 0-OFF) and unplugged.
During machine displacement, the power supply cable must not be damaged.

6.3 Positioning

6.3.1 Characteristics of the work area

Provide for a work area large enough to perform all the manoeuvres safely (see technical data).
The machine must be placed on a flat and smooth floor.

IT IS FORBIDDEN TO INSTALL THE MACHINE ON SLOPING FLOORS

6.3.2 Working position of the membrane skinner

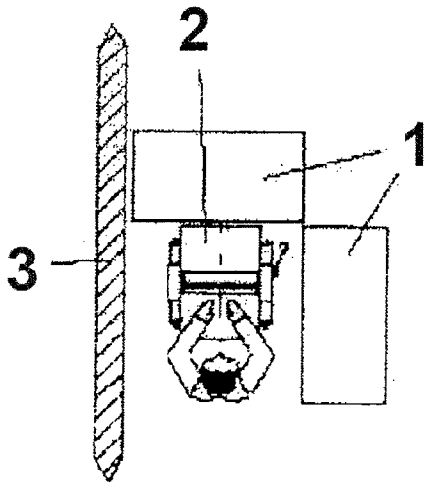
Access to the membrane skinners must be avoided, except on the operator side. This can be obtained, for example, with the following measures:

Normal positioning of a machine in a limited working area
A membrane skinner must be placed with one side facing the wall. The table and a container must be on the other sides free to receive the product.
The operator stands in front of the open membrane skinner. Access to the machine is in this way inhibited to other persons.
After it has been correctly positioned the machine must be parked by means of the locking devices located on the two front revolving wheels of the machine.

Membrane skinner installed in a small working area

Key

1 Board or container
2 Membrane skinner
3 Partition wall



Normal machine positioning in a processing area with cutting line

A membrane skinner must be placed with one side facing the cutting line. The table and a container must be positioned on the other sides free to receive the product.

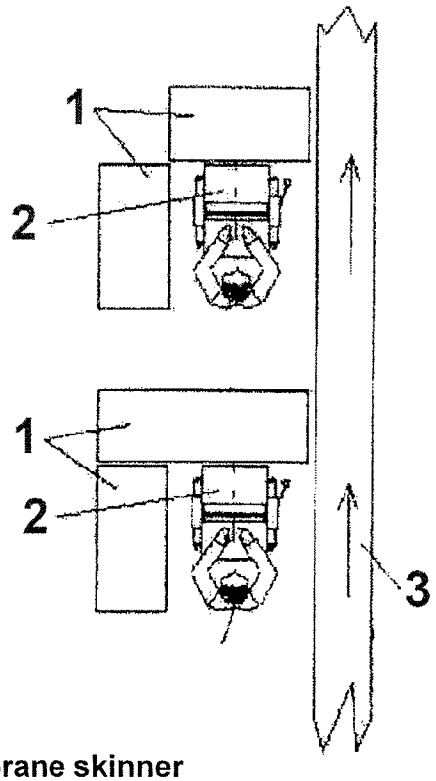
The operator stands in front of the membrane skinner. Access to the machine is in this way inhibited to other persons.

After it has been correctly positioned the machine must be parked by means of the locking devices located on the two front revolving wheels of the machine.

Membrane skinner installed in a cutting line

Key

1 Board or container
2 Membrane skinner
3 Cutting line



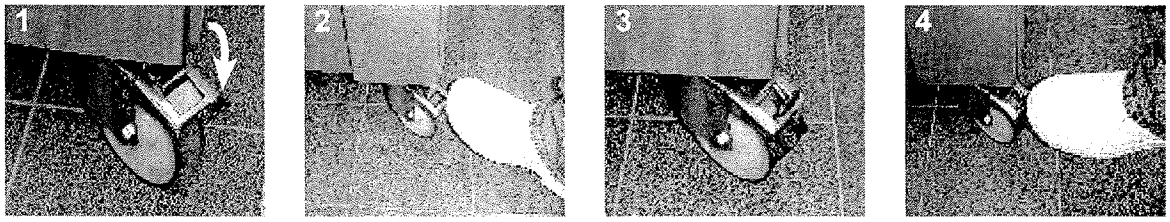
6.3.3 Additional positioning possibilities of the membrane skinner

Access to the toothroll by third parties must be avoided with a fixed guard, e.g. a protective enclosure. The guards must be sized according to EN ISO 13857:2008 and subsequent amendments.

6.3.4 Machine stabilisation

After it has been correctly positioned the machine must be parked by means of the locking devices located on the two front revolving wheels of the machine.

1) Brake released.
2) With your foot press the tab (Fig. 1) of the brake on the two swivel wheels until it clicks.
3) Brake engaged.
4) To disengage the brake on the wheels, push the tab (Fig. 3) of the brake on the two swivel wheels until the brake disengages.



6.3.5 Electrical connection

The machine is equipped with a power supply cable to connect it to the mains.

Connecting the machine to the mains involves an electrocution hazard. All connection operations must be carried out by specialised personnel, equipped with special PPE in compliance with the regulations in force.

The machine is supplied in various versions with voltages (V) and frequencies (Hz) on request. **Make sure that the operating voltage and frequency are compatible with the features of the mains by checking the CE plate applied on the machine (see section "Pictograms").**

Connect the machine to the TT power supply system, equipped with circuit breaker having rated trip current not higher than 16A and residual current device with 30mA AC operating curve, according to standards in force.

- Ensure that the toothed roller rotates in the direction of the blade holder; if it does not, invert its polarity.

The manufacturer cannot be held liable for damage caused by incorrect connections or connections that are not compatible with the machine's power supply system.

Do not use extension cables or jump leads with the power supply cable.

Use a 3P+E plug to conduct the connection.

Check the polarity of the connection when you start up the machine for the first time.

- Turn the main switch (I-ON) on
- Start the cycle (see the paragraph "Commissioning the machine")
- The end of the test, disconnect the master switch (0-OFF)

To reduce risk exposure, the wiring diagram has:

2 magnetic coded safety sensors installed on mobile guards, front and rear.

1 emergency pushbutton.

Ensuring the correct functioning of the emergency push-button and the safety sensors at the beginning of every work shift is COMPULSORY:

- by pressing the safety button the machine MUST stop
- the machine MUST stop when the front and rear mobile guards are lifted

The safety control systems are in compliance with the standard:

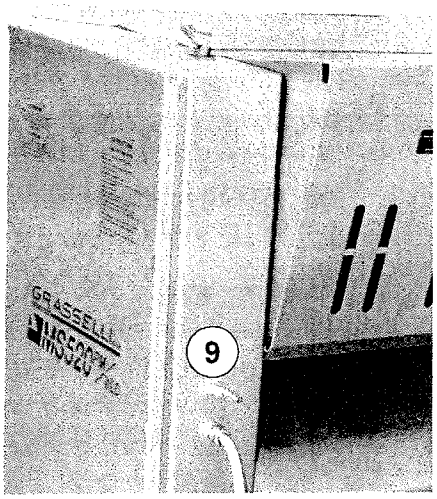
UNI EN ISO 13849-1:2008 - category 1 - PL=C

6.3.6 Pneumatic connection

Make sure that the compressed air system delivers a pressure between 6 and 10 BAR.

In the event of particularly damp air, install a retaining filter between the supply system and the machine.

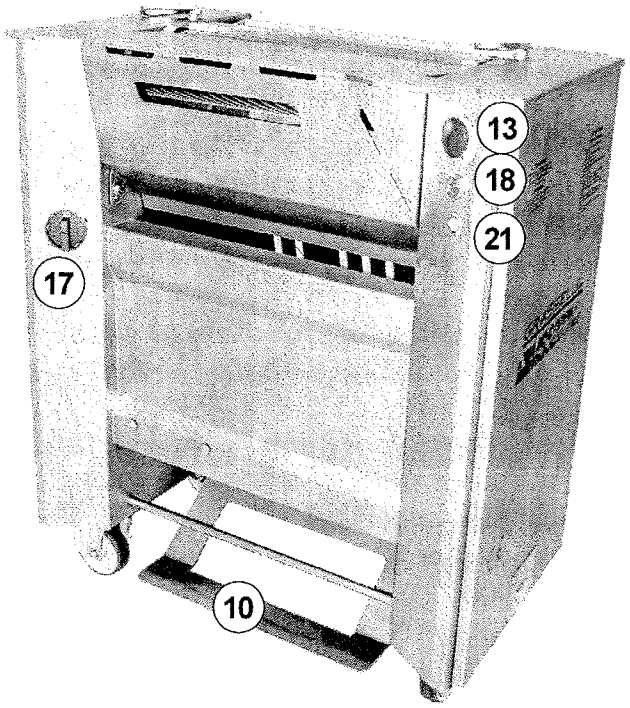
Connect the company mains system with a 1/4" GAS connector (9).



7 COMMISSIONING

7.1 Functions and signals

Below is an overview of the functions of the lights, the switches and the buttons on the machine control panel.



10 Start pedal.

Pressing it, with master switch in pos.I (ON) and warning light on, the machine starts, while if released the machine stops.

13 Emergency button

- pressed, emergency engaged
- released, the machine is operational

17 Main switch

- I-ON machine powered (machine on)
- 0-OFF power supply off (machine off)

18 Start button (ON)

It must be started in order to restart processing after every emergency stop or power failure. When the button is pressed the warning light (21) turns green. The machine is ready for use.

21 Warning light

- off, machine off (main switch 0-OFF)
- green machine on and ready for use (master switch I-ON - start button ON pressed)
- red machine on and correctly powered (master switch I-ON) if start button ON is pressed, machine in alarm

7.2 Starting the work cycle

Carefully read the manual in its entirety before conducting any operation on the machine, paying special attention to safety requirements. During cleaning and maintenance operations, always use the PPE required by the regulations. When an open membrane skinner is in operation, the operator must wear only gloves approved by the manufacturer. Metal mesh gloves or gloves reinforced with metal wire must not be used.

Before processing, always check the operation of the switches, indicator lights and safety devices located on each cover. **Do not connect the machine to the power mains until it is fully assembled and secured in the desired work position.**
Before connecting the power supply, ensure the mains voltage matches the data shown on the machine's plate.

7.3 Disinfecting the machine

Before using the machine, a disinfection must be carried out according to the regulations in force: - disconnect the power supply by unplugging the plug or turning off the switch on the main panel (0-OFF) upstream of the machine. - perform the steps in paragraph "Cleaning and disinfection of the machine".

7.3.1 Preliminary operations

- Always wear cut-resistant protective safety gloves during processing, maintenance, adjustments, handling of the blade holder and when changing the blade. Wear only protective gloves approved by the manufacturer.
  Metal mesh gloves or gloves reinforced with metal wire must not be used.
- Ensure all guards are correctly secured
- Ensure the machine does not start unless the tables (1-3) are in position. (see par. Description of the machine).
- Check pedal start operates correctly.
- Check the machine is in the suitable working area and the wheels are locked
- Check that the power cable is intact, without abrasions or burns.
- If provided the CLO safety system, wear a white coat, the CLO belt, the conductive gloves and perform a control test (see par. Control test with CLO safety system).

7.3.2 CONTROL TEST WITH CLO SAFETY SYSTEM (OPTIONAL) (SEE ALSO START TEST SEQUENCE)

Position the machine avoiding contact with any type of metallic structure.

Carry out the test any time an operator begins a work cycle.

The TEST and the relative work cycle must be carried out by ensuring that the gloves (conductive and insulating) are perfectly intact (not torn or worn).

The regulations and instructions in this manual must be respected and the TEST must be carried out as indicated below.

Carry out the TEST any time that:

1) The machine has not undergone a work cycle for over 4 hours.
2) The operator is disconnected from the machine for over 20 consecutive minutes (in some cases, the system requires a test even if the operator just disconnected from the machine, see par. ALARM TABLE).
3) The machine is switched off with the main switch (0/OFF)
4) Following an electrical power failure.
5) Following an emergency intervention.
6) The emergency mushroom-head button is pressed.
7) A new operator begins a work cycle.
8) The system detects a problem (see par. ALARM TABLE).

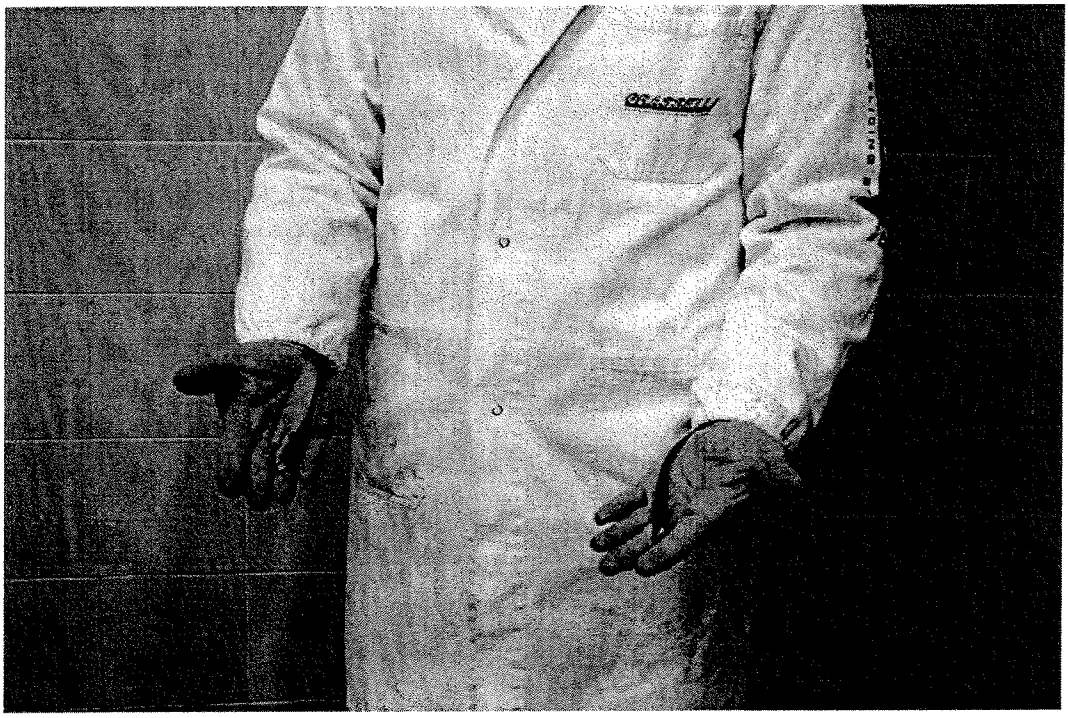
The TEST lasts about 10 seconds and prepares the machine for maximum working safety.
- It is important to carry out the TEST by following the phases exactly as indicated in this manual.
- Through alphanumeric codes, the machine display shows the test phases, anomalous situations, possible malfunctions and actions to carry out in order to restore the safety system.

Should the gloves show slightly worn parts, it is still advisable to replace them and, in any case, it is preferable to carry out the test more accurately, resting one fingertip on the machine at a time to be sure the protection is effective.

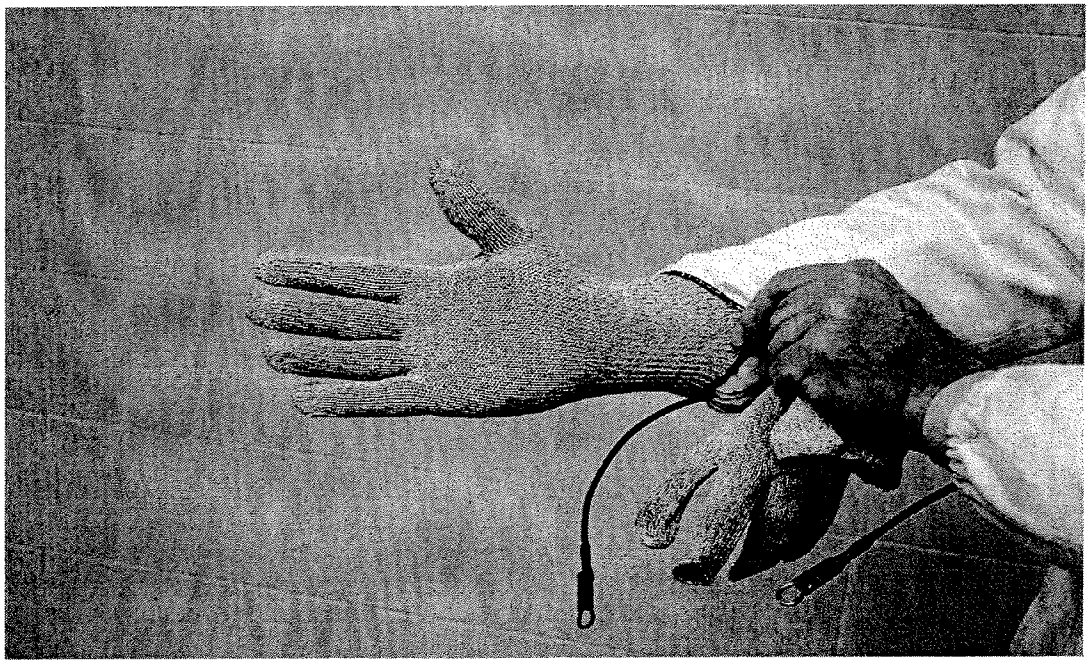
ATTENTION!

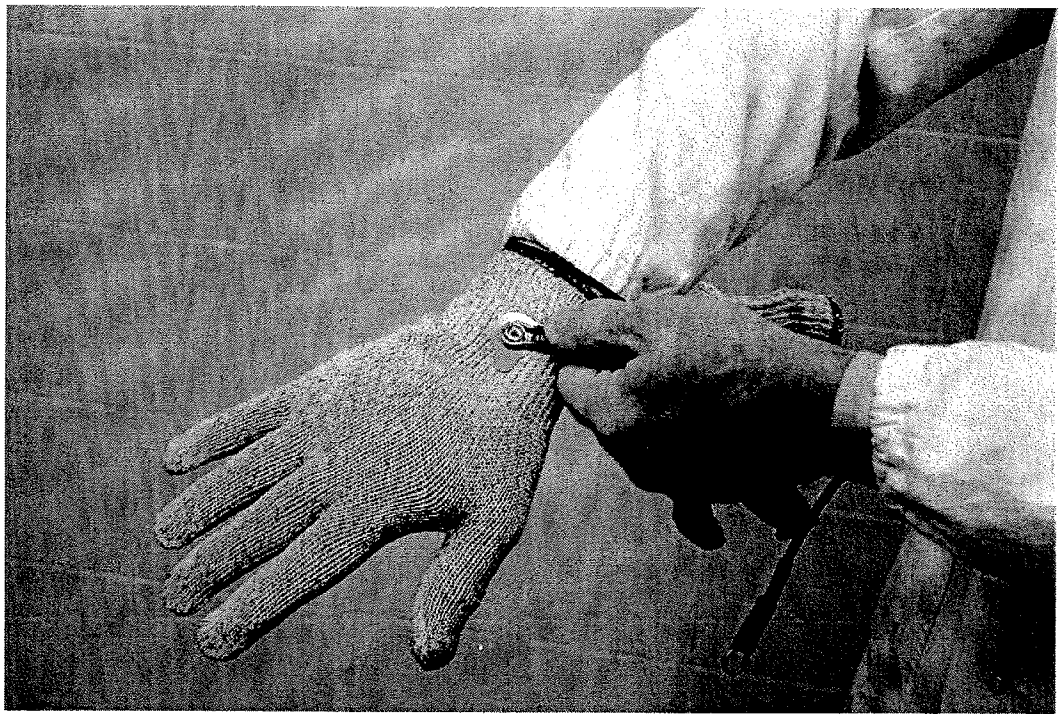
Carrying out the test with both hands at the same time cancels the efficacy of the safety system.
The test must be carried out by wearing the conductive gloves which must not touch each other.

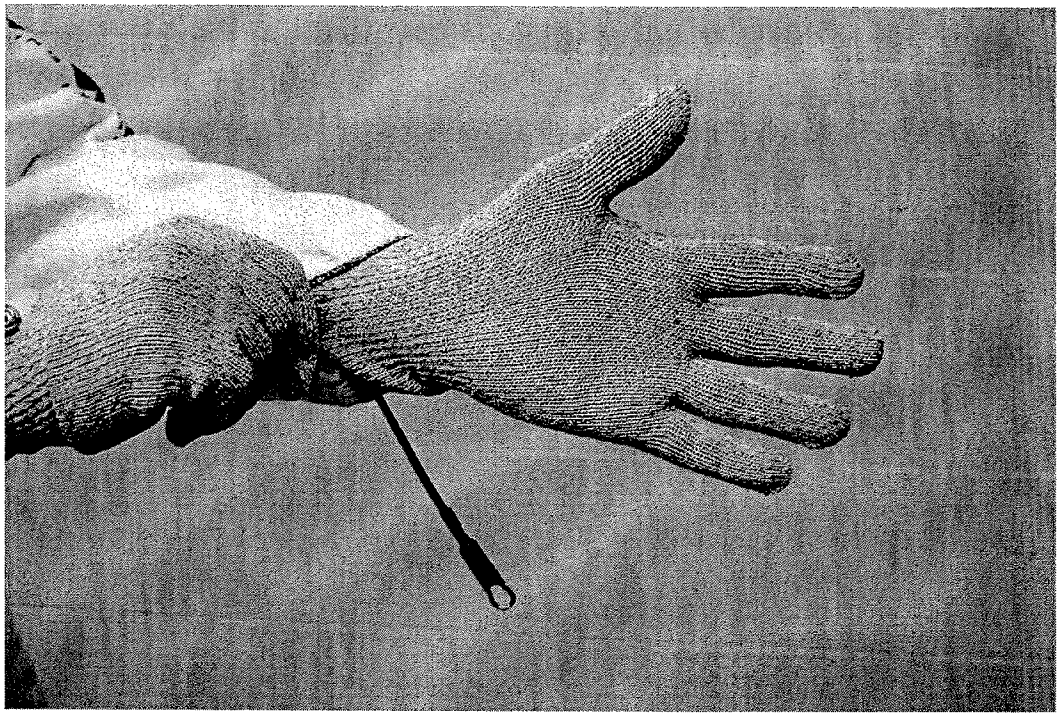
1) Wear the CLO belt with the connection cables.

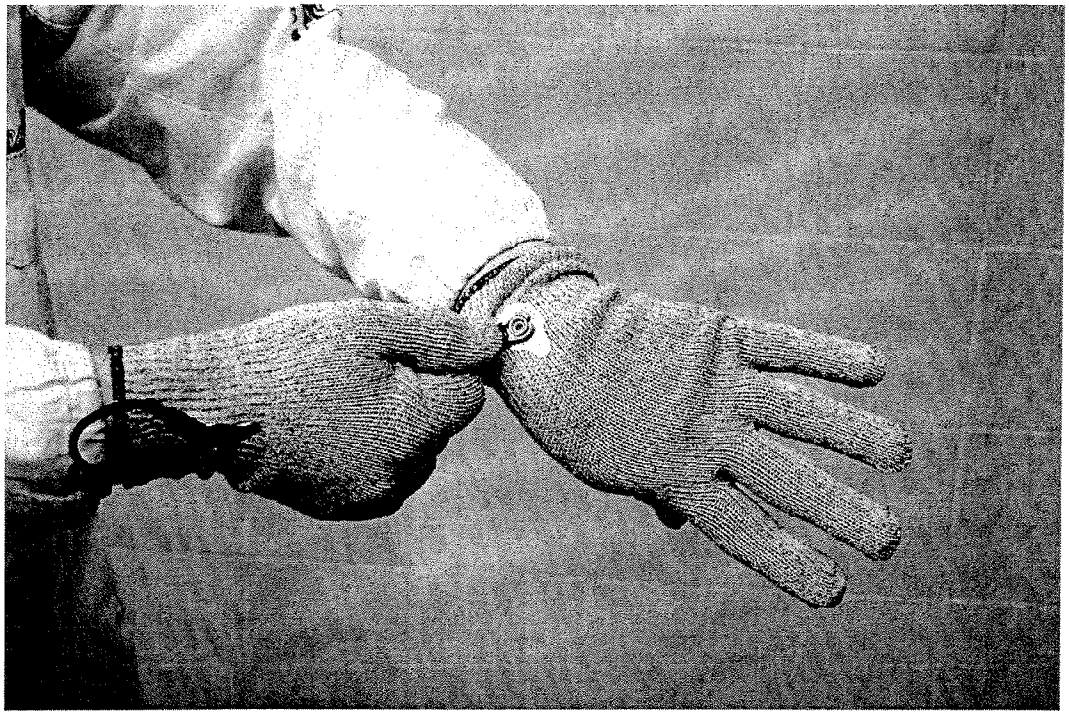


2) Wear the conductive gloves and connect them to the belt cables.

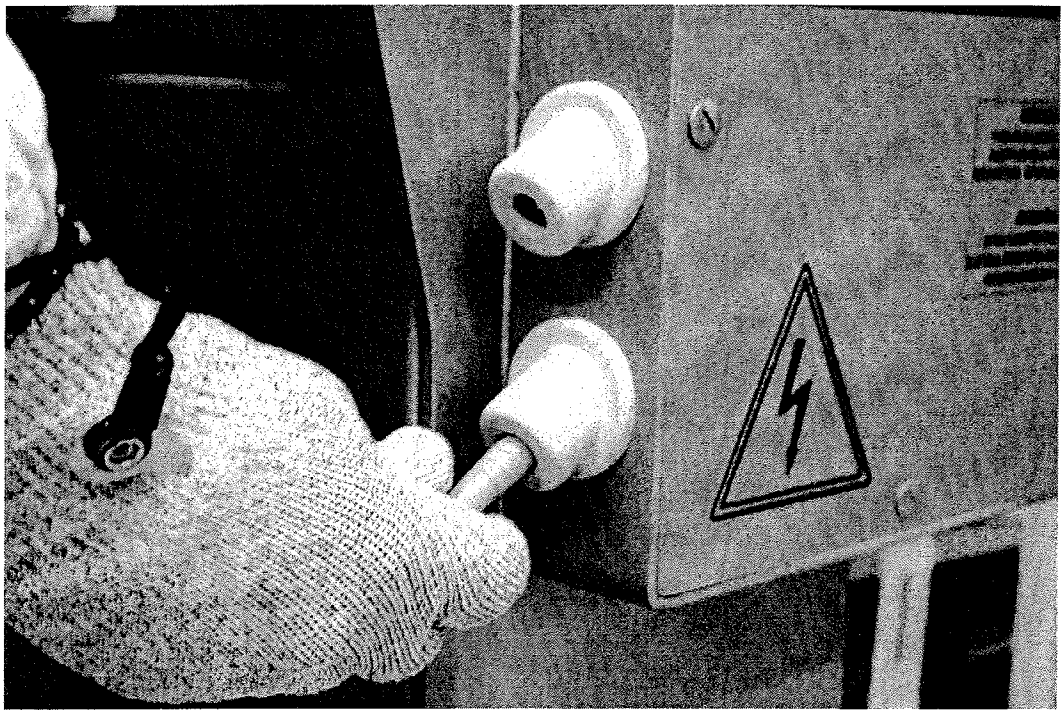








3) Connect the belt plugs to the machine sockets.
The connectors have NO polarity.

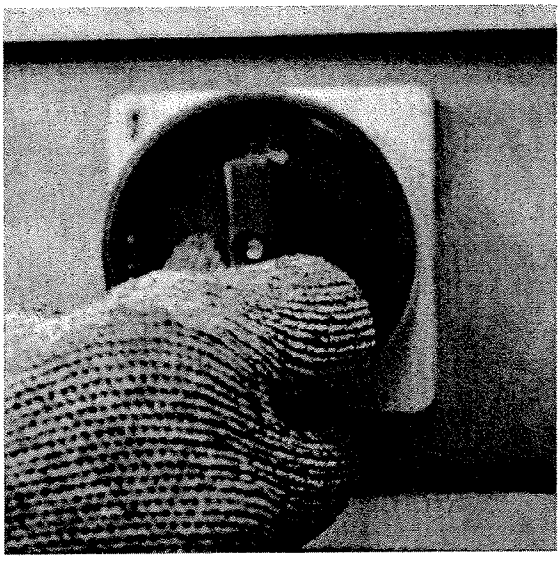


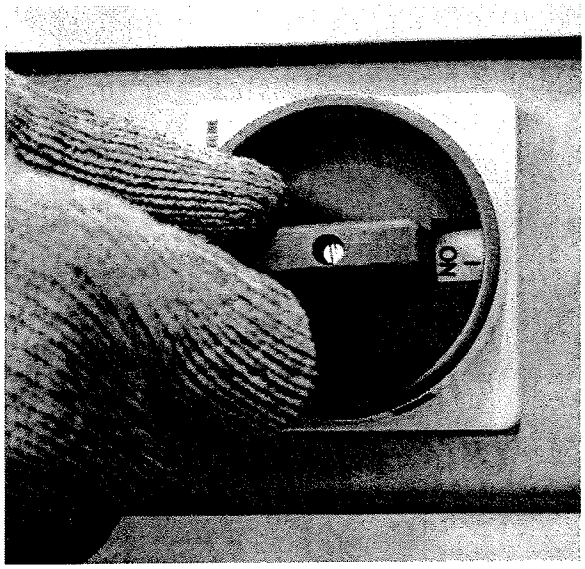

GRASSEL

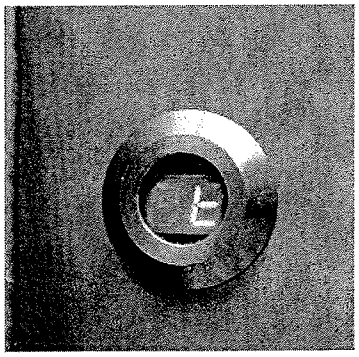
4) Switch on the machine by turning the main switch from 0/OFF to I/ON position.
Wait for the display to show a flashing "t". During this preparation phase, in systems with software version 6.2 and higher, the display will show the loaded version before the flashing "t".

ATTENTION!
During some phases of the test (8-9-10) the toothroll is rotating. Do not touch it for any reason whatsoever.

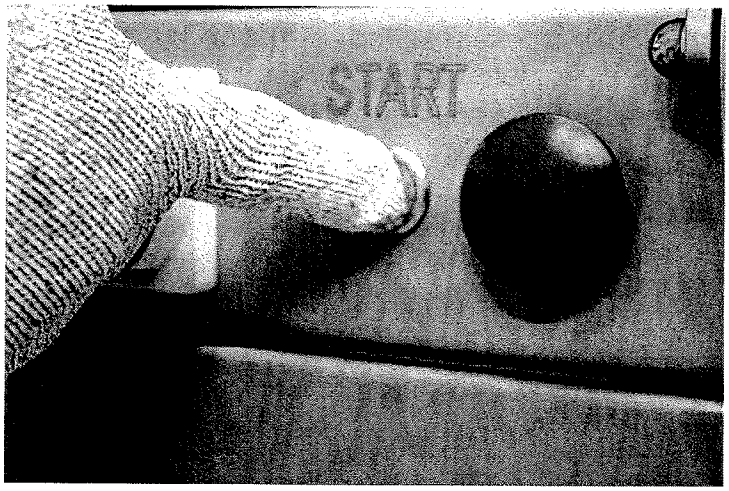
N.B. : During the test, the toothroll rotates in the opposite direction of the blade, whereas during processing, it must rotate in the direction of the blade.
If the toothroll rotates in the direction of the blade during the test, swap the electric power supply phases.



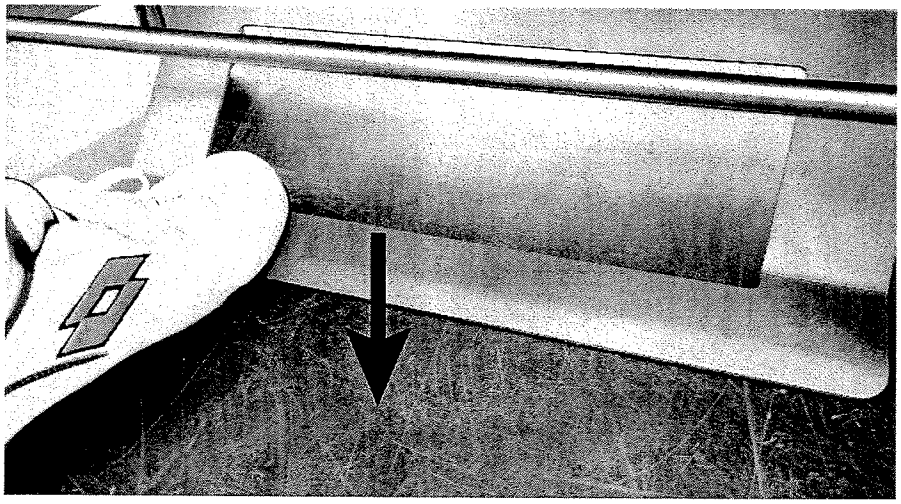


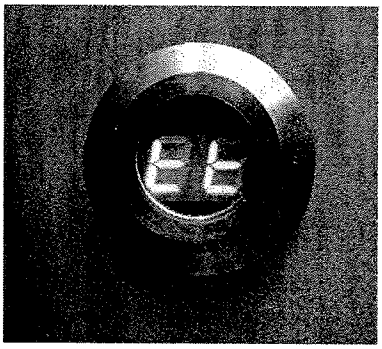


5) Press START. Check that the emergency mushroom-head button is not pressed. If it is, release it by pulling it. Check the correct positioning of the mobile guards.

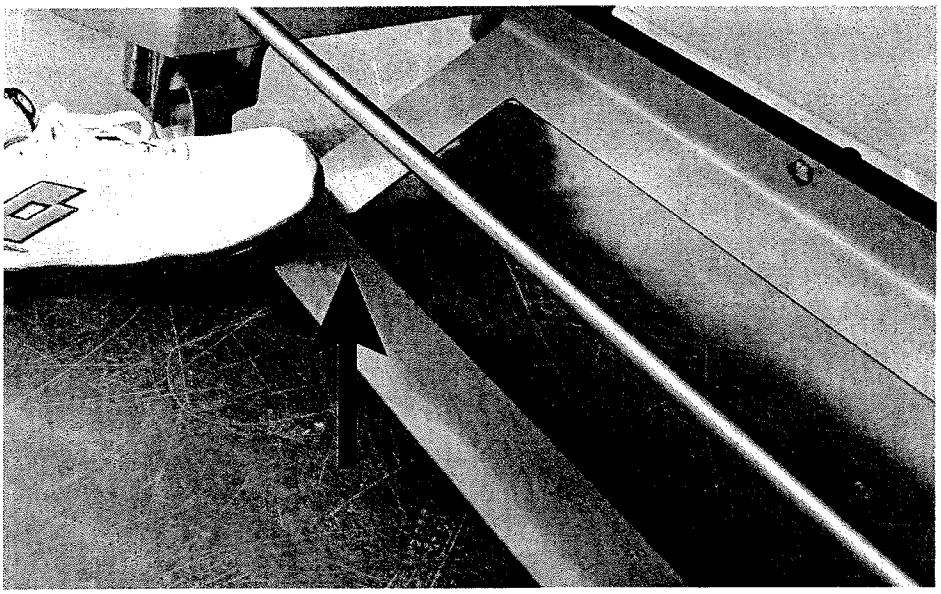


6) Press the pedal and hold it down, the display will show “tt”. Wait for the display to switch off (about 5-10 seconds). In case "tt" does not appear, repeat the procedure from point 5, checking that the machine is not in emergency state.

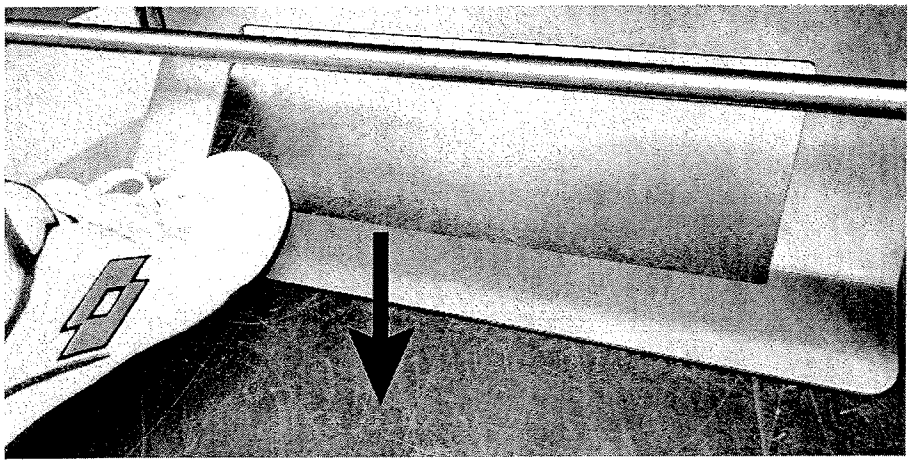




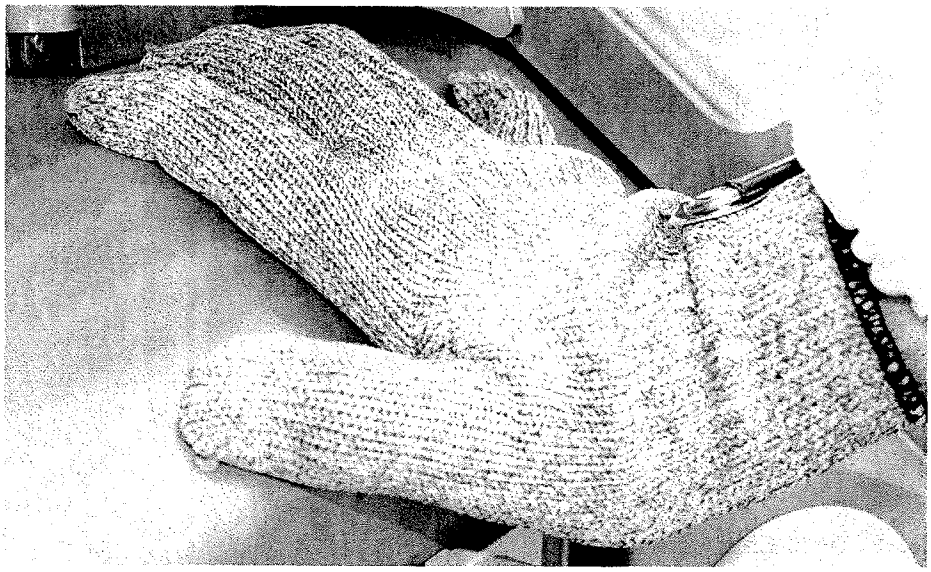
7) Release the pedal.



