



Via delle MELE, 65
47522 Cesena (FC) ITALIA
Tel.: 0547-418611
Fax.: 0547-418612



PAL-108D

PALLETIZER

Operating instructions
Manuale istruzioni
Mode d'emploi
Manual de instrucciones
Gebrauchshandbuch

serial number:

Data di redazione
04/12

Codice di identificazione
PALD/STD-04 GBR (C.P.)

Note • from original
instruction

PALLETIZER mod. PAL-108D

1.1 Foreword

This manual defines the purpose for which the machine has been constructed and contains information on performance, technical characteristics, how to use the machine and effect maintenance so as to ensure correct, problem-free running.

This manual is addressed to the operators and maintenance operators of the machine as well as the department manager to whom the machine is entrusted.

This manual constitutes integrating part of the machine, it must be completely read before installing the machine, therefore kept with care (in a protected place, dry, covered from sun rays) for every further consultation, necessary before carrying out any operation on the machine.

It is recommended that the user read the manual carefully and observe the described standards and procedures, as they give important information regarding operative safety and maintenance.

Sorma S.p.A. does not undertake liability for any damages to persons or things occurred due to negligence when executing that written in this manual.

The machine is shipped to the client prepared for installation, after having overcome the tests envisioned by the manufacturer, in compliance with the laws in force.

Sorma S.p.A. is not responsible for functioning anomalies or general faults, caused by the unauthorised use of the machine or by interventions and/or amendments made by foreign persons unauthorised by the same Sorma S.p.A.

1.2 Manufacturer

SORMA S.P.A.

Via Delle Mele n°65

47522 CESENA (FC) ITALIA

Tel. 0547/418611 Fax. 0547/418612

e-mail: sorma@sormaitalia.com

<http://www.sormagroup.com>

1.3 Confidentially

The technical information contained in this manual is the property of Sorma S.p.A. and is strictly confidential: disclosure or copying (even partial) of such information is therefore forbidden unless written authorization has been obtained from Sorma S.p.A.. Using the manual for any purpose not strictly connected to machine installation, operation and maintenance is also forbidden.

1.4 Warnings

The warnings, with instructions on risk-identification procedures, are highlighted by the symbols shown below. Do not underestimate their importance: machine damage and operator injury are real possibilities.



DANGER = This symbol informs that the non-compliance with the indications can cause damages to the equipment and can jeopardise the safety of persons. Carefully read the note at the side.



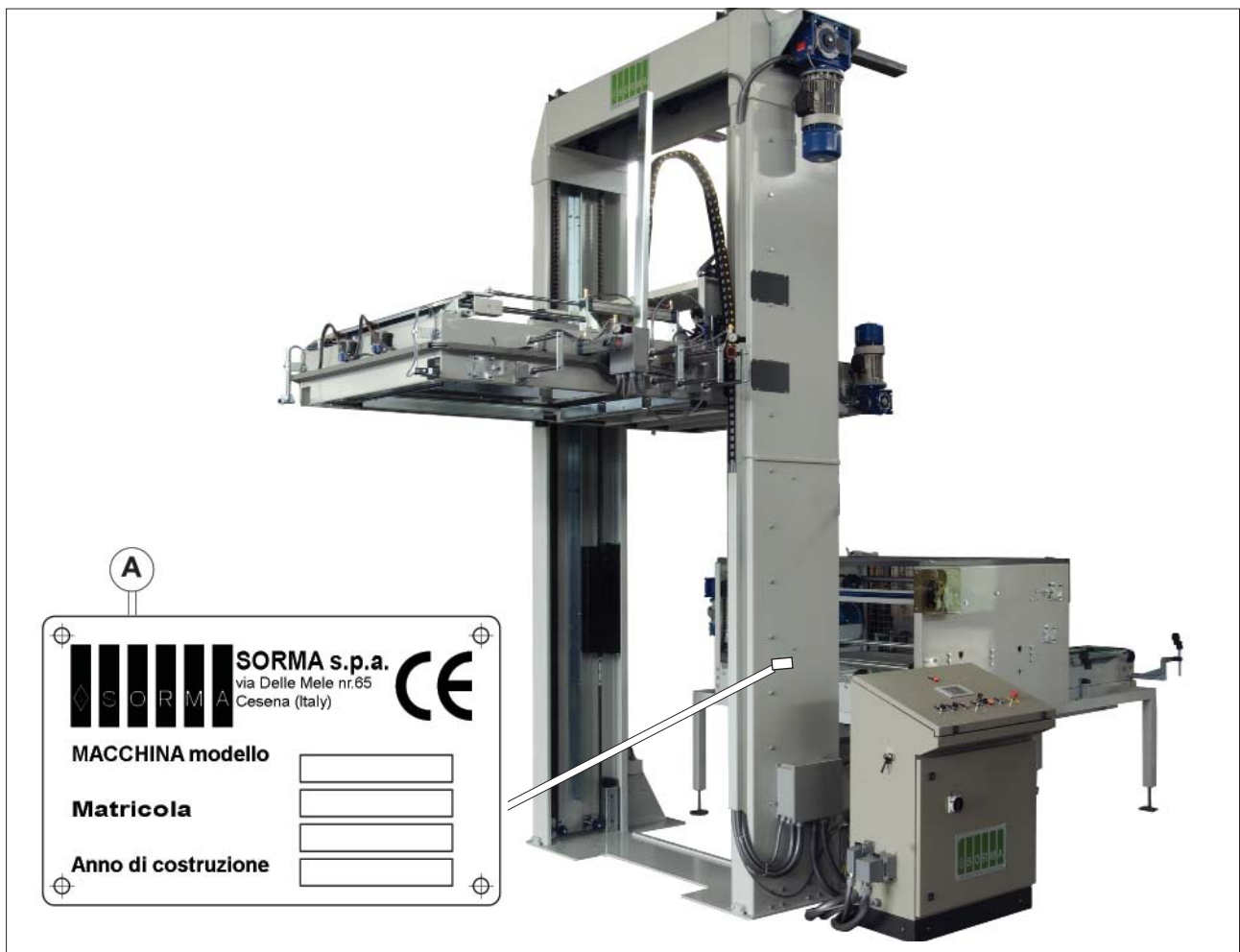
PROHIBITION = This symbol indicates the prohibition of carrying out certain manoeuvres and/or operations with the machine that, in certain conditions, can threaten the safety of the operator and of the same machine. Carefully read the note at the side.

Examine the on-machine safety plaques carefully and observe the relevant information.

1.5 Machine identification

The identification plate [A] contains the following information:

- MACHINE MODEL
- SERIAL NUMBER
- YEAR OF MANUFACTURE



All the information on the plate must be legible at all times. Use the identification data in all correspondence with the manufacturer (e.g. when requesting spare parts, information, assistance).

1.6 Request for intervention - technical assistance

Should the intervention of the Clients After-Sales Technical Assistance Service be required, contact Sorma S.p.A. at the following address:

Sorma S.p.A.

technical assistance

Tel. 0547/418611

Fax. 0547/418612

e-mail: sorma@sormaitalia.com

specifying:

1. type of machine, serial number and year of installation;
2. encountered defects;
3. exact address of the establishment where the machine is installed.

1.7 Warranty

The warranty terms on material and construction defects, excluding electric, electronic parts and those subject to wear, are indicated in the sales contract.

1.8 Declaration CE of Conformity



SORMA S.p.A.

Via delle Mele, 65 - 47522 Cesena FC

www.sormagroup.com

Tel. (+39) 0547 418611

Fax. (+39) 0547 418612

sorma@sormaitalia.com

DICHIARAZIONE CE DI CONFORMITÀ

(All. IIA DIR. 2006/42/CE)

IL FABBRICANTE

SORMA S.p.A.

Azienda

Via delle Mele, 65

Indirizzo

Cesena

Città

47522

Cap

Italia

Stato

FC

Provincia

DICHIARA CHE LA MACCHINA

Palettizzatore

Descrizione

000000

Serie/matricola

PAL-108D Palettizzatore

Denominazione commerciale

Palettizzatore

Uso previsto

108D

12

000000

Tr.

000000

Divisione

000000

Versione

È CONFORME ALLE DIRETTIVE

Direttiva 2006/42/CE del Parlamento Europeo e del Consiglio del 6 agosto 2006 relativa alle macchine e che modifica la direttiva 95/16/CE.

Direttiva 2004/108/CE del Parlamento Europeo e del Consiglio del 15 dicembre 2004 concernente il riavvicinamento delle legislazioni degli Stati membri relative alla compatibilità elettromagnetica.

Direttiva 2006/95/CE del Parlamento Europeo e del Consiglio del 12 dicembre 2006 concernente il riavvicinamento delle legislazioni degli Stati membri relative al materiale elettrico destinato ad essere adoperato entro taluni limiti di tensione.

Riferimento norme armonizzate:

UNI EN 894-2; UNI EN 1032; UNI EN ISO 149-1; UNI ISO 2972; CEI EN 60439-2/Ed; UNI EN ISO 12100-2; UNI EN 1746; UNI EN 811; UNI EN ISO 13859; UNI EN 842; UNI EN ISO 5349-2; UNI EN 894-3; UNI EN ISO 13857; CEI EN 60439-1; UNI EN 1088; UNI 10893; CEI EN 60204-1; UNI EN 1037; UNI EN 981; UNI EN 983; UNI EN ISO 14121-1; UNI EN ISO 12100-1; CEI EN 60439-1/A1; UNI EN 1037-1; UNI EN 894-3; UNI EN ISO 11200; UNI EN 894-1; CEI EN 60439-2; UNI EN 349

E AUTORIZZA

Sorma S.p.A.

Nominativo

Via Delle Mele 65

Indirizzo

Cesena (FC)

Città

47522

Cap

Italia

Stato

FC

Provincia

A COSTITUIRE IL FASCICOLO TECNICO PER SUO CONTO

Luogo e data del documento

01/01/2012

Il fabbricante

D.C.: DC1-001/000001

Progetto: PC

Progetto:	Macchina:		
PC	Palettizzatore		Anno: 2012
SORMA S.p.A.	Mod.: PAL-108D	Matricola: 000000	Rev.: 00 01/01/2012

Dichiarazione CE di conformità

2.1 General safety notes

The functioning of the machine is subject to general safety principles used in industrial plants.

In particular, given the typical use conditions for this machine, the following prescriptions must be followed:

A) The protection devices must never be removed or made inefficient; in particular, no safety switch must ever be short-circuit.

When carrying out maintenance work on the machine, it may be necessary to temporarily deactivate the safety devices, this operation must be carried out only by authorised and adequately trained staff.

B) IT IS FORBIDDEN to carry out adjustments or format change if the machine is started.

C) Do not place the hands near the rotary parts of the machine.

Do not wear clothing that might become tangled in moving parts (scarves, neckerchief, rings, bracelets, watches, etc.).

For those having long hair, use hair clips or caps to hold them.

2.2 Attached documentation

The following documentation has been attached to this manual:

- *WIRING DIAGRAM*
- *PNEUMATIC PLANT LAYOUT*
- *SPARE PARTS CATALOGUE*
- *DECLARATION CE*

2.3 Technical introduction

The PAL-108D palletiser is an automatic machine suitable for processing cases of wood, plastics, cardboard of varying sizes.

Usually it is used as a processing line end plant.

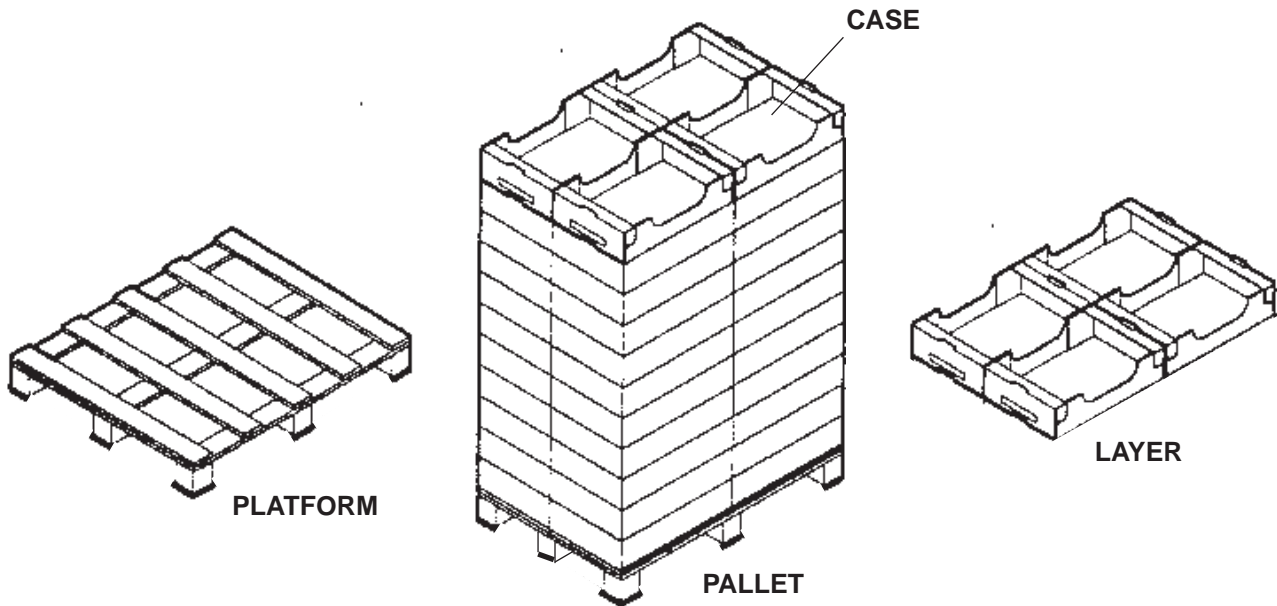
It receives the cases sent by a conveyor belt, then it proceeds with arranging them in organized layers and eventually with their stacking in various layers, until forming different complete palletized loads.

The PAL-108D must be used only for the purpose it was expressly designed for. Any other use is to be deemed improper and hence unreasonable.

The company Sorma S.p.A. shall not be held liable for any damage due to improper, mistaken or unreasonable use of the machine, that may be caused to persons and/or animals and/or things.

2.4 Appropriate terminologies

The machine can automatically strap pallets with dimensions ranging from 800x800 to 1200x1200.