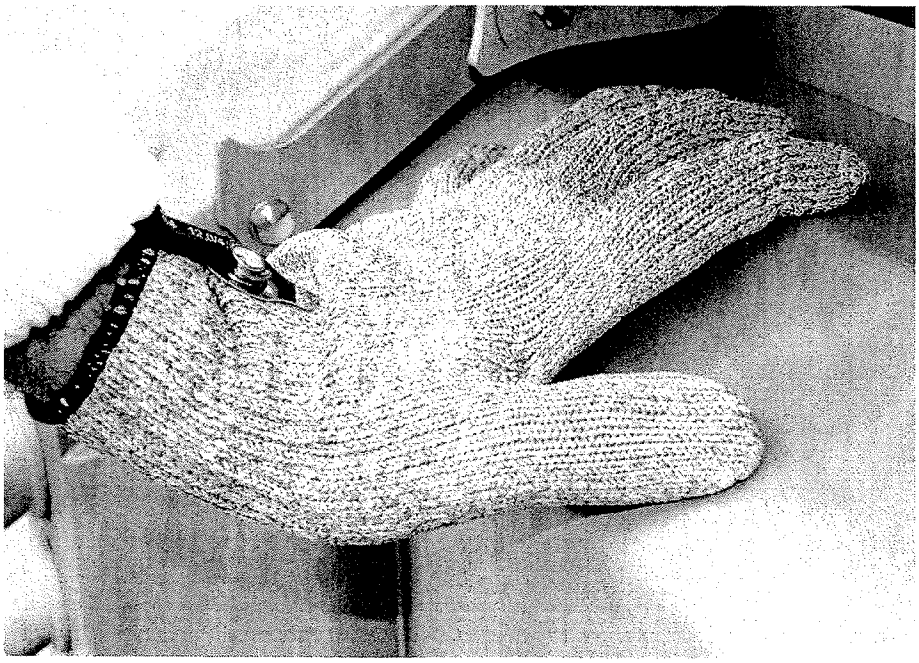
8) Wait for the "_ _" symbol to switch on, and press the pedal, holding it down. The toothed shaft rotation will be reversed for the entire duration of the test. From this moment, the test must be completed within 30 seconds. If this does not occur, error 12 will appear on the display. Switch the machine off and back on with the main switch and start the complete test again.



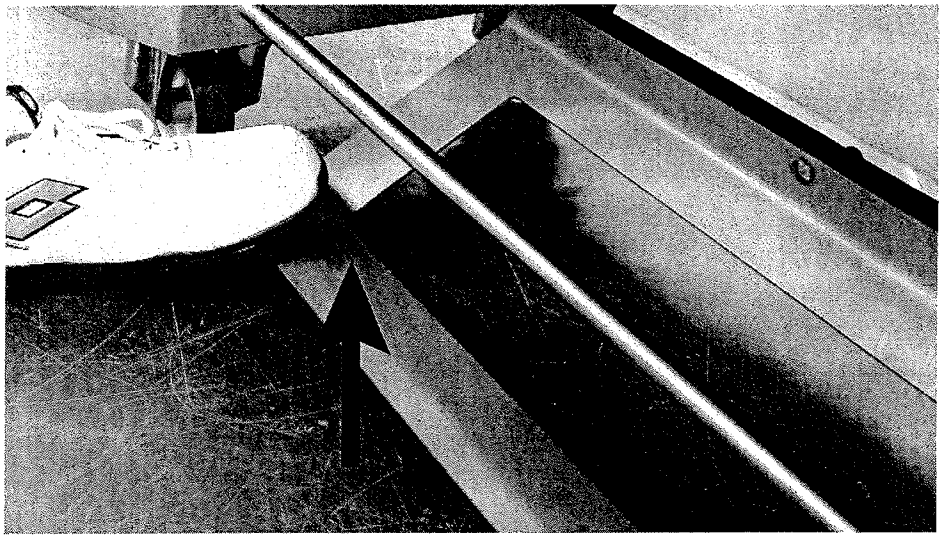
9) Keeping the pedal pressed, touch a part of the machine frame with your right hand. If the test is carried out correctly, the machine will stop.

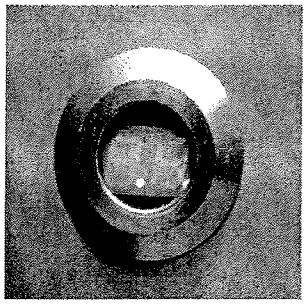


10) The "_ _" symbol will appear on the display. Press the pedal, and while holding it down, carry out a left hand test by resting on a part of the machine frame. If the test is carried out correctly, the machine will stop.

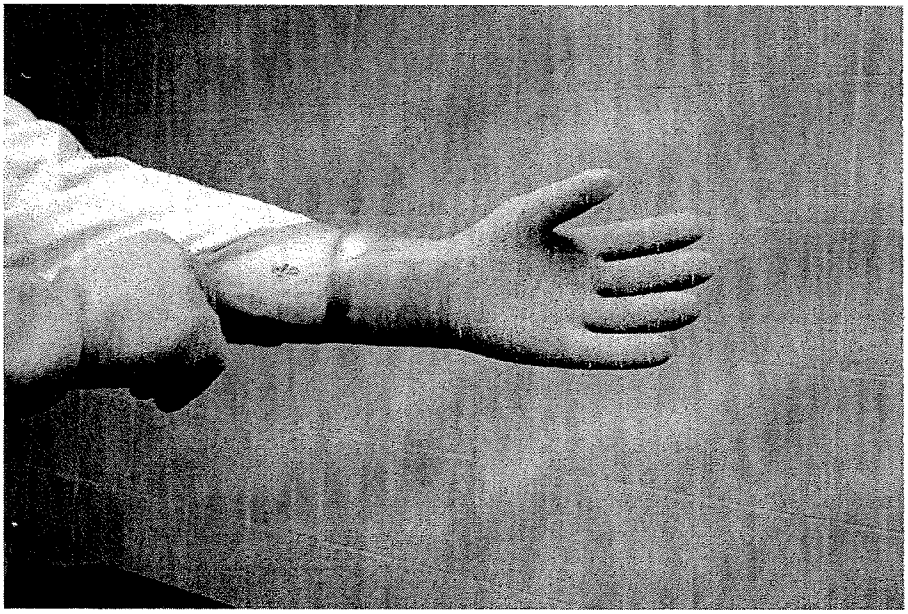


11) Release the pedal. The display will show two small dots ".." indicating that the test was carried out correctly.



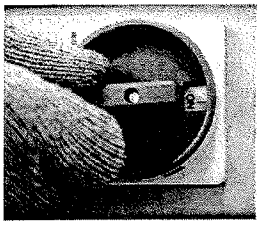


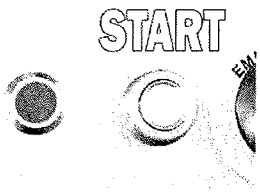
12) Put the insulating gloves on over the conductive gloves for the machine start-up phase (v.par. Starting the machine).



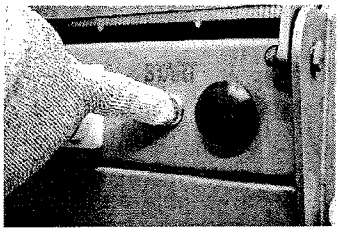
START TEST SEQUENCE

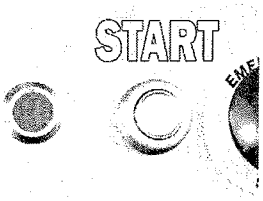
TEST





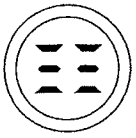
SEE ALARM TABLE



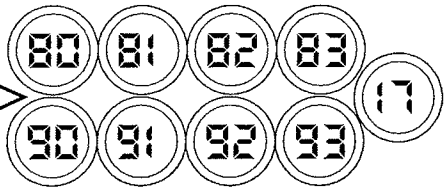


DISPLAY TEST

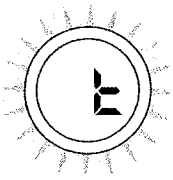
SOFTWARE VERSION (60 or follow up version)



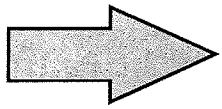
SE **IF**

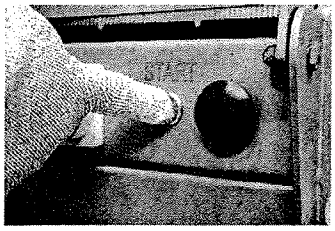


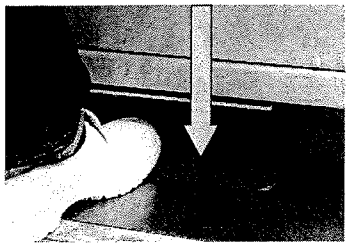
ALARM TABLE



SE **IF**

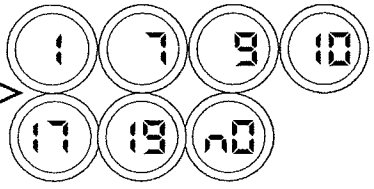






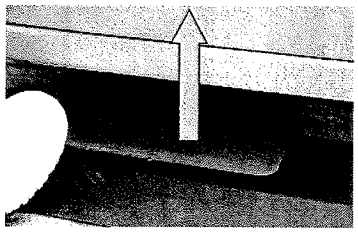
HOLD DOWN

SE **IF**

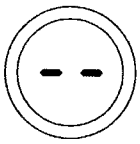


ALARM TABLE

TEST

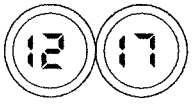


RELEASE

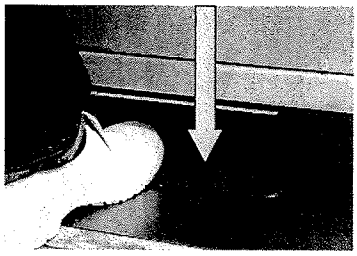


SE

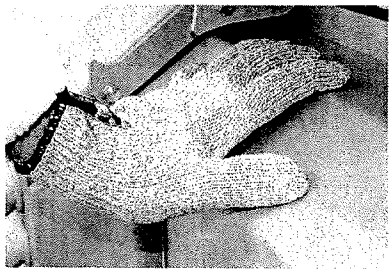
IF

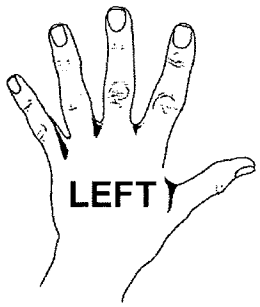


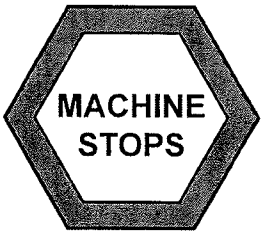
ALARM TABLE

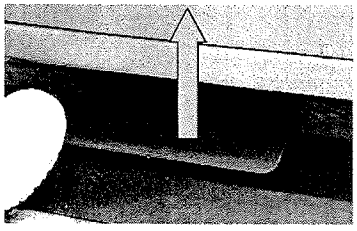


HOLD DOWN



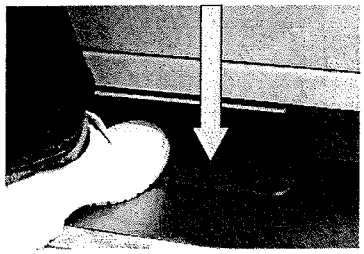




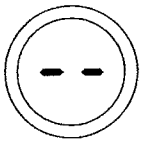


RELEASE

TEST

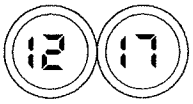


HOLD DOWN

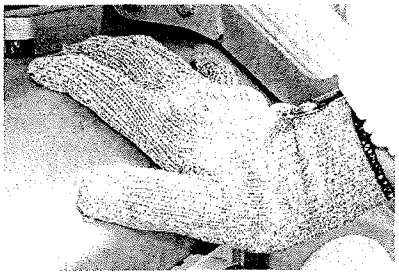


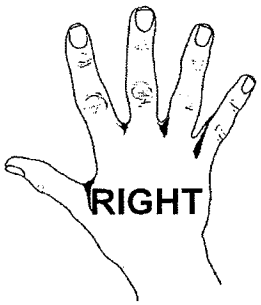
SE

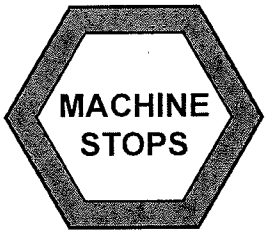
IF

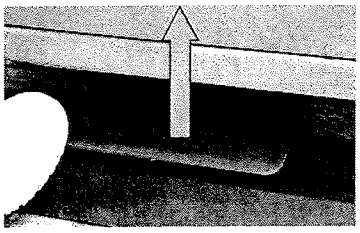


ALARM TABLE

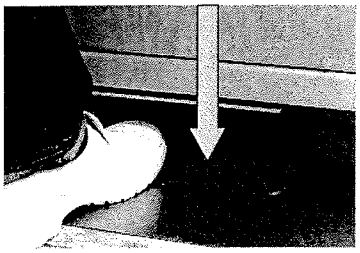






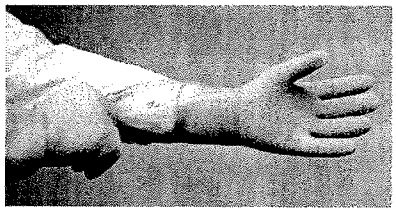


RELEASE



HOLD DOWN

TEST



SE
IF

5 6 14
17 18 40

ALARM TABLE

WORKING

SE
IF

5 15
17 30

ALARM TABLE

CONTATTO GUANTI-MACCHINA

GLOVE- MACHINE CONTACT

EE

ALARM TABLE

7.4 Starting the machine

- Wear the insulating gloves
- Actuate the isolator switch on the mains and insert the main switch (17) of the machine by turning them to the (1) (ON) position (see par. Commissioning).
- Press the START button
- Press the start pedal (10).

7.4.1 Starting the machine with CLO safety system (optional)

- Actuate the isolator switch on the mains and insert the main switch (17) of the machine by turning them to the (1) (ON) position (see par. Commissioning).
- Press the START button
- Press the start pedal (10)
- Put the insulating gloves on over the conductive gloves and begin regular work activities.

ALARM TABLE		
Display error code	**Causes**	**Corrective actions**
01	*The operator test was not completed in the maximum time available (2 minutes).*	**Operator:** - Switch the machine off and back on. Repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
05	*Operator not connected to the safety system*	**Operator:** - Check the electrical conduction state of the jacket and conductive gloves. - If the alarm persists, replace the components (jacket and gloves) individually. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
06	**Operator:** - Contact technical assistance and communicate the displayed alarm.	
07	*Operator test interrupted due to early pedal release before the end of the test.*	**Operator:** - Switch the machine off and back on. Repeat the test.
09	*Excessive dispersion of the stop signal.*	**Operator:** - Check that the machine is not in contact with metallic structures. If so, move it away from them. - Check for excessive wear of the operator's shoes. - If needed, replace the shoes with a new pair.
11	*Contactor alarm.*	**Specialised personnel**: - Check auxiliary contactor contacts. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
12	*Stop by contact not carried out during the test within time limit (30 sec).*	**Operator:** - Repeat the operator test making sure to perform the emergency test as indicated in this manual. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
14	*Emergency signal detection.*	**Operator:** - Check that the insulating gloves are intact - Switch the machine off and back on. Repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
15	*Conductive gloves worn in a manner not compliant with machine in process (gloves short circuit).*	**Operator:** - Wear the conductive gloves appropriately, repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
16	*Operator not detected correctly*	**Operator:** - Wear the conductive gloves appropriately, switch the machine off and back on and repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
17	*System program execution error.*	**Operator:** - Switch the machine off and back on and repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.

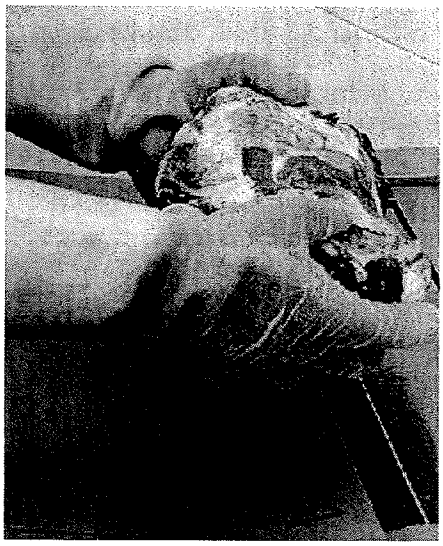
Display error code	Causes	Corrective actions
18	*Conductive gloves worn in a manner not compliant with machine stopped (gloves short circuit).*	**Operator:** - Wear the conductive gloves appropriately, switch the machine off and back on and repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
19	*Operator not detected correctly.*	**Operator:** - Check the electrical conduction state of the jacket and conductive gloves. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
30	*Maximum working time without interruption exceeded.*	**Operator:** - Release the pedal, press it again and start the process once again. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
40	*System calibration no longer valid*	**Operator:** - Press the emergency button, release it and repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.
80	**Operator:** - Switch the machine off and back on. Repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.	
81		
82		
83		
90		
91		
92		
93		
EE	*System in alarm during processing*	**Operator:** - During the process, the system detected a contact of the operator with the machine. If there was no contact between operator and machine, check the integrity of the electric conduction of the jacket and conductive gloves, press the pedal again and resume processing. - If necessary, switch the machine off and back on and repeat the test. - If the alarm persists, contact technical assistance and communicate the displayed alarm.

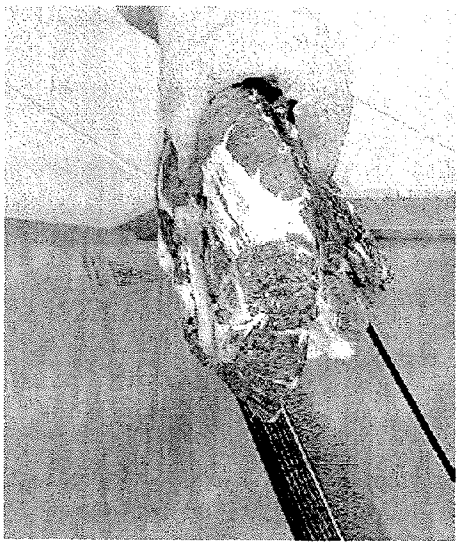
7.5 Processing cycle

- Proceeding from the top, approach the product to be processed to the blade holder unit, making sure that the membrane faces the operator.
- Let the toothed roller drag the product so as to bring about separation of the scrap from the part to be used.

The counteroller has the purpose of detaching the scrap from the toothed roller making it drop on the suitable conveyor and after that into the scrap container.

In the event of failed dragging never push the product towards the blade holder.
Never touch for any reason the cutting edge of the blade.
Processing is particularly dangerous therefore it is obligatory to have skilled personnel use it with the utmost caution.





Thickness adjustment

Check correct thickness of the removed membrane, after commissioning.
If this is not satisfactory, adjust the position of the blade (see par. Adjusting the blade)

- Blade more protruding membrane thicker.
- Blade less protruding membrane thinner.

7.6 Stopping the machine

To stop the machine release the pedal.

7.7 Stopping the machine at the end of processing

At the end of processing, disconnect the master switch (17) of the machine by turning it to position (0) (OFF), (see par. Commissioning).

With CLO Safety system (optional)

At the end of processing, wash and sanitise the insulating gloves.
Take off the insulating gloves, the protective white coat and then the CLO gloves and the CLO belt.

The CLO gloves and belt must not come into contact with the product being processed, observe the above procedure.

7.8 Stopping the machine in the event of an emergency

If for any reason it is necessary to suddenly stop the machine, press the red EMERGENCY button (13) on the side of the machine (see par. Commissioning).
If the product infeed table (1) or the rear board (3) are opened during processing, the machine immediately stops (see par. DESCRIPTION OF THE MACHINE).

7.9 Machine stop in case of contact with CLO safety system (optional)

In the event the glove make contact with any part of machine, the machine stops immediately.

If the machine does not stop, turn it off and immediately alert the foreman.

Never leave the machine connected when it is not attended.

7.10 Restarting the machine in the event of an electrical power failure.

In the event of an electrical power failure:
- Press the START button (18), (see par. Commissioning)
- Press the start pedal (10).

7.11 Restarting the machine in the event of an emergency

After clearing the cause that caused the emergency, to resume the work cycle release the EMERGENCY button (13), (see par. Commissioning) by pulling it until it is released.
Press the start button, the pedal and proceed to processing as usual.

7.12 Restarting the machine in the event of contact with CLO safety system (optional)

In case of interruption after contact with CLO safety system (optional), release the pedal of the machine and then press it again to resume processing.

8 MACHINE MAINTENANCE (SEE MAINTENANCE TABLES)

Before carrying out any machine maintenance operation, disconnect the power supply by pulling the plug or turning off the switch on the control board (0-OFF) upstream of the machine itself and disconnect the compressed air system (if applicable).
Always use the PPE in compliance with the regulations in force and especially cut-proof safety protective gloves and protective goggles.
In case of opening the electric boxes of the machine by authorized personnel, always check the correct closing of the covers and the integrity of the gaskets of the same.

SCHEDULED PERIODIC MAINTENANCE TABLE					
Purpose / machine part	**When**	**Person in charge**	**Instructions/methodologies**	**Notes**	**Date and signature of Manager maintenance**
Cleaning and disinfecting the machine	Each work shift/ daily	Operator	see par. 8.1.1 "Cleaning and disinfecting the machine"	Regulations of reference: DIN10516 "Food hygiene – cleaning and disinfection"	see table DAILY MAINTENANCE
Safety devices	Each work shift/ daily	Operator	Check the functionality of the Schmersal sensors - see par. 7.8 Daily test	-	see table DAILY MAINTENANCE
Blade clamping lever pin	After every machine washing and disinfection	Operator	Lubricate the blade clamping lever pin - see par. 8.1 Routine maintenance - point 3	Use lubricant code 19841ASSY or having the same features (suitable for lubricating food packaging machinery)	see table DAILY MAINTENANCE
CLO system insulated gloves (if any - optional)	Each work shift	Operator	Wash and sanitise the gloves	Regulations of reference: DIN10516 "Food hygiene – cleaning and disinfection"	see table DAILY MAINTENANCE
Insulated gloves and CLO system gloves (if any - optional)	Each work shift/ emergency stop	Operator	Make sure that the insulated gloves and the CLO system gloves are intact and check that, in contact with each other, they immediately stop the machine.	-	see table DAILY MAINTENANCE
CLO system connection cables (if any - optional)	Each work shift/ emergency stop	Operator	Check the integrity of the connection cables - see par. 8.1 Routine maintenance - point 6	-	see table DAILY MAINTENANCE
CLO system gloves and jacket (if any - optional)	Following contact with product being processed	Operator	Wash and sanitise the CLO system gloves and/ or jacket	Comply with the instructions in the manual to avoid damaging the system	
Drive chain	Every 6 months	Personnel specialised	Check that the chain is intact and grease it - see par. 8.1 Routine maintenance	Only use grease approved for the food industry for generic use NLGI 2	
Pinions	Every 6 months	Personnel specialised	Check that the pinions are not worn and, if necessary, replace them - see par. 8.1 Routine maintenance	-	
Toothroll bearings	Abnormal noise during operation	Personnel specialised	Replace the toothroll bearings - see par. 8.1 Routine maintenance	Attention: during the replacement, do not confuse the bushes of the toothroll with those of the counter-roller	
Counter-roller bearings	Abnormal noise during operation	Personnel specialised	Replace the toothroll bearings - see par. 8.1 Routine maintenance		

DAILY SCHEDULED MAINTENANCE TABLE				
Purpose / machine part	**Date of intervention**	**Instructions/methodologies**	**Notes**	**Date and signature of Manager maintenance**
Cleaning and disinfecting the machine		see par. 8.1.1 "Cleaning and disinfecting the machine"	Regulations of reference: DIN10516 "Food hygiene – cleaning and disinfection"	
Safety devices		Check the functionality of the Schmersal sensors - see par. 7.8 Daily test	-	
Blade clamping lever pin		Lubricate the blade clamping lever pin - see par. 8.1 Routine maintenance - point 3	Use lubricant code 19841ASSY or having the same features (suitable for lubricating food packaging machinery)	
CLO system insulated gloves (if any - optional)		Wash and sanitise the gloves	Regulations of reference: DIN10516 "Food hygiene – cleaning and disinfection"	
Insulated gloves and CLO system gloves (if any - optional)		Make sure that the insulated gloves and the CLO system gloves are intact and check that, in contact with each other, they immediately stop the machine.	-	
CLO system connection cables (if any - optional)		Check the integrity of the connection cables - see par. 8.1 Routine maintenance - point 6	-	

8.1 Cleaning and disinfecting the machine

Before cleaning or disinfecting the machine, disconnect the power supply by pulling the plug or turning off the switch on the main electrical panel (0-OFF) upstream of the machine itself and disconnect the compressed air system (if applicable).
Always use the PPE in compliance with the regulations in force and especially cut-proof safety protective gloves and protective goggles.

In any case use detergents specifically designed for cleaning and disinfecting machinery for the food industry and that are able to remove protein and fat residues. Carefully read the user instructions and safety directions provided by the manufacturer of the detergents used.
Do not insist with the water jet in the vicinity of gaskets to prevent water from penetrating into the internal parts of the machine.

Follow the indications in Standard DIN10516 "Food hygiene – Cleaning and disinfection" to clean and disinfect the machines.

Standard DIN10516 applies to cleaning and disinfection of the surfaces of premises, furniture, equipment and accessories in facilities operating in the food industry and is intended to provide guidance in selecting and executing adequate cleaning and disinfection.
It also provides the guidelines for planning, implementing cleaning and disinfection and on the checks to be carried out.

The cleaning method must comply with the standard requirements and must be chosen according to the relative ambient conditions and production process.
The standard distinguishes two methods of cleaning and disinfection, wet and dry.
The features of the RST membrane skinner and the type of processing for which it is used, require cleaning combined with wet type disinfection for removal of organic residues released by the treated product.

The wet cleaning methods depend on the interaction of 4 factors:
- Temperature
- Time
- Mechanical action
- Concentration and quantity of cleaning agent

The wet disinfection methods depend on the interaction of 5 factors:
- Temperature
- Time
- Mechanical action
- Concentration and quantity of disinfectant agent
- Type and number of micro-organisms

The procedures to be adopted for cleaning and disinfection are given in par. 4.2.1 table 3 of the standard DIN 10516 - Combined cleaning and disinfection procedure:
1) **Rough cleaning**, removing visible solid parts either mechanically or with potable water at a temperature between 40°C and 60°C. If using a pressure washer, set the pressure to a

moderate value to avoid creating a water and detergent aerosol and damage the external electrical parts and disperse dirt residues in the environment.

2) **Disinfection,** by using food-grade detergents, follow the application times and dilution directions in potable water as indicated by the manufacturer. The machine is completely made of stainless steel. For the type of product processed we recommend using detergents that can dissolve and fully remove proteins and fats at temperature not exceeding 60°C.
   Paragraph 5.1 - Table 4 of the standard DIN 10516 - Overview of active cleaning agent ingredients (non-exhaustive list) indicates the active ingredient of the type of detergent to be used and, in particular, the detergents that act on the organic and inorganic residues (acid-based detergent like citric acid or phosphoric acid diluted according to the manufacturer's instructions).
   Paragraph 5.2 Table 5 of standard DIN 10516 - Overview of active disinfection ingredients (non-exhaustive list) indicates the active ingredient of the type of disinfectant to be used and, in particular, the effective disinfectants for the removal of protein residues such as, for example, formic acid.
   The cleaning and disinfectant agents may be used in combination, following the manufacturer's instructions.

Strictly observe the instructions of the detergent-disinfectant manufacturer on dilution and time of application. Use the PPE required by the regulations in force such as goggles and gloves and comply with the manufacturer's safety recommendations.

3) **Rinsing** to be carried out accurately and with drinking water.
4) **Drying** to be carried out in case the machine is not used for some time, drying by air is recommended.

The solutions used for washing and disinfecting, must not be reused and must be disposed of according to the regulations in force.

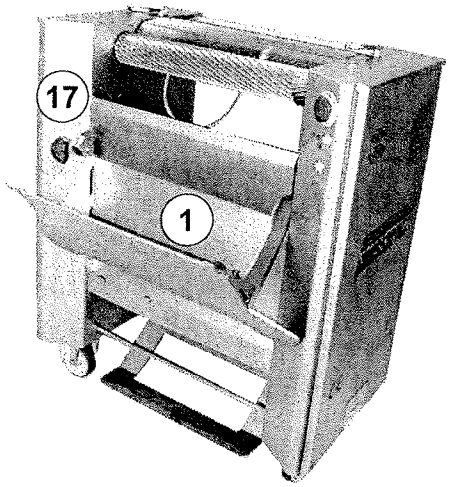
Standard DIN10516 “Food hygiene – Cleaning and disinfection” in chapter 6, recommends defining an accurate cleaning and disinfection plan of the premises and equipment, as illustrated in annex "A".
Include in the plan, the daily cleaning and disinfection of the membrane skinner, proceeding as indicated below to avoid overlooking the internal parts where processing residues may be deposited.

Keep monitoring the effectiveness of the washing, sanitising and rinsing operations, as prescribed by standard DIN10516 “Food hygiene – Cleaning and disinfection” in chapter 7, "Monitoring the effectiveness of cleaning and disinfection measures" and 8 "further checks".

Retraining is periodically prescribed for cleaning and sanitising personnel, as specified in standard DIN 10514.

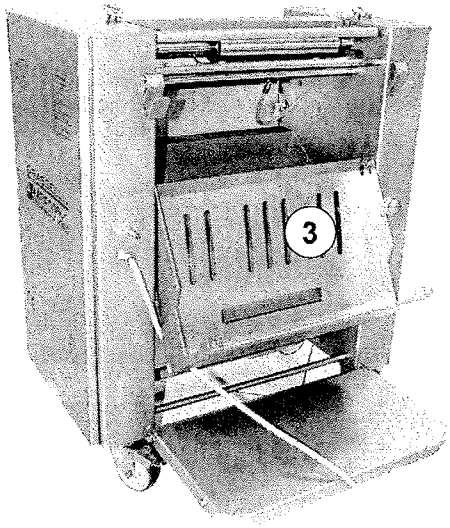
In order to perform daily cleaning and disinfection, the following procedure must be followed of preparation of the machine:

1) Disconnect the electrical connection and always turn the master switch (17) to position (0 - OFF).

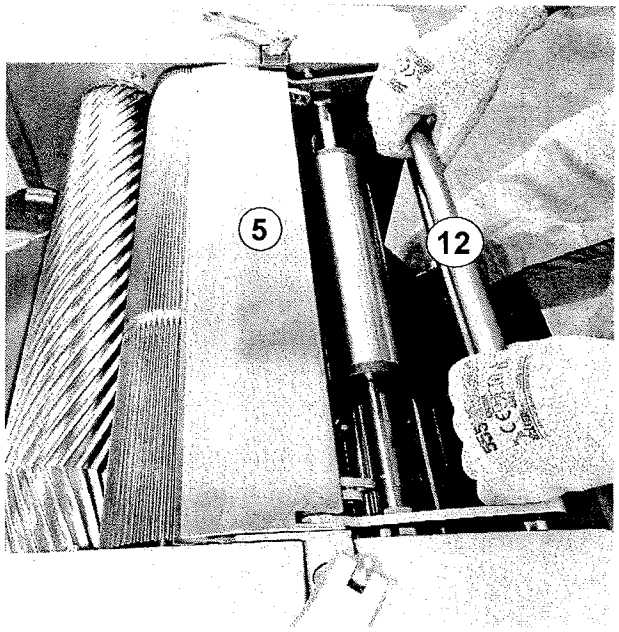


2) Open the product infeed table (1) by turning it outwards from the machine.

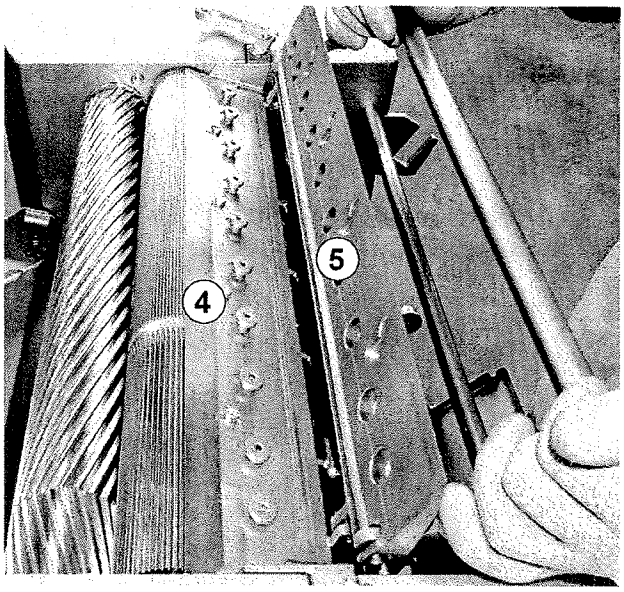
3) Open the rear board (3) by pulling it upwards and turning it outwards from the machine.

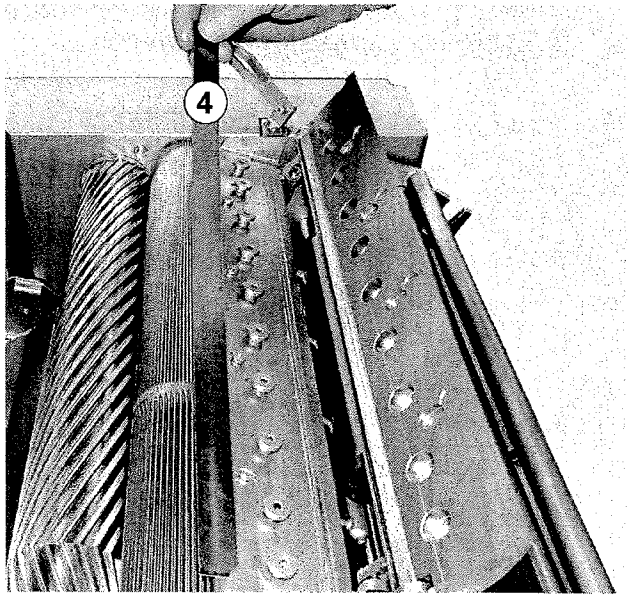


4) Open the quick blade clamp cover (5) by turning the clamping lever (12) upwards and then pushing it towards the machine, until the cover is released.

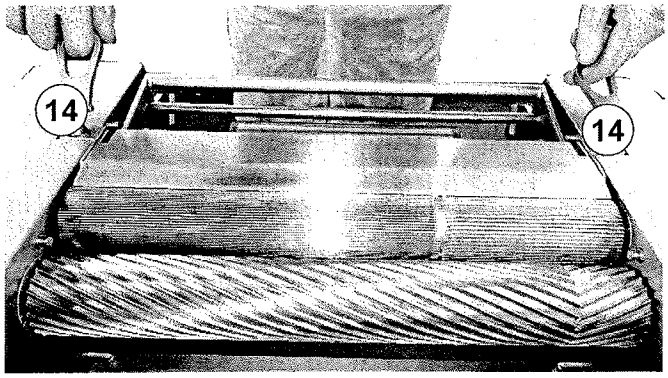


5) Open the quick blade clamp cover (5) and remove the blade (4) with caution. **Always use cut-proof gloves, during all operations.**

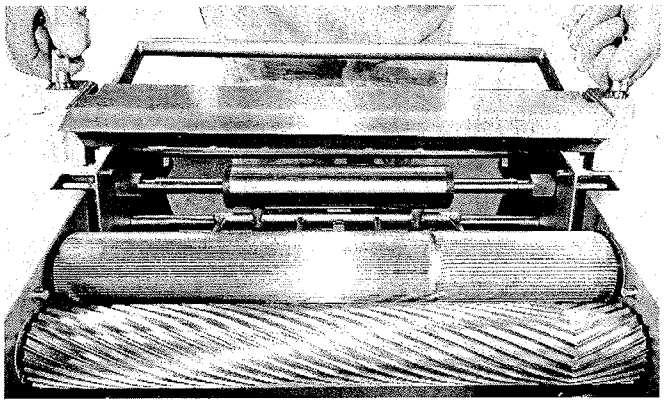




6) Undo the blade holder locking knob (14).

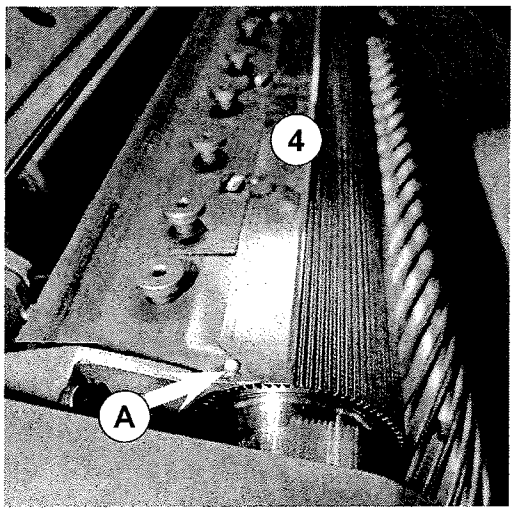


7) Close the cover of the blade holder unit, without locking it, and lower the lever to release and to be able to raise the entire unit for washing.



8) Lift up the blade holder and place it in a safe place for washing.

9) After having cleaned and disinfected the blade holder unit, reposition it and lock it by tightening down the knobs (14).

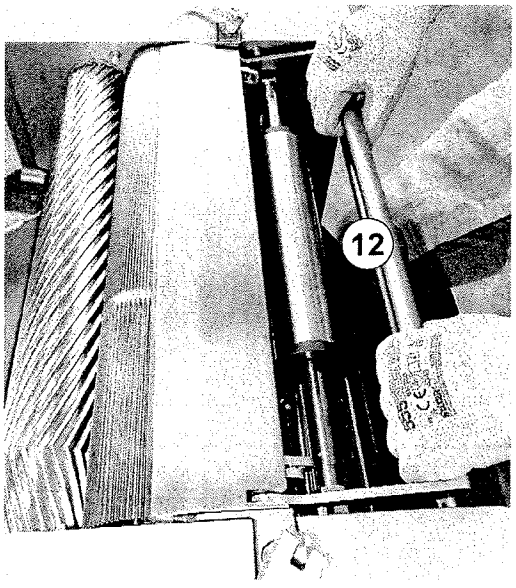


10) Open the blade holder cover and reposition the blade (4) removed previously. Pay attention to the exact positioning with the bevel in contact with the pin (A).

11) Close the blade holder cover and block it by lowering the locking lever (12).

12) Close the rear surface (3).

13) Close the product infeed table (1).



8.2 Washing and sanitization of CLO system accessories (optional)

To carry out the washing and sanitizing the CLO system accessories (insulating gloves, conductive gloves and belt), the following procedure must necessarily be followed:

1) Wash, disinfectant and the dry the insulating gloves.
2) Remove the insulating gloves
3) Remove the conductive gloves, taking care not to come into contact with foodstuff residue on the coat.
4) Take off the coat.

The gloves of the CLO system must always be protected by insulated gloves, taking the utmost care to avoid contact with processing residues.
Similarly, the CLO jacket must be worn under the white coat.

1) Wash the gloves of the CLO system
2) Wash the jacket of the CLO system

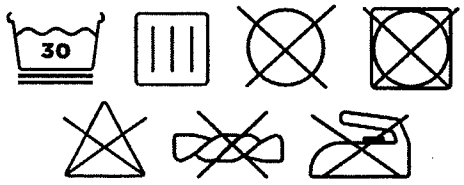
8.2.1 Conductive gloves use and maintenance

- Conductive gloves are not designed to be used in contact with foodstuff.
- Conductive gloves must only be worn during processing and with insulating gloves as a cover.
- Wear the insulating gloves outside the clothing to completely cover the conductive gloves.
- **Do not handle the product with the conductive gloves without having put on the protective insulating gloves.**

Washing and sterilisation

- Wash the conductive gloves, without wringing them, in cold water (max 30° C).
- Wash them using delicate detergents, **anionic surfactants,** without exceeding in the amount.
- Use a delicate wash cycle.
- After washing, hang them to dry or ventilate them at a maximum temperature of 30°C.
- If necessary, the conductive gloves can be sterilised with UV rays.

NO dry cleaning
NO bleach
NO ironing
NO hot drying
NO wringing
NO roller drying (e.g. washer-drier)
NO rubbing



8.3 Sensor functionality check and daily test (see par. Description of the machine and par. Commissioning)

1) Release the start pedal (10)
   The machine must stop.
2) Rotate main switch (17) to position (0)
   The machine must stop.
3) Open the product supporting table (1)
   The machine must stop and the indicator light (21) turns on red.
4) Press the emergency button (**13**)
   The machine must stop and the indicator light (21) turns on red.

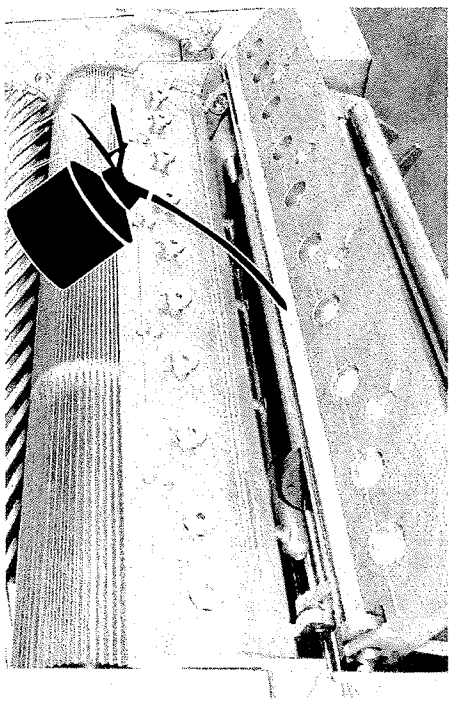
8.4 Functionality check of CLO safety system (optional)

- Check for electric continuity between the plug and the relative hook of the belt glove or of the strap with a tester.
- During the check, move the cable to make sure that the cable is intact even during operator movements; any repairs of the jacket cable or of the strap must be insulated from the outside environment.
- Check the operator's shoes and replace them in case of holes, excessive wear or in the event they are visibly permeated with water or grease.
- Check that the insulating gloves are intact and not cut, perforated or torn.
- Check that the conductive gloves stop the machine immediately with all your fingertips.
- Should the electric boxes be opened, always make sure the covers are closed correctly and that their sealing gaskets are intact.

8.5 Lubrication

8.5.1 Lubrication of the blade clamping lever pin

Lubricate the blade clamping lever pin (code 32266T1) after every washing. Use exclusively lubricants suitable for contact with foodstuffs or the lubricant supplied with the machine (code 19841ASSY) .



It is strictly forbidden to use lubricants not approved by the food industry.

9 STORAGE

The machine must be kept in an environment protected against direct sunlight, excessive heat or humidity and at a temperature ranging from -15°C to +45°C.

10 DECOMMISSIONING THE MACHINE

The machine is made entirely of stainless steel, except for some parts made of plastic material, rubber, electric control panel, motor and relative transmission gears.
At the end of the machine life cycle, one must follow the correct decommissioning and disposal procedure.

The machine decommissioning procedure must be carried out by specialised personnel equipped with the special PPE required by the regulations in force.

1) Disconnect the electric power supply by pulling the plug or disabling the main switch on the electric control panel, as well as the pneumatic power supply by disconnecting the compressed air supply.
2) Disassemble the various parts and dispose of them separately in compliance with the regulations in force.

11 PROBLEMS AND SOLUTIONS		
PROBLEM	**CAUSE**	**SOLUTION**
The machine does not turn on - indicator (21 - see par. 7.1 Functions and signals) off.	Incorrect power supply connection	**Specialised personnel:** Check the connections and, if necessary, restore them
	Master switch in position 0 (OFF)	**Operator:** Place the master switch in position I (ON)
Pressing the ON button (18 - see par 7.1 Functions and signals), the indicator (21 - section 7.1 Functions and signals) does not turn green and the cycle does not start.	Emergency button pressed (13 - see par. 7.1 Functions and signals)	**Operator:** After eliminating the causes, disconnect the emergency button by pulling it.
	Front table (1) or rear table (3) are open or not closed perfectly (see par. 4 DESCRIPTION OF THE MACHINE)	**Operator:** Close the table correctly
	Sensor (21) or (22) are not in position correctly or fault (see par. 4 DESCRIPTION OF THE MACHINE)	**Specialised personnel:** Check the position and the functionality of the sensors and, if necessary, replace them.
	Safety unit in alarm	**Operator:** Switch off and switch on the machine (turn OFF and turn ON the master switch) and after press the ON button
		Specialised personnel: Check the safety unit placed inside the control panel and, if necessary, replace them (see MANUAL RESERVED FOR TECHNICAL SUPPORT OR EXPRESSLY AUTHORISED PERSONNEL)
	Circuit breaker switch placed inside the electric control panel, disconnected	**Specialised personnel:** Check and, if necessary, restore it (see MANUAL RESERVED FOR TECHNICAL SUPPORT OR EXPRESSLY AUTHORISED PERSONNEL)
When the start pedal is pressed, the cycle does not start - warning light (21 - see par. 7.1 Functions and signals) on red.	START button not pressed	**Operator:** Press START button
	Circuit breaker switch placed inside the electric control panel, disconnected	**Specialised personnel:** Check and, if necessary, restore it
	Emergency button pressed	**Operator:** After eliminating the causes, disconnect the emergency button by pulling it.
	Schmersal sensors trip	**Operator:** Check that the product infeed table and the rear board are properly closed (see par. 4.2 Sensors) **Specialised personnel:** Check the functionality of the sensors and, if necessary, replace them.

PROBLEM	CAUSE	SOLUTION
The machine does not work correctly	The toothroll rotates in reverse direction	**Specialised personnel:** Feeding reversed, invert the phases.
	Worn blade	**Operator:** Replace the blade
	Blade in incorrect position	**Operator:** Check and reposition the blade correctly
	Toothroll damaged	**Operator:** Check: - that the blade-holder unit is not damaged - that the shaft bearings are not damaged - threaded bushes worn) Replace the shaft.
	Product unsuitable for processing (cut badly, frozen, dry)	**Operator:** Replace with suitable product
	Blade holder incorrectly secured	**Operator:** Check and fix the blade-holder unit correctly.
Membrane not perfectly skinned	Incorrect setting between blade holder unit and toothroll	**Operator:** Check (see par. 8.2-8.3-8.4)
Excessive thickness removed	Blade mounted upside down	**Operator:** Check and assemble the blade correctly
	Blade assembled outside the blade-holder seat	**Operator:** Check and assemble the blade correctly
	Adjustment of distance between toothed shaft and blade-holder too long	**Specialised personnel:** Check and adjust (see par. 8.2-8.3-8.4)
	Compressed air missing or pressure insufficient	**Operator:** Check the compressed air connection and that pressure is at least 6 bar. **Specialised personnel:** Check and adjust the inlet compressed air pressure (6-7 bar). Check operation of the circuit and the integrity of the pneumatic tubes.
Toothroll and counter-roller with product residue.	Cleaning system fault (see par. 8.5)	**Operator:** Check the compressed air connection and that pressure is at least 6 bar. **Specialised personnel:** Check and adjust the inlet compressed air pressure (6-7 bar). Check operation of the circuit and the integrity of the pneumatic tubes. Check that pressure regulator of the cleaning system is adjusted at 3 bar

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SECTION
RESERVED FOR TECHNICAL ASSISTANCE OR SPECIALISED PERSONNEL

MEMBRANE SKINNER

MS520PM

CLO SAFETY SYSTEM (OPTIONAL)

This section describes the operations on the machine that, for issues relating to safety, do not fall within standard maintenance operations.

Only Grasselli S.p.A. Technical Assistance staff or staff expressly trained by Grasselli is authorised to carry out the operations described below.
Before performing any operation on the machine, disconnect the power supply by pulling the plug or turning off the switch on the main electrical panel (0-OFF) upstream of the machine itself and disconnect the compressed air system (if applicable).
Always use the PPE in compliance with the regulations in force.

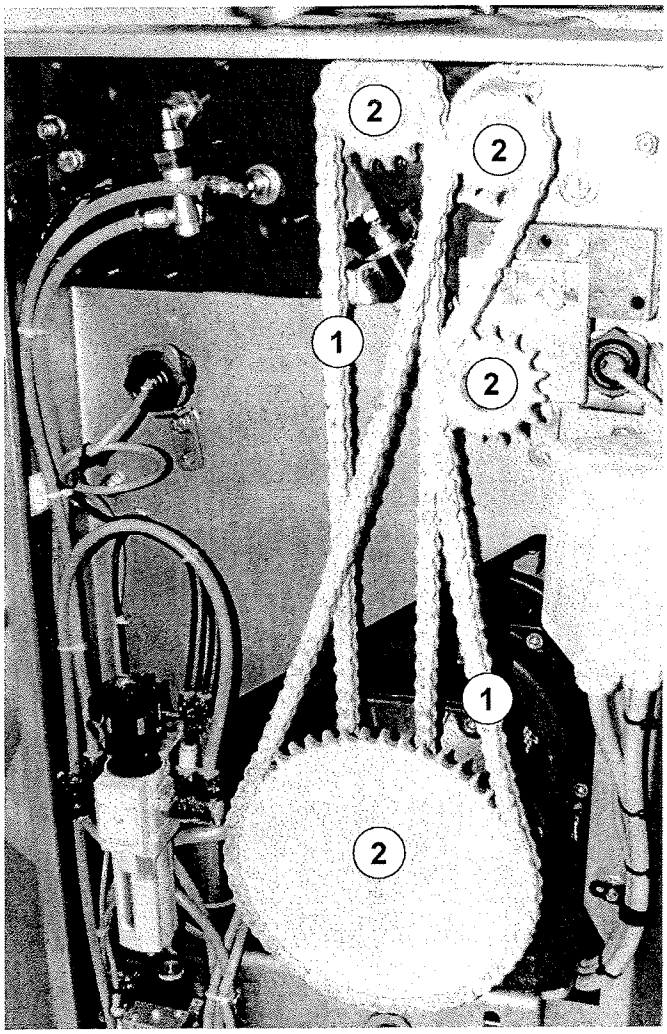
13.1 Checking mechanical drive components

Check the accessible mechanical drive components by opening the left side guard.

1) Check that the chains (1) are intact and grease them with grease approved for the food industry for generic use NLGI 2.

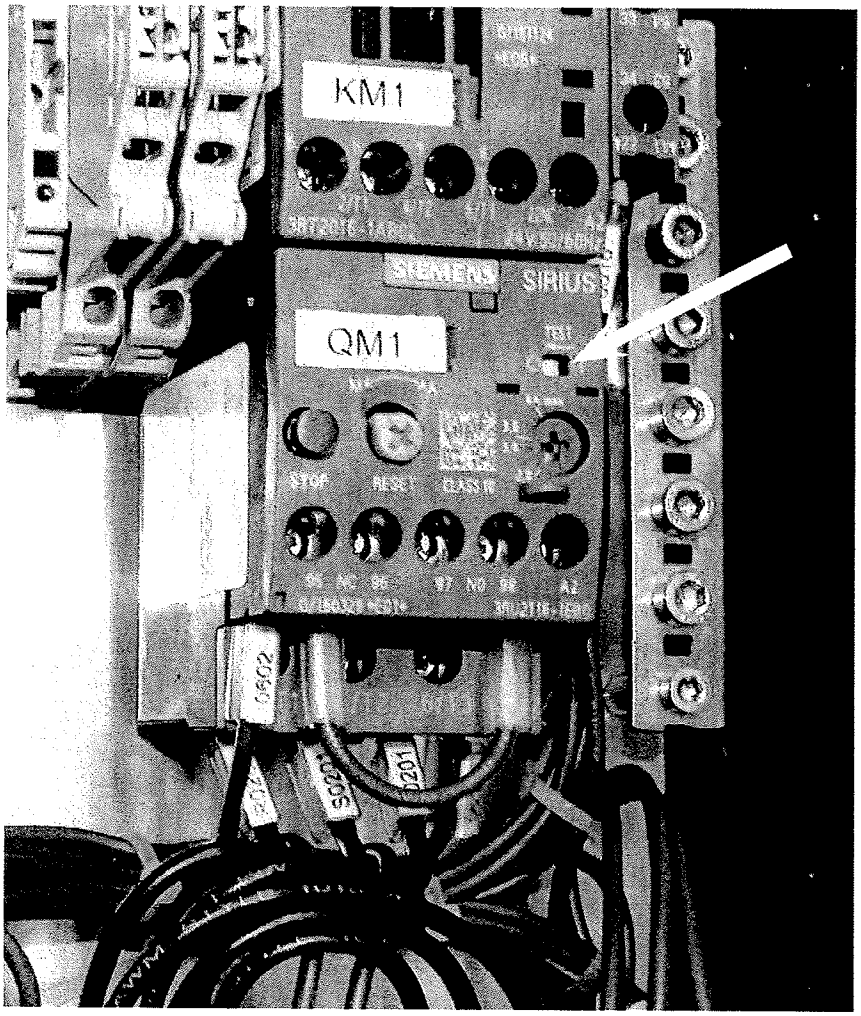
2) Check that the pinions (2) are not worn and, if necessary, replace them.

3) If during operation the machine makes abnormal noise, after carrying out the checks and operations in points 1 and 2, check that the bearings are intact and, if necessary, replace them. (See also par. Adjusting the blade and Adjusting the blade clamp cover tightening lever)



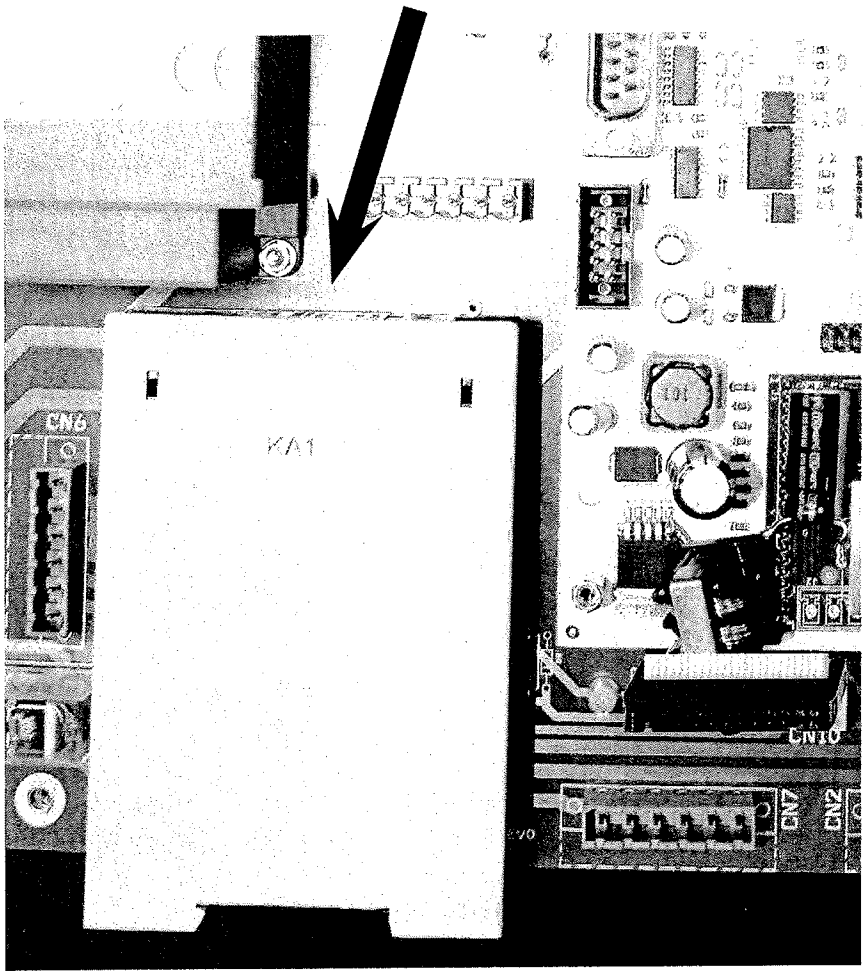
13.2 Reset circuit breaker switch (QM1)

1) Check the TEST window , on the circuit breaker switch (QM1), which must be white, and otherwise, reset by pressing the RESET button.
2) If it is not possible to reset, replace the magnetothermic switch (see SPARE PARTS MANUAL par. Electric panel).



13.3 Safety unit

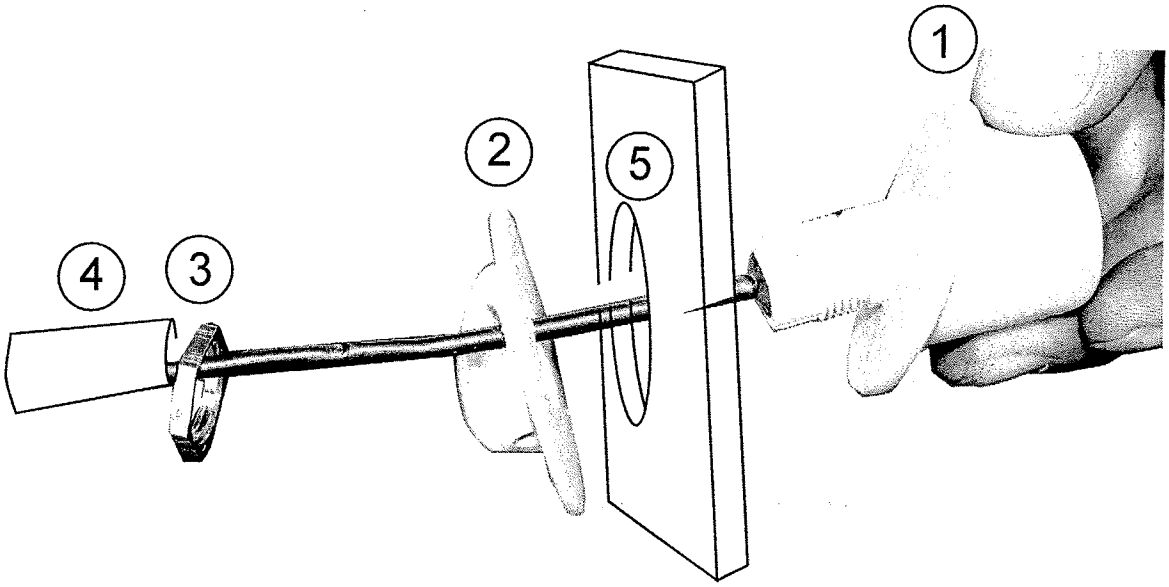
The safety unit (KA1) is placed inside the electric control panel.
A led on the control unit displays the status



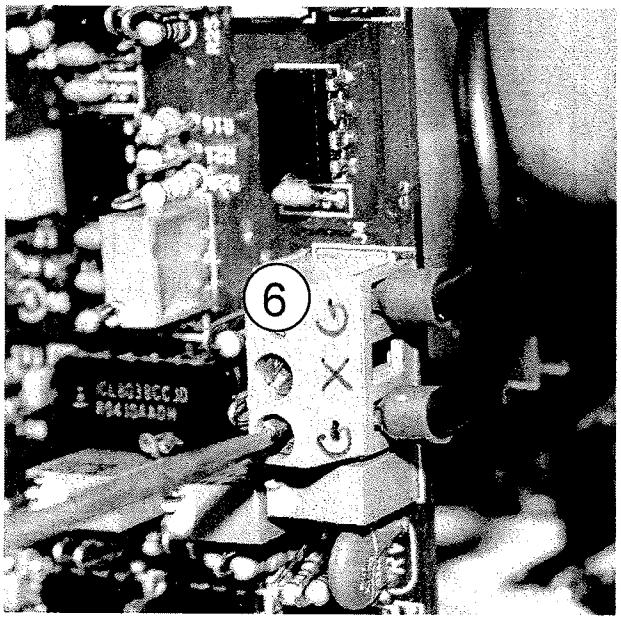
flashing color	status	action
green	ready machine	-
yellow irregular blinking	front table (1) or rear table(3) are open	close the tables
	sensor are not in position correctly or fault	check the position and the functionality of the sensor and, if necessary, replace them.
yellow regular blinking	machine on stand by	press the ON button (18) on the control panel
red irregular blinking	front table (1) or rear table(3) are not closed correctly	open the table and close again
	sensor are not in position correctly or fault	check the position and the functionality of the sensor and, if necessary, replace them.

13.4 Replacement of CLO insulated sockets (optional)

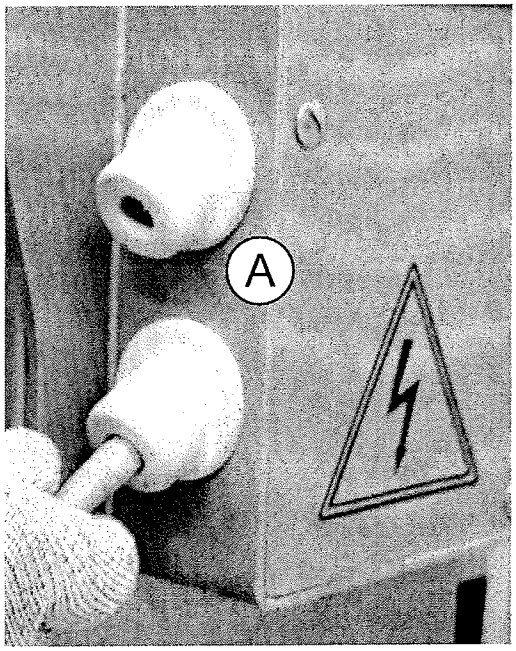
The CLO insulated socket spare part (see SPARE PARTS MANUAL par. Electric panel with CLO safety system (optional)) is made up of the socket (1) to which the cable is attached, the socket frame (2), the fastening nut (3) and the insulating sheath (4) (if present).



To replace them, proceed as follows:
1) Open the machine side guard.
2) Open the electric system box where the CLO system is connected.
3) Disconnect the cable of the socket to replace from the CLO system connection terminal (6).
4) Unscrew the fastening nut located behind the socket.
5) Disassemble the socket to replace

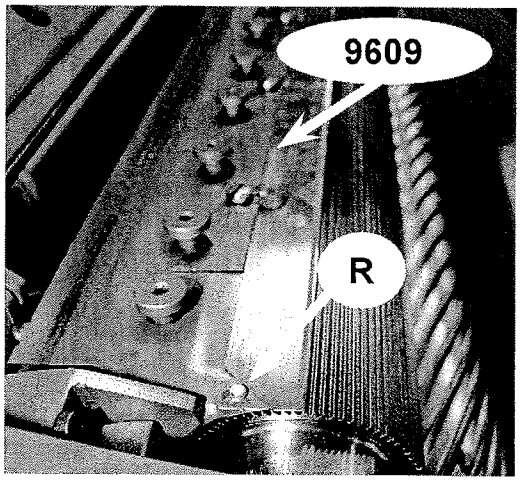


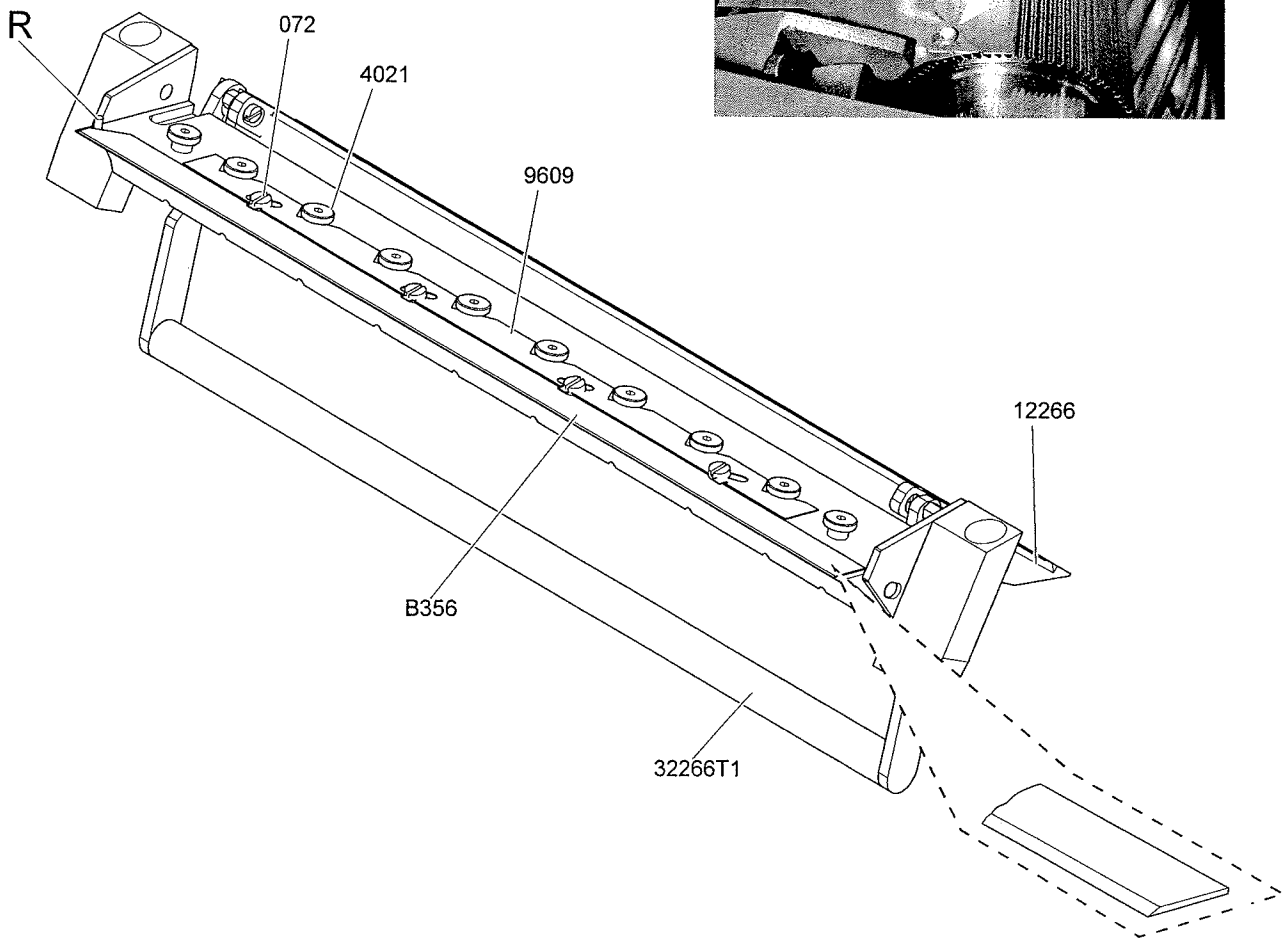
6) Assemble the new socket (1), threading the cable through the special hole on the frame (5).
7) Thread the cable through the socket frame (2).
8) Thread the cable through the fastening nut (3).
9) Thread the cable through the insulating sheath (4) (if present).
10) Secure the socket to the frame (5) by thoroughly tightening the nut (3). Attention: assemble the socket facing downwards to prevent water and humidity from accumulating inside it.
11) Connect the cable of the new socket to the terminal (6).
12) Carefully close the electric box to prevent humidity from penetrating.
13) Close the side guard on the machine frame.



13.5 Replacing the blade

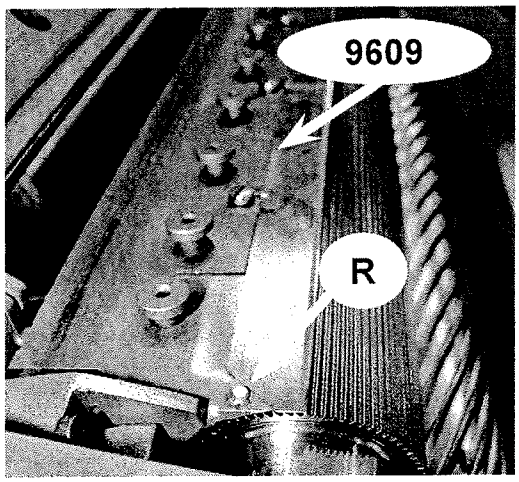
1) Open the product infeed and outfeed tables (see par. Description of the machine).
2) Open the blade clamp cover (12266) pulling the lever (32266T1) upwards in the upright position, move the blade clamp cover towards the toothed shaft and then lift it.
3) Wearing anti-cut gloves, remove the worn blade (B356) and replace it with a new one.
4) Check that the entire length of the blade rests perfectly on the pin (R) and on the edge of the register sheet metal (9609). Ensure mounting is performed correctly, that is, the plane of the blade with the bevel facing upward and the blunt edge resting on the register sheet metal (9609).
5) Set the blade clamp cover (12266) on the blade holder with the lever (32266T1) in the upright position and pull it towards the cleaning cylinder. Check that the blade (B356) is in place and tighten it all by lowering the lever (32266T1).

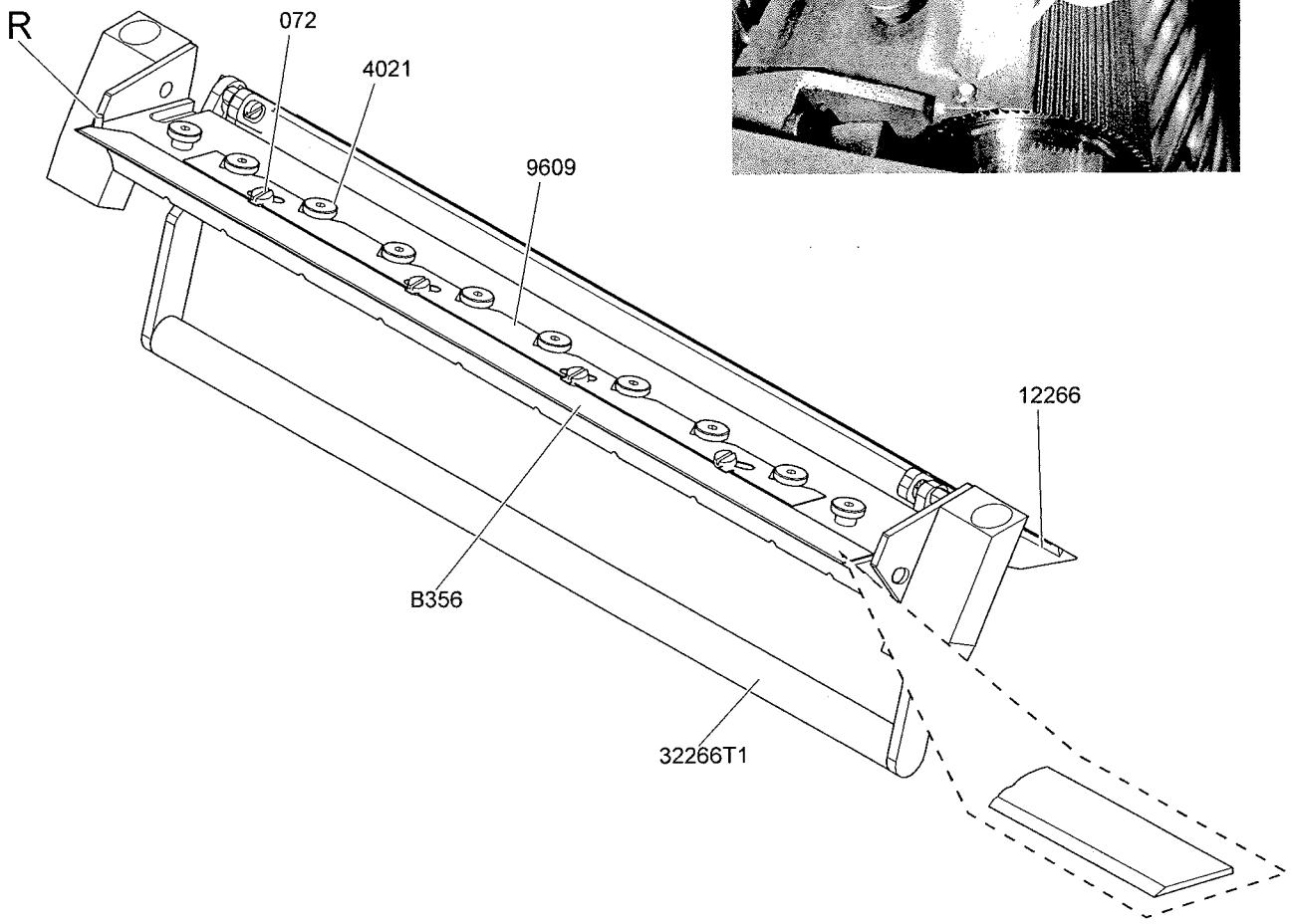




13.6 Adjusting the blade

1) Open the blade clamp cover (12266) pulling the lever (32266T1) upwards in the upright position, move the blade clamp cover towards the toothed roller and then lift it.
2) Once the blade clamp cover is open (12266) slacken off the bolts (072) securing the register sheet metal (9609).
3) Move the sheet metal (9609) towards the toothed shaft to increase removal or move it back to decrease the removed thickness.
4) Tighten the screws (072) securing the register sheet metal (9609).
5) Check that the entire length of the blade rests perfectly on the pin (R) and on the edge of the register sheet metal (9609). Ensure mounting is performed correctly, that is, the plane of the blade with the bevel facing upward and the blunt edge resting on the holder (9609).
6) Set the blade clamp cover (12266) on the blade holder with the lever (32266T1) in the upright position and pull it towards the cleaning cylinder. Check that the blade (B356) is in place and tighten it all by lowering the lever (32266T1).



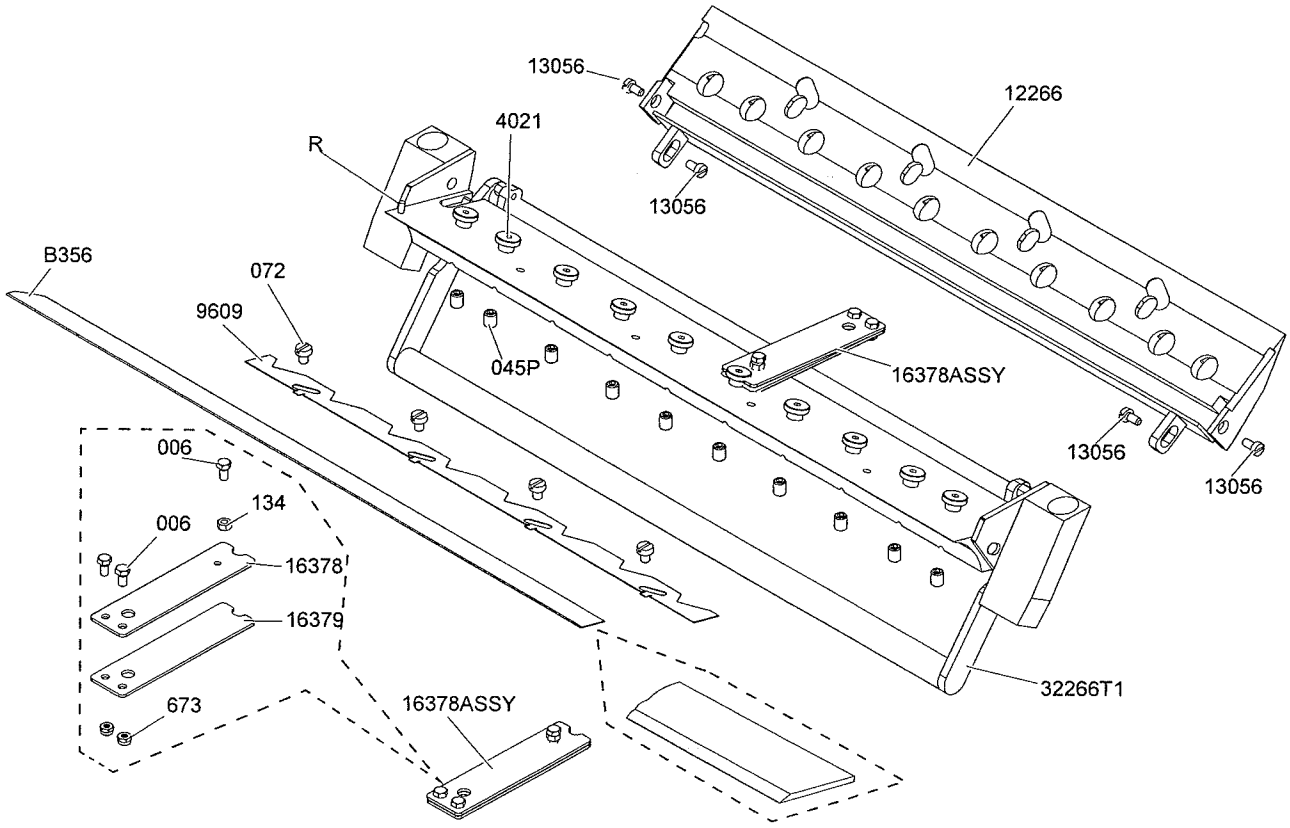


13.7 Adjusting the blade clamp cover tightening lever

The precise adjustment is obtained when the tightening lever (32266T1) opposes certain resistance to the manual movement.
If the lever opposes excessive resistance, the blade holder is damaged by friction during the processing.
If the lever opposes little resistance, the blade holder is likely to open up during the processing.
The correct torque of the blade through the tightening lever is determined by the position of the pins (4021).
When replacing one or more pins (4021), adjust their position as follows so that they are all the same:

1) Loosen the grub screw (045P) which blocks the pin (4021).
2) Tighten the new pin (4021) on the blade holder.
3) Measure the working position of one of the existing pins, inserting the adjustment tool (16378ASSY) under the head of the pin as shown in the figure and by actuating the screw (006), tightening or loosening it to adjust the opening of the tool according to the height of the pin.
4) Remove the adjustment tool (16378ASSY) and place it below the pin that has just been fitted.
5) Tighten the pin until it reaches the height indicated by the adjustment tool (16378ASSY).
6) Remove the adjustment tool (16378ASSY) and lock the pin (4021) with the grub screw (045P).
7) Insert the adjustment tool again (16378ASSY) ot check that the height of the pin (4021) is correct even after tightening the grub screw (045P). Otherwise, actuate the pin again (4021) for it to reach the correct position.