2.5 Notes on using the machine



IT IS FORBIDDEN TO:

1. Amend the cycle of the machine;
2. Work different products from those indicated;
3. Replace or amend the speed of the machine components;
4. Replace pieces with non-original spare parts;
5. Amend the electric connections to by-pass the safety devices;
6. Remove or amend the protection sumps;
7. Use the machine in environments with explosive and/or aggressive atmosphere.

The non-admitted use of the machine entails the immediate expiring of the warranty.

2.6 Technical data

- Machine weight: 2000 Kg
- Installed electric power: 4 Kw
- Power supply voltage: 400V/50Hz (unless otherwise specified)
- Compressed air working pressure: 6 bar
- Compressed air connection: 1/2"G
- Compressed air consumption: 350 NI/min
- Maximum weight of each layer of boxes: 220 Kg
- Acoustic pressure: 70 dB
- Working temperature: between +5°C and +40°C
- Maximum height that may be palletized: 2400 mm
- Throughput: see table

N.B.: *the maximum electric and pneumatic consumption, as well as productivity, should be considered as variables depending on: type of boxes, packages, products to be processed, consumables being used and operator's capacity.*

<p>PR.0 R90 30x40 NEL 80x120</p> <p>Punta no etich.: 1180 c/h</p>	<p>PR.10 R9A 31x50 112x112</p> <p>Realizzato con 2 cicli di spingicasse</p>	<p>PR.15 R9F 27x47 101x121</p> <p>Il dentello "60" è spostato di 140mm rispetto alle standard</p> <p>Piano A Trav. no etich.: 870 c/h Piano B Trav. no etich.: 850 c/h</p>	<p>PALD 120x120</p>
<p>PR.5 R95 40x50 NEL 100x120</p>	<p>PR.11 R9B 30x40 100x120</p> <p>Realizzato con 2 cicli di spingicasse</p>	<p>PR.16 R100 28x44 100x116</p> <p>Per il piano "B" è necessario il "kit ventose"</p> <p>Piano A Trav. no etich.: 939 c/h Piano B Trav. no etich.: 980 c/h</p>	<p>PALD 120x120</p>
<p>PR.6 R96 40x60 NEL 80x120</p>	<p>PR.12 R9C 31x51 NEL 102x113</p>	<p>PR.17 R101 34x44 102x122</p> <p>Per il piano è necessario il "kit ventose"</p>	<p>PALD 120x120</p>
<p>PR.7 R97 40x60 NEL 100x120</p>	<p>PR.13 R9D 40x60 120x120</p>	<p>PR.18 R102 25x40 NEL 100x120</p>	<p>PALD 120x120</p>
<p>PR.8 R98 40x60 NEL 120x100</p>	<p>PR.14 R9E 24x40 NEL 80x120</p> <p>Solo con cassa di traverso senza etichetta</p>	<p>PR.19 R103 25x40 NEL 75x120</p>	<p>PALD 120x120</p>
<p>PR.9 R99 20x30 NEL 80x120</p> <p>Solo con cassa di traverso senza etichetta</p>	<p>PR.20 R104 20x30 NEL 100x120</p> <p>Solo con cassa di traverso senza etichetta</p>	<p>PR.3 R93 30x50 NEL 100x120</p>	<p>PALD 120x120</p>

2.7 Machine description

The machine basically consists of:

- A) Frame,
- B) Arch,
- C) Roller Conveyor,
- D) Electric Panel,
- E) Platform (FULLY BACK)
- F) Rotary Compactor,
- G) Front Compactor,
- H) Side Compactors,
- I) Teeth,
- L) Roller Conveyor Chain,
- M) Box Turning Device.

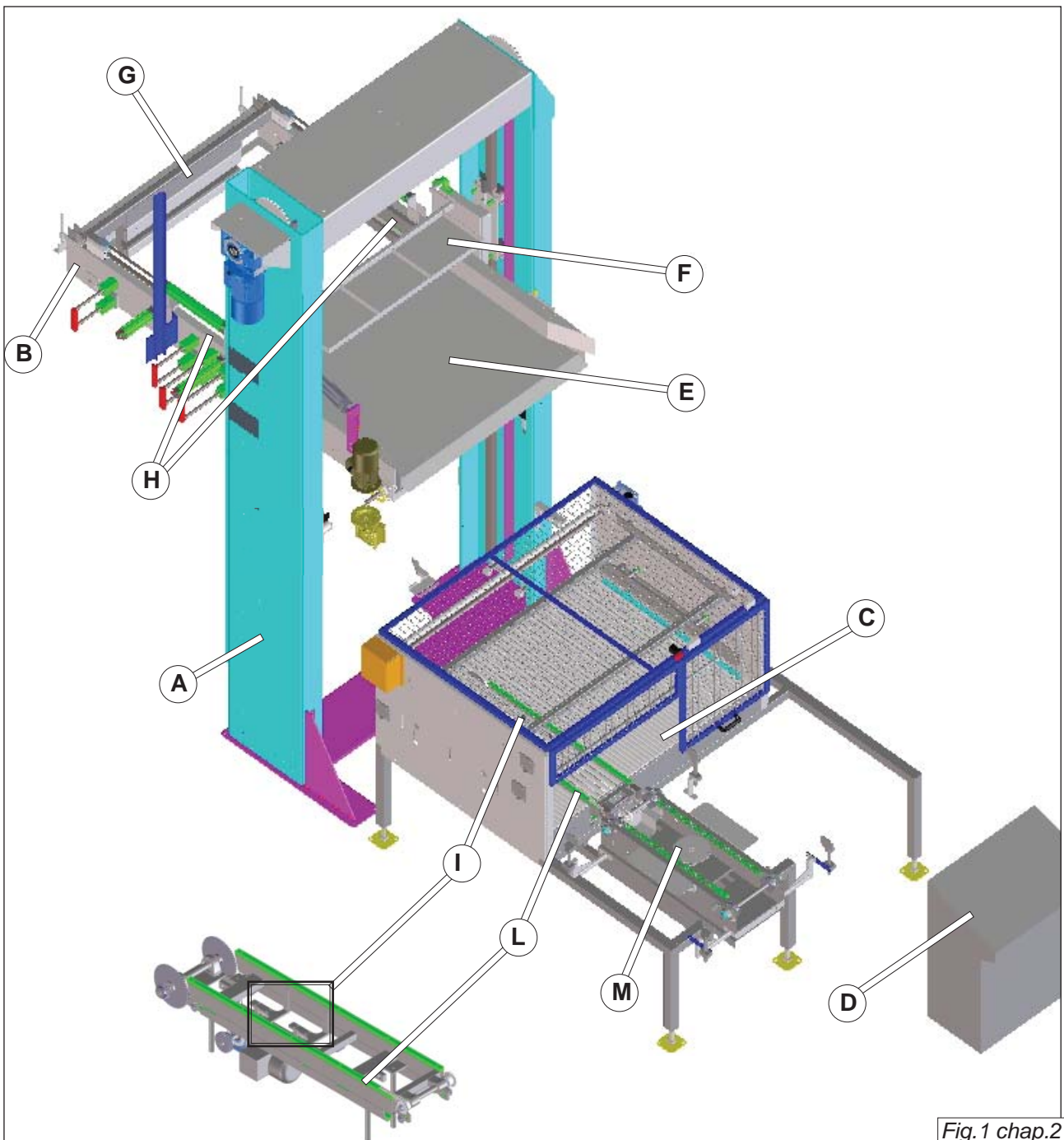


Fig.1 chap.2

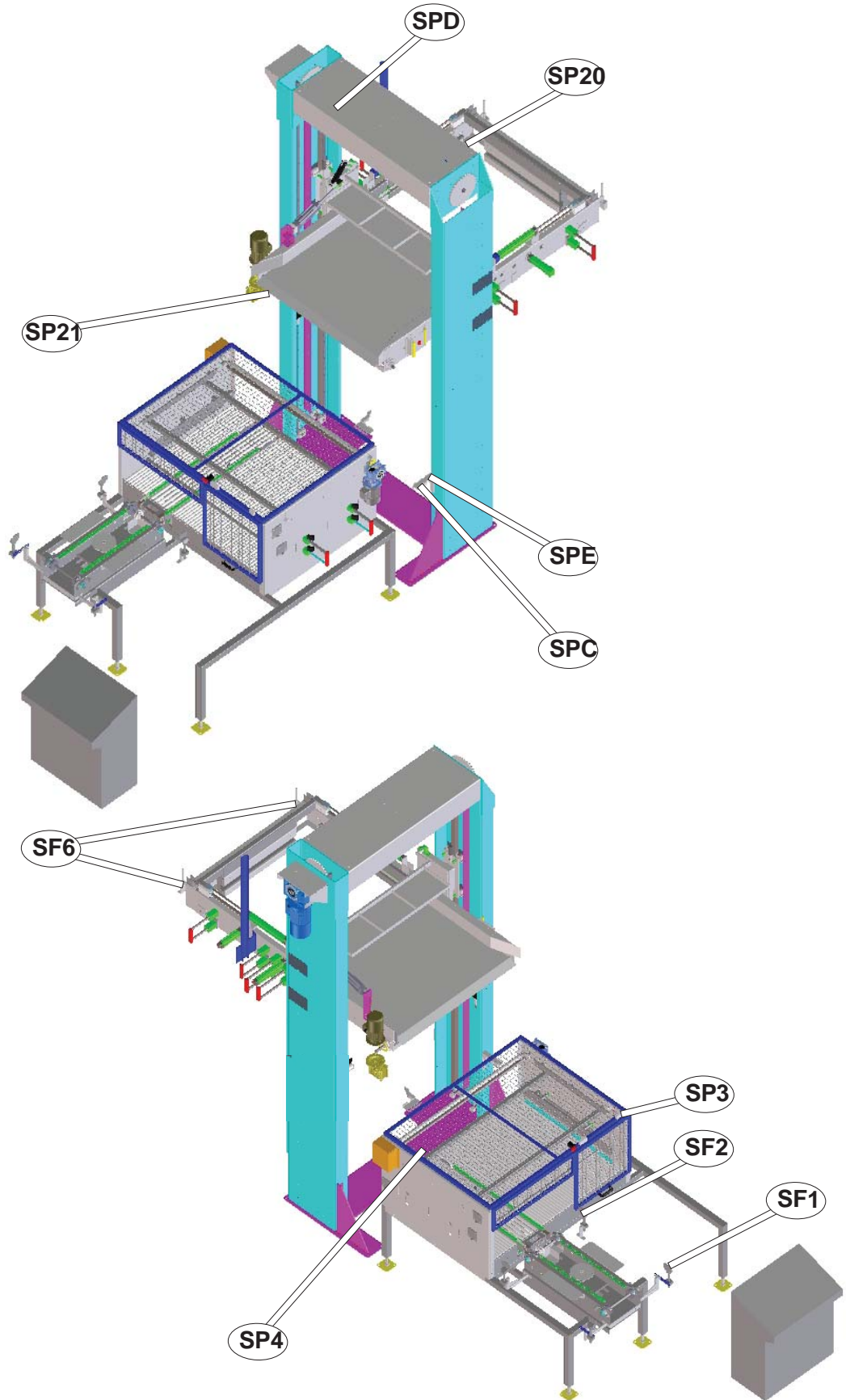


Fig.2 chap.2

2.8 Overall dimensions

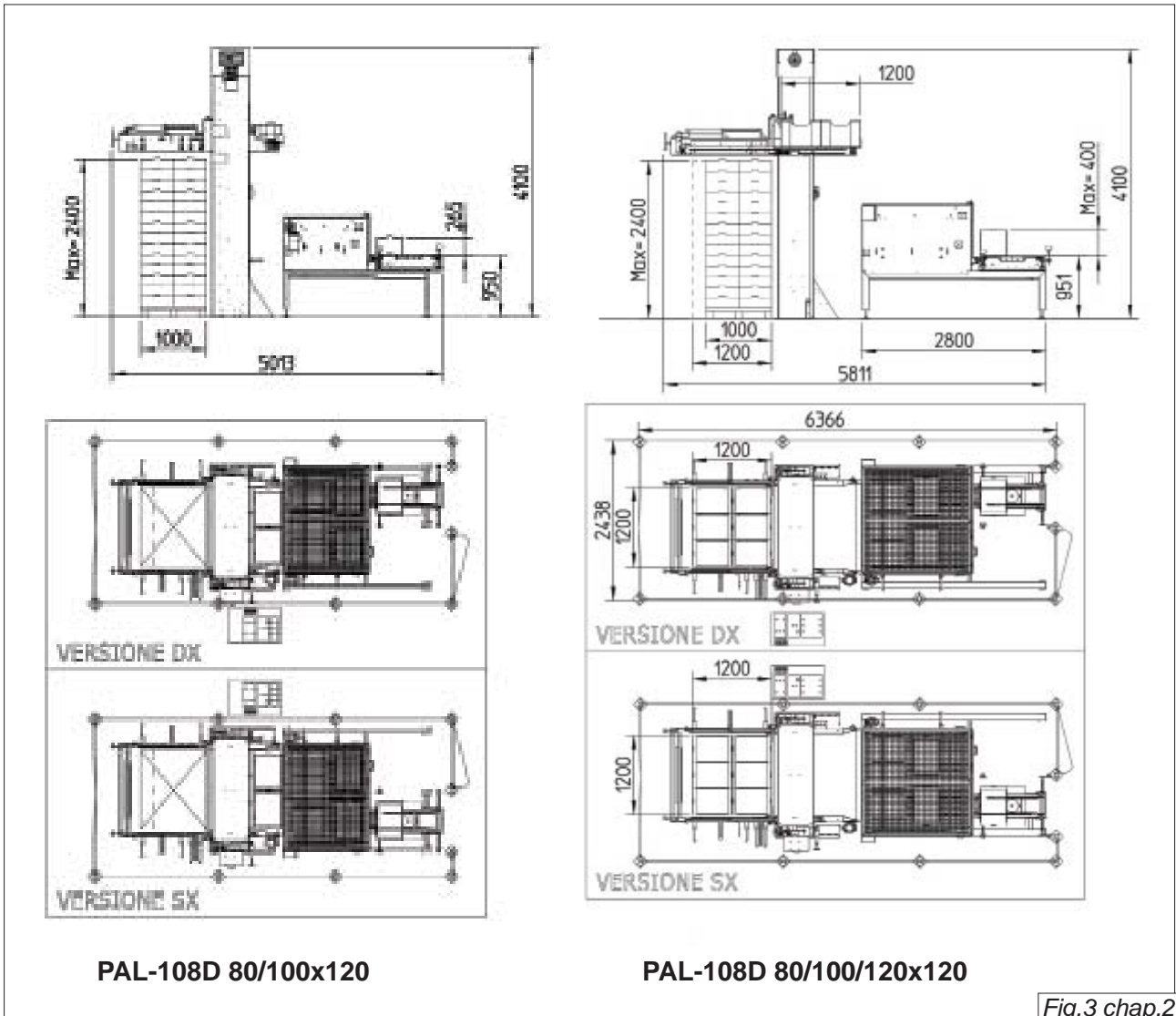


Fig.3 chap.2

3.1 Individual protection device



The person in charge must inform staff on the following matters concerning the safety in using the machine:

1. Risks due to injury;
2. Devices prepared for the safety of the operator;
3. Main accident-prevention rules envisioned by international Directives and legislations of the country of destination of the machine.