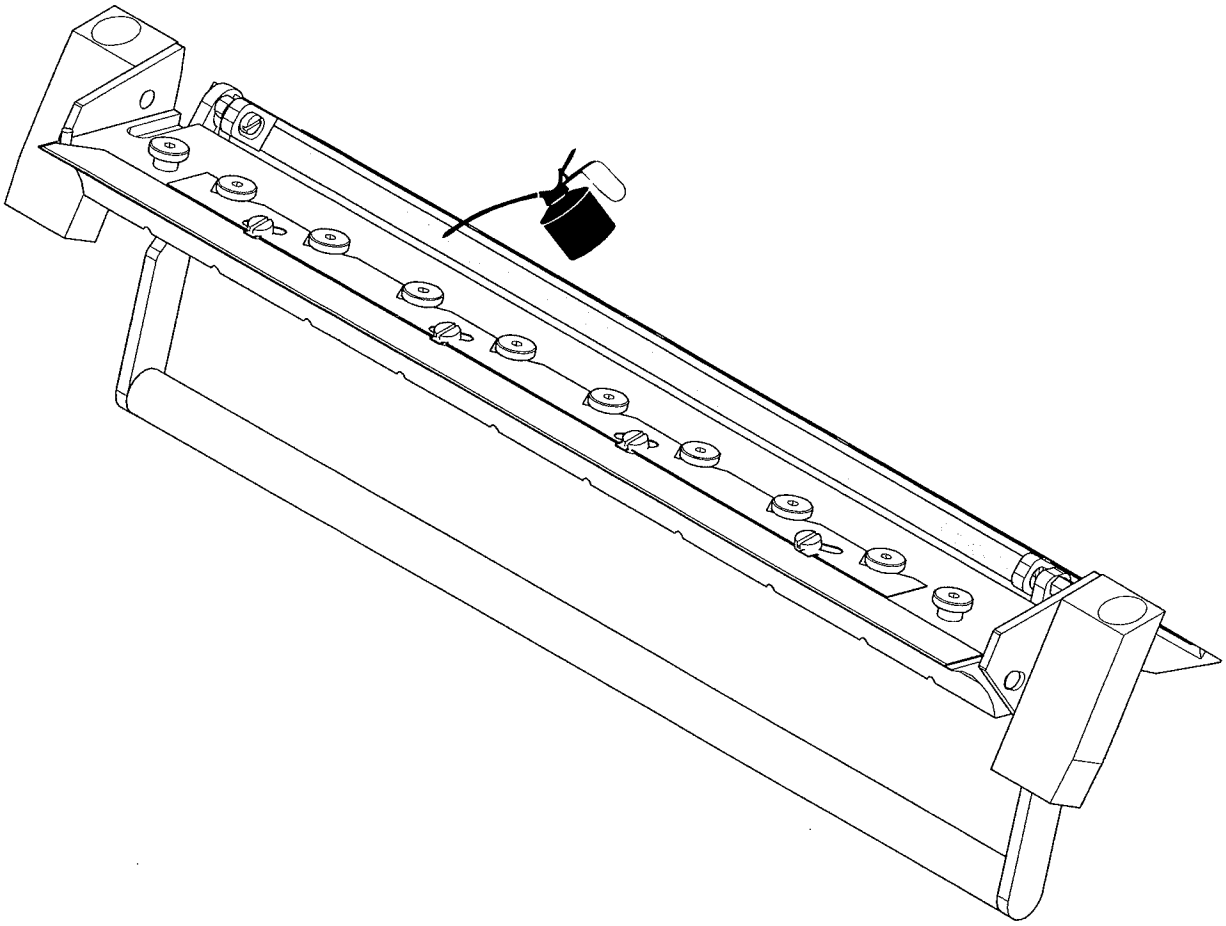
The entire length of the blade must be clamped evenly.



Attention: use only 0.7 mm thick blades.

Never touch the cutting edge of the blade for any reason whatsoever.

Attention: keep the pin of the tightening bar lubricated with food lubricant



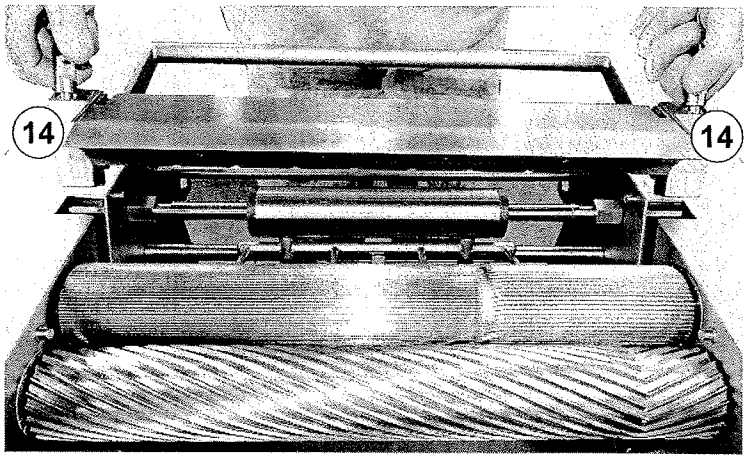
13.8 Replacing and adjusting the blade holder unit

1) Open the product infeed and outfeed tables (see par.Description of the machine).

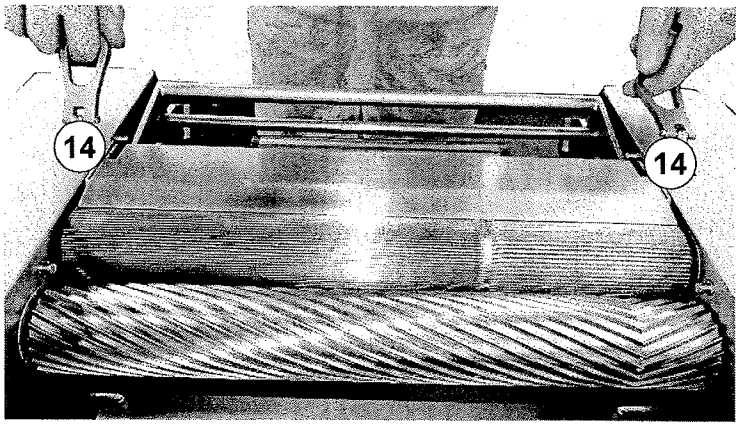
Always use cut-proof gloves, during all operations.

2) Open the quick blade clamp cover, remove the blade with caution and close the cover again (see par. Cleaning and disinfecting the machine).

3) Unscrew the blade holder unit locking knobs (14) and remove it by lifting it.



4) Mount the new blade holder unit and tighten the locking knobs again (14).



5) Open the cover to the blade clamp cover and install a new blade, paying attention to the exact positioning (see par. Replacing the blade and the subsequent ones).

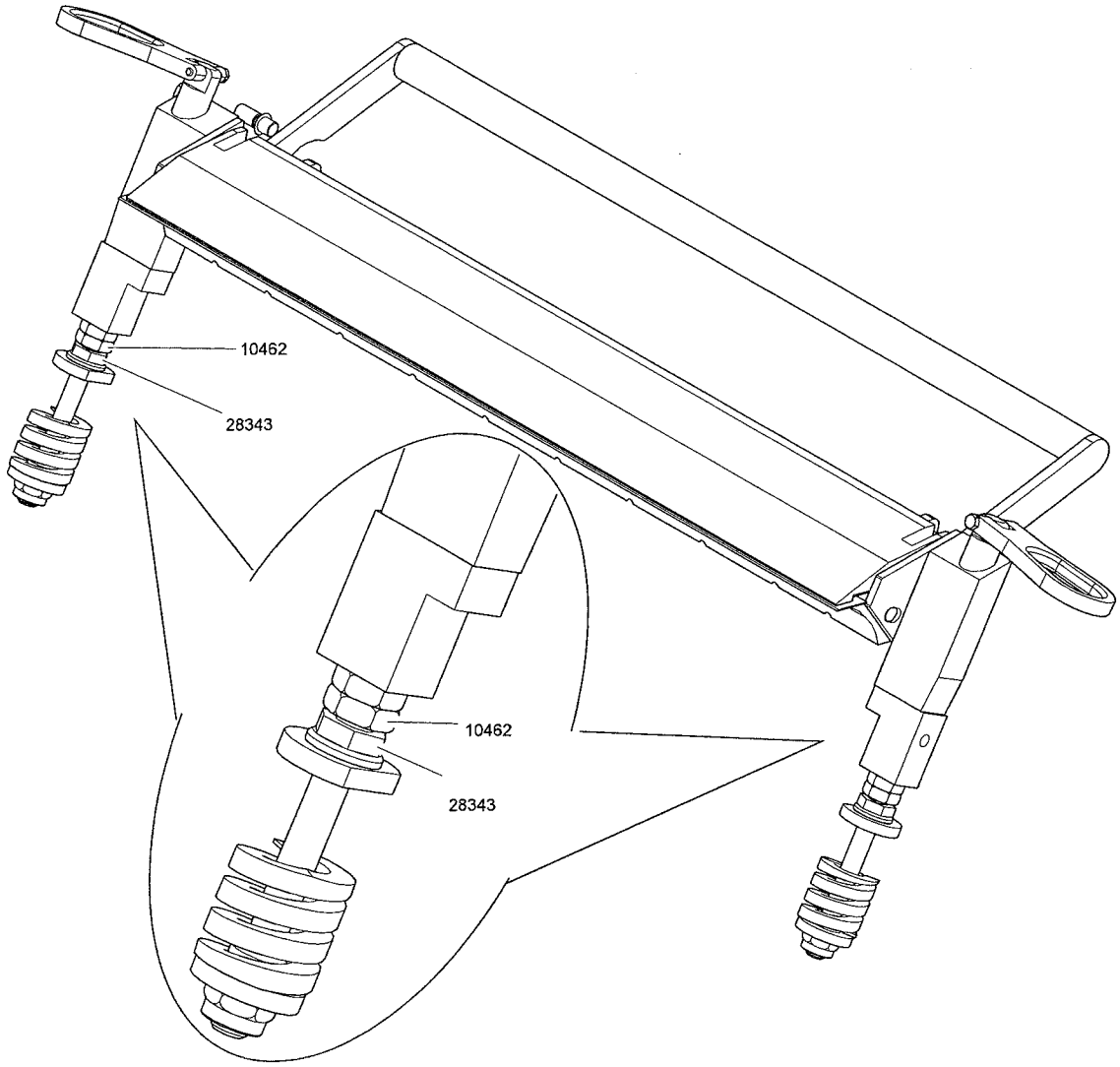
6) Close the blade holder unit cover and block it by lowering the locking lever.

7) Adjust the height of the blade holder unit by screwing or unscrewing the nut (10462) and the locknut (28343).

8) Check the setting of the blade holder unit that must be adjusted so that the knife touches the toothed shaft evenly along the entire length.

9) Perform the same adjustment on both sides.

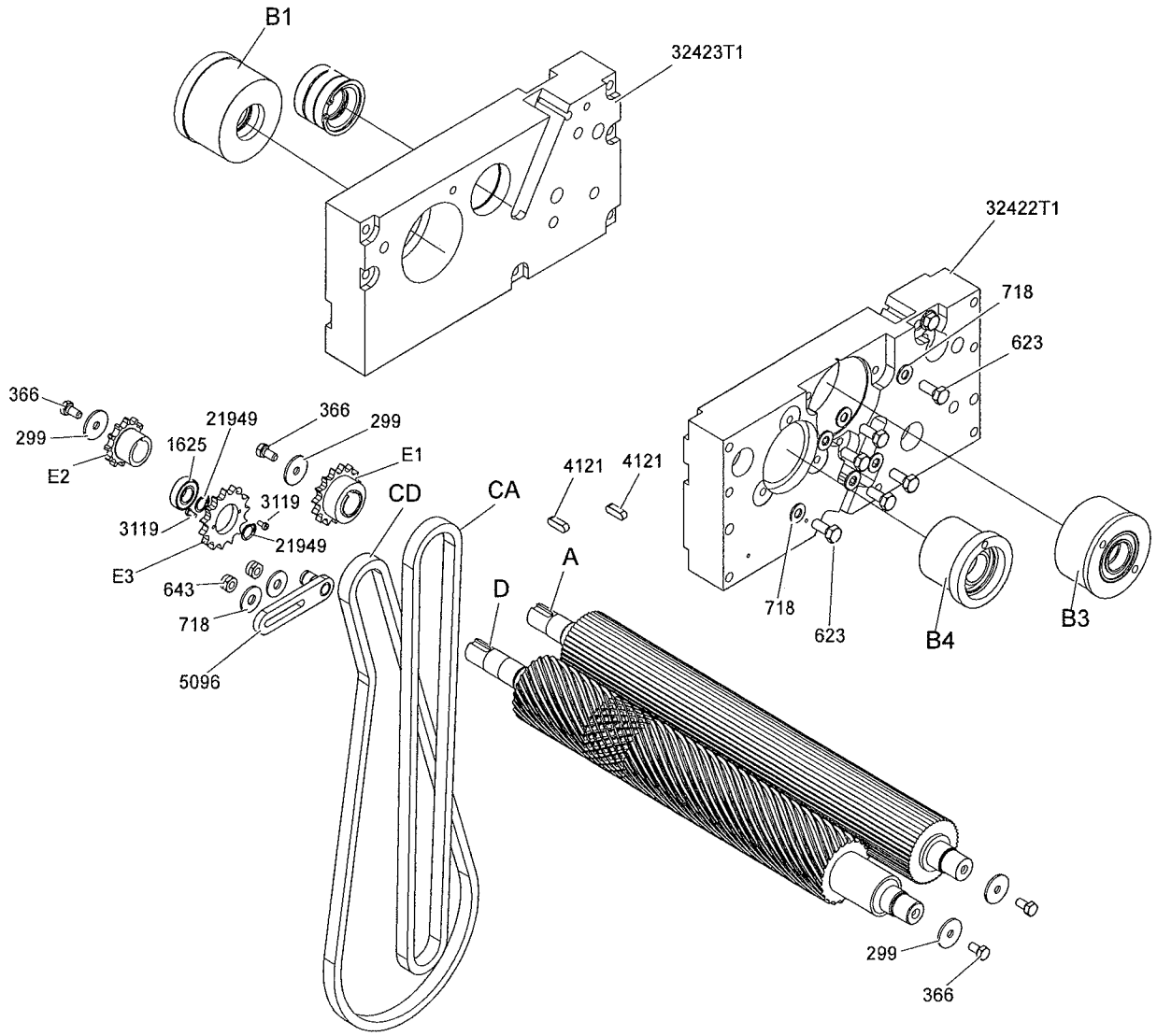
Check that the blade has the same adjustment along its entire length.



13.9 Replacing the toothed shaft (A)

Before removing and replacing components, take note of the position of each, possibly marking them.

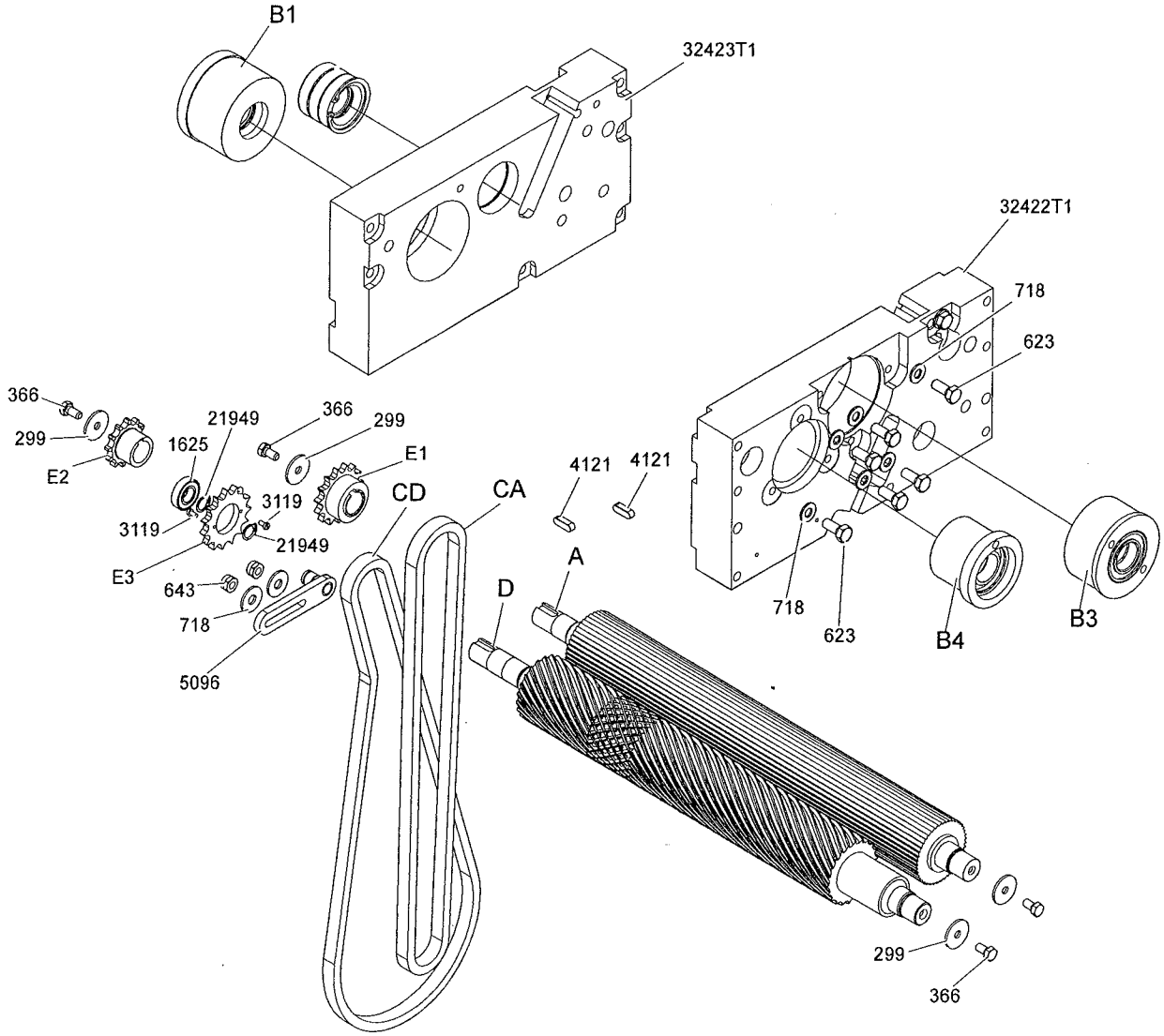
1) Open the product infeed and outfeed tables (see par. Description of the machine).
2) Remove the blade holder unit (see par. Replacing and adjusting the blade holder unit)
3) Open the left and right side guards (see par. Description of the machine).
4) Open the drive chains (CD-CA).
5) Remove the pinion (E1) and key (4121).
6) Undo the bolts securing the bushes (B3).
7) Remove the bush (B3) from the base using the impact puller.
8) Remove the toothed shaft (A) from the machine using the impact puller.
9) Replace the toothed shaft (A) and reassemble the unit proceeding as described above in the opposite order. TAKE PARTICULAR CARE when greasing the bearings with specific grease (food-grade 2 bearing grease).
10) Adjust the position of the blade holder unit as described in the "Replacing and adjusting the blade holder unit" paragraph.
11) Adjust the distance between the toothed shaft and the counter roller (see par. Adjusting the distance between the toothed shaft and the counter roller)



13.10 Replacing the counter roller (D)

Before removing and replacing components, take note of the position of each, possibly marking them.

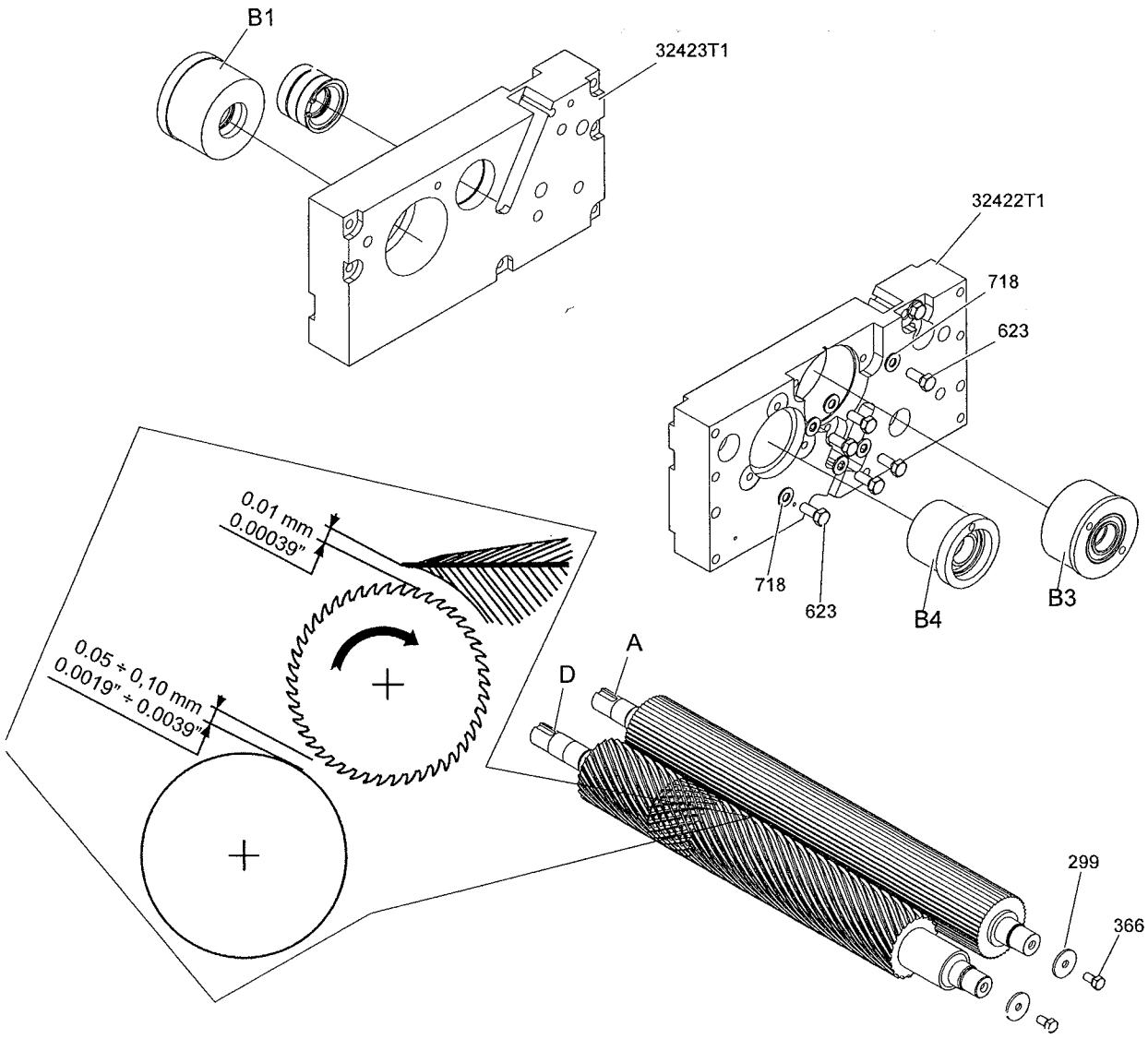
1) Open the product infeed and outfeed tables (see par. Description of the machine).
2) Remove the blade holder unit (see par. Replacing and adjusting the blade holder unit)
3) Open the left and right side guards (see par. Description of the machine).
4) Open the drive chains (CD-CA).
5) Remove the pinion (E2), the key (4121) and the sprocket below (E3) marking its position.
6) Mark the position of the bushes (B1-B4)
7) Loosen the screws that secure the bushes.
8) Remove the bushes from the base using an impact puller.
9) Remove the counter roller (D) from the machine by removing it the bush seat (B1).
10) Replace the counter-roll (D) and reassemble the unit proceeding as described above in the opposite order. TAKE PARTICULAR CARE in greasing the bearings with specific grease (food-grade 2 bearing grease).
11) Adjust the position of the blade holder unit as described in the "Replacing and adjusting the blade holder unit" paragraph.
12) Adjust the distance between the toothed shaft and the counter roller (see par. Adjusting the distance between the toothed shaft and the counter roller) starting from the previously marked position (see point 6).



13.11 Adjusting the distance between the toothed shaft and the counter roller

Before removing and replacing components, take note of the position of each, possibly marking them.

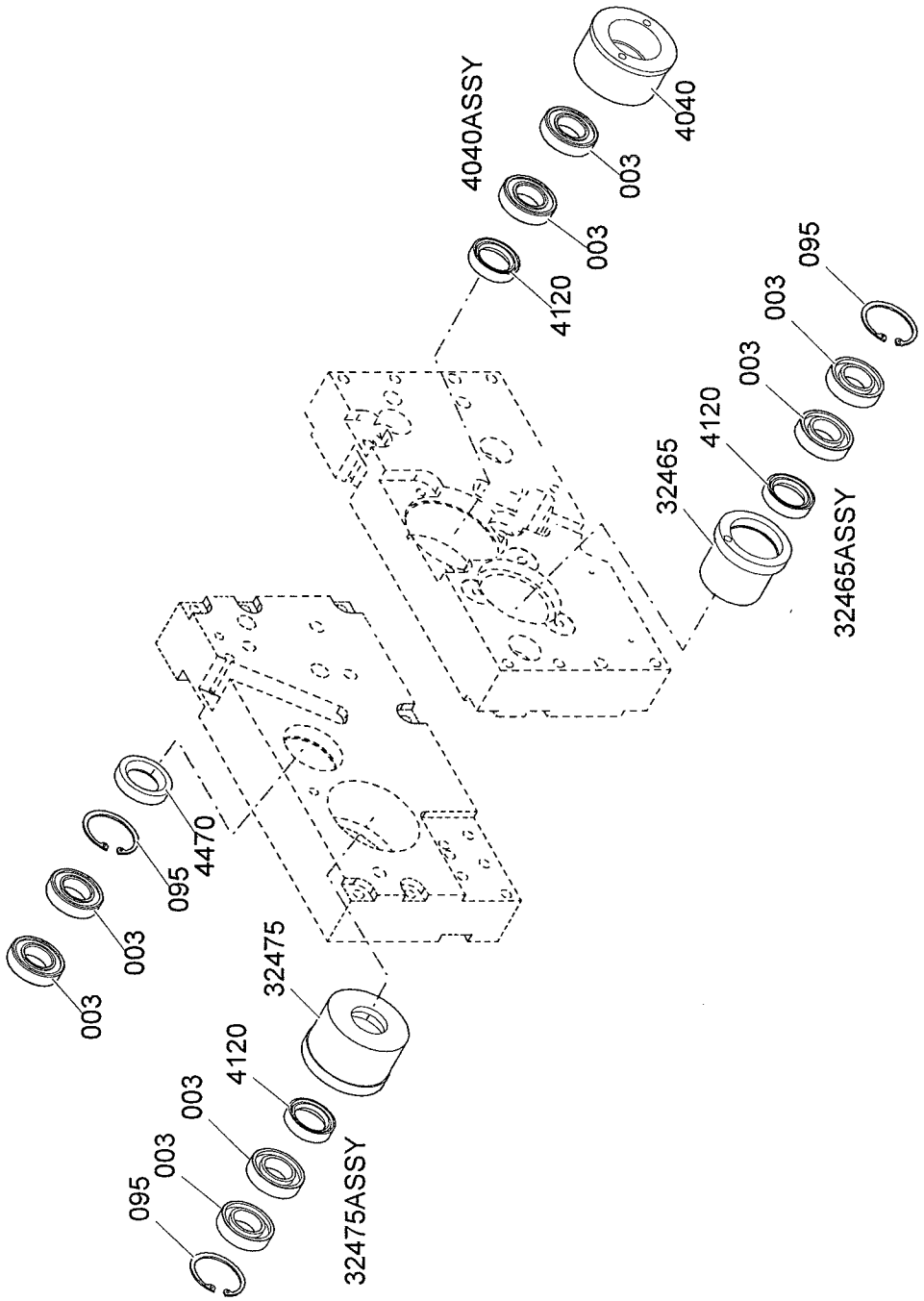
1) Open the product infeed and outfeed tables (see par. Description of the machine).
2) Remove the blade holder unit (see par. Replacing and adjusting the blade holder unit)
3) Open the left and right side guards (see par. Description of the machine).
4) Slacken off the bolts securing the bushes (B1-B4).
5) Rotate the right (B4) and left (B1) bushes to adjust the distance between the toothed shaft and the counter-roller, using a feeler gauge and checking that the distance between them is between 0.05 and 0.1 mm.
6) Check the distance between the toothed shaft and the counter roller using the feeler gauge by manually rotating the counter roller and checking along the entire length.
7) Tighten the fixing screws of the bushes.
8) Check that the setting of the distance along the length is still correct.
9) Reassemble the previously removed parts by proceeding in reverse order.



13.12 Replacing the bearings

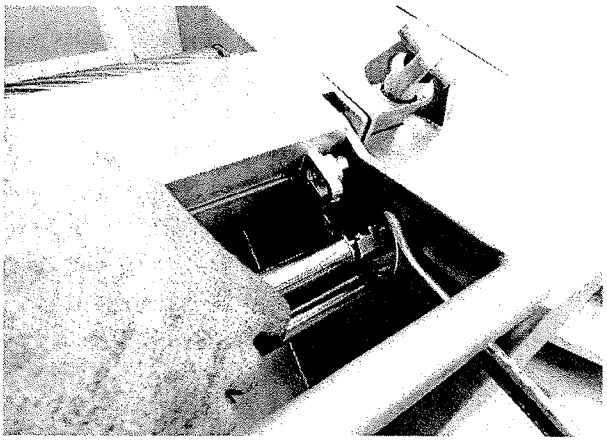
Before removing and replacing components, take note of the position of each, possibly marking them.

1) Proceed as described in paragraph "Replacing counter roller (D)" up to point 8.
2) Open the bushes and change the bearings (003) and oil seals (4120-4470; replacement recommended)
3) GREASE ABUNDANTLY with specific grease (food-grade 2 bearing grease) making sure to fill the empty gaps between the seal rings and the bearing.
4) Reassemble the various parts by proceeding in reverse order.
5) Adjust the position of the blade holder unit as described in the "Replacing and adjusting the blade holder unit" paragraph.
6) Adjust the distance between the toothed shaft and the counter roller (see par. Adjusting the distance between the toothed shaft and the counter roller)



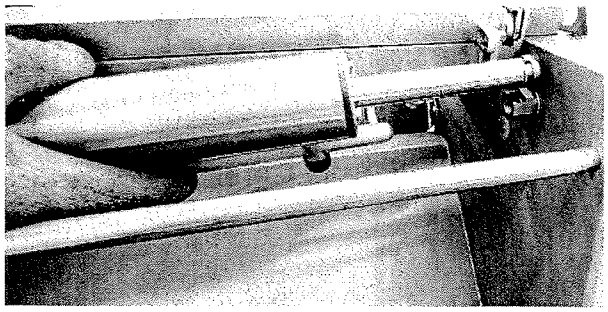
13.13 Replacing the compressed air cleaning system

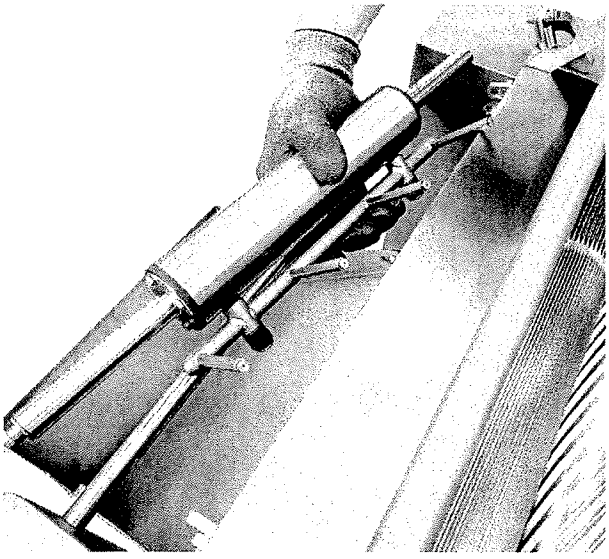
Before removing and replacing components, take note of the position of each, possibly marking them.



13.13.1 Replacing the cleaning system

1) Open the product infeed and outfeed tables (see par. Description of the machine).
2) Remove the blade holder unit (see par. Replacing and adjusting the blade holder unit")
3) Unscrew the connection ring nuts which connect the cleaning system to the machine, making sure to support it.
4) Remove the cleaning system from the machine.
5) Refit the new cleaning system proceeding in inverse order to that described above.

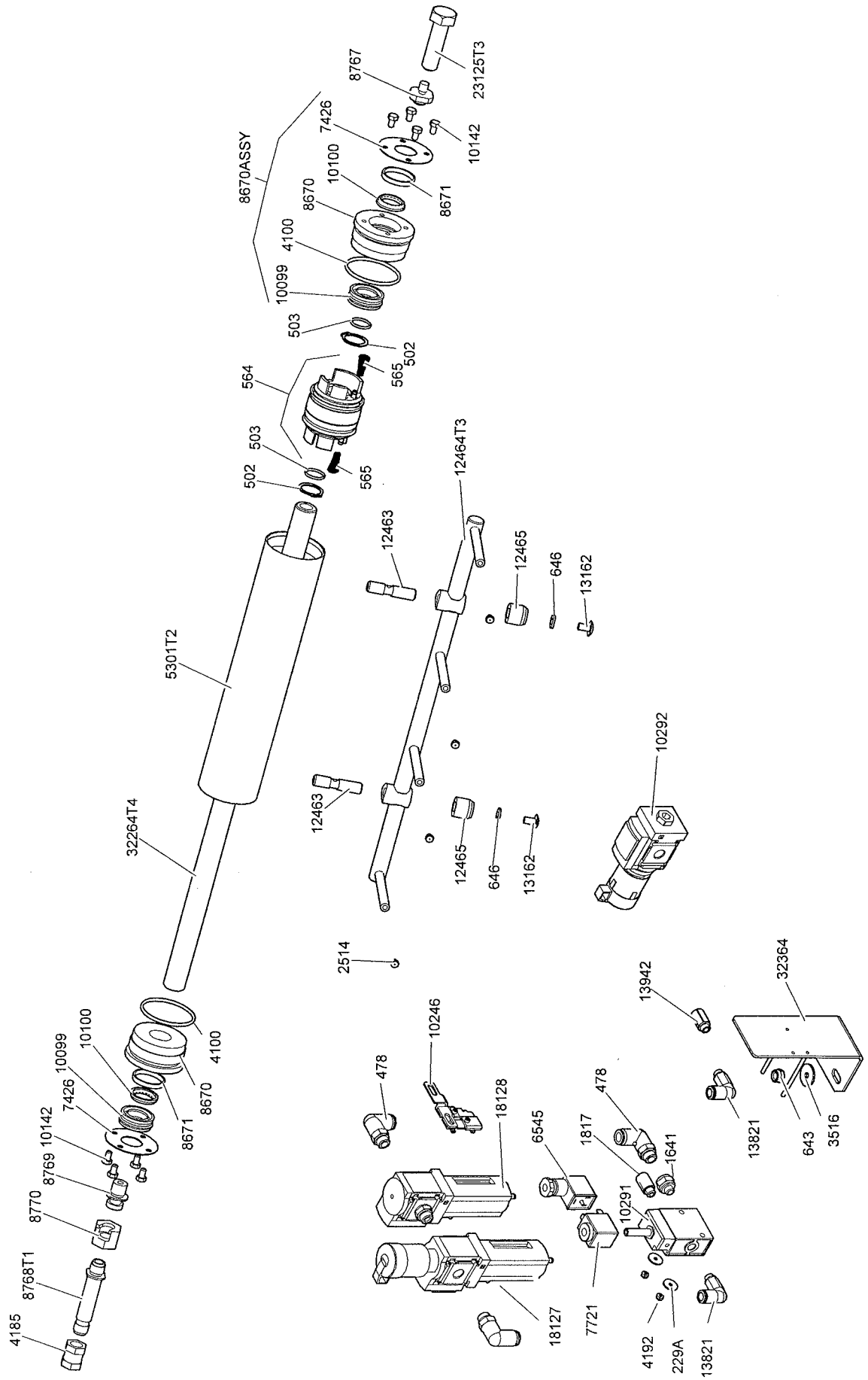




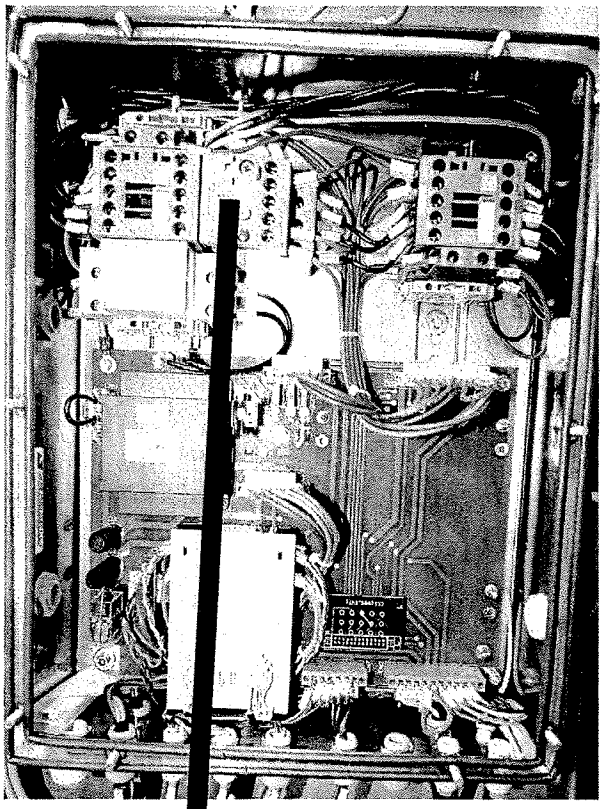
13.13.2 Replacing the cleaning system seal rings

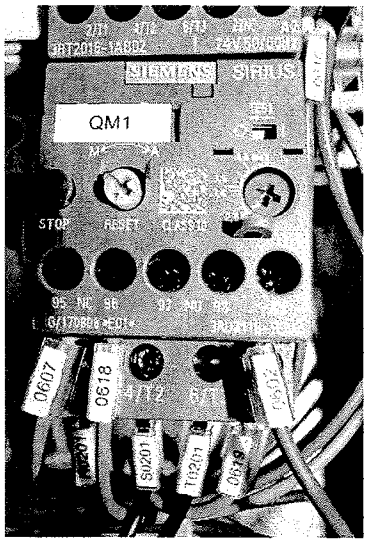
1) Disassemble the cleaning system from the machine (see previus paragraph).
2) Unscrew the complete heads (8670ASSY), unscrew the screws (13162) and pull off the plastic bushes (12465).
3) Unscrew the pins (12463) and pull off the rod (32264T4) with all its components mounted.
4) Remove the O-rings (4100), and replace the valve (564).
5) Refit the entire unit as described above in the opposite order.

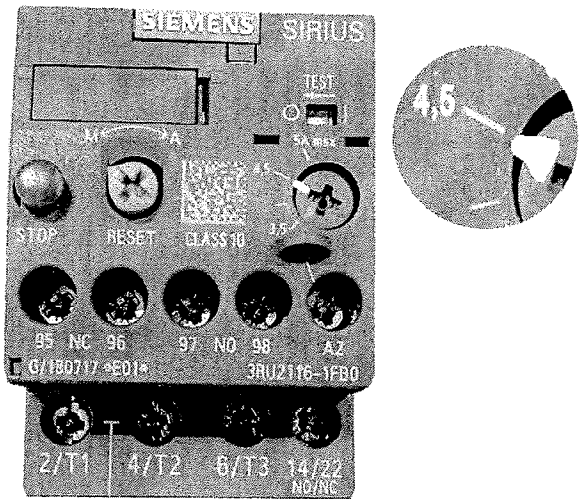
AIR CLEANING SYSTEM



13.14 Change operating voltage from 400V to 220V







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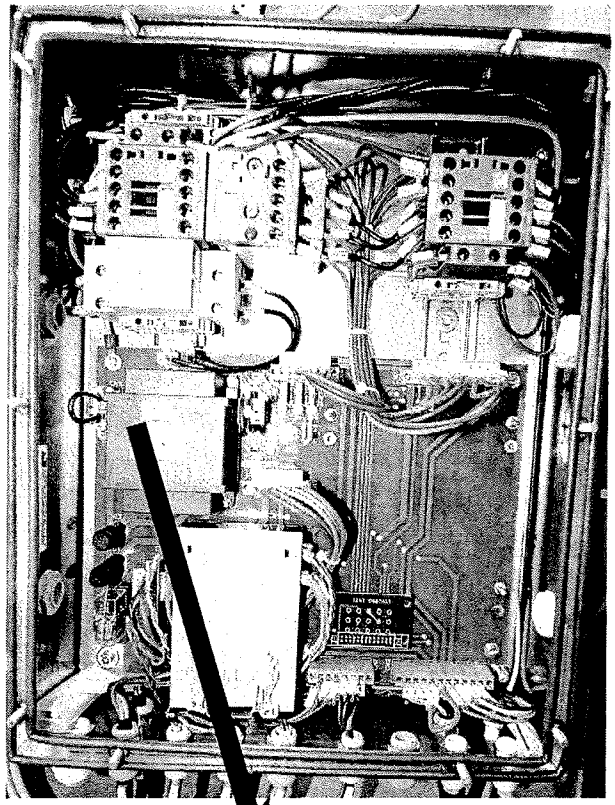

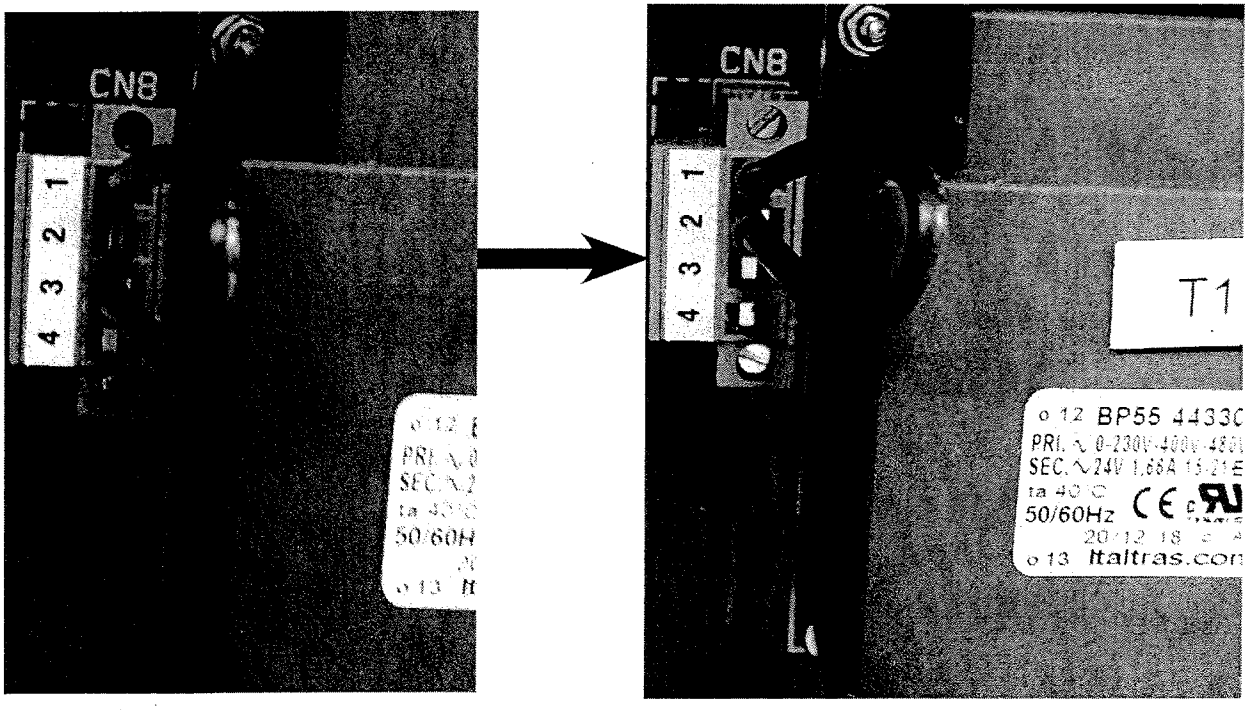
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50/60Hz
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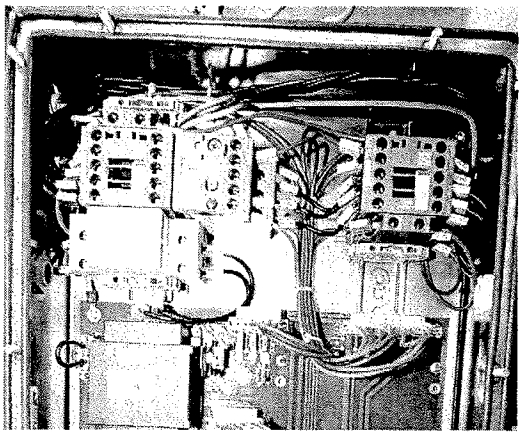

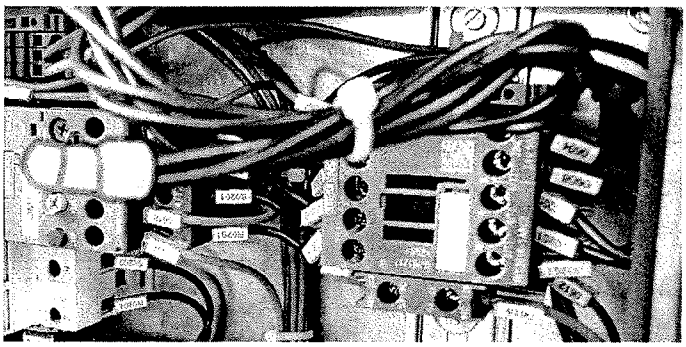

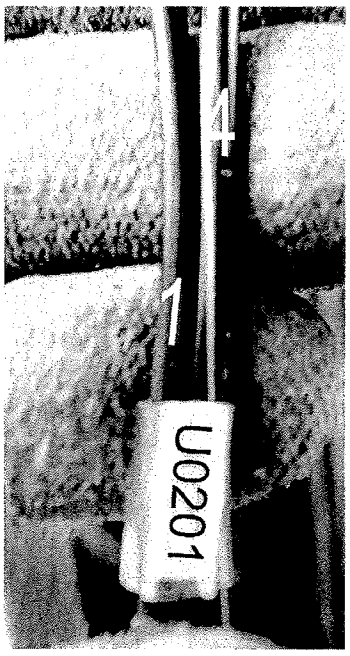
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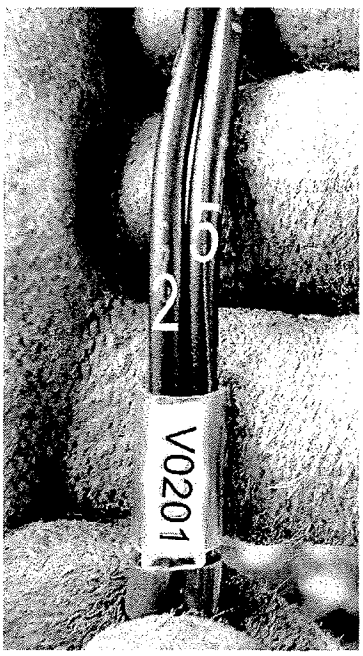
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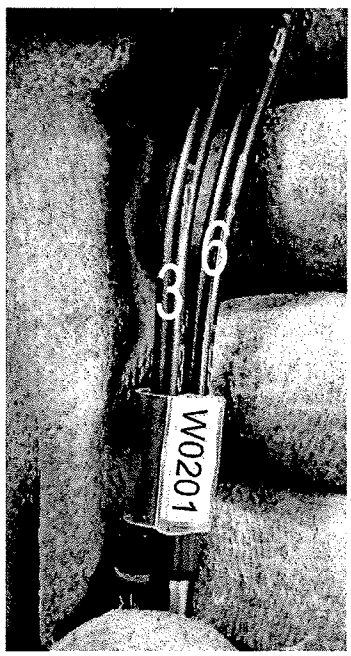
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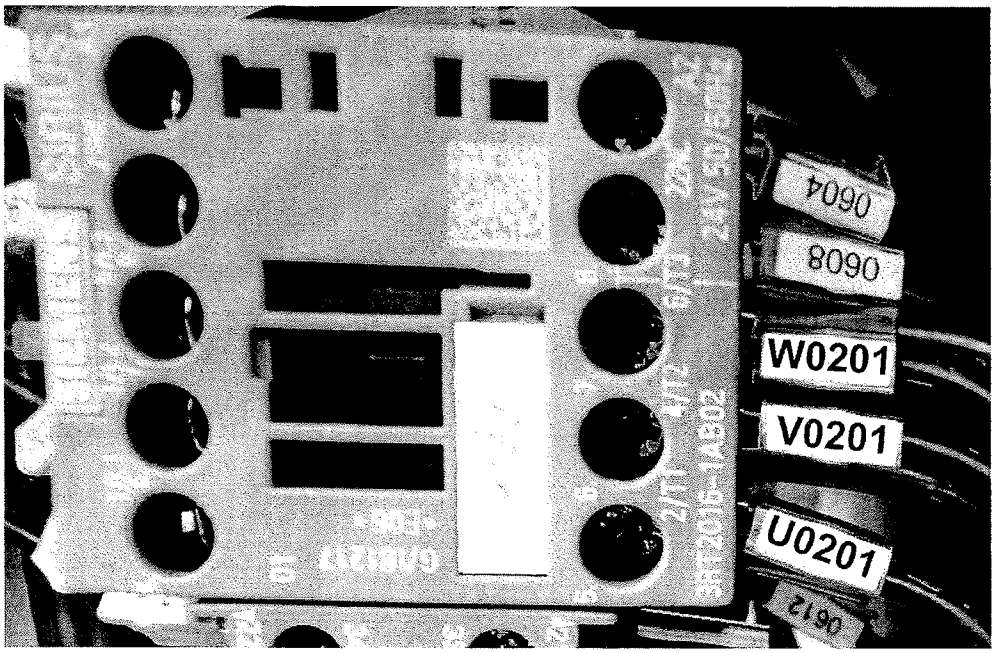
0604
0608
W0201
V0201
U0201
0612

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MANUALE RICAMBI / SPARE PARTS

SCOTENNATRICE PER MEMBRANE
MEMBRANE SKINNER

MS520PM

Allegato alle ISTRUZIONI D'USO E MANUTENZIONE

Annex of USE AND MAINTENANCE MANUAL

Conservare con cura il manuale che deve seguire la macchina durante tutta la propria vita. Leggere attentamente il manuale in ogni sua parte prima di effettuare qualunque manovra sulla macchina.

This manual must be kept carefully and accompany the machine throughout its life cycle. Carefully read the manual in its entirety before conducting any operation on the machine.

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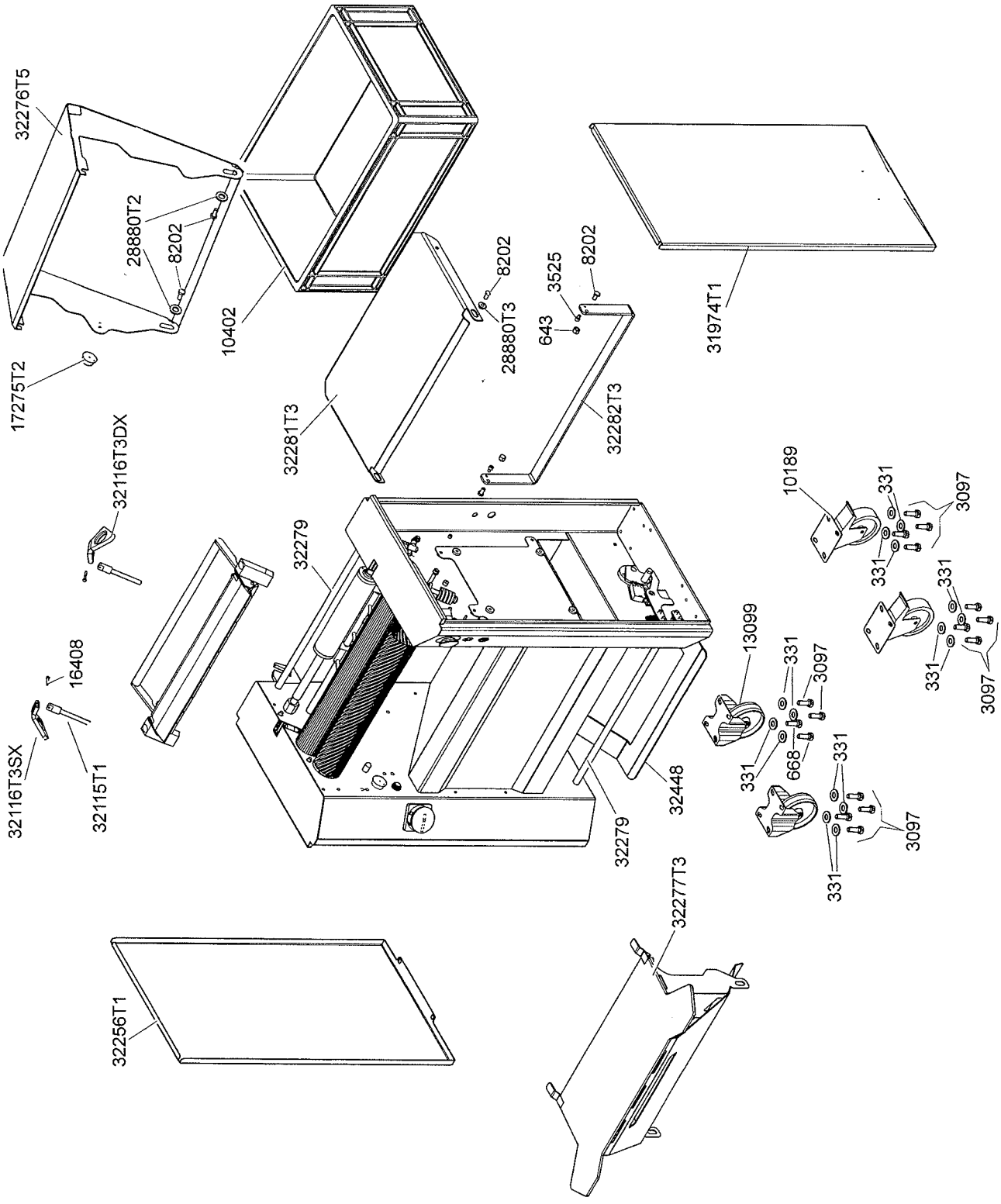
14 ESPLOSI MACCHINA E RICAMBI/ EXPLODED DRAWINGS OF THE MACHINE AND SPARE PARTS

Scheda macchina / Machine technical sheet

Per ordinare un ricambio, è necessario conoscere:
1) Modello macchina e numero di matricola.
2) Tipo di nastro e lunghezza: NSF, modulare (se previsto),
3) Set di taglio: ricambi e tipo lame (se previsto).
4) Voltaggio: motore e salvamotore.
5) Motore: se con potenza diversa dalla versione standard.
6) Eventuali pezzi particolari sulla macchina non riportati negli esplosi macchina.

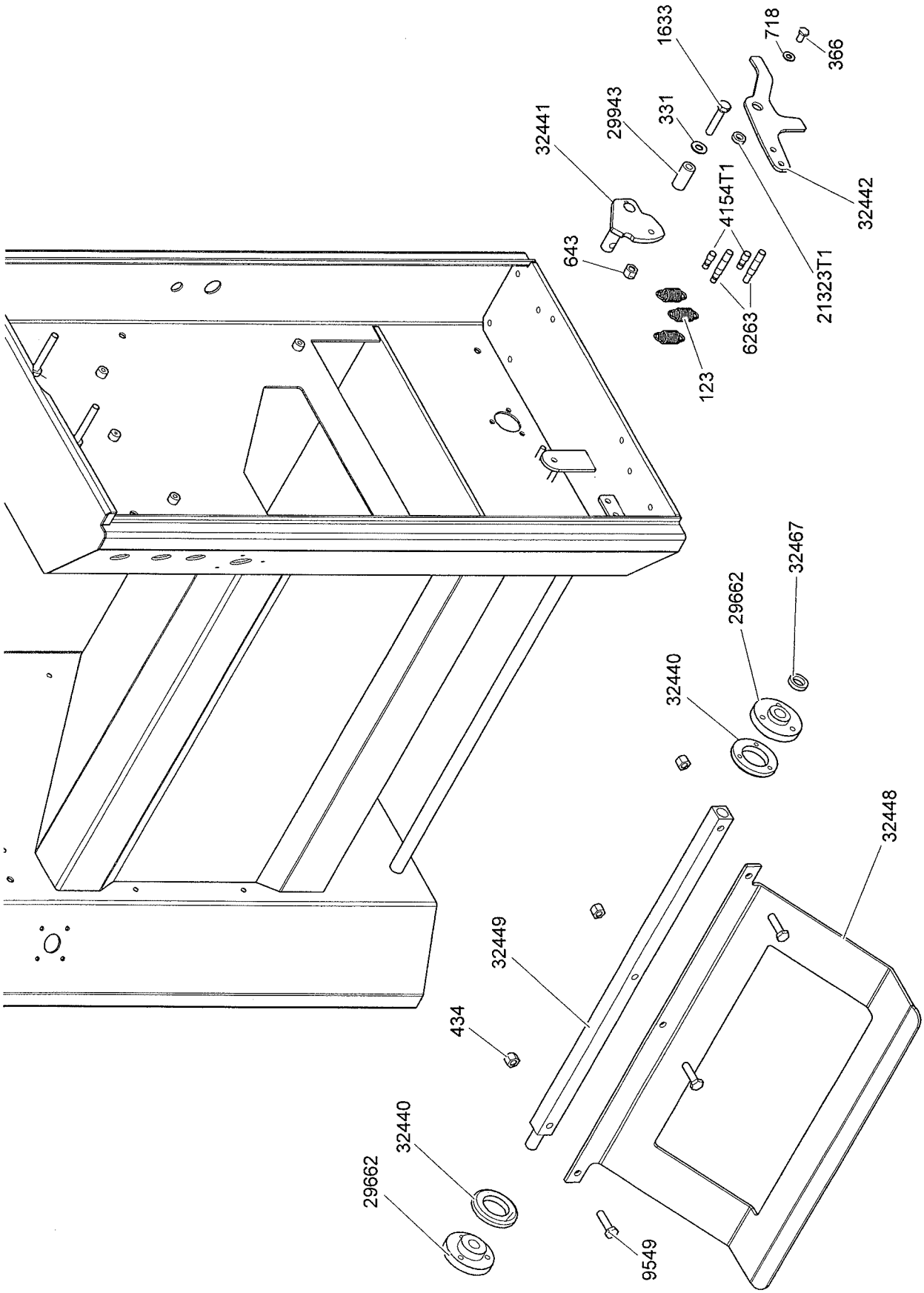
To order a spare part, you need to know:
1) Machine model and serial number.
2) Type of product exit: NSF belt, modular belt
3) Cutting set: spare parts and blade type.
4) Voltage: motor and motor protector.
5) Motor: if standard or stronger version.
6) Any special parts on the machine that are not included in the exploded drawings of the machine.

14.1 BASAMENTO / BASE



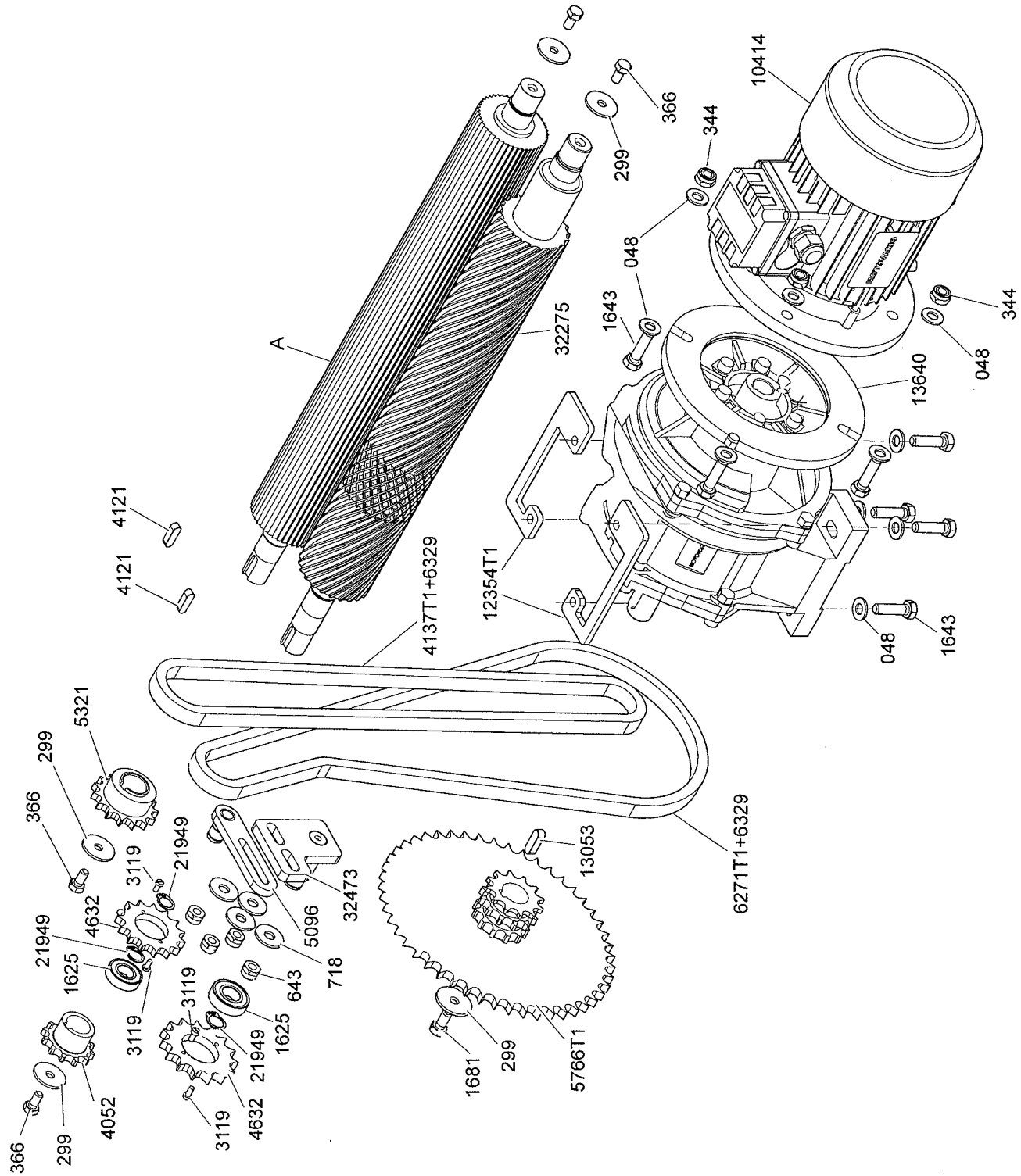
BASAMENTO / BASE	
CODE	**DESCRIPTION**
331	RONDELLA PIANA 08X17X1.5 / WASHER 08X17X1.5
643	DADO AUTOBLOCCANTE M08 / SELF-LOCKING NUT M08
668	VITE TE 08X25 / HEXAGON HEAD SCREW 08X25
3097	VITE TE 08X10 / HEXAGON HEAD SCREW 08X10
3525	VITE TCCE 06X10 / INOX SCREW 06X10
8202	VITE TE 08X16 LISCIA CON TESTA ABBASSATA / SPECIAL SCREW 08X16
10189	RUOTA GIREVOLE D. 100 CON PIASTRA FRENO BLU / WHEEL WITH SUPPORT
10402	CASSETTA ROSSA DIM. 600X400X235 / RED REFUSE TANK DIMENSION 600X400X235 MM
13099	SUPPORTO FISSO INOX CON RUOTA DIAM.100 BLU / SUPPORT WITH WHEEL
16408	VITE TE 04X30 / HEXAGON CAP SCREW 04X30
17275T2	MAGNETE / MAGNET
28880T2	BOCCOLA SUL FULCRO PIANO / BUSH
28880T3	BOCCOLA SUL FULCRO PIANO / BUSH
31974T1	COPERCHIO LATERALE DX / RIGHT COVER
32115T1	VITE PORTALAMA SPECIALE / SPECIAL SCREW
32116T3SX	LAMIERA SX PER VITE PORTALAMA CON APPOGGIO RIALZATO / LEFT HANDLE FOR BLADE HOLDER
32116T3DX	LAMIERA DX PER VITE PORTALAMA CON APPOGGIO RIALZATO / RIGHT HANDLE FOR BLADE HOLDER
32256T1	COPERCHIO LATERALE SX / LEFT COVER
32276T5	PIANO POSTERIORE CON MAGNETE FISSATO AL FIANCO / COMPLETE FULCRED REAR PLATE
32277T3	PIANO PRODOTTO ANTERIORE / INFEED TRAY
32279	TONDO UNIONE FIANCATE BASAMENTO / BASE PIN
32281T3	LAMIERA APPOGGIO CASSETTA SCARTI / REFUSE TANK SUPPORT PLATE
32282T3	PIEDE PER PIANO CASSETTA SCARTI / FOOT FOR RED REFUSE TANK
32448	LAMIERA PEDALE MECCANICO / MECHANIC PEDAL

14.2 GRUPPO PEDALE / PEDAL GROUP



GRUPPO PEDALE / PEDAL GROUP	
CODE	**DESCRIPTION**
123	MOLLA RITORNO PETTINE / SPRING
331	RONDELLA PIANA 08X17X1.5 / WASHER 08X17X1.5 UNI 6592
366	VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
434	DADO CIECO M08 / HEXAGON CAP NUT M08
643	DADO AUTOBLOCCANTE M08 / SELF-LOCKING NUT M08
718	RONDELLA PIANA 08X24X2 / WASHER 08X24X2
1633	VITE TE 08X50 / HEXAGON HEAD SCREW 08X50
4154T1	TONDO PER MOLLA PEDALE AVVIAMENTO / PIN FOR SPRING
6263	PERNO SUPERIORE MOLLE PETTINE / PIN
9549	VITE TE 08X30 LISCIA CON TESTA ABBASSATA / BLADE HOLDER SCREW 08X30
21323T1	DISTANZIALE 8.5X15X4.5 PER FULCRO LAMIERA PEDALE MECC / SPACER 8.5X15X4.5 MM
29662	BUSSOLA PER SCORRIMENTO PEDALE / FOOTPEDAL BUSHING
29943	DISTANZIALE 8X15X30 / SPACER 8X15X30
32440	ANELLO SUL FULCRO PEDALE / O-RING
32441	LAMIERA MICRO PEDALE / FOOTSWITCH PLATE
32442	LEVA FULCRATA IN LAMIERA PER MOLLE PEDALE MECCANICO / PLATE FOR PEDAL SPRING
32448	LAMIERA PEDALE MECCANICO / PEDAL
32449	QUADRO FISSAGGIO PEDALE MECCANICO / SUPPORT FOR FIXING PEDAL
32467	DISTANZIALE 14.2X22X5 / SPACER 14.2X22X5

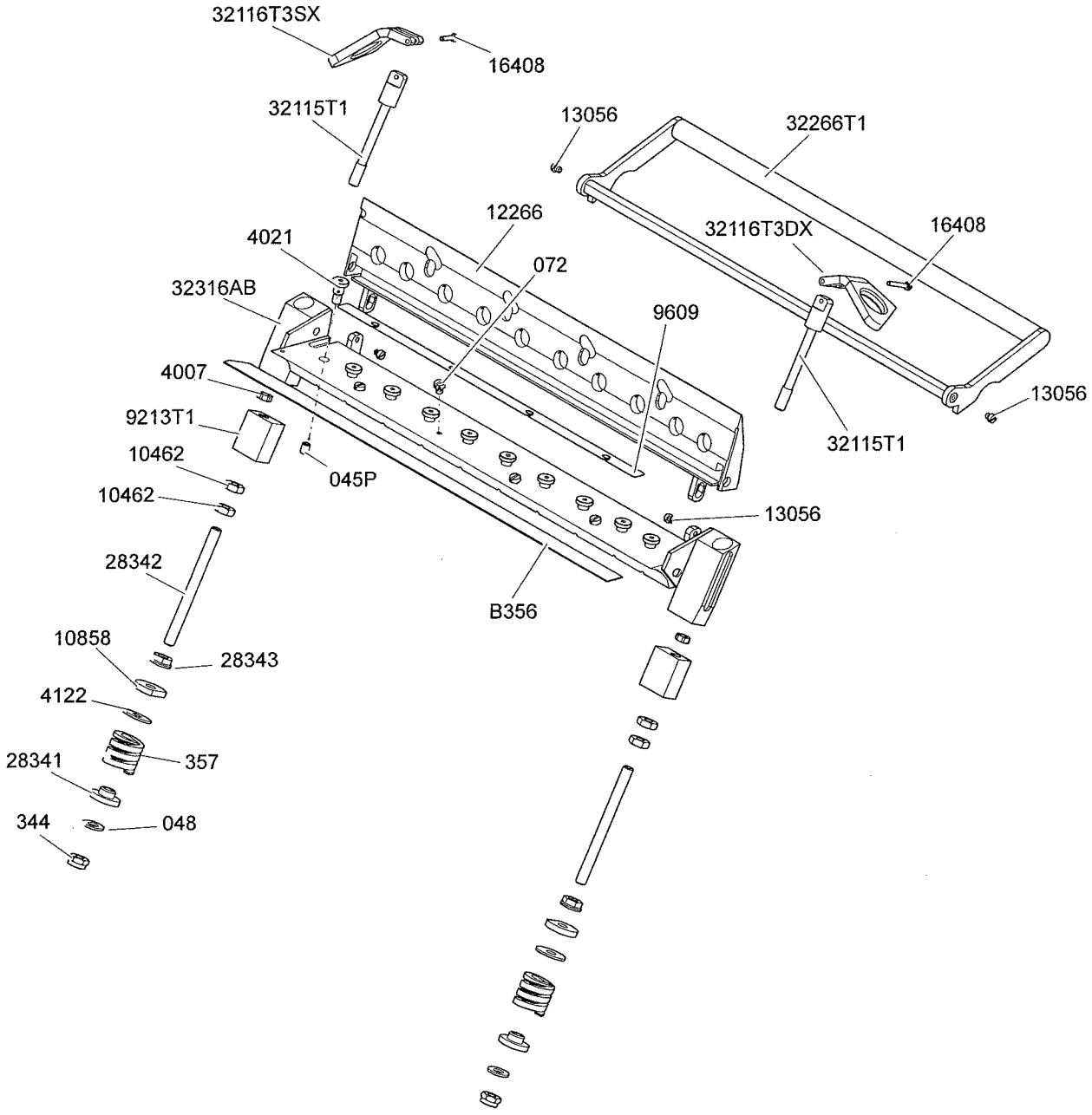
14.3 MOVIMENTAZIONE / MECHANICAL TRANSMISSION



MOVIMENTAZIONE / MECHANICAL TRANSMISSION		
CODE		DESCRIPTION
A	32268	ALBERO DENTATO Z=118 30° / TOOTHROLLER Z=118 30°
	32269	ALBERO DENTATO Z=112 / TOOTHROLLER Z=112
	32270	ALBERO DENTATO Z=88 / TOOTHROLLER Z=88 AG.
	32270T1	ALBERO DENTATO Z=88-Z=60 P=2.57-3.75 340-172MM 3.75 A DESTRA / TOOTHROLLER Z=88-Z=60 P=2.57-3.75 340-172MM
	32270T2	ALBERO DENTATO Z=88-Z=44 P=2.57-5.15 340-172MM 5.15 A DESTRA / TOOTHROLLER Z=88-Z=44 P=2.57-5.15 340-172MM
	32270T3	ALBERO DENTATO Z=60-Z=44 P=3.75-5.15 256-256MM / TOOTHROLLER Z=60-Z=44 P=3.75-5.15 256-256MM
	32270T4	ALBERO DENTATO Z=88-Z=44 P=2.57-5.15 256-256MM / TOOTHROLLER Z=88-Z=44 P=2.57-5.15 256-256MM
	32270T5	ALBERO DENTATO Z=88-Z=60 P=2.57-3.75 256-256MM 3.75 A DESTRA/ TOOTHROLLER Z=88-Z=60 P=2.57-3.75 256-256MM
	32270T6	ALBERO DENTATO Z=88-Z=60 P=2.57 30°-3.75 256-256MM 3.75 A DESTRA / TOOTHROLLER Z=88-Z=60 P=2.57 30°-3.75 256-256MM
	32271	ALBERO DENTATO Z=88 A 30° / TOOTHROLLER Z=88 A 30°
	32272	ALBERO DENTATO Z=60 P=3,75 MM / TOOTHROLLER P=3,75 MM Z=60
	32273	ALBERO DENTATO Z=55 / TOOTHROLLER Z=55
	32274	ALBERO DENTATO P=5 MM Z=44 / TOOTHROLLER P=5MM Z=44
048		RONDELLA PIANA 10X21X2 / FLAT WASHER 10X21X2
299		RONDELLA PIANA 08X32X2.5 / FLAT WASHER 08X32X2.5
344		DADO AUTOBLOCCANTE M10 / SELF-LOCKING NUT M10
366		VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
643		DADO AUTOBLOCCANTE M08 / SELF-LOCKING NUT M08
718		RONDELLA PIANA 08X24X2 / WASHER 08X24X2
1625		CUSCINETTO / BEARING
1643		VITE TE 10X35 / HEXAGON HEAD SCREW 10X35
1681		VITE TE 08X20 / HEXAGON HEAD SCREW 08X20
3119		VITE TCTC 04X08 / SCREW WITH SLOT 04X08
4052		PIGNONE PER CONTRORULLO E MOTORIDUTTORE Z 12 / SPROCKET Z 12
4121		LINGUETTA 08X07X25 / KEY 08X07X25
4137T1		CATENA MOVIMENTO ALBERO DENTATO / TOOTHROLLER CHAIN
4632		CORONA TENDITORE CON CUSCINETTO / SPROCKET WITH BEARING
5096		PIATTO TENDICATENA ALBERO / CHAIN STRETCHER ARM
5321		PIGNONE Z=15 ZINCATO / SPROCKET Z=15
5766T1		CORONA E PIGNONE RIDUTTORE SALDATI Z 50-12 / GEAR BOX PINION WELDED
6271T1		CATENA CONTRORULLO / GSS CLEANING ROLLER CHAIN
6329		MAGLIA DI GIUNZIONE 1/2" SEMPLICE NICHELATA / CONNECTOR LINK
10414		MOTORE KW 1.1 GR80 B5 4P 3PH 220-460V 50-60HZ (MORSETTIERA STELLA TRIANGOLO) / MOTOR KW 1.1 V 220-460
12354T1		LAMIERA PER FISSAGGIO MOTORIDUTTORE CON FORI M10 / FIXING PLATE