The operator, before starting work, must know the disposition and the functioning of the controls and the features of the machine, and must have fully read this manual.



The operator must

1. Always pay particular attention to the precaution, warning or danger signals placed on the machine.
2. Never wear clothing, ornaments or accessories that might remain entangled in moving parts.
3. Always wear safety glasses, ear protections and every other protection device in the areas requiring it.



Apply and ensure the safety rules are always complied with, in case any doubt should arise, consult this manual again before acting.

The individual protection devices that the operators using the machine must be provided with, must be compliant with the legislation in force and in relation to the action the must perform, maintenance or normal use, be the following:

3.1.1 I.P.D. for normal use

The normal use is the activity that the operator carries out for production; the operator must enslave the machine during the automatic process.

For this activity the following I.P.D. have been identified.



3.1.1.1 Clothing

The clothing the operators must be provided with must be of resistant materials, they must also allow perfect mobility during the movements the operator must perform.



3.1.1.2 Shoes (protection of feet)

They must have antistress anatomical insole for the comfort of feet and the upper part must be impenetrable. They must fully cover the ankle overlapping with the trousers. They must also allow a correct perspiration of the same foot.



3.1.1.3 Light gloves (protection of hands)

They must be suitable for the hand of the operator that must wear them and must be sufficiently long to cover the elastic clothing around the wrist of the operator. They must guarantee a safe and rapid grip as well as guarantee high resistance to the product to be handled. They must guarantee comfort and good sweat absorption.

3.1.2 I.P.D. for maintenance

They are the activities aimed at resetting the functionalities of the machine, even if developed by external staff, they must wear the indicated I.P.D..

Different actions are involved, therefore the I.P.D. to be used during the maintenance actions are the following:



3.1.2.1 Clothing

The clothing the operators must be provided with must be of resistant materials, they must also allow perfect mobility during the movements the operator must perform.

The ends of this clothing must remain well adhered to the body (elastic type) especially around the ankles, the wrists, the neck and the stomach, in order to avoid that a loose part of the clothing comes into contact with moving parts, generating serious dangers.



3.1.2.2 Shoes (protection of feet)

They must have antistress anatomical insole for the comfort of feet and the upper part must be impenetrable. They must fully cover the ankle overlapping with the trousers. They must also allow a correct perspiration of the same foot.



3.1.2.3 Gloves (protection of hands)

They must be suitable for the hand of the operator that must wear them and must be sufficiently long to cover the elastic clothing around the wrist of the operator. They must guarantee a safe and rapid grip as well as guarantee high resistance to the product to be handled. They must also agree protections and comfort against the low and high temperatures and good sweat absorption.



3.1.2.4 Glasses (protection of eyes)

They must be of suitable size to the face of the operator who must wear them. They must have a visual range such to guarantee a good visualisation of the environment and of the same machine.



3.1.2.5 Helmets (protection of head)

They must have an excellent resistance to both impacts and contact with the same product. The harness must be adjustable. The helmet must be provided with front anti-sweat band and with chinstrap for correct fixing. The material with which it is realised must allow resistance to both high and low temperatures. It must allow the operator to have an excellent comfort to guarantee a correct and safe development of its own task.

4.1 Safety warnings

The warnings listed below must be carefully read to become fundamental part of the daily practice in the running and maintenance of the machine, in order to prevent any type of injury to persons and/or damages to things.



Do not try to function the machine until the functioning has not been fully understood.

In case of doubts, despite having carefully and fully read this manual, contact the Clients After-Sales Technical Assistance Service of Sorma S.p.A.

Ensure that all prescriptions relating to safety are aware to all staff involved in the use, cleaning and maintenance of the machine.



Before starting the machine, the operator must verify the eventual presence of visual defects on the same and on the safety devices.

In this case, immediately notify to the Clients After-Sales Technical Assistance Service of Sorma S.p.A. every evident anomaly.

- The manufacturer declines any responsibility for damage to people or things, due to non-compliance with safety regulations.
- Any attempt to dismantle, modify or tamper with any part of the machine will invalidate the warranty, and Sorma S.p.A. will be held harmless for any damage to people or things due to such abuse.
- The assistant operator must possess all the psychological and physical requirements and capacities needed for using the machine.
- Concentrate properly, and take every precaution, before using the machine in any way.
- The working area in front of the machine must always be kept clean and free for immediate access to the main switchboard under emergency conditions.
- Effect the working cycle start-up sequence only in the way laid down here.
- Never open machine doors or protections without specific authorisation and training, and never before having cut off the air and power supply.
- Never use the machine with casings or protections removed.
- Never use the machine with protections disabled or damaged.
- Never put your hands, body parts or anything else, near or inside moving or live parts of the machine, or in the electric cabinet.
- Never modify programme parameters in order to obtain a performance different from the kind provided for and programmed during design and testing.
- Always work under suitable conditions of lighting in order to always have a clear view of the operating and working area.

- Never stand on the machine.
- Never leave the machine or installation unguarded while it is running.
- Notify the maintenance staff of any operational anomaly on special devices.
- Avoid working on the machine while wearing objects which may cause accidents (watch, tie, bracelet, ring etc.).
- Never work on the machine with long hair loose.
- Button up the sleeves of your work clothes carefully.
- Work on the machine respecting technical rules, act to guarantee the safety of the operators.
- Examine the safety stickers and plates applied to the machine carefully, and comply with the instructions they provide.
- All works on under voltage parts must be carried out only by authorised staff.
Before starting work, disconnect the electric current using the appropriate main switch located on the front of the electric control board and remove the pressure from the pneumatic circuit.
- Do not perform seals of any kind in the electric connections of the electric circuits.
- Do not intervene for any reason on moving parts, even if to unblock an entanglement.
- Maintain the ground of the surrounding area of the machine constantly clean from encumbrances and water.
- Always wear protection glasses, ear protectors and every other personal protection device in the areas requiring it.
- Always pay particular attention to the precaution, warning and danger signals placed on the machine.
- Apply and ensure the safety rules are always complied with, in case any doubt should arise, consult this manual again before acting.
- It is forbidden to inhibit the safety devices.
- It is forbidden to inspect the machine during functioning.
- It is forbidden to sit and/or rest on the personal protection devices.
- It is forbidden to respect on the machine during functioning.
- It is forbidden to sit and/or rest on the machine components.
- It is forbidden to amend parts of the machine.
- It is forbidden to apply further devices to the machine.
- Clean the machine components, the panels and the controls using soft and dry cloths.
- For the research or removal of any fault or inconvenience, use all precautions, described in the manual, suitable for preventing any damage to persons and/or things and/or animals.

- It is essential to be extremely attentive and always maintain attention and reflexes alert. Should the operator be subjected to sickness or unfavourable physical condition, even slight, that might reduce the degree of supervision, he must avoid functioning the machine or action on accessory equipment and must inform his senior.
- Do not activate the machine or the equipment when under the effect of alcohol, medicines or drugs.
- The use of the machine by disabled persons is forbidden.
- The use of the machine by minors of 18 years is forbidden.
- The improper use of the machine may be cause of dangers for staff in charge of the running and of damages to the same machine.
- For any eventual problem that should arise during the operational life-span of the machine and, however, not contemplated in this technical documentation, contact the Clients After-Sales Technical Assistance Service Sorma S.p.A., in order to solve the problem in the least time possible.
- Daily check the correct functioning of all switches and safety devices.
- The safety devices must not, in any case, go in short circuit.
- During the maintenance, adjustment or repair operations it may be necessary to exclude certain safety devices from the service. This operation must only be carried out by authorised staff.
- The operator must be expert of the function and position of the **STOP** and **EMERGENCY** buttons.
- Replace the faulty parts with original spare parts, guaranteed by the manufacturing company.
Never attempt risky solutions!
Do not work with hands or wet objects when the machine is connected to the electric network.

4.2 Definition of the safety terms

In this manual, with regard to safety, the following terms will be used:

Dangerous area: every area inside and/or near the machine where the presence of an exposed person constitutes a risk for the health and safety.

Exposed person: any, fully or partially, inside a dangerous area.

Operator: person in charge of installing, functioning, adjusting, carrying out maintenance, cleaning, repairing, transporting parts of the machine and all activities necessary for the running.

Safety components: component appropriately designed by the manufacturer and placed on the market separately from the machine to perform the safety functions. It will therefore be considered safety component that mechanism which lacking in functioning will jeopardise the safety of the exposed persons.

4.3 User obligations

The user of the machine must ensure that:

- the machine is destined only and exclusively for the appropriate and agreed uses in contract.
- the service instructions are fully available to staff in charge and that the latter is correctly trained with regard to the use of the machine, and that it complies with all safety, accident-prevention regulations and the specifications of the same machine.
- access to the protected functions of the machine by key switches is limited to authorised staff.

4.4 Service staff

The operators are classified as follows:

- **GENERAL OPERATOR:** staff not specialised, able to run the machine through the use of the controls on the push button control panel, loading and unloading operations of the materials used for the production and simple start-up or reset functions of the production following a stand-by.
- **MECHANICAL MAINTENANCE OPERATOR:** qualified technician able to run the machine in normal conditions, to work the format change, intervene on mechanical parts to perform all adjustments, maintenance or necessary repairs.
He is not enabled for interventions on powered electric system.
- **ELECTRIC MAINTENANCE OPERATOR:** qualified technician able to run the machine in normal conditions, is in charge of all electric interventions of adjustment, maintenance and repair.
He is the only one enabled to work in the presence of voltage inside the electric control board and in the connecting box.
- **SUPERVISOR:** qualified technician for more complex interventions.
- **EXTERNAL TECHNICIAN:** qualified technician made available by the producer or distributor, able to intervene for amendments, repairs or replacements.
- **TECHNICIAN Sorma S.p.A.:** qualified technician made available by Sorma S.p.A. or by its agent to perform complex operations, installation and start-up.



NEVER remove any plate or sticker. Should these be worn away, ask for new ones.

4.5 Safety Pictograms

pos.	Safety Pictograms	pos.	Safety Pictograms
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

5.1 Safety warnings

This chapter is destined for specialised and adequately trained staff.



The loading and unloading interventions imply a high risk for persons!

The handling activities described in this chapter must be carried out only by qualified staff, purposely trained to carry out the loading and unloading and the handling of the batches in safety, using hoisting equipment which cranes or lifting trolleys.

For any movement of the machine, it is essential to request the intervention of Sorma S.p.A. Sorma S.p.A. will not consider itself responsible for damages deriving from the moving of the machine without its intervention.

5.2 Shipping and lifting

PAL-108D is sent with a cover made of one or more sheets of cellophane adhering.

The machine, when shipped by Sorma S.p.A. with the purpose of reducing its size for shipping, is partially dismantled.

Upon receipt of the machine, check there are no visual damages; on the contrary immediately inform Sorma S.p.A.

Check that the supply corresponds to the purchase order specifications and verify with the shipment documents that the supply is complete.



When lifting and moving the machine, take every precaution to avoid any dangerous movement liable to cause accidents or injury or damage to people or things. The machine when moved must always be in a steady and secure position.



Before starting to move the machine, there must be the following conditions:

- the area involved must be well lit (see fig.1 chap.5),
- the operator and the people accessing the moving area must wear gloves, safety shoes and safety helmet (see fig.2 chap.5),
- that the hoisting mean with the relative equipment (ropes, hooks, etc.) is suitable for hoisting the load to be moved.
- that the stability of the load cannot cause dangers and/or accidents.



The use of unsuitable equipment can cause serious damages to persons in charge of the handling operations.

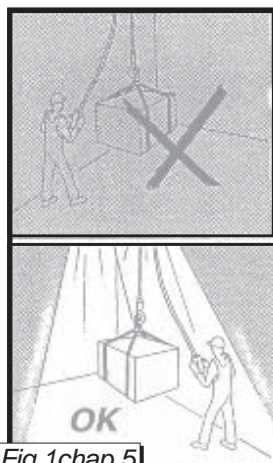


Fig.1chap.5

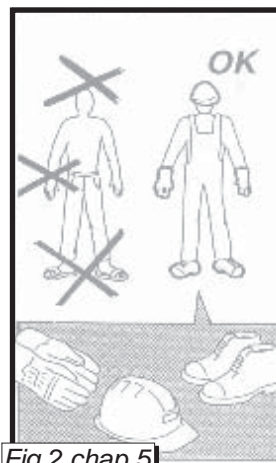


Fig.2 chap.5

- Lifting and moving must be performed by people with the necessary technical skills.
- It is important to have an assistant to make signals while moving the machine in order to install it.
- Avoid any sudden movements which could damage the machine.
The PAL-108D or any parts of the same must be handled only using the most suitable media: self-moving fork lift truck; bridge crane, having a suitable capacity for the actual weight of the machine.
- There must be nobody near the hanging load, within the working range of the crane, of the fork lift truck or of any other lifting or transport medium.

5.3 Machine handling

Tilt the machine, hooking with the use of a **crane** the appropriate eye bolts, assembled on the upper part of the frame, so that tilting happens safely.

The hoisting of the machine must be carefully carried out to avoid that the hoisting hooks damage the delicate parts of the machine.



Unhook the crane's chains in the eyebolts (at the top of the frame), ONLY when the machine handling and fastening operations have been completed

5.4 Schematic shipping PAL-108D 80/100x120

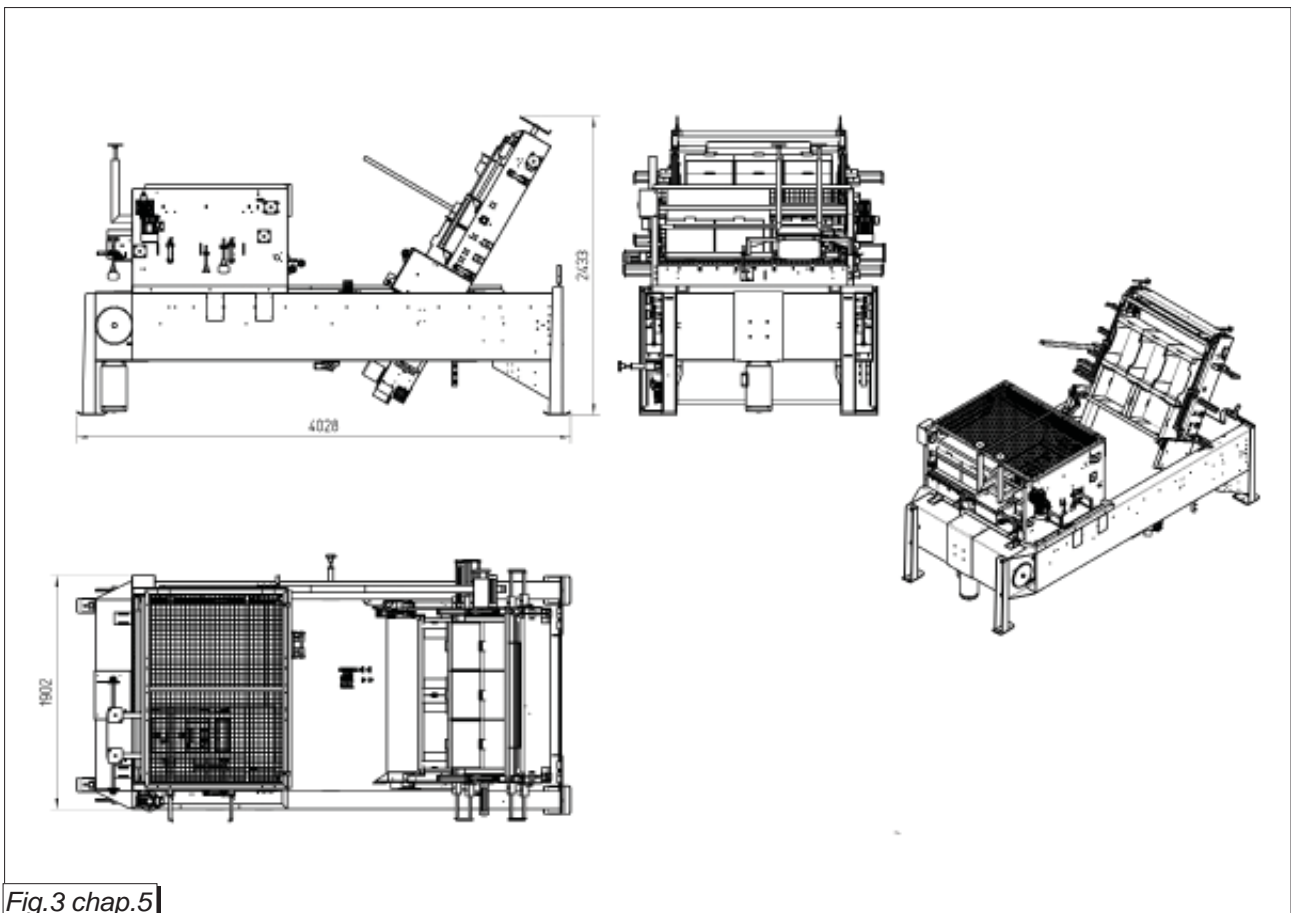


Fig.3 chap.5

6.1 Putting at work

The machine must be positioned inside a work place that protects it from bad weather and climatic differences of the weather, without circulation of dust and without excessive temperature changes in order to avoid damaging condensation of residue humidity. The range difference must be between +5°C and +40°C.

Environmental conditions different from those specified can cause serious damages to the machine and, in particular, to the electronic equipment, therefore for different environmental conditions, the client must inform Sorma S.p.A. to evaluate the possibility of applying adequate systems to the machine to guarantee the good functioning.

The positioning of the machine in environments not corresponding to that indicated, expires the warranty for the parts to be replaced.

The various parts of the machine must be positioned carefully in the place decided on beforehand. There are no noise reduction devices, as the values measured near the machine are below the limit values foreseen by law.

6.2 Space necessary for the operator

The space necessary for the operator for the correct use of the machine and those in charge of maintenance, must be of at least 80/100 cm.

This space must be left along the entire perimeter of the machine. Also consider that, in case the physical characteristics and/or need of moving to perform the above quoted operations correctly and safely, or if the operators should request it, such space must be brought to a value higher than that indicated above.

6.3 Wiring connections

The activities described in this paragraph must be carried out only by qualified staff, and precisely:



- **TECHNICIAN** trained through specialisation and training courses and with experience with regard to installation, start-up and maintenance of the systems, and is aware of the accident-prevention Standards.

Make sure the mains voltage and frequency are the same as the data shown on the power cabinet. The power cabinet must be connected to power source provided with a suitable magnetic temperature cut-off switch. A further magnetic temperature cut-off switch **[A]** is present, as shown on figure 8. Machine power connections and preliminary testing must be performed by expert technical personnel which must make sure that the power supply voltage of the machine is the same as the local mains voltage, and must perform all connections safely, according to current law. For power connection, use a four-pole cable with a minimum cross-section of **2.5 mm²** and connect it to the terminals **R S T** (every time check the minimum section according to the distance), (see fig.1 chap.6).



The machine must be connected to the power mains only by specialised personnel and the machine must be protected by a HIGH SENSITIVITY ground fault circuit interrupter according to rules for good practice and safety



The power and compressed air supply cables should be brought close to the machine with appropriate sheaths or channels, not to cause any obstacle for the operators and to properly protect them at the same time.

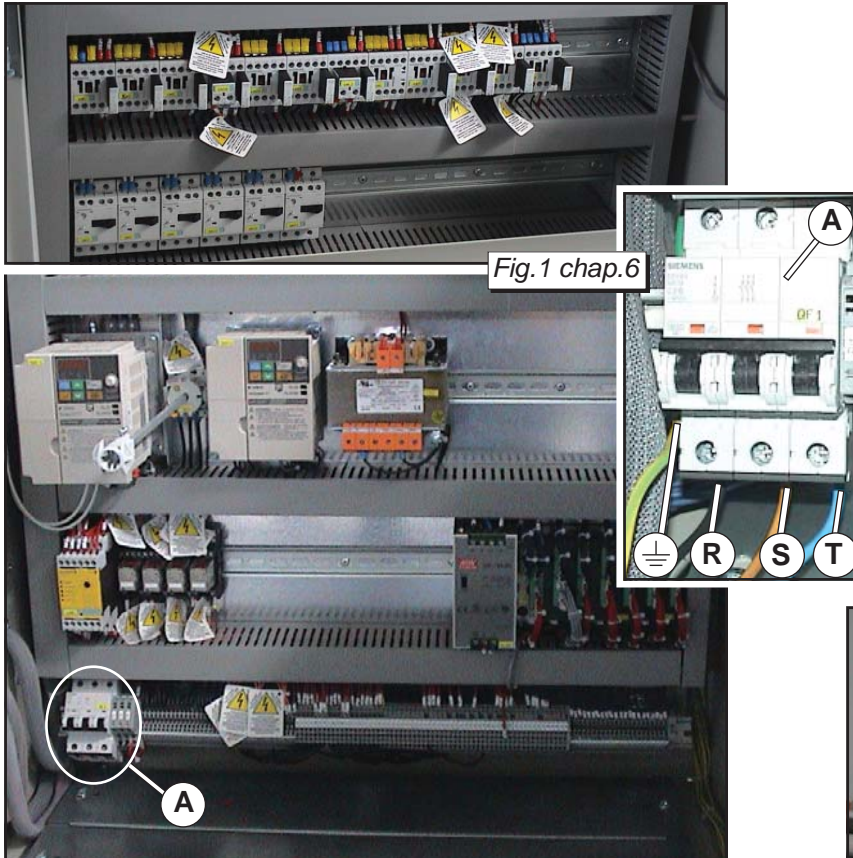


Fig.1 chap.6

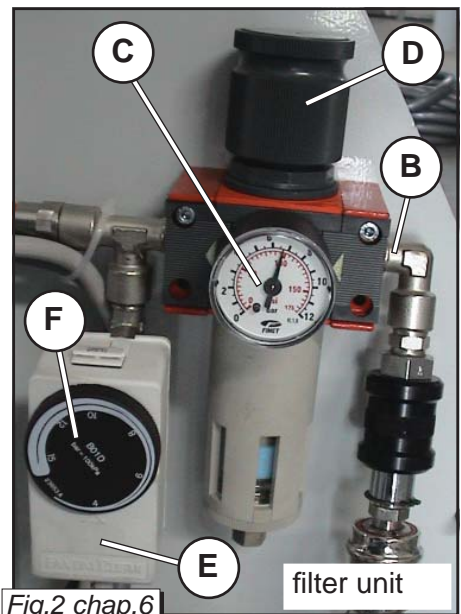


Fig.2 chap.6

6.4 Connection to the compressed air system

Make the connection of the compressed air system [B] (see fig.2 chap.6) to the filter unit and check with the pressure gauge [C] (see fig.2 chap.6) that the pressure is equal to 6 bar.

If pressure needs to be adjusted because it is lower or higher than 6 bar, move the knob [D] (see fig.2 chap.6) upwards and rotate it clockwise to increase or counterclockwise to decrease the pressure in the machine's pneumatic circuit.

With the knob [F] of the pressure gauge [E] (see fig.2 chap.6) check that the minimum pressure setting is 5 bar.

If pressure needs to be adjusted because it is lower or higher than 5 bar, turn the knob [F] (see fig.2 chap.6) clockwise to increase or counterclockwise to decrease the minimum pressure setting in the machine's pneumatic circuit.

If the pressure in the pneumatic circuit is lower than the minimum pressure setting, the machine stops and the red light [6] turns on (see fig.2 chap.6). It is important to periodically check the efficiency of the filter.

A malfunctioning of this part is the cause for a probable damage of the electric valves and of the pneumatic cylinders.

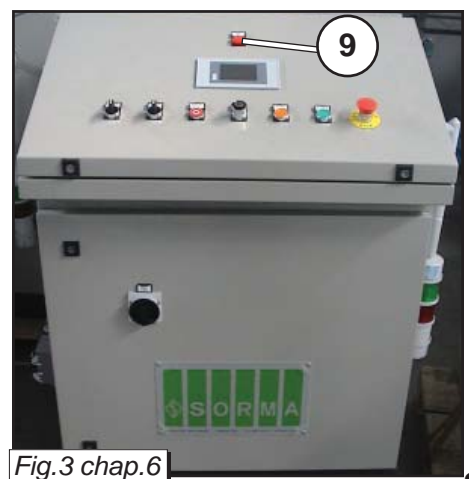


Fig.3 chap.6

6.5 Proper machine running direction check

Once the connection to the power mains and to the compressed air system is done, proceed as follows:

- 1) Set the [1] main switch (see fig.4 chap.6) to [ON].
- 2) Press the [4] MANUAL RUNNING MODE orange light button (see fig.4 chap.6).
- 3) Turn selector [7] (see fig.4 chap.6) I **UPSTREAM BELT - FORWARD - BACK** to the FORWARD position and check that the direction of rotation of the BOX LAUNCHING DEVICE's chains is such as to bring the boxes forward to the pliers of PAL-108D.
- 4) If the running direction is reversed, proceed as follows:
 - Set the [1] main switch (see fig.4 chap.6) placed on the electric panel to [OFF], disconnecting the power supply line.
 - Disconnect the line isolator from the power supply (see fig.5 chap.6).
 - Disconnect the power supply cable of the line isolator (see fig.6 chap.6).
 - Use the isolator to signal the current operation (see fig.7 chap.6).
 - Exchange with each other 2 clamps of the 3 phases (R S T) of the power supply cable (see [A] fig.1 chap.6).

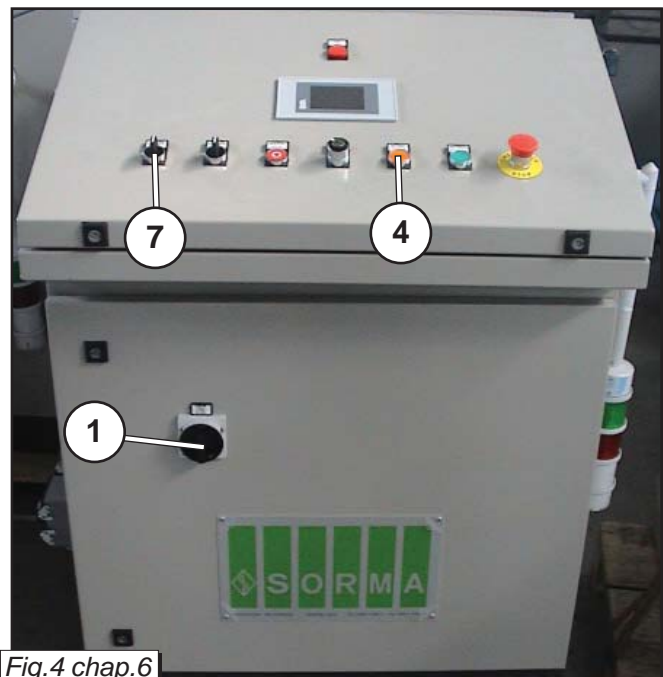


Fig.4 chap.6

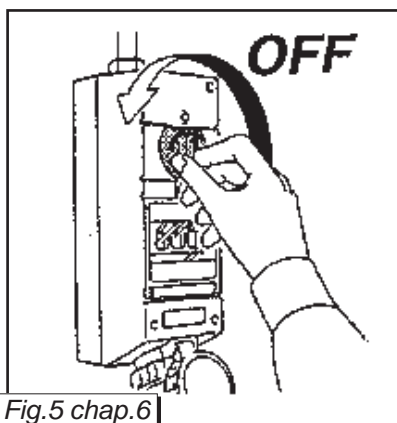


Fig.5 chap.6

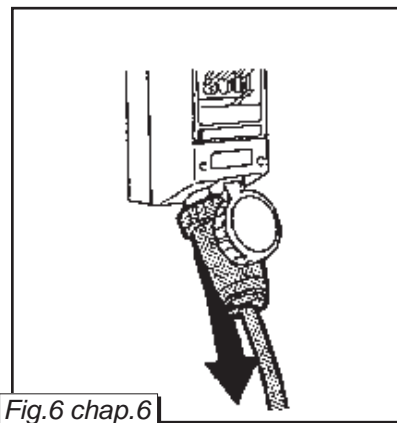


Fig.6 chap.6

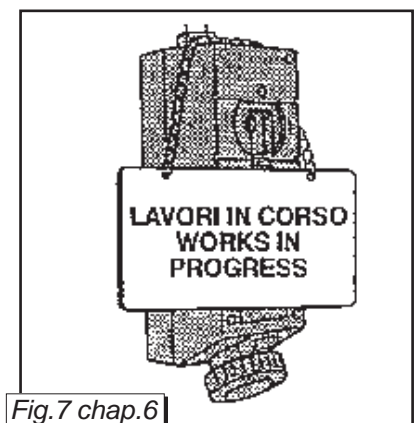


Fig.7 chap.6

6.6 Safety devices

6.6.1 Mobile protections that can be opened

The mobile protections are provided with safety micro switch (see fig.8 chap.6) that intervene at every opening of the protection, activating the emergency stop.