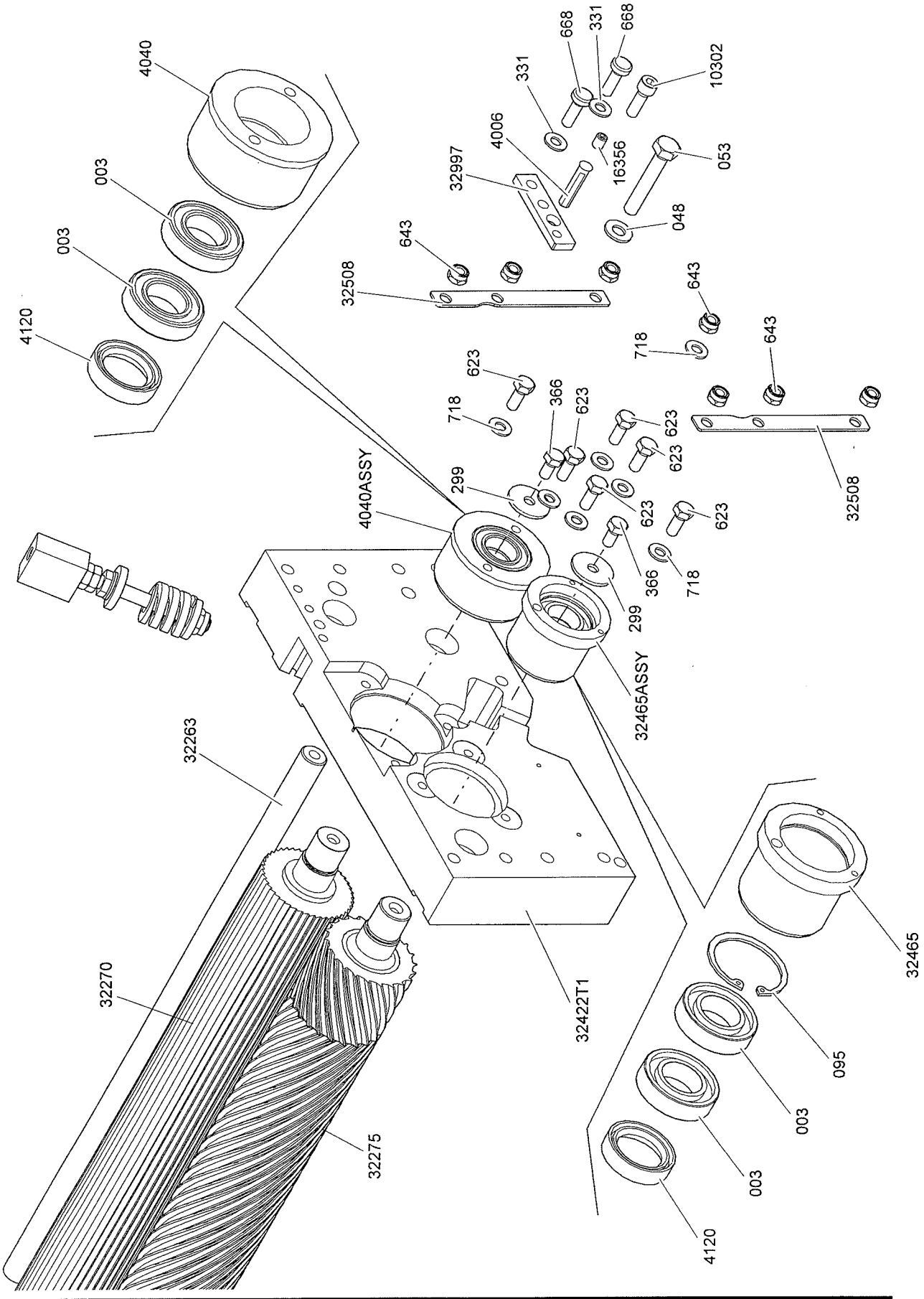
13053	LINGUETTA 08X07X35 / KEY 08X07X35
13640	RIDUTTORE HA52 RP.1/7.7 PAM 80 B5 ALBERO USCITA 24 / GEARBOX RP 1/8
21949	SEEGER ESTERNO D. 14 / SEEGER D.14
32275	ALBERO CONTRORULLO / COUNTER-ROLLER SHAFT
32473	TENDICATENA CONTRORULLO / TENSIONER CHAIN OF COUNTER-ROLLER

14.4 PORTALAMA / BLADE HOLDER



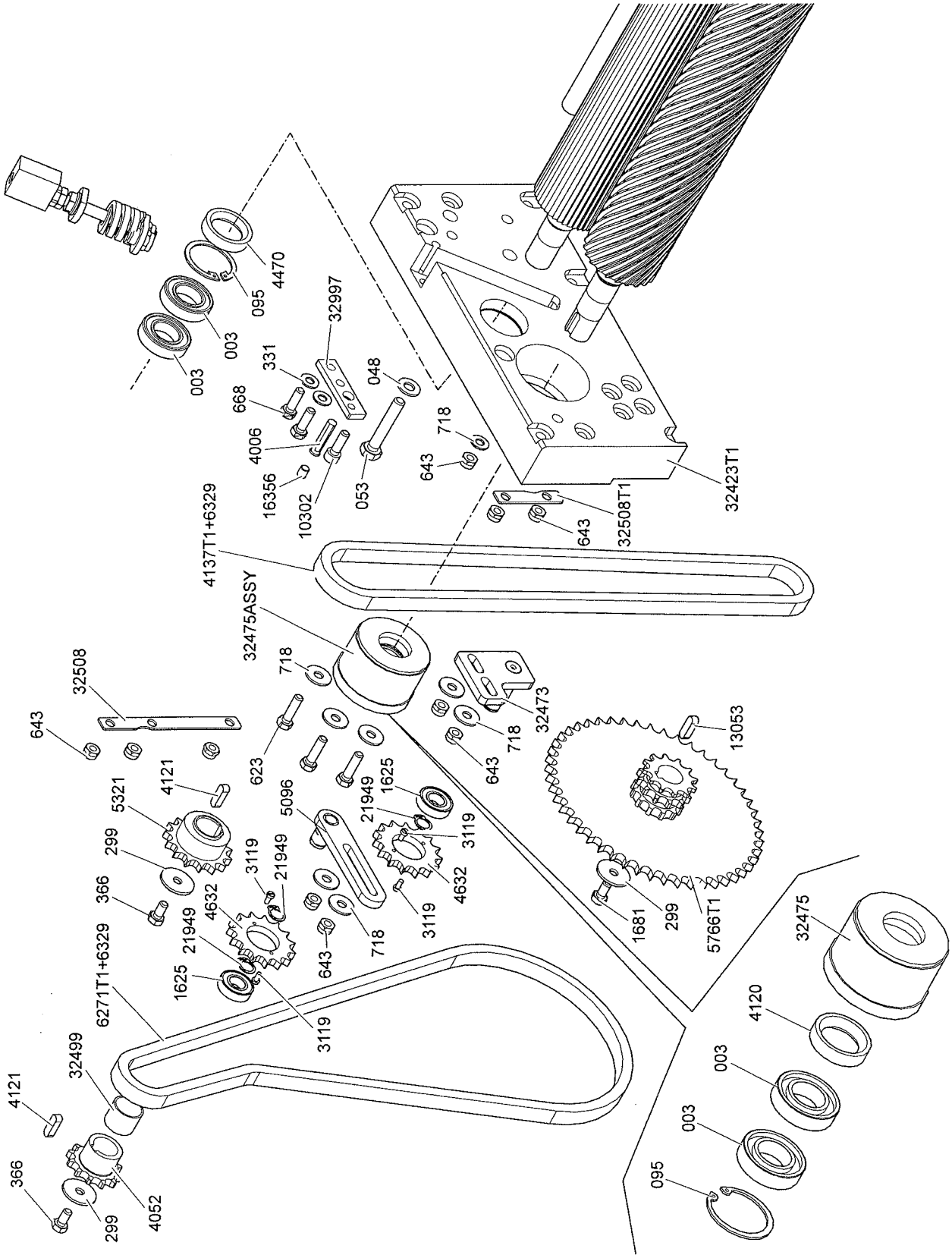
PORTALAMA / BLADE HOLDER	
CODE	**DESCRIPTION**
B356	LAMA 517X22X0.7 / BLADE 517X22X0.7
045P	VITE STEI 08X10 PUNTA PIANA / DOWEL 08X10
048	RONDELLA PIANA 10X21X2 / FLAT WASHER 10X21X2
072	VITE TCTC 06X08 / SCREW WITH SLOT 06X08
344	DADO AUTOBLOCCANTE M10 / SELF-LOCKING NUT M10
357	MOLLA GIALLA PORTALAMA D. 32 H=32 EXTRAFORTE / BLADE HOLDER SPRING
4007	DADO DI FERMO PER PERNO PORTALAMA / BLADE HOLDER NUT
4021	PERNO PER FISSAGGIO COPERCHIO LAMA RAPIDO / BLADE HOLDER PLATE LOCK PIN
4122	RONDELLA PIANA 10X30X2 / WASHER 10X30X2
9213T1	CUBETTO PER BLOCCAGGIO PORTALAMA / BLOCK
9609	LAMIERA REGOLAZIONE LAMA / BLADE REGULATION PLATE
10462	DADO BASSO M10 / HEXAGON JAM NUT M10
10858	RONDELLA PER MOLLA SPECIALE / SPECIAL WASHER
12266	COPERCHIO SERRALAMA RAPIDO COMPLETO / BLADE HOLDER COVER
13056	VITE TCTC 05X06 / SCREW WITH SLOT 05X06
16408	VITE TE 04X30 / HEXAGON CAP SCREW 04X30
28341	BUSSOLA PER MOLLA PORTALAMA / SEDAN
28342	BARRA FILETTATA M10 PORTALAMA / BAR M10
28343	DADO FLANGIATO M10 / NUT WITH WASHER M10
32115T1	VITE PORTALAMA SPECIALE / SPECIAL SCREW
32116T3SX	LAMIERA SX PER VITE PORTALAMA CON APPOGGIO RIALZATO / LEFT HANDLE FOR BLADE HOLDER
32116T3DX	LAMIERA DX PER VITE PORTALAMA CON APPOGGIO RIALZATO / RIGHT HANDLE FOR BLADE HOLDER
32266T1	LEVA SERRALAMA RAPIDO / BLADE HOLDER LEVER
32316AB	SUPPORTO LAMA / BLADE SUPPORT

14.5 SUPPORTO LATERALE DESTRO / RIGHT SUPPORT



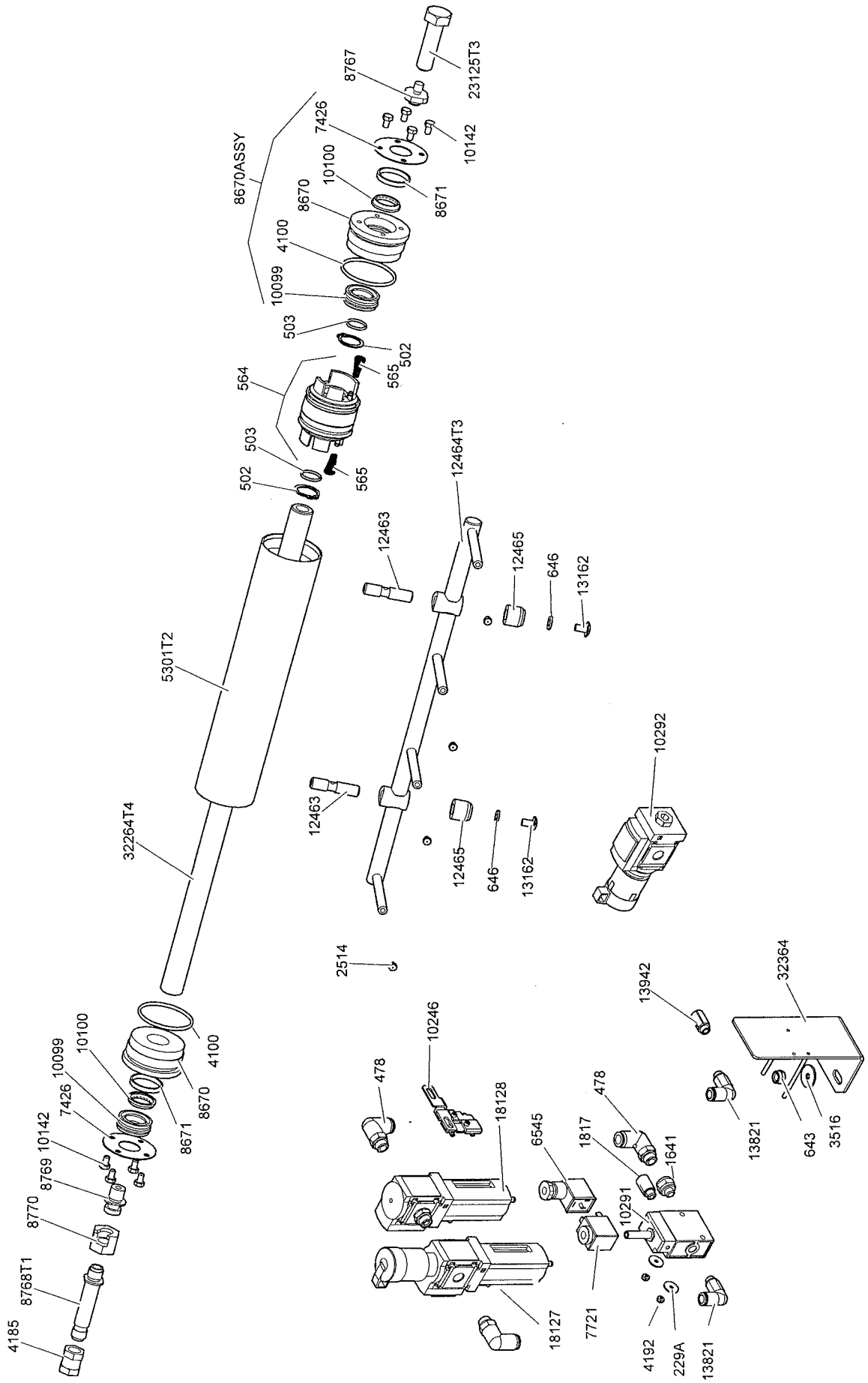
SUPPPORTO LATERALE DESTRO / RIGHT SUPPORT	
CODE	**DESCRIPTION**
003	CUSCINETTO / BEARING
048	RONDELLA PIANA 10X21X2 / FLAT WASHER 10X21X2
053	VITE TE 10X60 / HEXAGON CAP SCREW 10X60
095	SEEGER INTERNO D. 47 / SNAP RING D.47
299	RONDELLA PIANA 08X32X2.5 / FLAT WASHER 08X32X2.5
331	RONDELLA PIANA 08X17X1.5 / WASHER 08X17X1.5
366	VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
623	VITE TE 08X30 / HEXAGON CAP SCREW 08X30
643	DADO AUTOBLOCCANTE M08 / SELF-LOCKING NUT M08
668	VITE TE 08X25 / HEXAGON HEAD SCREW 08X25
718	RONDELLA PIANA 08X24X2 / WASHER 08X24X2
4006	INSERTO IN PLASTICA PER CUBETTO PORTALAMA / PLASTIC INSERT
4040	BUSSOLA PER ALBERO DENTATO / TOOTHED ARBOR BUSH
4040ASSY	BUSSOLA ALBERO COMPLETA / TOOTHED ARBOR BUSH ASSY
4120	PARAOLIO MOLLA / OIL SEAL
10302	VITE TCCE 08X25 / INOX SCREW 8X25
16356	VITE STEI 10X10 PUNTA PIANA / SOCKET SETSCREW 12X16
32263	TONDO APPOGGIO GRUPPO PULIZIA / BAR
32422T1	SUPPORTO DX / RIGHT SUPPORT
32465ASSY	BUSSOLA ECCENTRICA DX CONTRORULLO COMPLETA / CLEANING ROLLER BUSH ASSY
32465	BUSSOLA DX ECCENTRICA PER ALBERO CONTRORULLO / CLEANING ROLLER BUSH
32508	LAMIERA SOTTO LE VITI FISSAGGIO SUPPORTI / SUPPORT FIXING SCREW PLATE
32997	LAMIERA PER VITE ANTI ESTRAZIONE PORTALAMA / BAR

14.6 SUPPORTO LATERALE SINISTRO / LEFT SUPPORT



SUPPORTO LATERALE SINISTRO / LEFT SUPPORT	
CODE	**DESCRIPTION**
003	CUSCINETTO / BEARING
048	RONDELLA PIANA 10X21X2 / FLAT WASHER 10X21X2
053	VITE TE 10X60 / HEXAGON CAP SCREW 10X60
095	SEEGER INTERNO D. 47 / SNAP RING D.47
299	RONDELLA PIANA 08X32X2.5 / FLAT WASHER 08X32X2.5
331	RONDELLA PIANA 08X17X1.5 / WASHER 08X17X1.5
366	VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
623	VITE TE 08X30 / HEXAGON CAP SCREW 08X30
643	DADO AUTOBLOCCANTE M08 / SELF-LOCKING NUT M08
668	VITE TE 08X25 / HEXAGON HEAD SCREW 08X25
718	RONDELLA PIANA 08X24X2 / WASHER 08X24X2
1625	CUSCINETTO / BEARING
1681	VITE TE 08X20 / HEXAGON HEAD SCREW 08X20
3119	VITE TCTC 04X08 / SCREW WITH SLOT 04X08
4006	INSERTO IN PLASTICA PER CUBETTO PORTALAMA / PLASTIC INSERT
4052	PIGNONE PER CONTRORULLO E MOTORIDUTTORE Z 12 / SPROCKET Z 12
4120	PARAOLIO / OIL SEAL
4121	LINGUETTA 08X07X25 / KEY 08X07X25
4137T1	CATENA MOVIMENTO ALBERO DENTATO / TOOTHROLLER CHAIN
4470	PARAOLIO / OIL SEAL
4632	CORONA TENDITORE CON CUSCINETTO / SPROCKET WITH BEARING
5096	PIATTO TENDICATENA ALBERO / CHAIN STRETCHER ARM
5321	PIGNONE Z=15 ZINCATO / SPROCKET
5766T1	CORONA E PIGNONE RIDUTTORE SALDATI / GEAR BOX PINION WELDED
6271T1	CATENA CONTRORULLO / GSS CLEANING ROLLER CHAIN
6329	MAGLIA DI GIUNZIONE 1/2" SEMPLICE NICHELATA / CONNECTOR LINK
10302	VITE TCCE 08X25 / INOX SCREW 8X25
13053	LINGUETTA 08X07X35 / KEY 08X07X35
16356	VITE STEI 10X10 PUNTA PIANA / SOCKET SETSCREW 12X16
21949	SEEGER ESTERNO D. 14 / SEEGER D.14
32423T1	SUPPORTO SX / LEFT SUPPORT
32473	TENDICATENA CONTRORULLO /
32475ASSY	BUSSOLA ECCENTRICA SX CONTRORULLO COMPLETA / CLEANING ROLLER BUSH ASSY
32475	BUSSOLA SX ECCENTRICA PER ALBERO CONTRORULLO / CLEANING ROLLER BUSH
32499	DISTANZIALE PER ALBERO CONTRORULLO / CLEANING ROLLER SPACER
32508	LAMIERA SOTTO LE VITI FISSAGGIO SUPPORTI / SUPPORT FIXING SCREW PLATE
32508T1	LAMIERA CORTA SOTTO LE VITI FISSAGGIO SUPPORTI / SUPPORT FIXING SCREW PLATE
32997	LAMIERA PER VITE ANTI ESTRAZIONE PORTALAMA / BAR

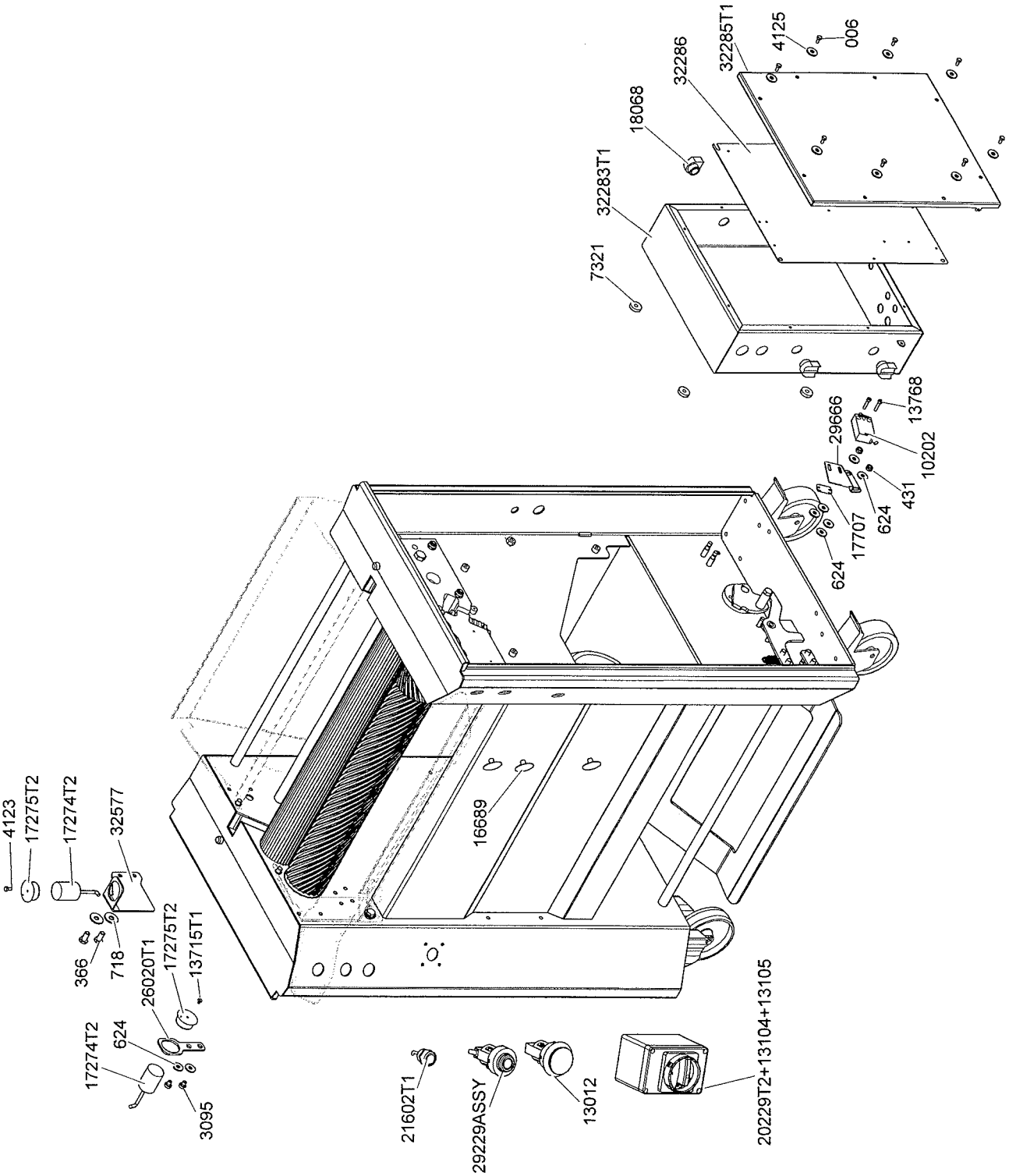
14.7 SISTEMA DI PULIZIA AD ARIA / AIR CLEANING SYSTEM



SISTEMA DI PULIZIA / CLEANING SYSTEM	
CODE	**DESCRIPTION**
229A	RONDELLA PIANA 04X16X1.5 / FLAT WASHER 04X16X1.5
323	SEEGER INTERNO D.62 / RETAINING RING FOR BORE 62
478	RACCORDO A L GIREVOLE TUBO Ø10 - 1/4" / ELBOW CONNECTOR PIPE 10 1/4
478	RACCORDO A L GIREVOLE TUBO Ø10 - 1/4" / ELBOW CONNECTOR PIPE 10 1/4
502	SEEGER ESTERNO D. 20 / SNAP RING
503	ANELLO OR STELO CILINDRO PULIZIA ALBERO / O-RING
564	VALVOLA CILINDRO PULIZIA COMPLETA / VALVE ASSEMBLY
565	MOLLA OTTURATORE VALVOLA CILINDRO PULIZIA / SPRING
643	DADO AUTOBLOCCANTE M08 / SELF-LOCKING NUT M08
646	RONDELLA PIANA 06X12X1.6 / WASHER 06X12X1.6
1641	RIDUZIONE 1/4"F - 1/8"M / REDUCER
1817	SILENZIATORE IN BRONZO 1/8" / BRONZE SILENCER 1/8
2514	GETTO ARIA CILINDRO PULIZIA ALBERO DENTATO ASPORTATRICI DI MEMBRANE / NOZZLE
3516	RONDELLA PIANA 06X24X2 / WASHER 06X24X2
4100	ANELLO OR TESTATA CILINDRO PULIZIA / CYLINDER O-RING
4185	MANICOTTO DA 1/4" A 1/4" / COLLAR 1/4
4192	DADO AUTOBLOCCANTE M04 / SELF-LOCKING NUT M04
5301T2	CANNA PER CILINDRO ARIA / CYLINDER TUBE
6545	CONNETTORE LUMINOSO ELETTROVALVOLA / LED CONNECTOR
7426	RASCHIATORE PER CILINDRO PULIZIA / SCRAPER SHEET
7426	RASCHIATORE PER CILINDRO PULIZIA / SCRAPER SHEET
7721	BOBINA 50/60 ALTERNATA / COIL
8670	TESTATA CILINDRO PULIZIA ALBERO / HEAD FOR AIR CLEANING SYSTEM
8670ASSY	TESTATA CILINDRO PULIZIA ALBERO COMPLETA / CYLINDER CAP ASSY
8671	ANELLO SEDE GUARNIZIONE TESTATE CILINDRO PULIZIA / SPACER
8767	PERNO DI SOSTEGNO SISTEMA DI PULIZA SMONTABILE / PIN FOR SUPPORT CLEANING SYSTEM
8768T1	RACCORDO AVVITATO AL BASAMENTO PER CILINDRO PULIZIA RULLO / CONNECTOR
8769	RACCORDO AVVITATO AL PERNO CILINDRO PULIZIA / RACCORD
8770	DADO FRESATO FISSAGGIO PERNO CILINDRO PULIZIA RULLO / CLEANING CYLINDER SPECIAL NUT
10099	GUARNIZIONE VERDE TESTATA CILINDO PULIZIA / GASKET
10100	RASCHIATORE TESTATA CILINDRO PULIZIA / SCRAPER
10142	VITE TE 05X08 / HEXAGON CAP SCREW 05X08
10246	SQUADRETTA FILTRO / FILTER SUPPORT
10291	ELETTROVALVOLA MFH-3-1/8" / SOLENOID VALVLE MFH-3-1/8"
10292	REGOLATORE DI PRESSIONE BAR / REGULATOR
12463	PERNO FISSATO ALLA TESTATA CILINDRO PULIZIA / PIN

12464T3	TUBO COMPLETO TUTTA LARGHEZZA PER CILINDRO PULIZIA CON VALVOLINA OLD / COMPLETE PIPE
12465	TONDO PLASTICA APPOGGIO CILINDRO PULIZIA ALBERO / PLASTIC BUSH
13162	VITE POELIER 06X10 / SCREW SLOTTED MUSHROOM HEAD 6X10
13821	RACCORDO A L GIREVOLE RAPIDO TUBO Ø8 - 1/8" / ELBOW FASTENING PIPE 8 1/8
13942	RIDUZIONE 1/8 M 1/8F / EXSTENSION
18127	FILTRO REGOLATORE / FILTER REGULATOR
18128	FILTRO ALTA CAPACITA' / FILTER
23125T3	VITE SPECIALE M14X49 STELO GRUPPO PULIZIA CON VALVOLINA / SPECIAL SCREW
32264T4	PERNO SMONTABILE PER SISTEMA DI PULIZIA CON VALVOLINA / CLEANING SYSTEM PIN
32364	LAMIERA FISSAGGIO FILTRO ED ELETTROVALVOLA / PLATE

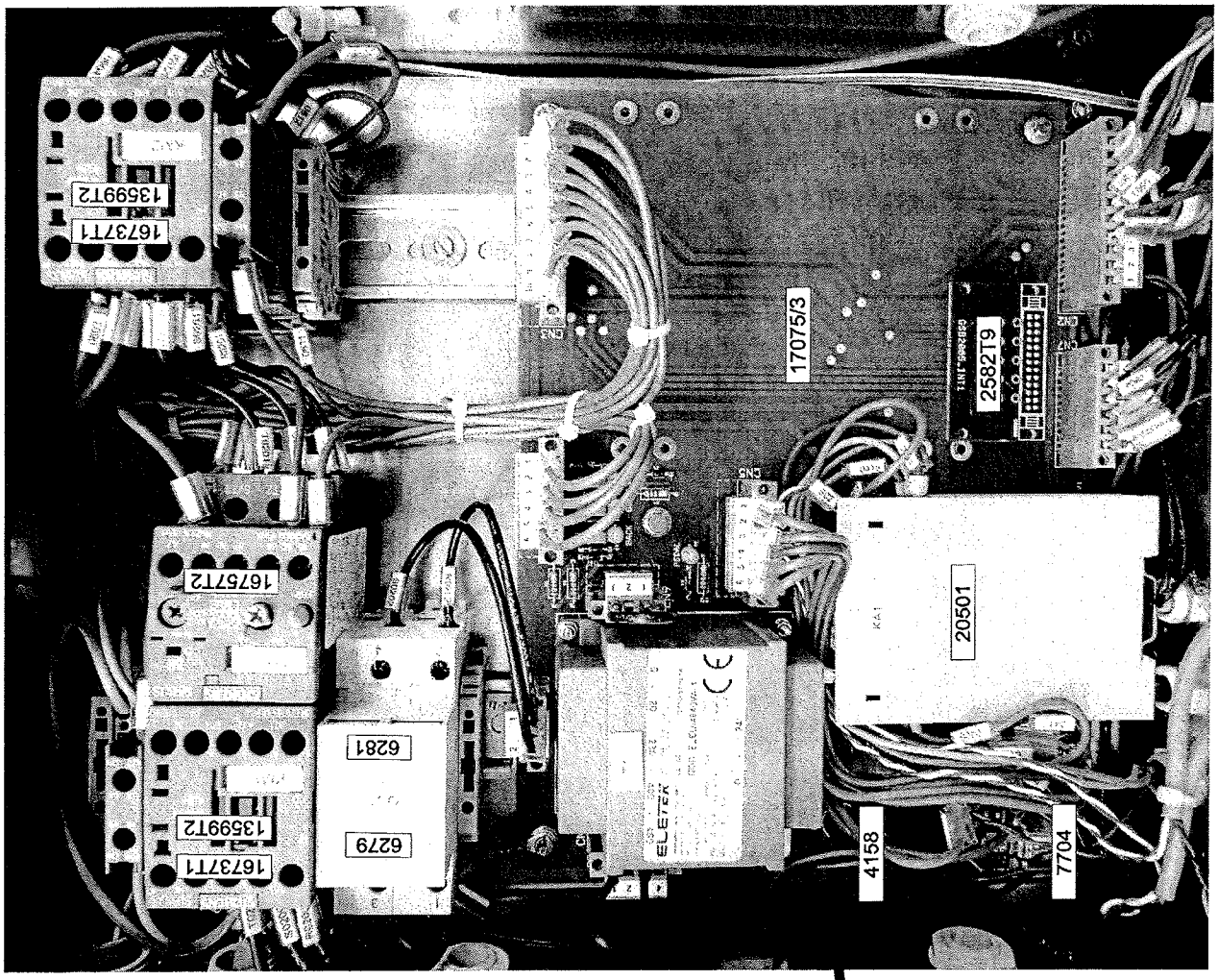
14.8 IMPIANTO ELETTRICO / ELECTRICAL SYSTEM

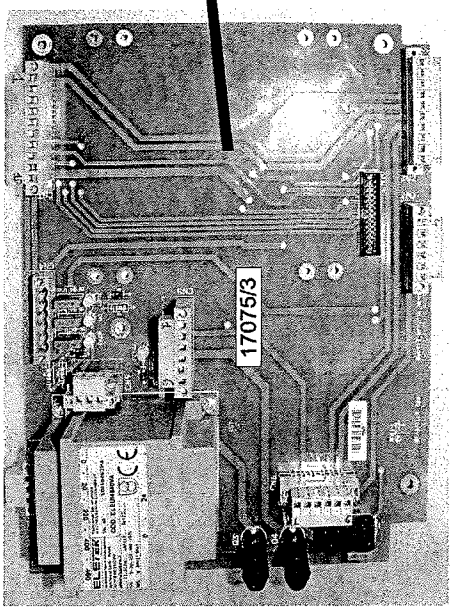


IMPIANTO ELETTRICO / ELECTRICAL SYSTEM		
CODE		DESCRIPTION
MAIN SWITCH	1831	VITE TCTC 04X16 / SCREW WITH SLOT 04X16
	4125	RONDELLA PIANA 05X15X1.5 / WASHER 05X15X1.5
	5359	GHIERA PG13.5 OTTONE / NUT PG 13.5
	5370	PRESSACAVO PG13.5 / CABLE GLAND PG13.5
	9026	LAMIERA PER FISSAGGIO SCATOLA INTERRUTTORE / PLATE
	13056	VITE TCTC 05X06 / SCREW WITH SLOT 05X06
	13104	MANOPOLA / MAIN SWITCH HANDLE
	13105	INTERRUTTORE / SWITCH
	13106T3	CASSETTA IMPIANTO ELETTRICO 120X80X85 / ELECTRICAL BOX 120X80X85
	13132	TERMINALE / TERMINAL
	13580	PARETE / WALL ZAP
	13962	MORSETTO TERRA / HEART GROUND PORT
	20229T2	INTERRUTTORE GENERALE COMPLETO / COMPLETE GENERAL SWITCH
	168TEOMEGAF	BARRA FORATA / PERFORATED BAR
	168TE028020	BARRA RAME 15X2 FORATA / PERFORATED BAR
006		VITE TE 05X10 / HEXAGON CAP SCREW 05X10
366		VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
431		DADO AUTOBLOCCANTE M06 / SELF-LOCKING NUT M06
624		RONDELLA PIANA 06X18X1.6 / WASHER 06X18X1.6
718		RONDELLA PIANA 08X24X2 / WASHER 08X24X2
3095		VITE TE 06X08 / HEXAGON HEAD SCREW 06X8
4123		VITE TE 04X10 / HEXAGON HEAD SCREW 04X10
4125		RONDELLA PIANA 05X15X1.5 / WASHER 05X15X1.5
4192		DADO AUTOBLOCCANTE M04 / SELF-LOCKING NUT M04
7321		RONDELLA GOMMA D.I 6.5 D.E 20 SPESSORE 5 / SPACER
10202		FINECORSA PIZZATO / LIMIT SWITCH
10490		FINECORSA COMPLETO PIZZATO CON PERNO / LIMIT SWITCH
13011		FUNGO EMERGENZA SENZA CONTATTI E GHIERA / EMERGENCY BUTTON
13715T1		VITE TSTC 04X06 / SCREW 04X06
13768		VITE TCCE 04X16 / HEX SCREW 04X16
13907		VITE TCCE 04X30 / SOCKET HEAD SCREW 04X30
13908		VITE STEI 05X08 PUNTA CONICA / GRUB SCREW 05X08
16094		SUPPORTO FISSAGGIO MICRO PULSANTE EMERGENZA SELETTORE / SUPPORT
16095		GHIERA PER SUPPORTO MICRO / PLASTIC NUT
16096		TASTATORE PER MICRO-PIZZATO L=28 MM / LIMIT SWITCH PIN
16689		TAPPO PER CHIUSURA FORI / STAINLESS STEEL CAP

16820ASSY	SUPPORTO COMPLETO DI MICRO PIZZATO PER PULSANTI / LIMIT SWITCH BUTTON SUPPORT ASSY
16850T2	FINECORSA PIZZATO CAVO 5MT / LIMIT SWITCH
17274T2	SENSORE CAVO 2MT / SENSOR
17275T2	MAGNETE / MAGNET
17707	LAMIERA FISSAGGIO MICRO MECC. PIANO ANTERIORE / INFEED TABLE SWITCH FIXING PLATE
18068	AREATORE / AIR INTAKE
21083T1	DISCO EMERGENZA-ARRESTO / EMERGENCY-STOP DISK
21602T1	SPIA ROSSA-VERDE COMPLETA INOX AC/DC / STAINLESS STEEL RED-GREEN SIGNAL LAMP 24V AC/DC
26020T1	STAFFA PER FISSAGGIO SENSORE CODIFICATO / FRONT PLANE CODED SENSOR'S SUPPORT
29228ASSY	PULSANTE INOX SENZA CONTATTI E GHIERA / STAINLESS STEEL PUSH BUTTON
29229ASSY	PULSANTE INOX COMPLETO / STAINLESS STEEL PUSH BUTTON ASSY
29666	STAFFA DI SUPPORTO MICRO MECCANICO PEDALE / SWITCH SUPPORT
13012	PULSANTE D'EMERGENZA COMPLETO / COMPLETE EMERGENCY BUTTON
29925T1	TONDO PER AZIONAMENTO PULSANTE D'EMERGENZA / EMERGENCY BUTTON ACTUATOR PIN
32283T1	SCATOLA ELETTRICA PER IMPIANTO CON SCHEDA DI POTENZA / ELECTRIC BOX
32285T1	COPERCHIO SCATOLA ELETTRICA / ELECTRIC BOX COVER
32286	LAMIERA INTERNA SCATOLA ELETTRICA / PLATE
32577	STAFFA FISSAGGIO SENSORE / SENSOR SUPPORT