Do not eliminate the safety micro switch function with electric or mechanical amendments.



NEVER USE THE MACHINE WITHOUT THE PROTECTIONS ACTIVE



Fig.8 chap.6

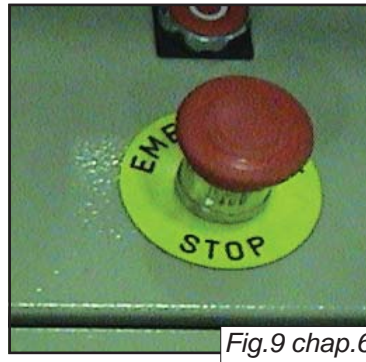


Fig.9 chap.6

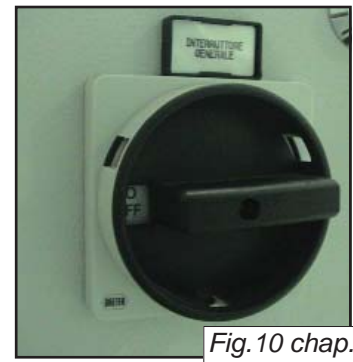


Fig.10 chap.6

6.6.2 Emergency button

The machine is provided with a red mushroom-shaped button (see fig.3 chap.6) that causes the immediate stop.

This safety device must be used:

1. In case of imminent danger or mechanical accident;
2. When the machine is already stopped in phase and such state is to be maintained.

This button must be kept pressed in case of:

1. Maintenance interventions;
2. Operations requiring access and stay of the operator inside the dangerous area.



DO NOT USE THE EMERGENCY BUTTON FOR THE SERVICE STOPS BUT USE THE STOP IN PHASE BUTTON

6.6.3 Main switch

The handle of the main electric switch (see fig.10 chap.6) is located on the front of the electric control board, and can be locked using a padlock in the position of switch open.

The main switch must be disconnected in case of:

1. **electric danger;**
2. **electric intervention on the machine or on the electric control board;**
3. **mechanical intervention on the machine.**

The main switch must be locked using a padlock in the open position in case of:

1. **cleaning or maintenance operations;**
2. **interventions on the machine in positions not directly visible from the electric control board.**

6.6.4 Anti-fall system

Whenever the machine enters into EMERGENCY status because a red STOP button has been pressed or a safety microswitch opened (see fig.13 chap.6), the anti-fall system is activated automatically (see fig.11 chap.6).

Pressure is removed automatically from the platform's pneumatic circuit.

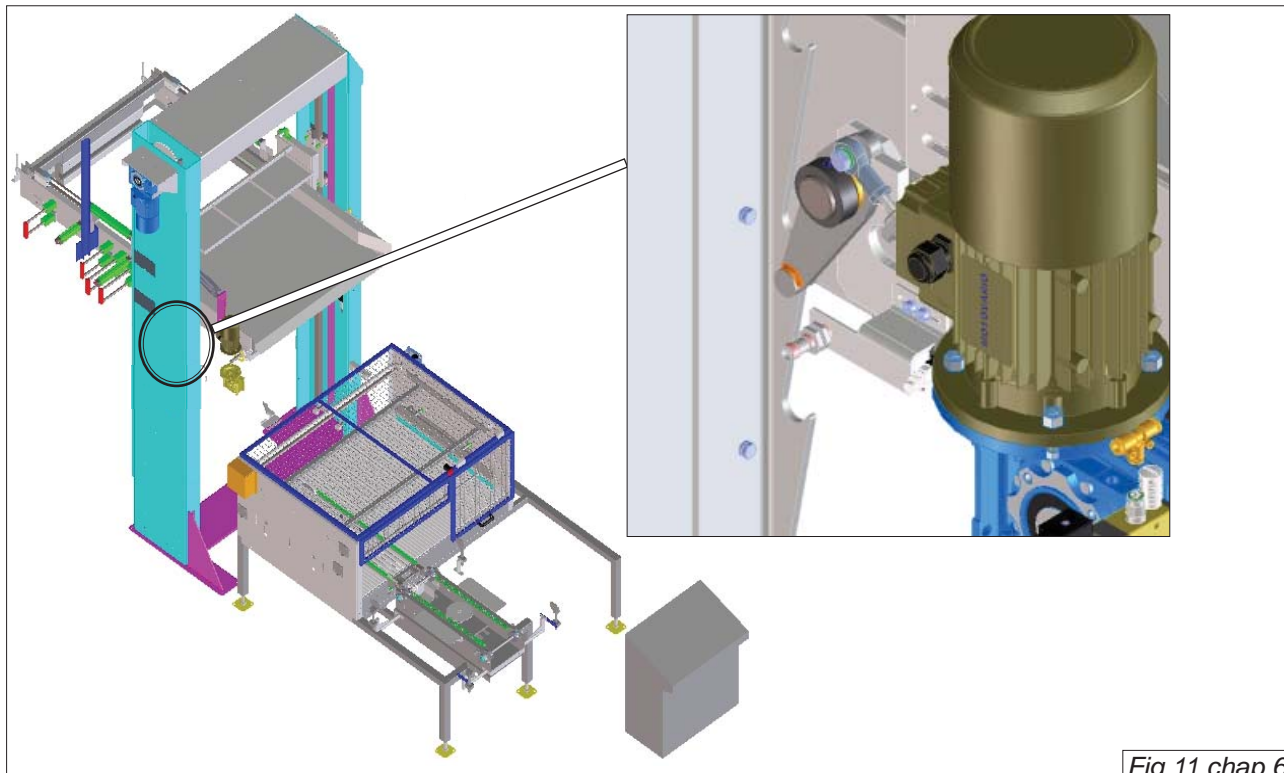


Fig.11 chap.6

6.6.5 Protections

The machine is supplied with peripheral protections (see fig.12 chap.6). Such protections are fixed to the ground by means of appropriate expansion caps. It is possible to access inside the peripheral protections using the door for maintenance, cleaning or mechanical or electric intervention.

Upon opening of the door, a safety micro switch (see fig.13 chap.6) stops the machine.

The peripheral protections must not be removed. Do not eliminate the safety micro switch function with electric or mechanical amendments.



NEVER use the machine without the protections active

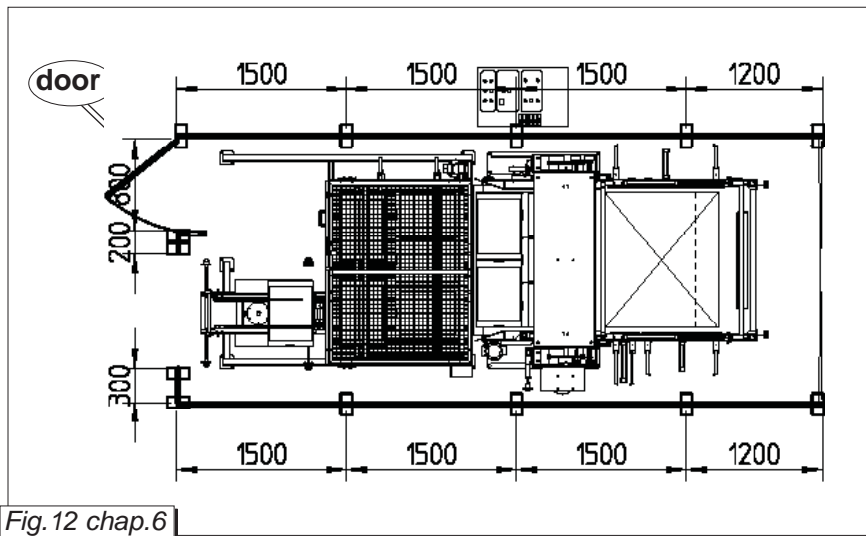


Fig.12 chap.6



Fig.13 chap.6

6.6.6 Photoelectric barriers

They are made of a ray barrier and have the function to intercept any passage of person or other and prevent nearing the machine in motion.

The interruption of the photoelectric barrier causes the entire machine to stop.

Do not eliminate the photoelectric barriers function with electric or mechanical amendments.



NEVER use the machine without the optic barriers active

6.6.7 Push-button panel for the access to the work area

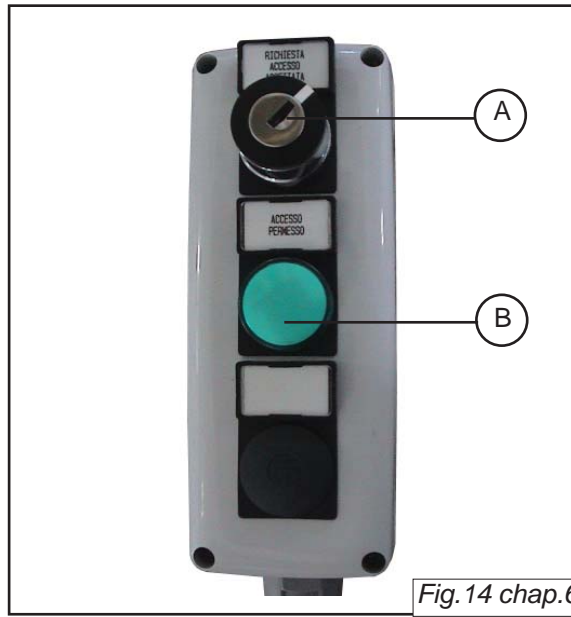


Fig. 14 chap.6

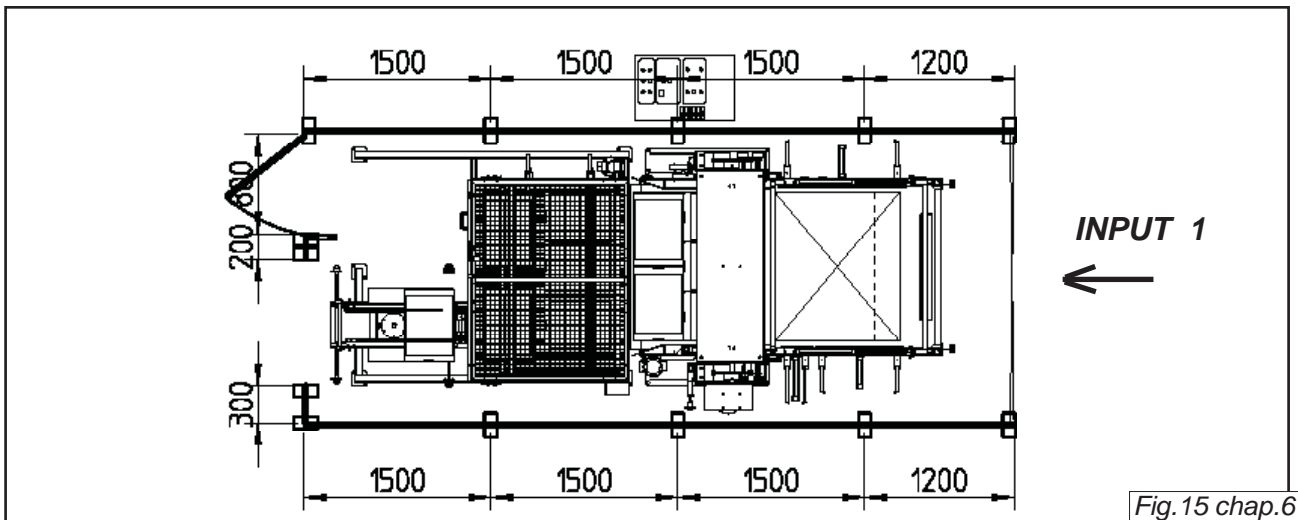


Fig. 15 chap.6

Every authorized and duly trained technician who wants to enter the working area of the machine through entrance[1] (see fig.15 chap.6), with the machine in AUTOMATIC RUNNING MODE, **must absolutely** follow this procedure:

- 1) insert the key into [A] ACCESS REQUEST (see fig.14 chap.6) and turn the selector clockwise.



N.B. = The key of this selector must be owned exclusively by the MAINTENANCE OPERATOR or the SKILLED TECHNICIAN, it must never be left into the KEY SELECTOR [A] (see fig.14 chap.6).

- 2) wait until the light of the [B] ACCESS ALLOWED button (see fig.14 chap.6) is turned on.



N.B. = The machine is still in AUTOMATIC RUNNING MODE, but the following movements are “blocked”:

- a) arch rise-descent;
- b) platform forward-back;
- c) compacting pistons forward-back;
- d) box pushing device forward-back;
- e) conveyors 1 and 2 (if any) (see fig.16 chap.6).

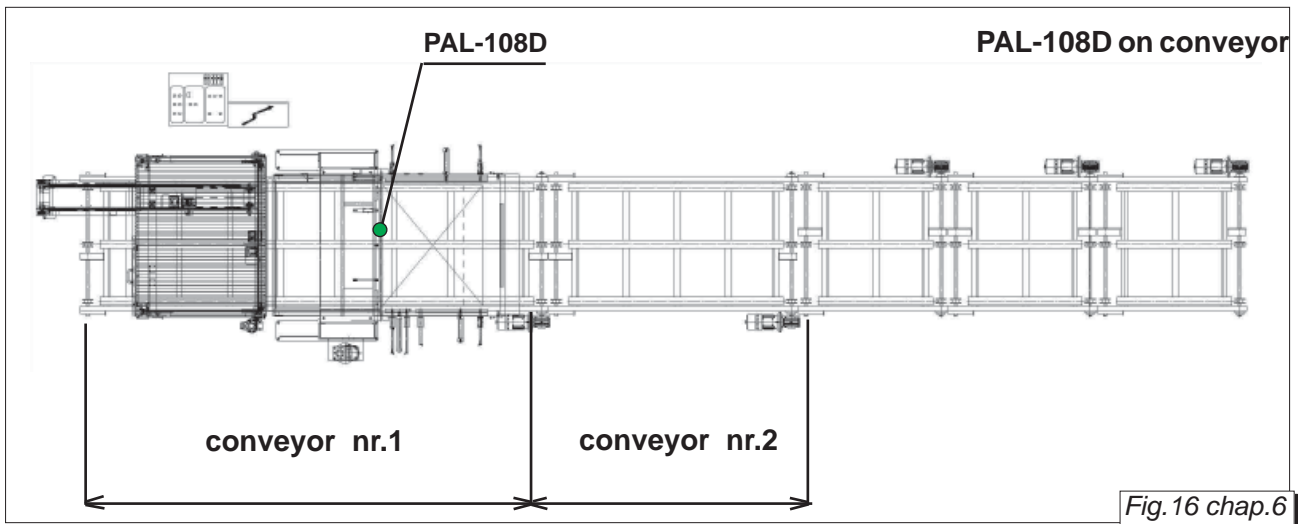


Fig.16 chap.6

3) now it is possible to enter the working area.

4) once left the working area, in order to restart the machine, insert the key into [A] ACCESS REQUEST (see fig.14 chap.6) and turn the selector counterclockwise.



N.B. = whenever restarting the machine, always make sure that nobody or nothing has remained within the safety protections where the machine is working.

6.6.8 Protections and photoelectric barriers assembly

- After the installation and positioning of the machine, fit the relative safety protections [P] and secure them properly to the ground with the relative expansion plugs supplied.
- Position in correspondence of **INPUT 1** (see fig.17 chap.6) the receiver unit [A1] and the transmitter unit [A2] of the photoelectric barrier, on the appropriate brackets fixed to the protection poles.
- Assemble the box [B1] fixing it to the safety protections poles (see fig.17 chap.6), assemble the relative connection cables between the photoelectric barrier and the box and connect the latter to the main electric control board.
- Then place the microswitch [M1], on the door's post, on **OUTFEED [2]** (see fig.17 chap.6).

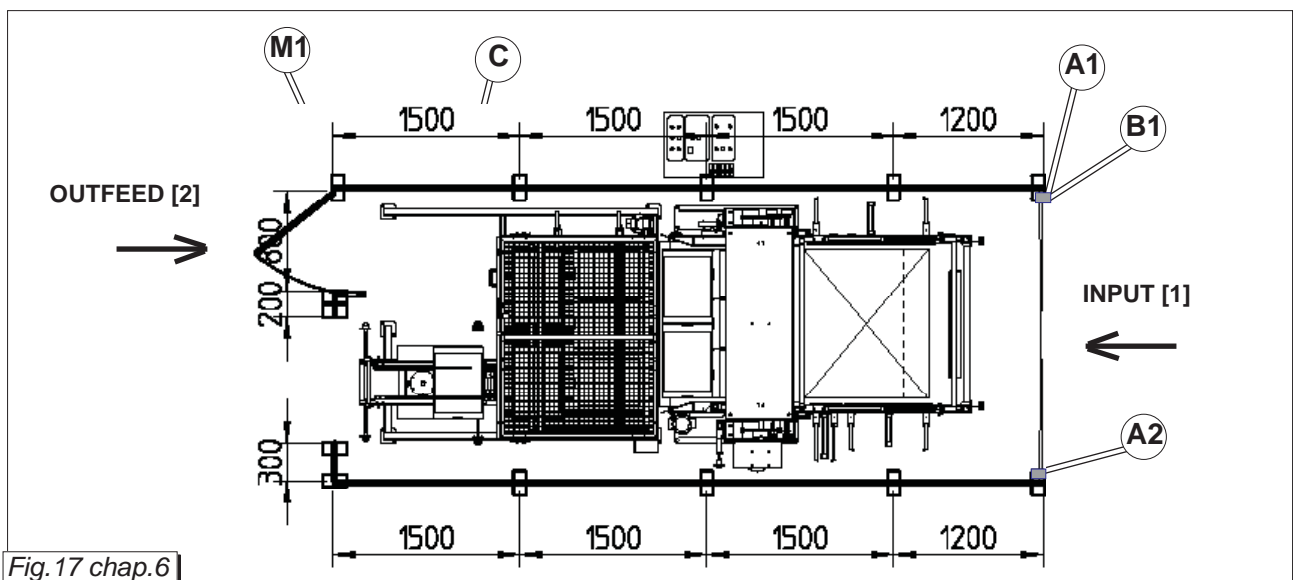


Fig.17 chap.6

7.1 Machine start-up

- Check that the mobile protections, provided with safety micro switch, are closed correctly,
- Set the **[01]** main switch (see fig.1 chap.7) to the **[ON]** position,
- Check there are no obstructing conditions and/or dangerous for the functioning of the machine,
- Ensure no one is inside the Dangerous area and that all safety systems are activated,
- Check that the **[02]** red mushroom-shaped STOP button (see fig.1 chap.7) is released,
- Select the palletizing program required through the VT185W terminal **[11]** (see fig.1 chap.7),
- Press the **[03]** (see fig.1 chap.7) AUTOMATIC RUNNING MODE button, the green light comes on to confirm the AUTOMATIC RUN, make sure that the operating cycle works properly. In particular check that the packages reaching the machine are the ones that were selected.



As the machine not receiving any box to palletize may appear still, even when in the automatic running mode, the shift to the automatic mode of the palletizer is confirmed by the green light [3] AUTOMATIC RUNNING (see fig.1 chap.7), so the machine can start at any time.

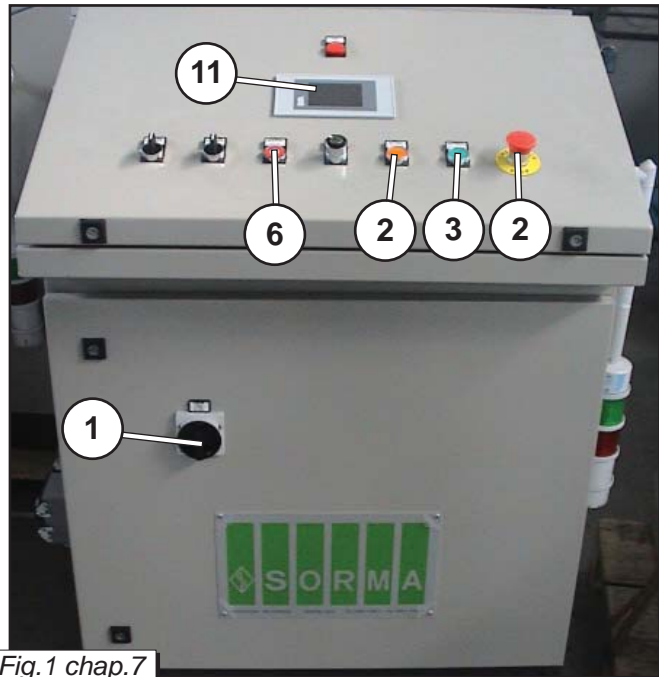


Fig.1 chap.7

7.2 Stop at the end of the working day

- Press STOP IN PHASE button **[06]** (see fig.1 chap.7),
- Wait the completion of the production cycle in progress and the consequent stop in “phase”,
- When the machine pass from AUTOMATIC RUNNING MODE to MANUAL RUNNING MODE press red mushroom-shaped STOP button **[02]** (see fig.1 chap.7),
- Set the main switch **[1]** (see fig.1 chap.7) to **[OFF]**.

7.3 Machine stop in emergency status

- Thoroughly press the red mushroom-shaped STOP button [02] (see fig.1 chap.7).

This operation allows the immediate stop of every machine operation. It may take longer than any standard stop to restore normal operating features after this operation. For this reason it is suggested to use the [02] (see fig.1 chap.7) button if it is strictly necessary.

7.4 Machine start-up after emergency intervention

- Check that the mobile protections, provided with safety micro switch, are closed correctly,
- Ensure no one is inside the Dangerous area and that all safety systems are activated,
- Check that the [02] red mushroom-shaped STOP button (see fig.1 chap.7) is released,
- Press the [03] (see fig.1 chap.7) AUTOMATIC RUNNING MODE button.

7.5 Stopping the machine in the event of an injury or failure

It is absolutely necessary to:

- 1) disconnect the power supply by using the designated main switch in the front of the electric control board (setting it to [OFF]) and block the switch with a padlock (see fig.2 chap.7) whose key is held only by qualified personnel (trained and authorised to conduct maintenance work on the machine).
- 2) bleed pressure from the pneumatic circuit by closing the slide valve [A] (see fig.2 chap.7) and bleeding the residue air in the machine's circuit.



8.1 Introduction

FLOOR MOUNTED PAL-108D

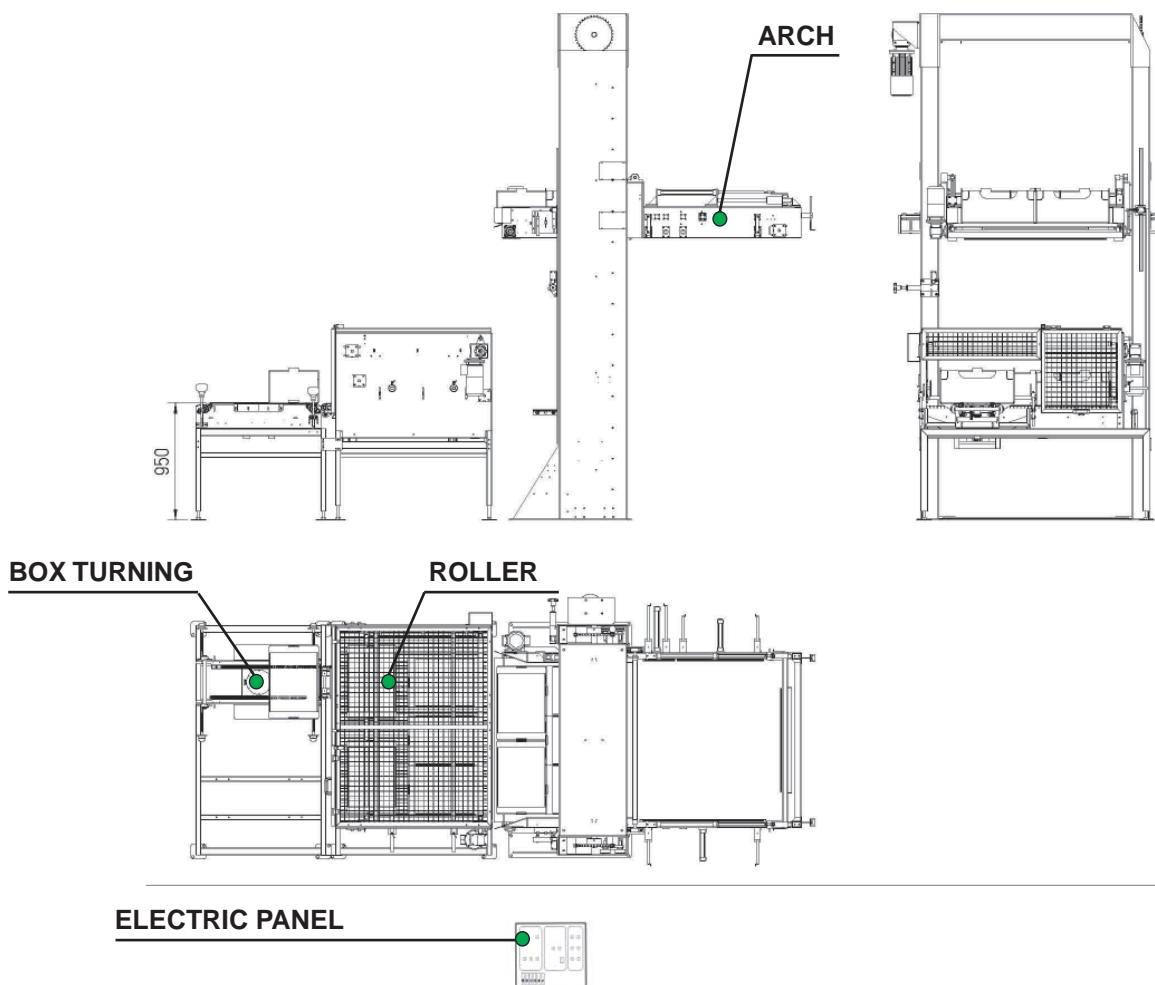
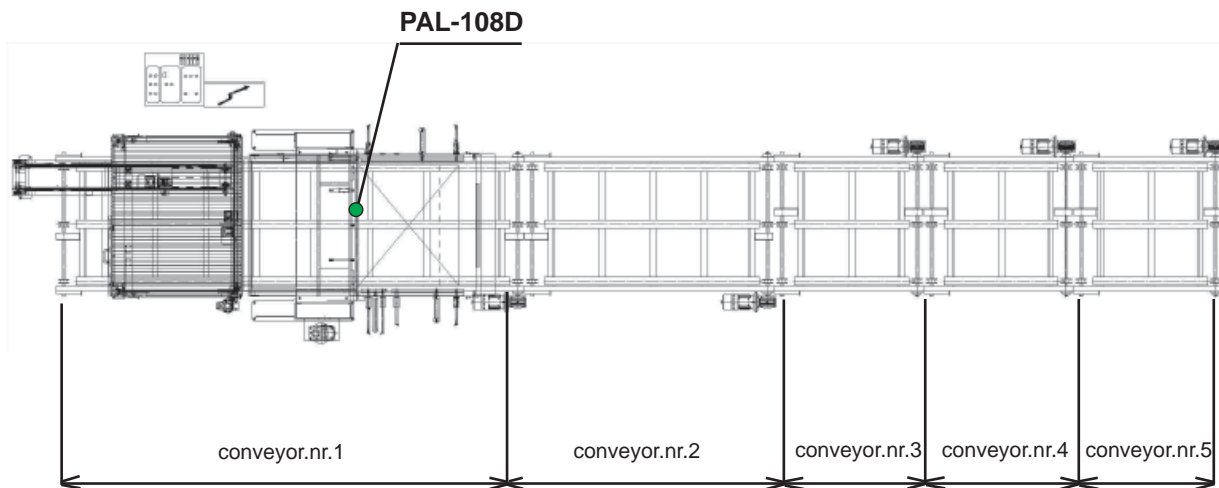


Fig.1 chap.8

PAL-108D ON CONVEYORS



8.1.1 Electrical panel control board



Danger of death.