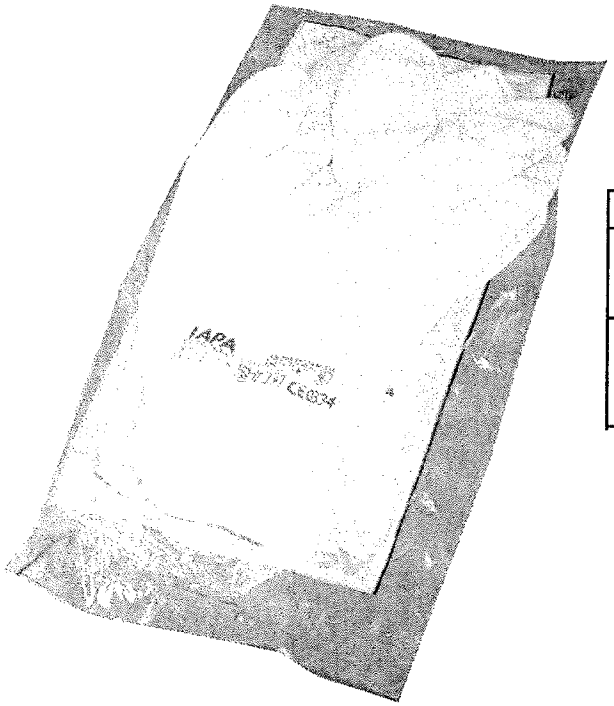
14.9 QUADRO ELETTRICO / ELECTRIC PANEL





QUADRO ELETTRICO / ELECTRIC PANEL		
RIF	CODE	DESCRIPTION
	2582T9	BYPASS SISTEMA DI SICUREZZA / SAFETY SYSTEM EXCLUDER
	4158	FUSIBILE IN VETRO 5X20 2A / GLASS FUSE 5X20 2A
	17075/3	SCHEDA CIRCUITO STAMPATO IMP. ELETTRICO / CARD FOR ELECTRICAL CIRCUIT SYSTEM
	7704	RELE' G2R-1 24V AC / RELE FOR ELECTRICAL CARD
	20501	CENTRALINA AES 1185.3 24V AC / TRIGGER BOX AES 1185.3
QU1	6279	PORTAFUSIBILE SEZIONABILE BIPOLARE 10X38 / BIPOLAR FUSE BLOCK
	6281	FUSIBILE 10X38 2A 500V / FUSE 10X38 2A 500V
KM1	13599T2	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
KM2	13599T2	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
QM1	16757T2	TERMICO 2,8-4A / THERMAL OVERLOAD 2,8-4A

14.10 GUANTI ISOLANTI / INSULATING GLOVES



CODE	DESCRIPTION	
G7539	PAIO GUANTI ISOLANTI TAGLIA 9	INSULATING GLOVES 9 SIZE
G7540	PAIO GUANTI ISOLANTI TAGLIA 10	INSULATING GLOVES 10 SIZE

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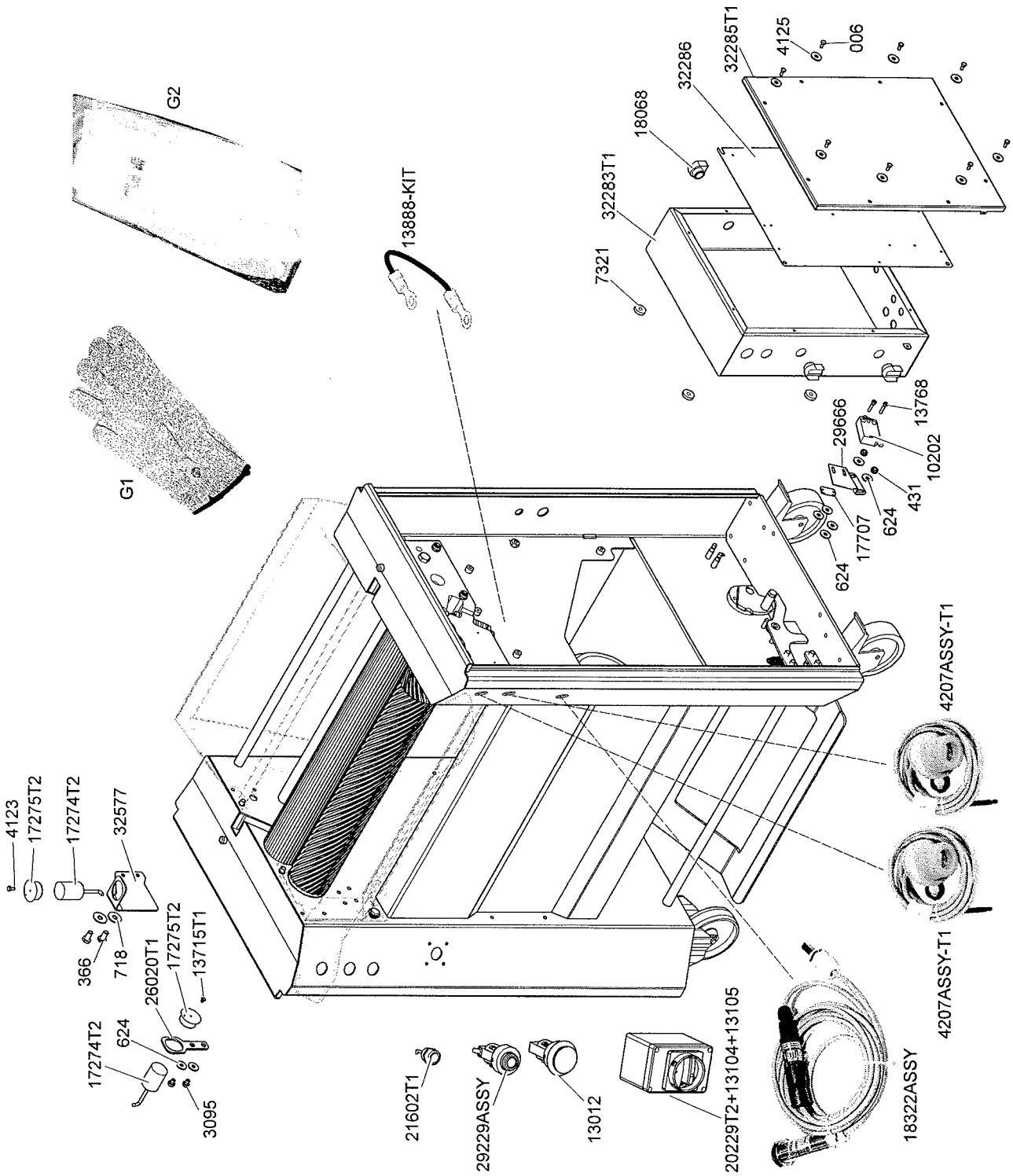
RICAMBI SISTEMI CLO E WLO / CLO AND WLO SPARE PARTS SYSTEMS
(OPTIONAL)

14.11 IMPIANTO ELETTRICO CON SISTEMA CLO (OPTIONAL) / ELECTRICAL SYSTEM WITH CLO SYSTEM (OPTIONAL)

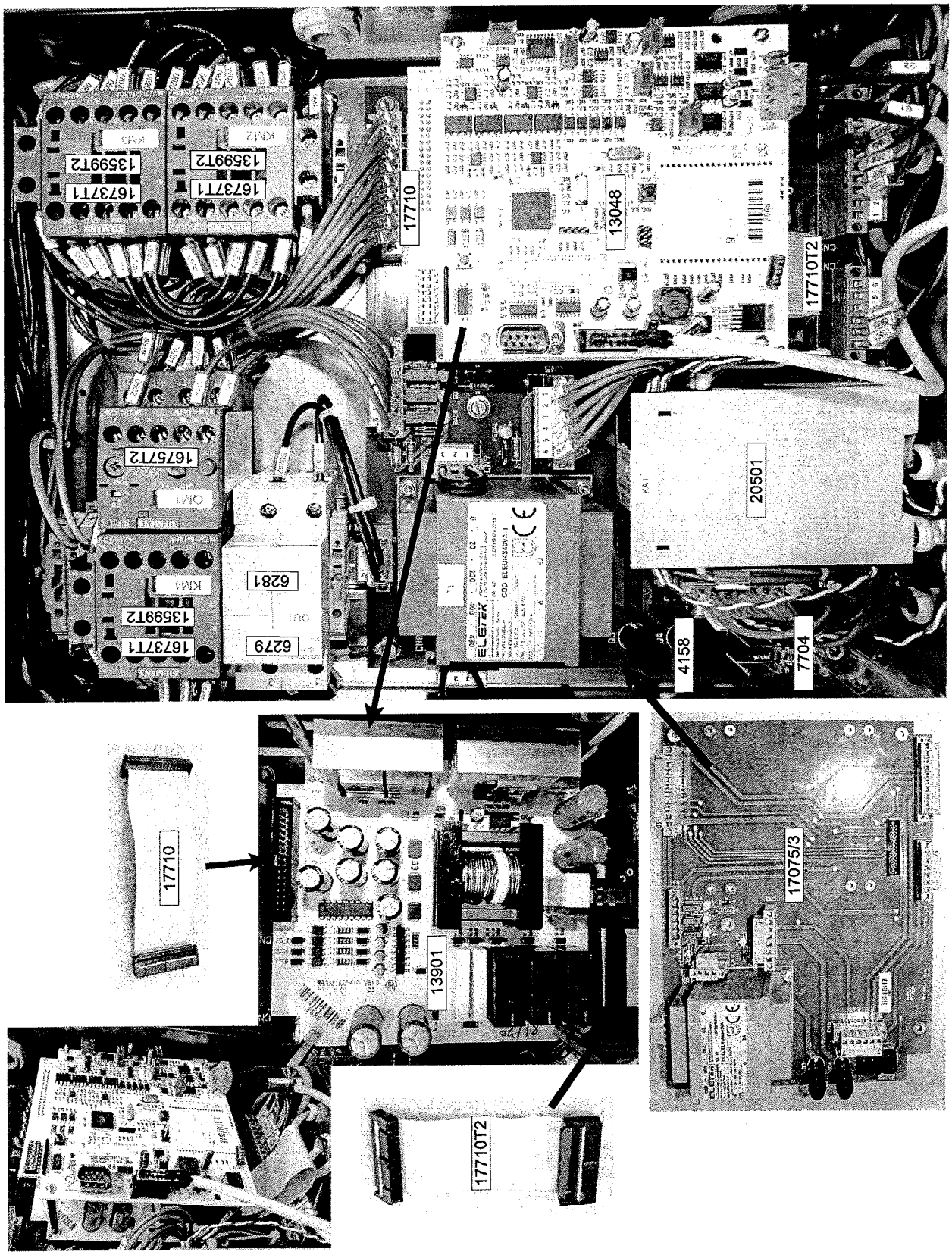


IMPIANTO ELETTRICO CON SISTEMA CLO (OPTIONAL) / ELECTRICAL SYSTEM WITH CLO SYSTEM (OPTIONAL)		
CODE		DESCRIPTION
MAIN SWITCH	1831	VITE TCTC 04X16 / SCREW WITH SLOT 04X16
	4125	RONDELLA PIANA 05X15X1.5 / WASHER 05X15X1.5
	5359	GHIERA PG13.5 OTTONE / NUT PG 13.5
	5370	PRESSACAVO PG13.5 / CABLE GLAND PG13.5
	9026	LAMIERA PER FISSAGGIO SCATOLA INTERRUTTORE / PLATE
	13056	VITE TCTC 05X06 / SCREW WITH SLOT 05X06
	13104	MANOPOLA / MAIN SWITCH HANDLE
	13105	INTERRUTTORE / SWITCH
	13106T3	CASSETTA IMPIANTO ELETTRICO 120X80X85 / ELECTRICAL BOX 120X80X85
	13132	TERMINALE / TERMINAL
	13580	PARETE / WALL ZAP
	13962	MORSETTO TERRA / HEART GROUND PORT
	20229T2	INTERRUTTORE GENERALE COMPLETO / COMPLETE GENERAL SWITCH
	168TEOMEGAF	BARRA FORATA / PERFORATED BAR
	168TE028020	BARRA RAME 15X2 FORATA / PERFORATED BAR
006		VITE TE 05X10 / HEXAGON CAP SCREW 05X10
366		VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
431		DADO AUTOBLOCCANTE M06 / SELF-LOCKING NUT M06
624		RONDELLA PIANA 06X18X1.6 / WASHER 06X18X1.6
718		RONDELLA PIANA 08X24X2 / WASHER 08X24X2
3095		VITE TE 06X08 / HEXAGON HEAD SCREW 06X8
4123		VITE TE 04X10 / HEXAGON HEAD SCREW 04X10
4125		RONDELLA PIANA 05X15X1.5 / WASHER 05X15X1.5
4192		DADO AUTOBLOCCANTE M04 / SELF-LOCKING NUT M04
4207ASSY-T1		PRESA CLO CONTATTO MAGNETICO COMPLETA / MAGNETIC SOCKET ASSY
7321		RONDELLA GOMMA D.I 6.5 D.E 20 SPESSORE 5 / SPACER
10202		FINECORSA PIZZATO / LIMIT SWITCH
10490		FINECORSA COMPLETO PIZZATO CON PERNO / LIMIT SWITCH
13011		FUNGO EMERGENZA SENZA CONTATTI E GHIERA / EMERGENCY BUTTON
13715T1		VITE TSTC 04X06 / SCREW 04X06
13768		VITE TCCE 04X16 / HEX SCREW 04X16
13888-KIT		CAVETTO MASSA CLO / EARTH GROUND CABLE
13907		VITE TCCE 04X30 / SOCKET HEAD SCREW 04X30
13908		VITE STEI 05X08 PUNTA CONICA / GRUB SCREW 05X08
16094		SUPPORTO FISSAGGIO MICRO PULSANTE EMERGENZA SELETTORE / SUPPORT
16095		GHIERA PER SUPPORTO MICRO / PLASTIC NUT

16096	TASTATORE PER MICRO-PIZZATO L=28 MM / LIMIT SWITCH PIN
16820ASSY	SUPPORTO COMPLETO DI MICRO PIZZATO PER PULSANTI / LIMIT SWITCH BUTTON SUPPORT ASSY
16850T2	FINECORSA PIZZATO CAVO 5MT / LIMIT SWITCH
17274T2	SENSORE CAVO 2MT / SENSOR
17275T2	MAGNETE / MAGNET
17707	LAMIERA FISSAGGIO MICRO MECC. PIANO ANTERIORE / INFEED TABLE SWITCH FIXING PLATE
18068	AREATORE / AIR INTAKE
18322ASSY	DISPLAY COMPLETO CLO / DISPLAY CLO
21083T1	DISCO EMERGENZA-ARRESTO / EMERGENCY-STOP DISK
21602T1	SPIA ROSSA-VERDE COMPLETA INOX AC/DC / STAINLESS STEEL RED-GREEN SIGNAL LAMP 24V AC/DC
26020T1	STAFFA PER FISSAGGIO SENSORE CODIFICATO / FRONT PLANE CODED SENSOR'S SUPPORT
29228ASSY	PULSANTE INOX SENZA CONTATTI E GHIERA / STAINLESS STEEL PUSH BUTTON
29229ASSY	PULSANTE INOX COMPLETO / STAINLESS STEEL PUSH BUTTON ASSY
29666	STAFFA DI SUPPORTO MICRO MECCANICO PEDALE / SWITCH SUPPORT
13012	PULSANTE D'EMERGENZA COMPLETO / COMPLETE EMERGENCY BUTTON
29925T1	TONDO PER AZIONAMENTO PULSANTE D'EMERGENZA / EMERGENCY BUTTON ACTUATOR PIN
32283T1	SCATOLA ELETTRICA PER IMPIANTO CON SCHEDA DI POTENZA / ELECTRIC BOX
32285T1	COPERCHIO SCATOLA ELETTRICA / ELECTRIC BOX COVER
32286	LAMIERA INTERNA SCATOLA ELETTRICA / PLATE
32577	STAFFA FISSAGGIO SENSORE / SENSOR SUPPORT

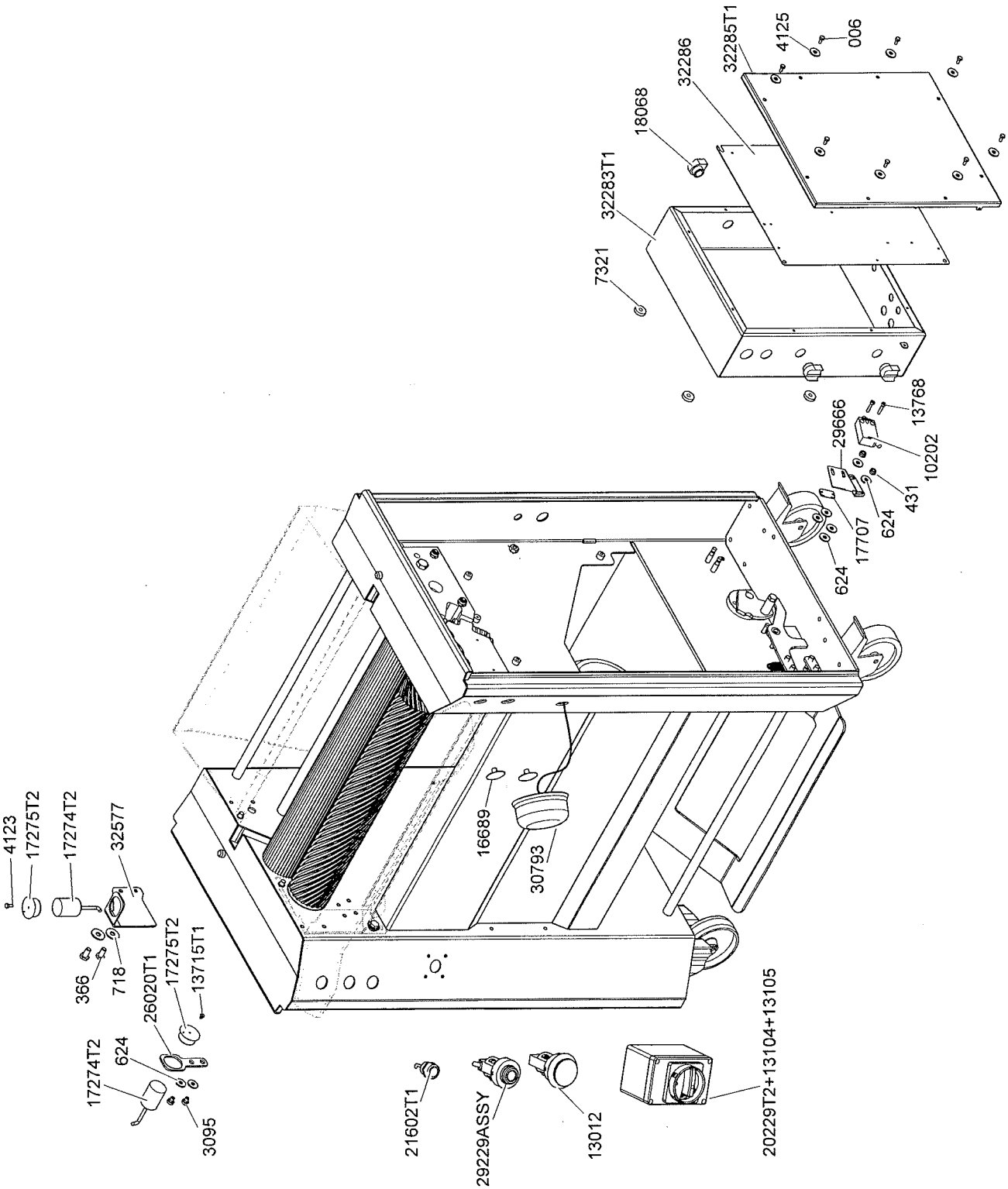
G2	**G7539**	GUANTI ISOLANTI SUPERFOOD TAGLIA 9 / GLOVES SIZE 9
	G7540	GUANTI ISOLANTI SUPERFOOD TAGLIA 10 / GLOVES SIZE 10
G1	**G2549S8T1**	PAIO GUANTI CONDUTTIVI ACCIAIO INOX TAGLIA 8 / STAINLESS STEEL CONDUCTIVE GLOVES SIZE 8
	G2549S9T1	PAIO GUANTI CONDUTTIVI ACCIAIO INOX TAGLIA 9 / STAINLESS STEEL CONDUCTIVE GLOVES SIZE 9
	G2549S10T1	PAIO GUANTI CONDUTTIVI ACCIAIO INOX TAGLIA 10 / STAINLESS STEEL CONDUCTIVE GLOVES SIZE 10

14.12 QUADRO ELETTRICO CON SISTEMA CLO (OPTIONAL) / ELECTRIC PANEL WITH CLO SYSTEM (OPTIONAL)



QUADRO ELETTRICO CON SISTEMA CLO (OPTIONAL) / ELECTRIC PANEL WITH CLO SYSTEM (OPTIONAL)		
RIF	**CODE**	**DESCRIPTION**
KM1	**13599T2**	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
KM2	**13599T2**	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
KM3	**13599T2**	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
QM1	**16757T2**	TERMICO 2,8-4A / THERMAL OVERLOAD 2,8-4A
QU1	**6279**	PORTAFUSIBILE SEZIONABILE BIPOLARE 10X38 / BIPOLAR FUSE BLOCK
	6281	FUSIBILE 10X38 2A 500V / FUSE 10X38 2A 500V
4158		FUSIBILE IN VETRO 5X20 2A / GLASS FUSE 5X20 2A
17075/3		SCHEDA CIRCUITO STAMPATO IMP. ELETTRICO / CARD FOR ELECTRICAL CIRCUIT SYSTEM
7704		RELE' G2R-1 24V AC / RELE FOR ELECTRICAL CARD
13048		SCHEDINA SUPERIORE CLO / UP CLO CARD
13901		SCHEDINA INFERIORE CLO / DOWN CLO CARD
17710		CAVO FLAT COLLEGAMENTO SCHEDE CLO / FLAT CABLE CLO CARDS CONNECTION
17710T2		CAVO FLAT COLLEGAMENTO SCHEDE CLO / FLAT CABLE CLO CARDS CONNECTION
20501		CENTRALINA AES 1185.3 24V AC / TRIGGER BOX AES 1185.3

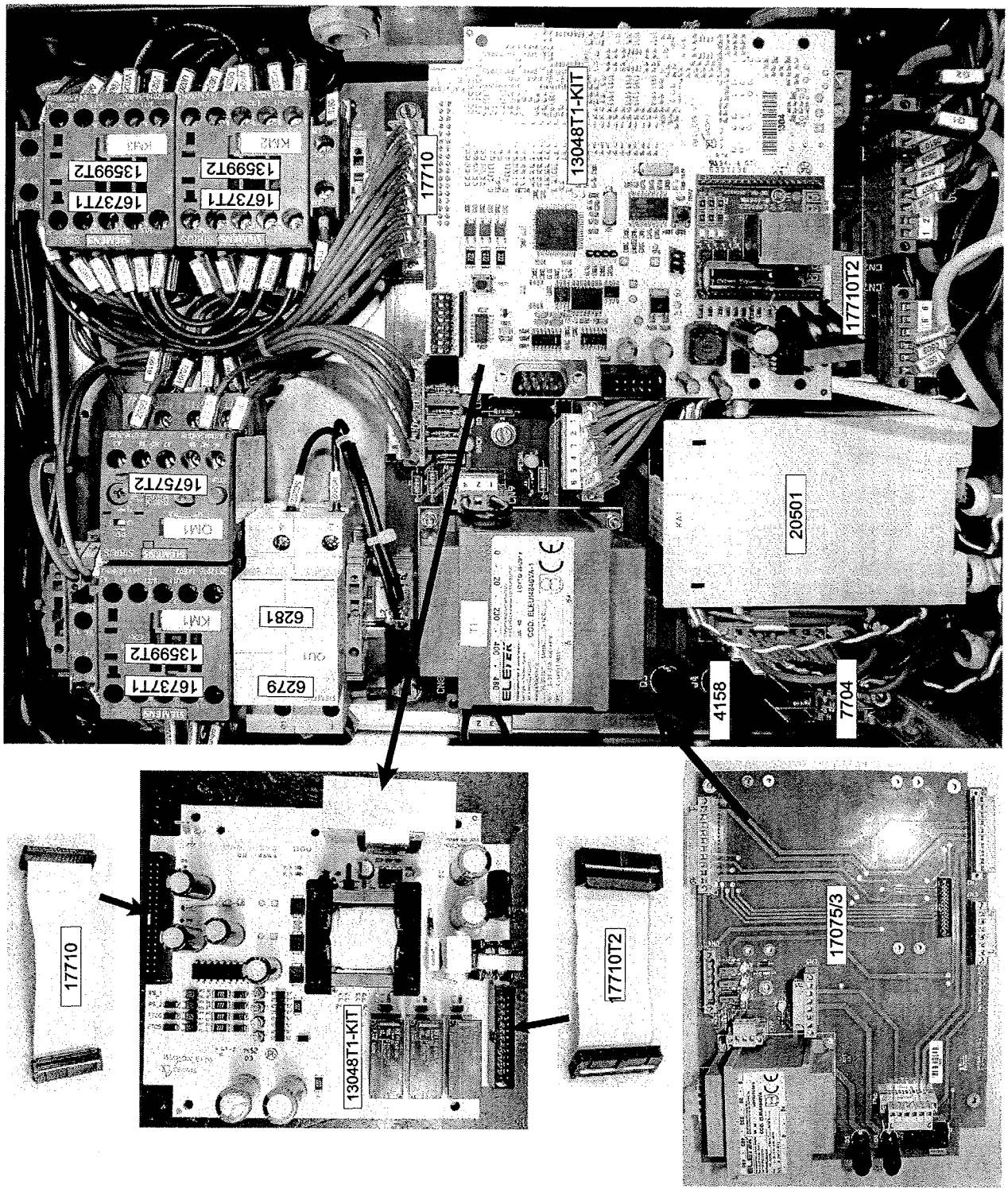
14.13 IMPIANTO ELETTRICO CON SISTEMA WLO (OPTIONAL) / ELECTRICAL SYSTEM WITH WLO SYSTEM (OPTIONAL)



IMPIANTO ELETTRICO CON SISTEMA WLO (OPTIONAL) / ELECTRICAL SYSTEM WITH WLO SYSTEM (OPTIONAL)		
CODE		DESCRIPTION
MAIN SWITCH	1831	VITE TCTC 04X16 / SCREW WITH SLOT 04X16
	4125	RONDELLA PIANA 05X15X1.5 / WASHER 05X15X1.5
	5359	GHIERA PG13.5 OTTONE / NUT PG 13.5
	5370	PRESSACAVO PG13.5 / CABLE GLAND PG13.5
	9026	LAMIERA PER FISSAGGIO SCATOLA INTERRUTTORE / PLATE
	13056	VITE TCTC 05X06 / SCREW WITH SLOT 05X06
	13104	MANOPOLA / MAIN SWITCH HANDLE
	13105	INTERRUTTORE / SWITCH
	13106T3	CASSETTA IMPIANTO ELETTRICO 120X80X85 / ELECTRICAL BOX 120X80X85
	13132	TERMINALE / TERMINAL
	13580	PARETE / WALL ZAP
	13962	MORSETTO TERRA / HEART GROUND PORT
	20229T2	INTERRUTTORE GENERALE COMPLETO / COMPLETE GENERAL SWITCH
	168TEOMEGAF	BARRA FORATA / PERFORATED BAR
	168TE028020	BARRA RAME 15X2 FORATA / PERFORATED BAR
006		VITE TE 05X10 / HEXAGON CAP SCREW 05X10
366		VITE TE 08X16 / HEXAGON HEAD SCREW 08X16
431		DADO AUTOBLOCCANTE M06 / SELF-LOCKING NUT M06
624		RONDELLA PIANA 06X18X1.6 / WASHER 06X18X1.6
718		RONDELLA PIANA 08X24X2 / WASHER 08X24X2
3095		VITE TE 06X08 / HEXAGON HEAD SCREW 06X8
4123		VITE TE 04X10 / HEXAGON HEAD SCREW 04X10
4125		RONDELLA PIANA 05X15X1.5 / WASHER 05X15X1.5
4192		DADO AUTOBLOCCANTE M04 / SELF-LOCKING NUT M04
7321		RONDELLA GOMMA D.I 6.5 D.E 20 SPESSORE 5 / SPACER
10202		FINECORSA PIZZATO / LIMIT SWITCH
10490		FINECORSA COMPLETO PIZZATO CON PERNO / LIMIT SWITCH
13011		FUNGO EMERGENZA SENZA CONTATTI E GHIERA / EMERGENCY BUTTON
13715T1		VITE TSTC 04X06 / SCREW 04X06
13768		VITE TCCE 04X16 / HEX SCREW 04X16
13907		VITE TCCE 04X30 / SOCKET HEAD SCREW 04X30
13908		VITE STEI 05X08 PUNTA CONICA / GRUB SCREW 05X08
16094		SUPPORTO FISSAGGIO MICRO PULSANTE EMERGENZA SELETTORE / SUPPORT
16095		GHIERA PER SUPPORTO MICRO / PLASTIC NUT
16096		TASTATORE PER MICRO-PIZZATO L=28 MM / LIMIT SWITCH PIN
16689		TAPPO PER CHIUSURA FORI / STAINLESS STEEL CAP

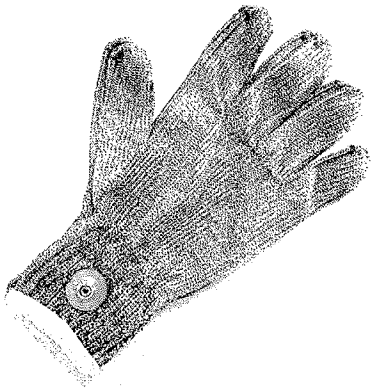
16820ASSY	SUPPORTO COMPLETO DI MICRO PIZZATO PER PULSANTI / LIMIT SWITCH BUTTON SUPPORT ASSY
16850T2	FINECORSA PIZZATO CAVO 5MT / LIMIT SWITCH
17274T2	SENSORE CAVO 2MT / SENSOR
17275T2	MAGNETE / MAGNET
17707	LAMIERA FISSAGGIO MICRO MECC. PIANO ANTERIORE / INFEED TABLE SWITCH FIXING PLATE
18068	AREATORE / AIR INTAKE
21083T1	DISCO EMERGENZA-ARRESTO / EMERGENCY-STOP DISK
21602T1	SPIA ROSSA-VERDE COMPLETA INOX AC/DC / STAINLESS STEEL RED-GREEN SIGNAL LAMP 24V AC/DC
26020T1	STAFFA PER FISSAGGIO SENSORE CODIFICATO / FRONT PLANE CODED SENSOR'S SUPPORT
29228ASSY	PULSANTE INOX SENZA CONTATTI E GHIERA / STAINLESS STEEL PUSH BUTTON
29229ASSY	PULSANTE INOX COMPLETO / STAINLESS STEEL PUSH BUTTON ASSY
29666	STAFFA DI SUPPORTO MICRO MECCANICO PEDALE / SWITCH SUPPORT
13012	PULSANTE D'EMERGENZA COMPLETO / COMPLETE EMERGENCY BUTTON
29925T1	TONDO PER AZIONAMENTO PULSANTE D'EMERGENZA / EMERGENCY BUTTON ACTUATOR PIN
30793	RICEVITORE WLO CABLATO / WLO RICEIVER
32283T1	SCATOLA ELETTRICA PER IMPIANTO CON SCHEDA DI POTENZA / ELECTRIC BOX
32285T1	COPERCHIO SCATOLA ELETTRICA / ELECTRIC BOX COVER
32286	LAMIERA INTERNA SCATOLA ELETTRICA / PLATE
32577	STAFFA FISSAGGIO SENSORE / SENSOR SUPPORT

14.14 QUADRO ELETTRICO CON SISTEMA WLO (OPTIONAL) / ELECTRIC PANEL WITH WLO SYSTEM (OPTIONAL)

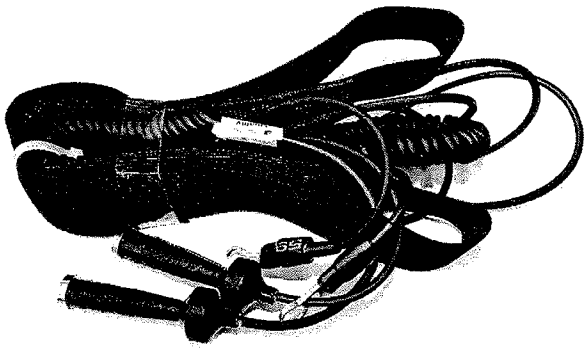


QUADRO ELETTRICO CON SISTEMA WLO (OPTIONAL) / ELECTRIC PANEL WITH WLO SYSTEM (OPTIONAL)		
RIF	**CODE**	**DESCRIPTION**
KM1	**13599T2**	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
KM2	**13599T2**	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
KM3	**13599T2**	CONTATTO AUSILIARIO LATERALE 1NC -1NA / AUXILIARY CONTACT
	16737T1	TELERUTTORE / CONTACTOR
QM1	**16757T2**	TERMICO 2,8-4A / THERMAL OVERLOAD 2,8-4A
QU1	**6279**	PORTAFUSIBILE SEZIONABILE BIPOLARE 10X38 / BIPOLAR FUSE BLOCK
	6281	FUSIBILE 10X38 2A 500V / FUSE 10X38 2A 500V
13048T1-KIT		KIT SCHEDINE WLO / WLO CARD KIT
4158		FUSIBILE IN VETRO 5X20 2A / GLASS FUSE 5X20 2A
17075/3		SCHEDA CIRCUITO STAMPATO IMP. ELETTRICO / CARD FOR ELECTRICAL CIRCUIT SYSTEM
7704		RELE' G2R-1 24V AC / RELE FOR ELECTRICAL CARD
17710		CAVO FLAT COLLEGAMENTO SCHEDE CLO / FLAT CABLE CLO CARDS CONNECTION
17710T2		CAVO FLAT COLLEGAMENTO SCHEDE CLO / FLAT CABLE CLO CARDS CONNECTION
20501		CENTRALINA AES 1185.3 24V AC / TRIGGER BOX AES 1185.3

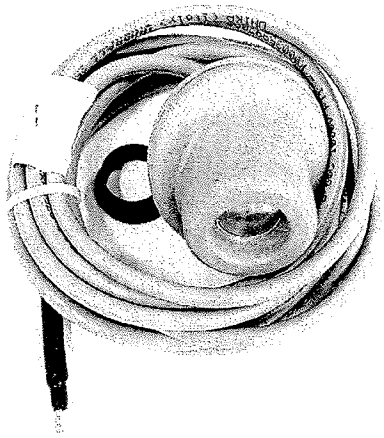
14.15 RICAMBI SISTEMA CLO (OPTIONAL) / CLO SPARE PARTS SYSTEM (OPTIONAL)



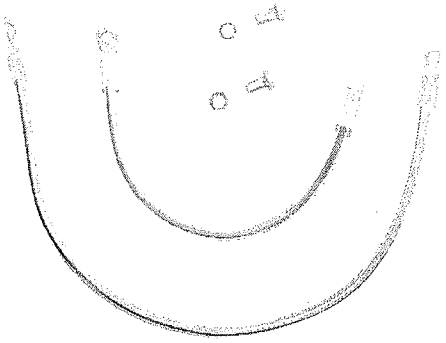
CODE	DESCRIPTION	
G2549S8T1	PAIO GUANTI CONDUTTIVI ACCIAIO INOX TAGLIA 8	STAINLESS STEEL CONDUCTIVE GLOVES SIZE 8
G2549S9T1	PAIO GUANTI CONDUTTIVI ACCIAIO INOX TAGLIA 9	STAINLESS STEEL CONDUCTIVE GLOVES SIZE 9
G2549S10T1	PAIO GUANTI CONDUTTIVI ACCIAIO INOX TAGLIA 10	STAINLESS STEEL CONDUCTIVE GLOVES SIZE 10



CODE	DESCRIPTION	
2522MAG	CINTURA SISTEMA DI SICUREZZA CLO SPINOTTI MAGNETICI	CLO HARNESS MAGNETIC TYPE

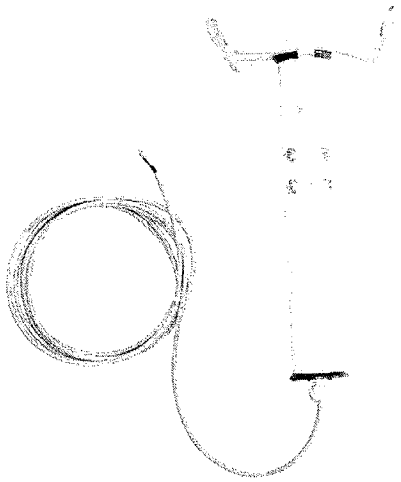


CODE	DESCRIPTION	
4207ASSY-T1	PRESA CLO CONTATTO MAGNETICO COMPLETA (RESINATA)	MAGNETIC SOCKET ASSY

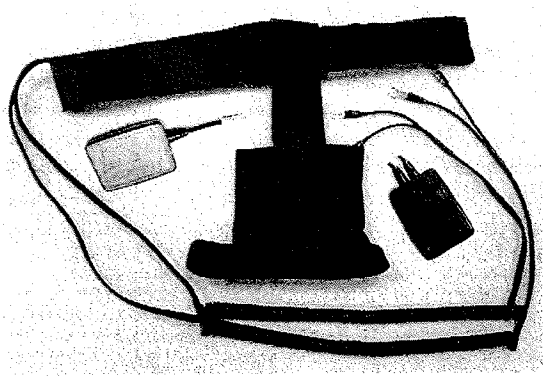


CODE	DESCRIPTION	
13888-KIT	CAVETTO MASSA MACCHINE CLO	EARTH GROUND CABLE

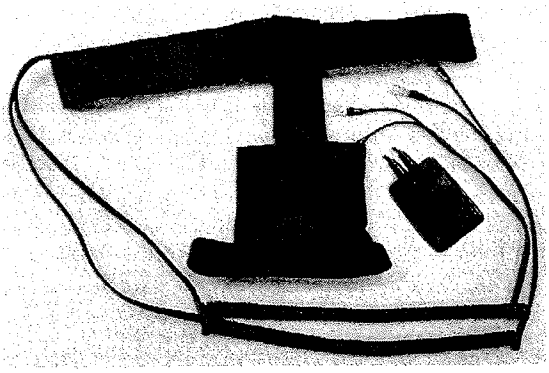
14.16 RICAMBI SISTEMA WLO (OPTIONAL) / WLO SPARE PARTS SYSTEM (OPTIONAL)