For safety reasons, the electric control board must remain permanently closed.



The electric control board can only be opened by authorised staff.



The ventilator filters of the electric control board must be replaced regularly (if present).

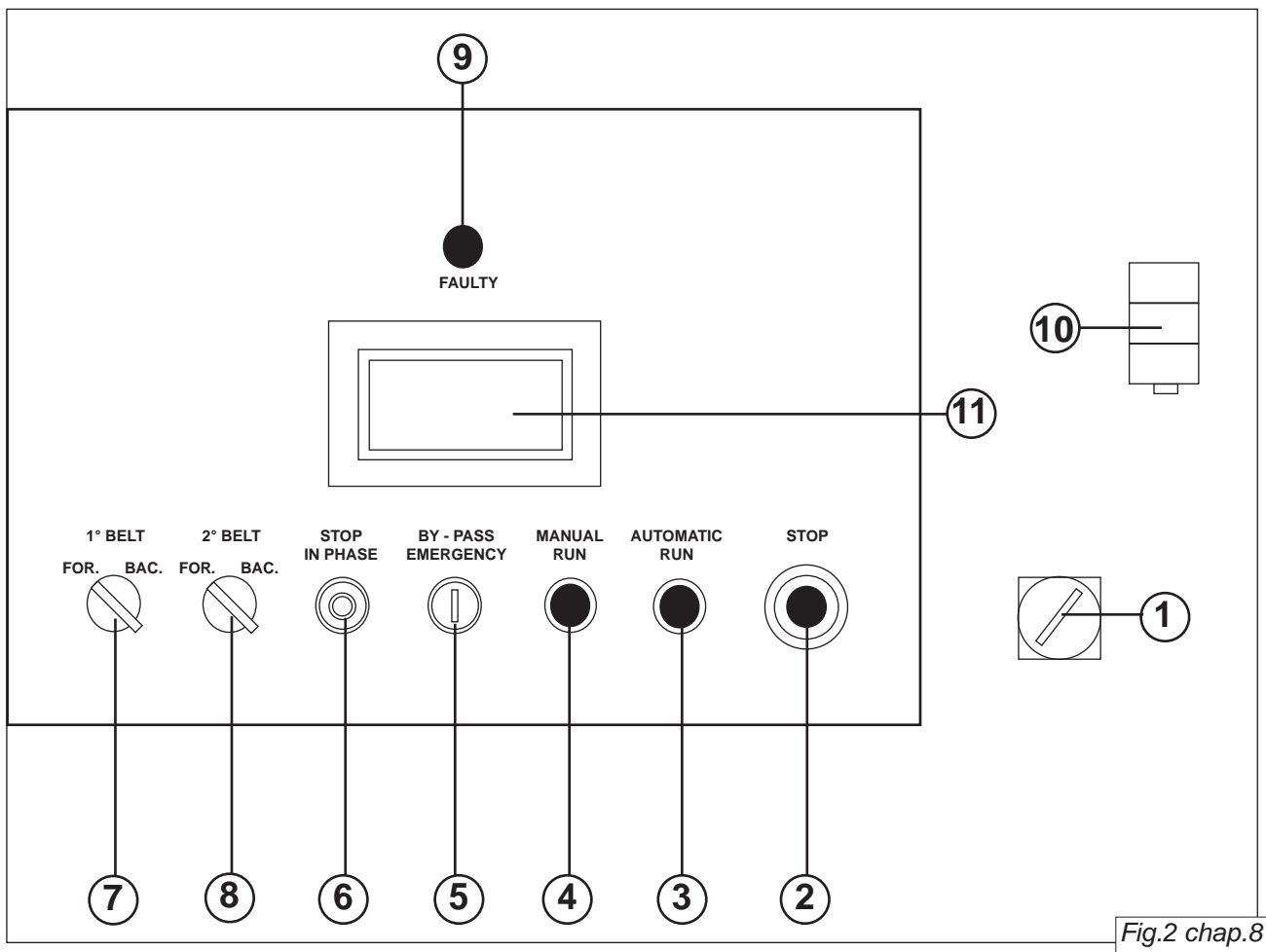


Fig.2 chap.8

- [1] **MAIN SWITCH** - Enables/disables the machine power supply.
 [OFF] = no power supply to the panel.
 [ON] = panel powered up.
 - [2] **RED MUSHROOM-SHAPED STOP BUTTON** - This button stops the machine immediately.
 After being pressed a counterclockwise rotation is necessary to unlock it without provoking the machine's new startup.
- N.B. = use this button in case of emergency only.**
- [3] **GREEN LIGHT BUTTON - AUTOMATIC RUNNING** - This button sets the machine to the automatic running mode (keeping it pressed for half second) - the green light inside is lit.

- [4] **MANUAL RUN ORANGE LIGHT BUTTON** - It starts the machine in manual running mode. The internal orange light - when lit - indicates that the manual controls have been enabled.
- [5] **KEY SELECTOR TO BY PASS THE EMERGENCIES: ATTENTION:**



THIS COMMAND IS ONLY FOR:

the **MAINTENANCE OPERATOR** (duly instructed and authorized to the maintenance and regulation of the machine of the customer) or for the **SKILLED TECHNICIAN** (person duly skilled and authorized of the customer, who is suitable and allowed to carry out extraordinary maintenance or repair operations that require particular knowledge of the machine, of its use, of its safeties, and of the relative methods of intervention).

N.B. = The key of this push-button may be used only by the MAINTENANCE OPERATOR or SKILLED TECHNICIAN, never leave it in the push-button lock [05] (see fig.2 chap.8).

It is used by the maintenance operator or by the skilled technician in those cases in which the machine is in stand-by, stopped - e.g. with machine stopped because of arch in fully up position and beyond the position of the limit switch - by introducing and turning the key, keeping it turned press the [4] **MANUAL RUN** push-button (see fig.2 chap.8), then reach page 5 of terminal VT185W and press [F2 **DESCENT ARCH**] to remove the failure.

N.B. = This selector by-passes all the emergencies but the red mushroom-shaped STOP [2] push-button (see fig.2 chap.8) and the arch fall prevention safety pin.

- [6] **RED BUTTON = STOP IN PHASE** - It operates only with the machine in AUTOMATIC RUN.
 - when pressed, it stores and executes a stop in phase, by terminating the binding cycle, then the machine shifts to the MANUAL RUNNING MODE.
- [7] **SELECTOR 1 INFEEED BELT - FORWARD / BACKWARD** -
 - this command works with the machine in AUTOMATIC and MANUAL running mode, whereas:
 - with selector on the FORWARD = the first belt upstream of the box turning device (if any) is PREPARED to be moved forward.
 - with selector on BACK = the first belt upstream of the box turning device (if any) is PREPARED to be moved back continuously.
- [8] **SELECTOR II UPSTREAM BELT - FORWARD - BACK** -
 - With the machine in manual or automatic running mode:
 - with selector on the FORWARD = the second belt upstream of the box turning device (if any) is PREPARED to be moved forward.
 - with selector on BACK = the second belt upstream of the box turning device (if any) is PREPARED to be moved back continuously.

- [9] RED LIGHT -

When it is on and fixed = indicates the machine stop because of:

- pressure switch failure.
- because the [2] STOP button has been pressed.
- dimming of the SFE photocells in the system of machine protections and safety.
- because the safety pin on the machine arch has tripped (SMP microswitch).
- because the safety door is open (SMI microswitch).
- because the roller conveyor guard is open (SMC microswitch).
- because the arch of the palletizer has reached the limit switch (SMSD microswitch).
- when the pallet counting is reset (from VT185W).
- when the stacked box layers counting is reset (from VT185W).
- when the "PALLET END" command has been pressed for over 2 seconds.

Immediate stop

Simple signal

When it is on and blinking - SEE MESSAGES =



N.B. = TO RECOGNIZE THE TYPE OF FAILURE (WHEN THE [10] (see fig.2 chap.8) RED LIGHT IS ON AND BLINKING OR FIXED) PRESS THE  **KEY ON THE VT185W TERMINAL TO RECEIVE FURTHER INFORMATION (see table 1 chap.8).**

TO EXIT THE FAILURE DESCRIPTION PAGE, PRESS  **.**

When it is on and fast blinking = indicates:

- that the "RESET PROGRAM" command on page18 of the VT185W terminal has been pressed,
- that the "DEFAULT DATA" function on page18 of the VT185W terminal has been carried out.

- [10] MULTIPLE LIGHT + SIREN =

- **GREEN** - it corresponds to the [3] GREEN LIGHT BUTTON (see fig.2 chap.8).
- **RED** - it corresponds to the [9] RED LIGHT (see fig.2 chap.8).
- **SIREN** - emitting an acoustic signal of approximately:
 - 1 second = as soon as the second-last layer is reached.
 - 2 seconds = when there is no palletized load in the palletizing area.
 - 2 seconds = at every pallet end.
 - 2 seconds = whenever the machine stops because of any failure.
 - 4 seconds = whenever the machine is full and waiting for pallet discharge.
 - continuously as long as the automatic run button is kept pressed.

N.B. = WITH MACHINE IN EMERGENCY STATUS, THE SIREN EMITS NO SIGNAL



Periodically check that all the lights are properly operating; if necessary, have them replaced by an expert electrician.

Table 1: Message FAULTY

MESSAGGIO SUL DISPLAY	DESCRIZIONE	NOTE
FAULTY INPUT X1	Failure of photocell [SF1] on box turning device	check that the photocell and its reflector are properly installed
FAULTY INPUT X2	Failure of photocell [SF2] on box turning device	check that the photocell and its reflector are properly installed
FAULTY INPUT X3	Proximity Reset Box Pusher	check the distance between the proximity and its striker
FAULTY INPUT X4	Proximity that counts the position of the Case Pusher	check the distance between the proximity and its striker
FAULTY INPUT X6	Photoelectric Cell [SF6] on the palettizing arch	check that the photocell and its reflector are properly installed
FAULTY INPUT X8	failure of SIEMENS 3TK2827 device on the electrical panel	contact SORMA technicians
FAULTY INPUT XC	Proximity [SPC] for Arch Rise and Descent	check the distance between the proximity and its striker
FAULTY INPUT XD	Proximity [SPD] that counts the position of the Arch	check the distance between the proximity and its striker
FAULTY INPUT XE	failure of proximity [SPD] for arch rise and descent	check the distance between the proximity and its striker
FAULTY INPUT X20	Failure Proximity [SP20] for platform forward	check the distance between the proximity and its striker
FAULTY INPUT X21	Failure Proximity [SP21] for platform back	check the distance between the proximity and its striker
FAULTY INPUT X25	Failure Proximity [SP25] Piston Compactator	check that the proximity is properly positioned
FAULTY INPUT X27	failure of proximity [SP27]	check that the proximity is properly positioned
FAULTY INPUT X2A	Photocell Conveyor 1	check that the photocell is properly positioned
FAULTY INPUT X2E	Check the Thermal Switches of the Motors	check that the magnetothermal switches are placed inside the electric panel
FAULTY INPUT X2F	Inverter in R	turn the electric panel off and turn it on again
FAULTY INPUT X45	Strapping Machine in R	
FAULTY INPUT X46	Arch of the Strapping Machine	
FAULTY INPUT X68	Failure Microswitch [SP68] Stacker in Low Position	check that the proximity is properly positioned
FAULTY INPUT X69	Failure Microswitch [SP69] Stacker in High Position	check that the proximity is properly positioned
FAULTY INPUT X6A	Failure of Position Switch [SP6A] placed on the Stacker	check proper operation and positioning of the switch
FAULTY INPUT X6C	Failure of Position Switch [SP6C] placed on the Stacker	check proper operation and positioning of the switch
FAULTY INPUT X6D	Failure of Photocell [SF6D] for Stacker Input	check proper positioning of the photocell and the relative reflector
FAULTY OUT Y6	Failure of Motor [M6] Paltform Forward	check motor operation
FAULTY OUT Y7	Failure of Motor [M6] platform backward	check motor operation
FAULTY OUT Y20	Failure of Motor [M20] arch rise	check motor operation
FAULTY OUT Y21	Failure of Motor [M20] arch descent	check motor operation
FAULTY OUT Y24	Failure of Motor [M24] box pushing device forward	check motor operation
FAULTY OUT Y25	Failure of Motor [M24] box pushing device backward	check motor operation
FAULTY OUT Y6C	Failure of solenoide valve [Ev172] Stacker Rise	check proper operation of solenoid valve and associated piston
FAULTY OUT Y6D	Failure of solenoide valve [Ev173] Stacker Descent	check proper operation of solenoid valve and associated piston
R50-TIMING STOP	TIMING STOP	see button [6] fig.2 of chapter 8
R51-IMMEDIATE STOP		
R54-FULL MACHINE	FULL MACHINE	discharge the pallets
R56-PALLET REQUEST	PALLET REQUEST	
FR59-OUT OF PHASE	Empty Pallet in loading area and arch below the home position	
R5A-MATERIALS END	No pallet in palettizing area	
R5B-COUNTING END	COUNTING END	press on field [F2] (page 23 of the display)
R5C-BOX FEEDER NOT IN CORRECT POSITION	BOX FEEDER NOT IN CORRECT POSITION	bring the box pushing device back to the home position
R5D-CONFIGURATION ERROR	Wrong value for deceleration band	
R5E-Stop for intermediate Reinforce	Stop for intermediate Reinforce	

By “HOME POSITION” the following is meant:

- the arch is still and in line with the roller conveyor (see fig.3 chap.8).