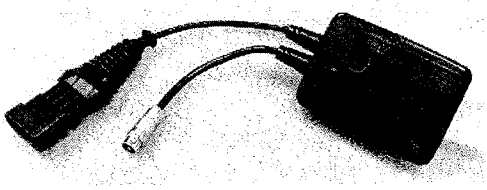
CODE	DESCRIPTION	
31470T1ASSY	CARICABATTERIA WLO	WLO BATTERY CHARGER



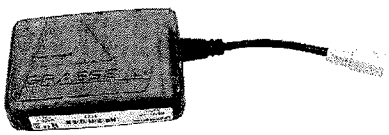
CODE	DESCRIPTION	
2522T1WLO	CINTURA WLO COMPLETA DI TRASMETTITORE E BATTERIA	WLO HARNESS WITH TRANSMITTER AND BATTERY



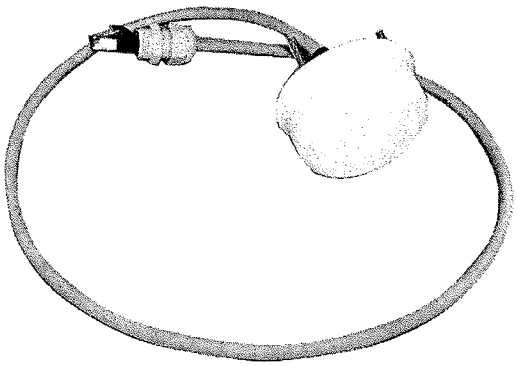
CODE	DESCRIPTION	
30791T2ASSY	CINTURA WLO SENZA BATTERIA	WLO HARNESS WITHOUT BATTERY



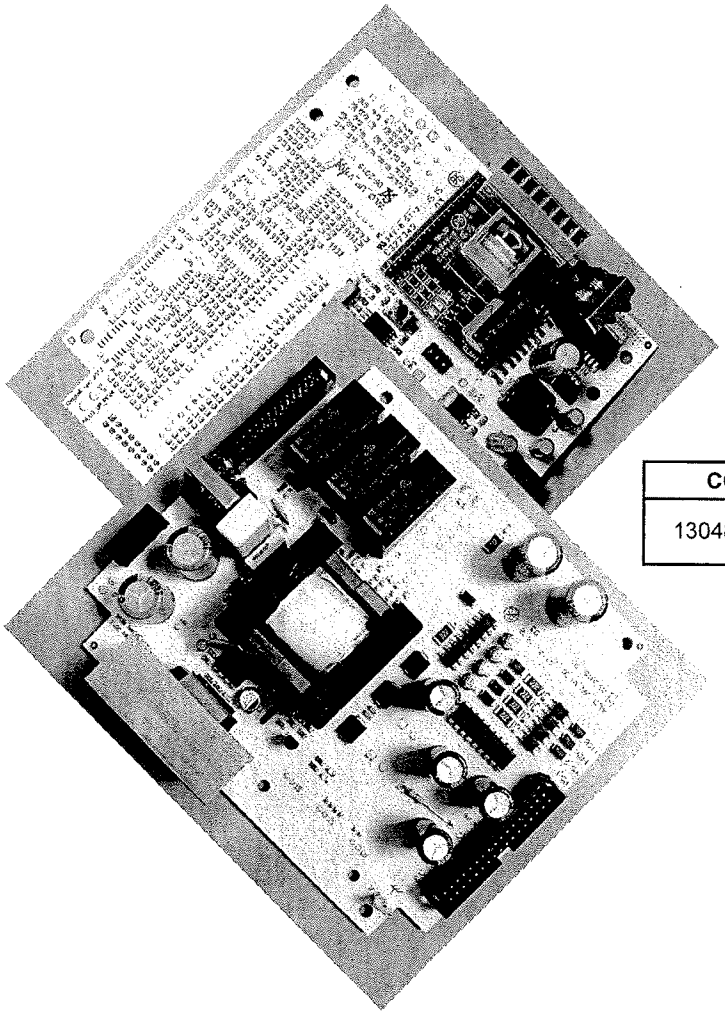
CODE	DESCRIPTION	
30791T3ASSY	TRASMETTITORE WLO CON CONNETTORE RETTANGOLARE	WLO TRANSMITTER WITH RECTANGULAR CONNECTOR



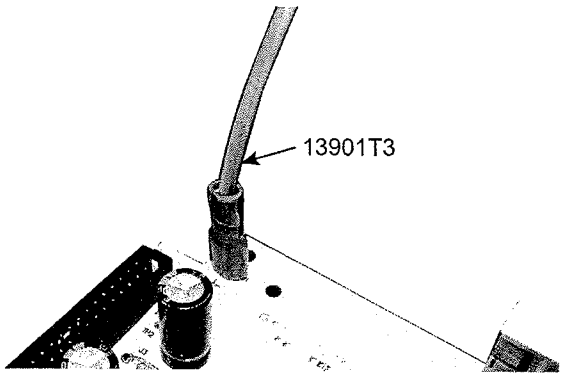
CODE	DESCRIPTION	
30791T1ASSY	BATTERIA TRASMETTITORE WLO	WLO TRANSMITTER BATTERY



CODE	DESCRIPTION	
30793	RICEVITORE WLO CABLATO	WLO RICEIVER

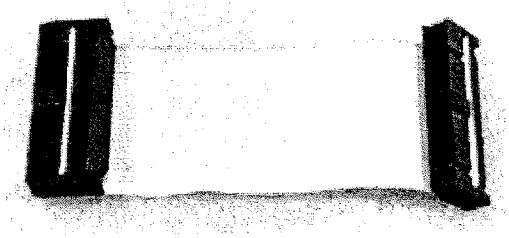


CODE	DESCRIPTION	
13048T1-KIT	KIT SCHEDINE WLO	WLO CARD KIT

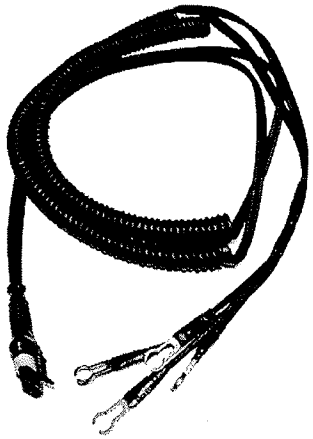


CODE	DESCRIPTION	
13901T3	CAVO TERRA SCHEDINA INFERIORE WLO	WLO EARTH GROUND CABLE

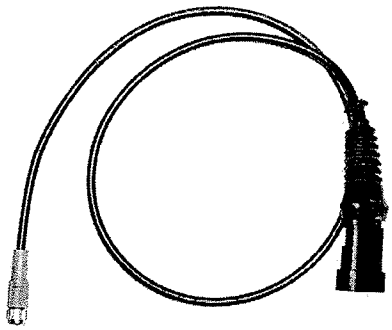
CODE	DESCRIPTION	
17710	CAVO FLAT COLLEGAMENTO SCHEDE	FLAT CABLE CARDS CONNECTION



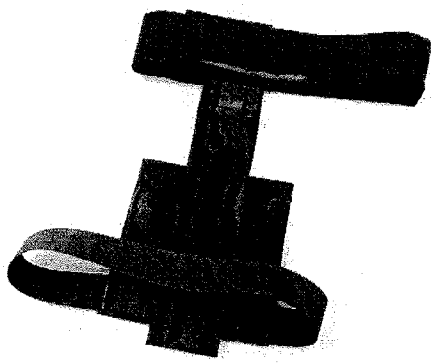
CODE	DESCRIPTION	
17710T2	CAVO FLAT COLLEGAMENTO SCHEDE	FLAT CABLE CARDS CONNECTION



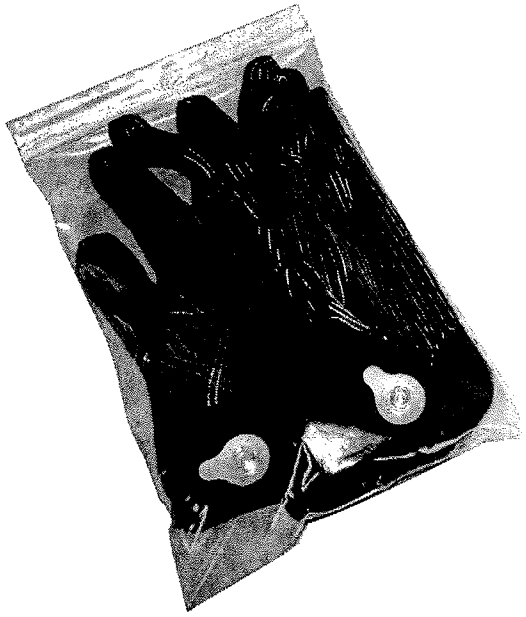
CODE	DESCRIPTION	
18039T5	CAVO A MOLLA GIUBBINO WLO	WLO CABLE



CODE	DESCRIPTION	
18039T6	CAVO CON PRESE MOLLA-TRASMETTITORE WLO (Ricambio per trasmettitori 1° serie)	CABLE WITH SCOKET (First series spare part)



CODE	DESCRIPTION	
17055T1	CINTURA WLO CON TASCA	WLO HARNESS



CODE	DESCRIPTION	
G2549WST1	PAIO GUANTI CONDUTTIVI TAGLIA S WLO BLU	BLUE WLO CONDUCTIVE GLOVES S SIZE
G2549WT1	PAIO GUANTI CONDUTTIVI TAGLIA M WLO BLU	BLUE WLO CONDUCTIVE GLOVES M SIZE
G2549WLT1	PAIO GUANTI CONDUTTIVI TAGLIA L WLO BLU	BLUE WLO CONDUCTIVE GLOVES L SIZE
G2549WXLT1	PAIO GUANTI CONDUTTIVI TAGLIA XL WLO BLU	BLUE WLO CONDUCTIVE GLOVES XL SIZE

BLANK PAGE

MODELS

MS400P-MS475P-MS520P-MS600P-MS800P

MS400PM-MS520PM

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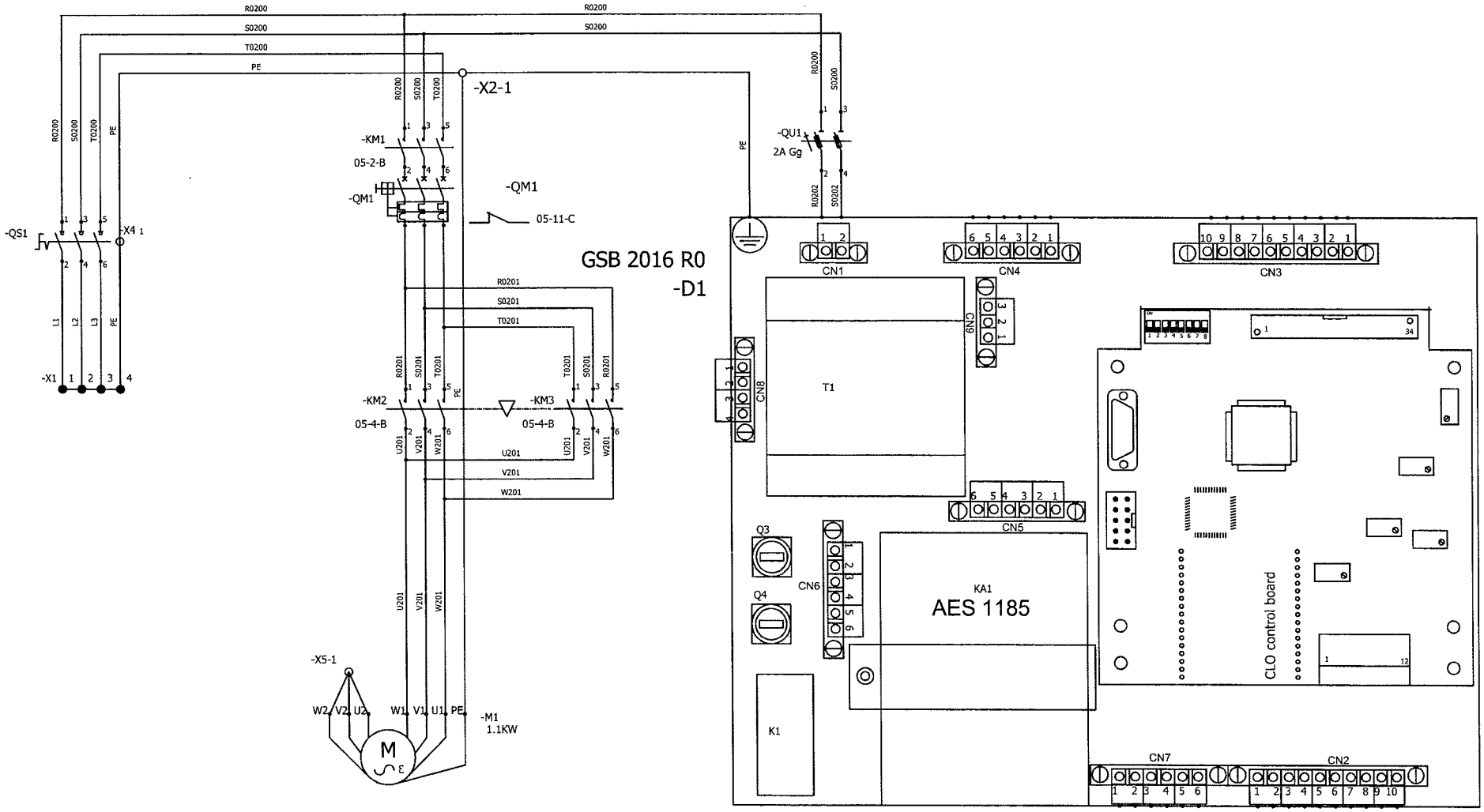
PROJECT	DESCRIPTION
MSxxx/PM-CLO	

DRAWER	DATE
Stefano Peterlini	10/12/2018

GRASSELLI SPA
EXCELLENCE THROUGH TECHNOLOGY

SE0516



PROJECT	DRAWER		SE0516	DESCRIPTION	DATE	Page: 02
MSxxx/PM-CLO	Stefano Peterlini	GRASSELLI SPA EXCELLENCE THROUGH TECHNOLOGY		Power diagram	10/12/2018	Total pages: 8

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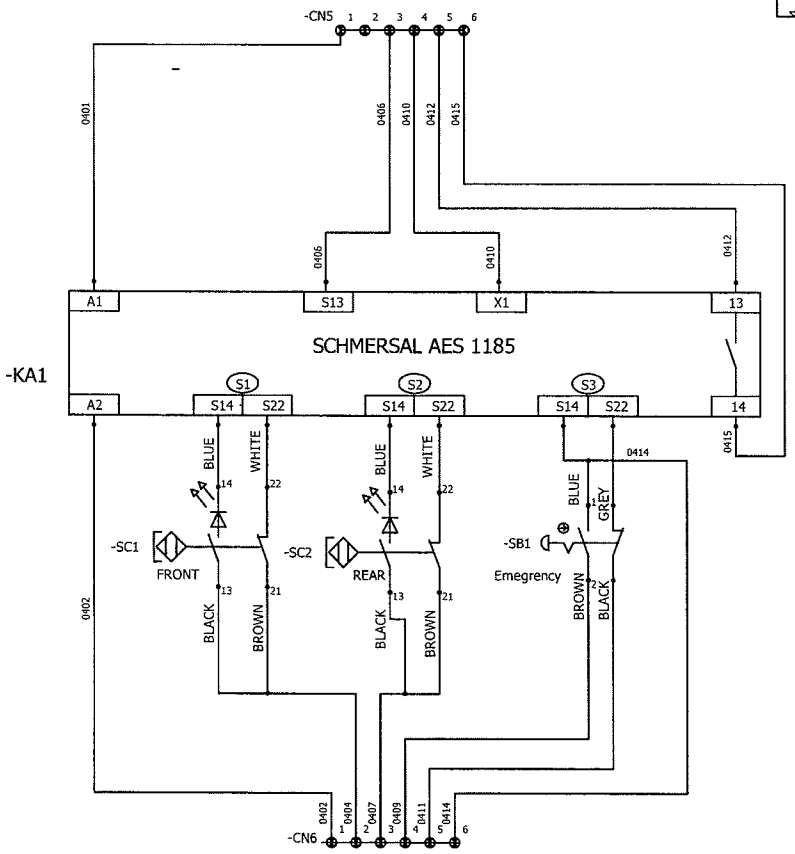
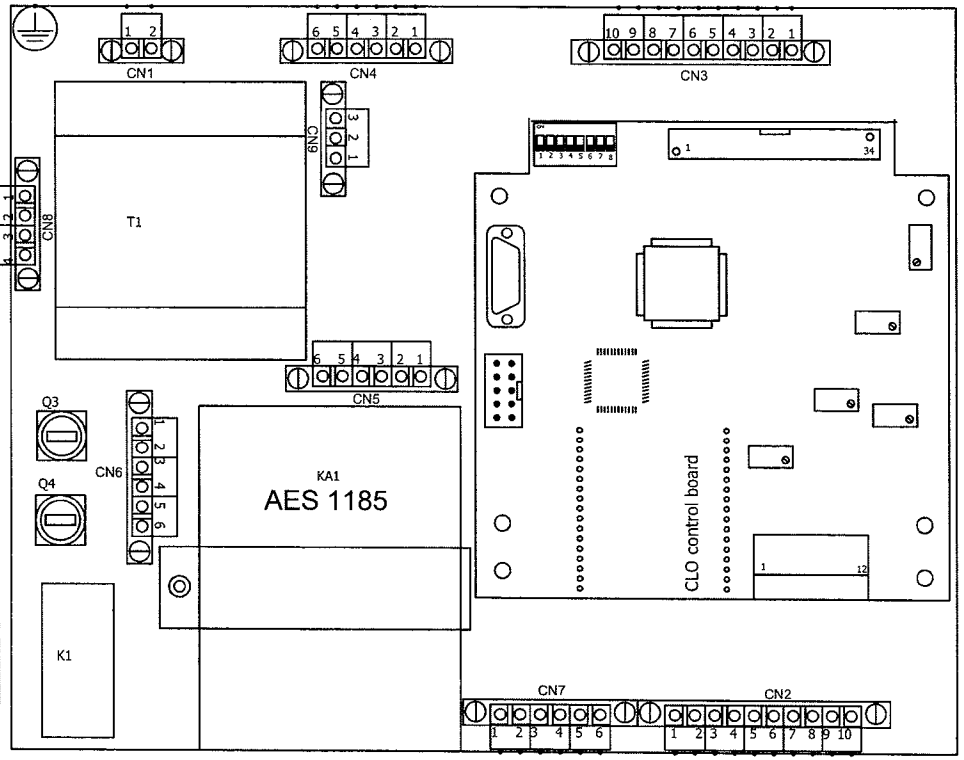
-D1



CN6-2-3-5 CONNECTED ON CN5-4



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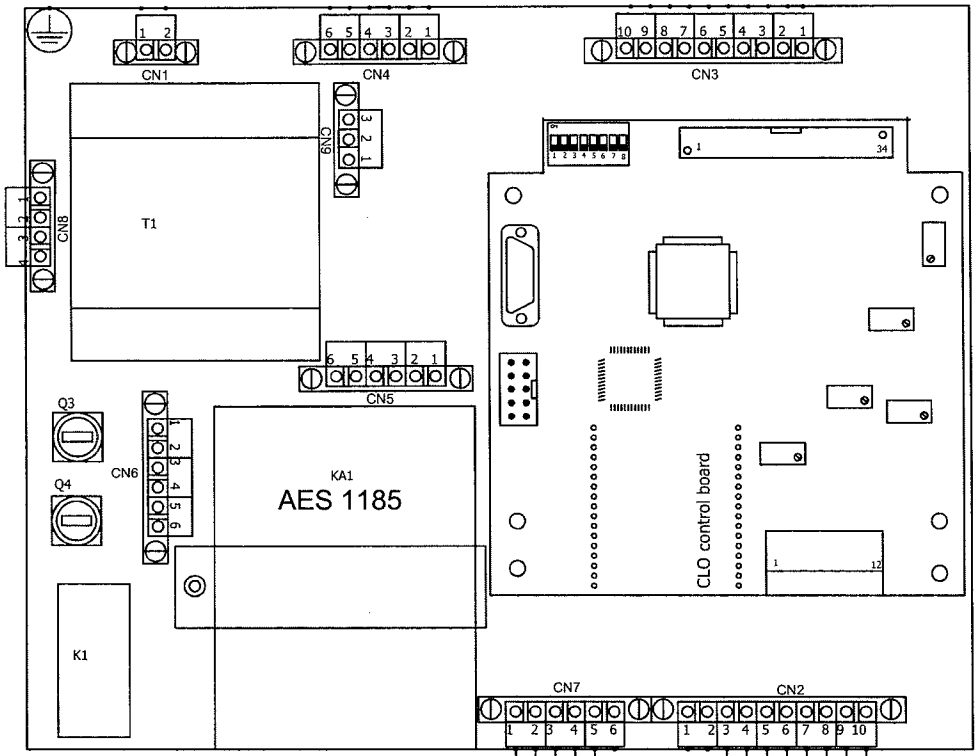
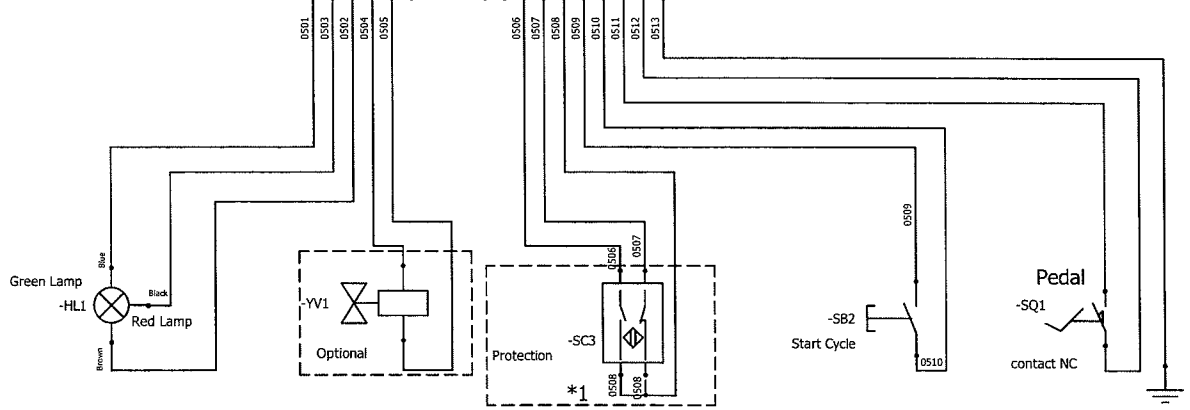


-D1

GSB 2016 R0

Make a jumper
Between CN2-4 and CN2-5



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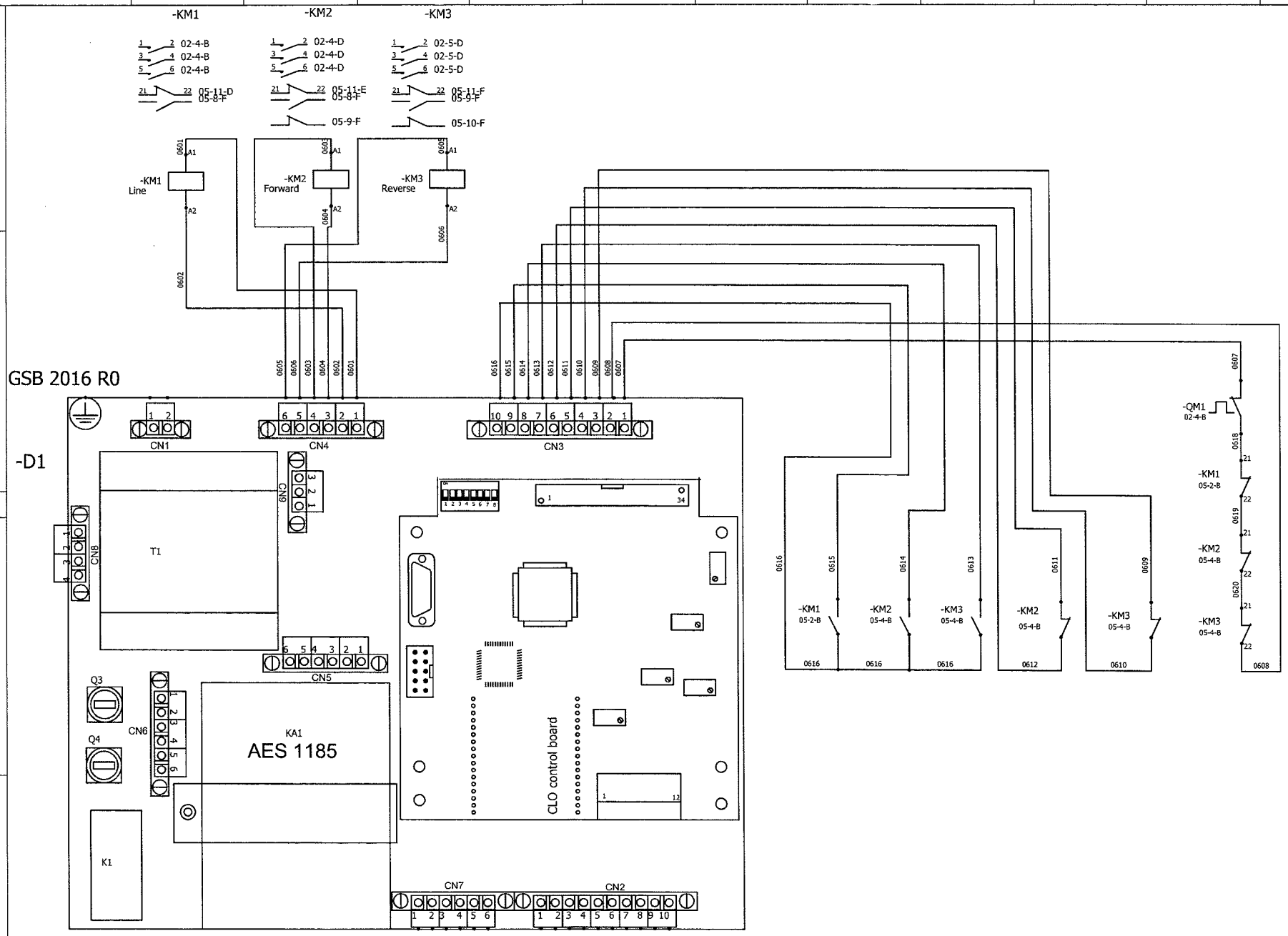
MSxxx/PM-CLO	Stefano Peterlini	GRASSELLI SPA EXCELLENCE THROUGH TECHNOLOGY	SE0516	Inputs	10/12/2018	Total pages: 8



PROJECT	DRAWER		SE0516	DESCRIPTION	DATE	Page: 05
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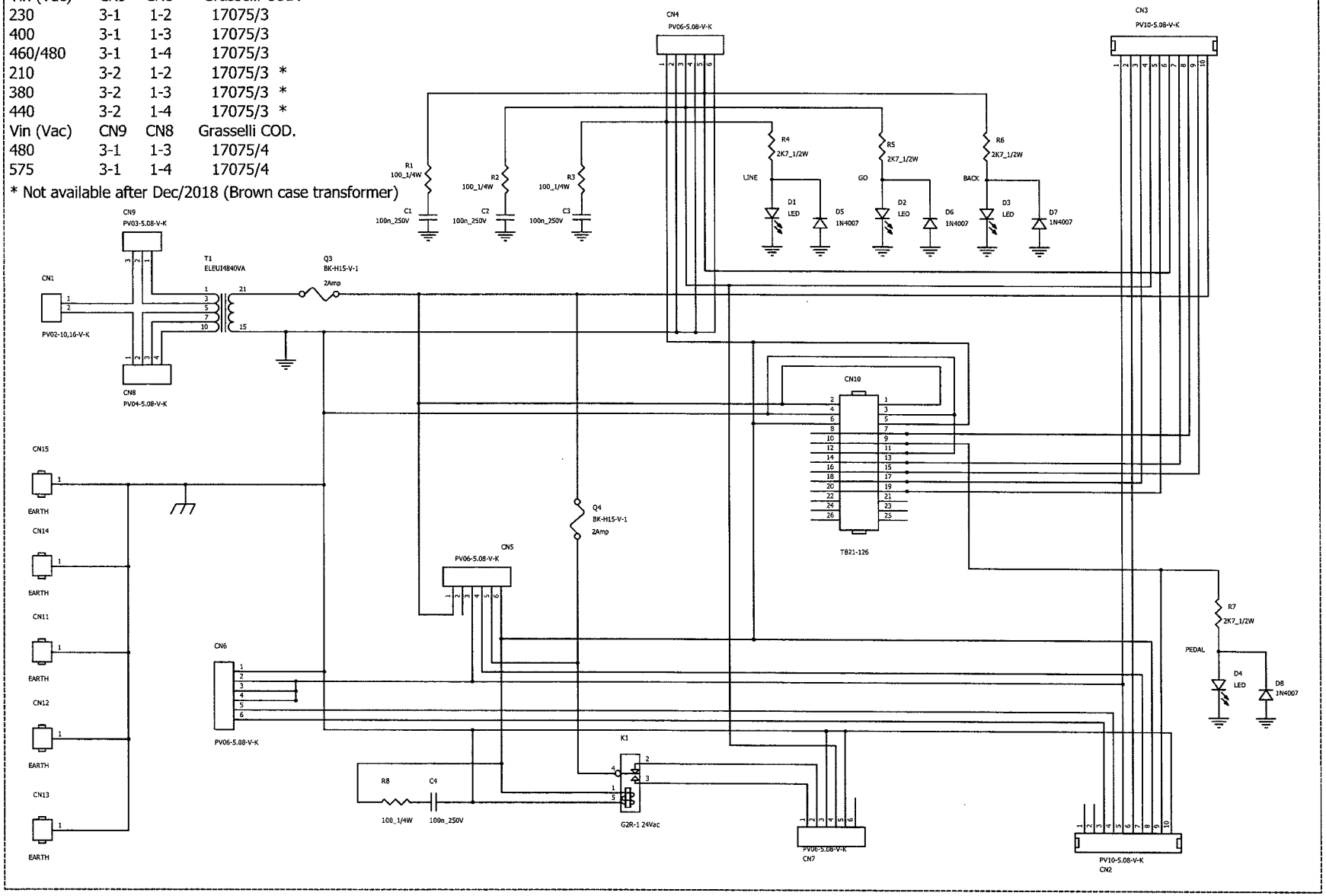
T1 Jumper

Vin (Vac)	CN9	CN8	Grasselli COD.	
230	3-1	1-2	17075/3	
400	3-1	1-3	17075/3	
460/480	3-1	1-4	17075/3	
210	3-2	1-2	17075/3	*
380	3-2	1-3	17075/3	*
440	3-2	1-4	17075/3	*
Vin (Vac)	CN9	CN8	Grasselli COD.	
480	3-1	1-3	17075/4	
575	3-1	1-4	17075/4	

* Not available after Dec/2018 (Brown case transformer)



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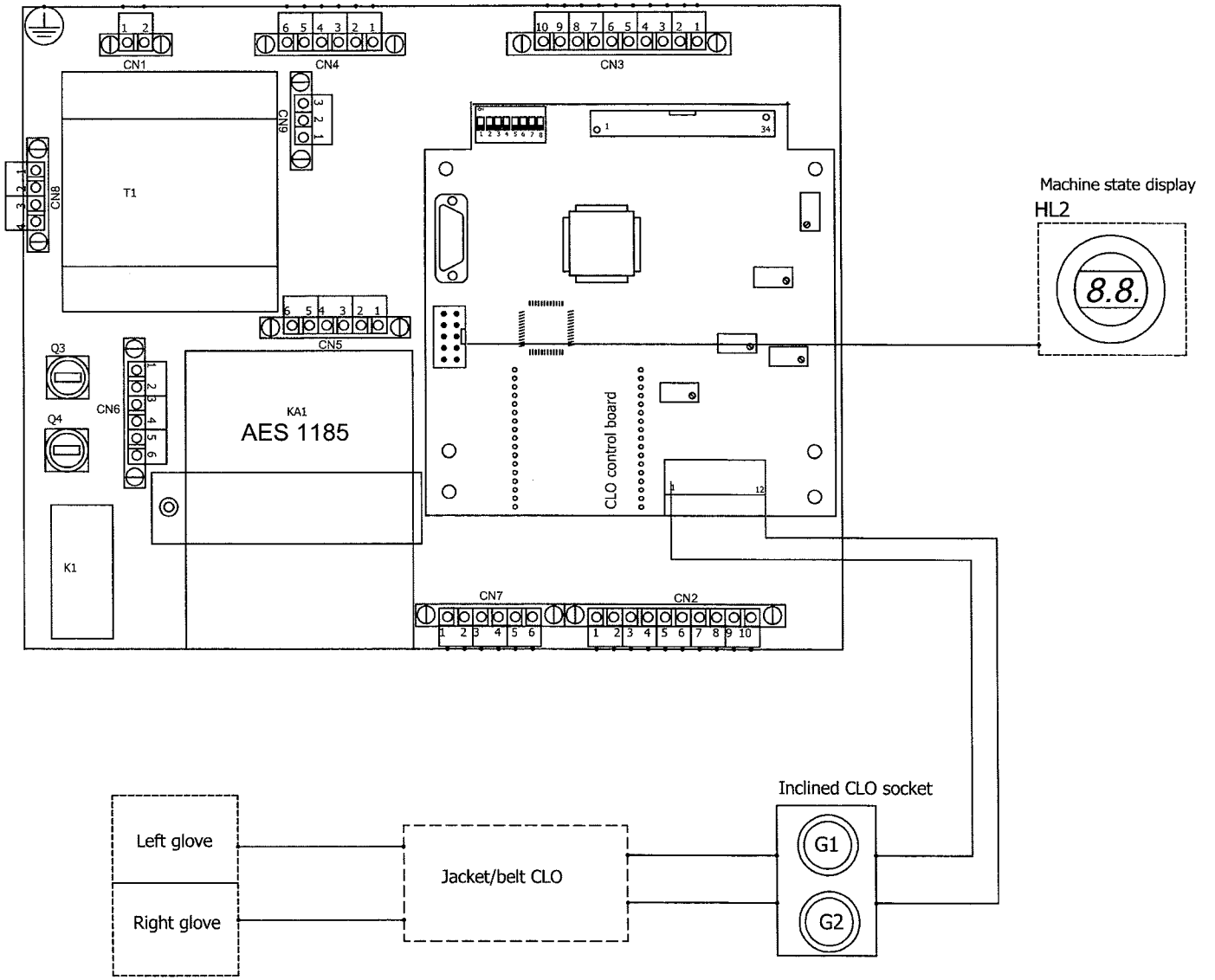

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MARK	PAGE	DESCRIPTION	ARTICLE NUMBER
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J15		CONDUCTIVE GLOVES	G2549
J16		CLO HARNESS MAGNETIC TYPE	2522MAG
K8		Display	18322ASSY
K11		INCLINED TLO SOCKET	4207ASSY
KA1	03	TRIGGER BOX	20501
KM1	02 , 05	Contactor LATERAL AUX. SWITCH BLOCK,1NO+1NC,FOR MOTOR CONTACTORSSZ S00,SCREW TERMINALDIN EN 50012 AND DIN EN 50005	16737T1 13599T2
KM2	02 , 05	Contactor LATERAL AUX. SWITCH BLOCK,1NO+1NC,FOR MOTOR CONTACTORSSZ S00,SCREW TERMINALDIN EN 50012 AND DIN EN 50005	16737T1 13599T2
KM3	02 , 05	Contactor LATERAL AUX. SWITCH BLOCK,1NO+1NC,FOR MOTOR CONTACTORSSZ S00,SCREW TERMINALDIN EN 50012 AND DIN EN 50005	16737T1 13599T2
M1	02	Three-Phase Motor 1.1KW	10414
QM1	02 , 05	OVERLOAD RELAY 2.8...4.0 AFOR MOTOR PROTECTIONSZ S00, CLASS 10,F. MOUNTING ONTO CONTACTORMAIN CIRCUIT: SCREW TERMINALAUX. CIRCUIT: SCREW TERMINALMANUAL-AUTOMATIC-RESET OVERLOAD RELAY 3.5...5.0 AFOR MOTOR PROTECTIONSZ S00, CLASS 10,F. MOUNTING ONTO CONTACTORMAIN CIRCUIT: SCREW TERMINALAUX. CIRCUIT: SCREW TERMINALMANUAL-AUTOMATIC-RESET	16757T2 16757T5
QS1	02	Actuator Main switch 16A	13104 13105
QU1	02	MODULAR FUSE BASE FOR CYLINDRICAL FUSES SIZE 10X38MM 32A, 2POLE	6279
SB1	03	EMERGENCY BUTTON 1NA + 1NC	29925T1ASSY
SB2	04	steel button	29229ASSY
SC1	03	Magnetic Switch Magnet	17274T2 17275T2
SC2	03	Magnetic Switch Magnet	17274T2 17275T2
SC3	04	LIMIT SWITCH	16850
SQ1	04	Limit Switch	10202
YV1	04	AC COIL Electrovalve connector	7721 6545
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X2-2	02	ZPE 2.5, PE TERMINAL, GREEN	7243
X2-3	02	ZPE 2.5, PE TERMINAL, GREEN	7243

SOLIDWORKS Electrical

Document book

SE0516

MSxxx/PM-CLO

REV.	DATE	NAME	CHANGES
0	22/09/2017	t.cabboi	

REVISION 0

SCHEME 08

CONTRACT: SE0516

LOCATION: +L1 Location 1

User data 1

User data 2

Document realized with version : 2017.0.3.15