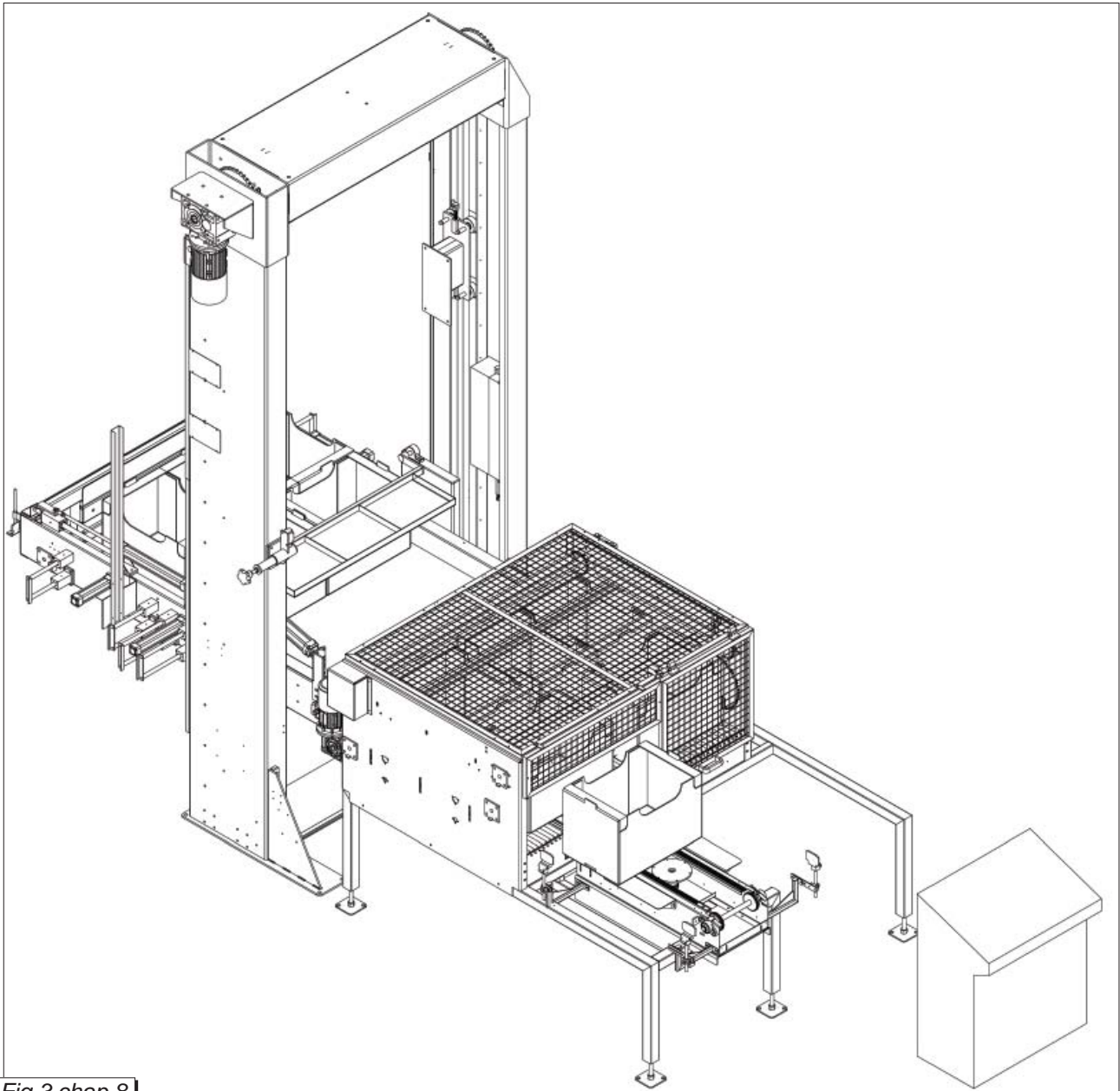


Fig.3 chap.8

8.2 Keyboard to enter numerical and alphanumerical data

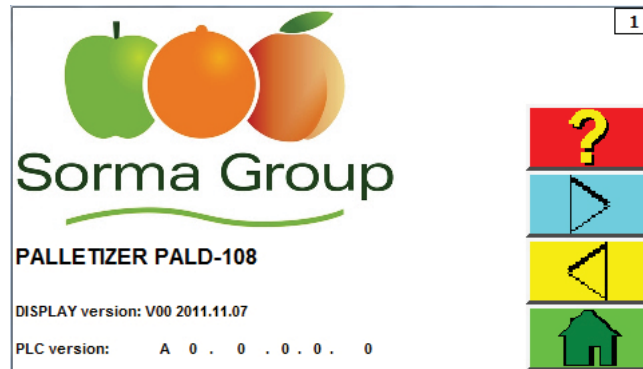
If the data that needs to be set is numerical or alphanumerical (e.g.: "name of the work program"), the window below appears when the field is pressed:



8.2.1 Symbolic field

If the data that needs to be set is represented by an icon, a possible alternative is displayed with the field is pressed. To return to the first icon, press the same symbol several times.

- [11] VT185W TERMINAL (TOUCH SCREEN DISPLAY)




Use the VT185W terminal to:

- **1)** Carry out any manual operation of each specific machine part (with machine in MANUAL RUNNING mode) from page 05 to page 19.
- **2)** Select program - Set up and display the working conditions relative to the program selected from page 19 to page 27.
- **3)** Set up machine from page 30 to page 32.
- **4)** Set up the machine cycle time values from page 40 to page 47.

N.B. = BE CAREFUL WHEN THE TOUCH SCREEN DISPLAY SHOWS THE ALARM SYMBOL: 

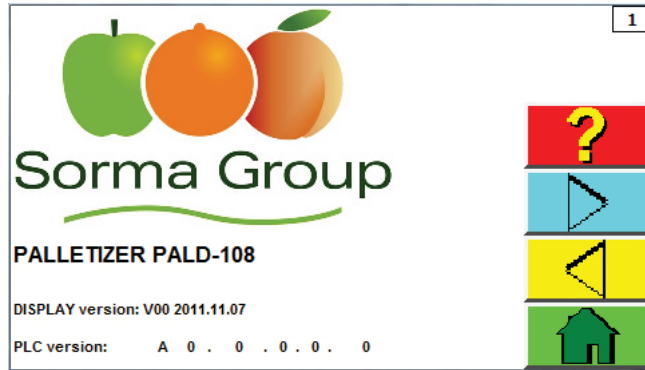


= indicates that a machine failure has occurred: press  and the message indicating the type of failure will appear, with generic message relative to the wiring diagram.


ALONG WITH THE DANGER SYMBOL, ON TOUCH-SCREEN AND ELECTRIC PANEL THE RED EMERGENCY LIGHT [09] and the multiple-light-type RED LIGHT [10] (fixed or blinking) LIGHT UP TO DRAW THE USER'S ATTENTION TO ONE FAILURE.

N.B = exert some pressure on the TOUCH SCREEN on one single point at a time (by simultaneously pressing on two or more points, the VT185W terminal will act as if the user had pressed in the intermediate point between the two or more points being touched).

After powering up the electric control panel, the terminal VT185W is enabled and turns on the display showing the main page.



*N.B. = After about 1 min. the VT185W display turns off if it is not used.
To turn it on again, just gently touch it.*

Press  to access the following page 02.

N.B.= EVERYTIME YOU PRESS , YOU WILL GO BACK TO PAGE 02.




F1 MANUAL RUN = carry out manual operation.

F2 AUTOMATIC RUN = select one program, set up and display the working conditions relative to the program selected.

F3 MACHINE CONFIGURATION = set up the machine.

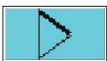
F4 TIMER/COUNTER SETTING = set up the machine cycle time values.

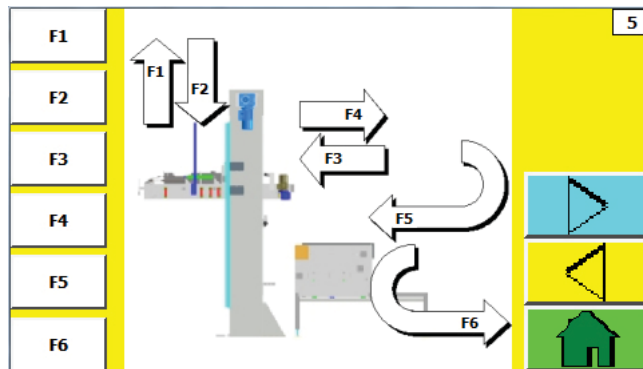
F5 SORMA = only for the SORMA technical support.

If you press  , you will access page 03, Here you can select to choose the language you want:
(N.B. = not all languages are active).



By keeping F1 pressed, the chains of the DISCHARGE CHAIN CONVEYOR I (if any) are activated .

If you press  on page 03 or F1 on page 02 (BASIC MENU), you will access page 05:



F1 RISE ARCH = this push-button is enabled only with the machine in manual running mode.
By keeping F1 pressed the palletizing arch rises as long as the key is kept pressed. If it rises above the maximum level allowed, the microswitch SMSD on the arch stops the movement by setting the machine to the emergency status.
N.B. = TO REMOVE THIS EMERGENCY STATUS, CONTACT THE MAINTENANCE OPERATOR OR THE SKILLED TECHNICIAN, WHO WILL REMOVE THIS EMERGENCY STATUS BY USING THE KEY SUPPLIED AND SELECTOR [5] (see fig.4 chap.8).

F2 DESCENT ARCH = this push-button is enabled only with the machine in manual running mode.
By keeping F2 pressed the palletizing arch descends as long as the key is kept pressed. If it descends below the minimum level allowed, the microswitch SMSD on the arch stops the movement by setting the machine to the emergency status.
N.B. = TO REMOVE THIS EMERGENCY STATUS, CONTACT THE MAINTENANCE OPERATOR OR THE SKILLED TECHNICIAN, WHO WILL REMOVE THIS EMERGENCY STATUS BY USING THE KEY SUPPLIED AND SELECTOR [5] (see fig.4 chap.8).


F3 PLATFORM BACK = this push-button is enabled only with the machine in manual running mode. By keeping F3 pressed, the platform moves back as long as the key is kept pressed or when it has reached the limit switch (fully back).
N.B.= Once the "FULLY FORWARD" position is reached, the piston of the rotary compactor is deactivated.

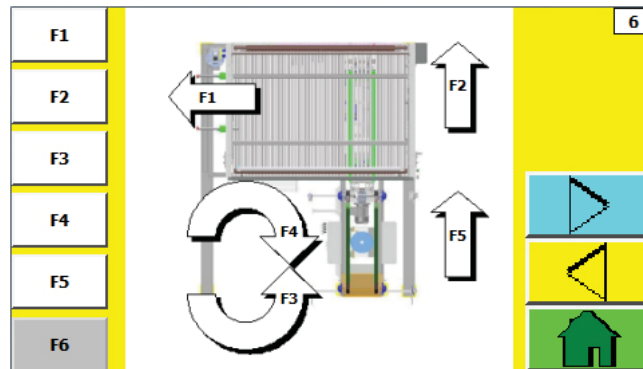
F4 PLATFORM FORWARD = this push-button is enabled only with the machine in manual running mode. By keeping F4 pressed, the platform moves forward as long as the key is kept pressed or when it has reached the limit switch (fully forward).
N.B.= Once the "FULLY FORWARD" position is reached, the compacting pistons are activated.

F5 BOX PUSHING FORWARD = this push-button is enabled only with the machine in manual running mode. By keeping F5 pressed, the box pushing device on the roller conveyor forward is activated (the boxes are pushed onto the platform), when F5 is released the above device stops right where it is.

F6 BOX PUSHING BACK = this push-button is enabled only with the machine in manual running mode. By keeping F6 pressed, the box pushing device on the roller conveyor back is activated, when F6 is released the above device stops right where it is.



By pressing  from page 5, page 6 will appear




F1 ROLLER CONVEYOR = this push-button is enabled only with the machine in manual running mode. By pressing F1, the rollers of the roller conveyor are activated; as soon as the key is released the rollers stop running.

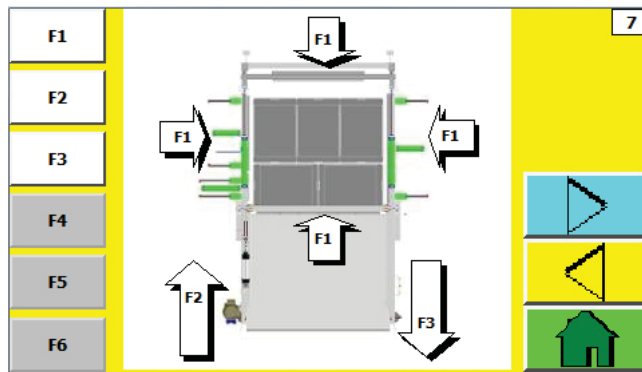
F2 CHAINS ON ROLLER = this push-button is enabled only with the machine in manual running mode. Keeping F2 pressed activates the chain on the roller.

F3 GRIPPERS PIST. CYCLE = this push-button is enabled only with the machine in manual running mode.
Box handling cycle is carried out by step by means of suction caps (control valid only if an appropriate kit is present).

F4 ROTATION -90° = this push-button is enabled only with the machine in manual running mode.
Press F4 and keep the plate of the box turning device pressed to raise and turn it by -90 degrees.

F5 BOX TURNING DEVICE CHAINS = this push-button is enabled only with the machine in manual running mode. Keeping F5 pressed activates the chains of the box turning device.


By pressing  from page 6, page 7 will appear

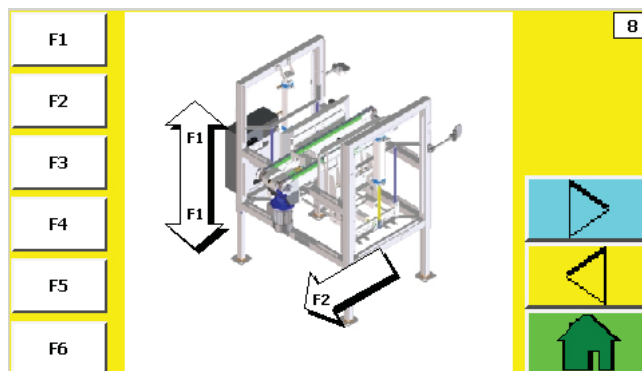


F1 COMPACTORS = this push-button is enabled only with the machine in manual running mode. By pressing F1 the compacting pistons on the palletizing arch advance as long as the key is kept pressed; as soon as the key is released the pistons return to their stand-by position.

F2 PLATFORM FORWARD = this push-button is enabled only with the machine in manual running mode.
By keeping F2 pressed, the platform moves forward as long as the key is kept pressed or when it has reached the limit switch (fully forward).
N.B. = Once the “FULLY FORWARD” position is reached, the compacting pistons are activated.


F3 PLATFORM BACK = this push-button is enabled only with the machine in manual running mode.
By keeping F3 pressed, the platform moves back as long as the key is kept pressed or when it has reached the limit switch (fully back).
N.B. = Once the “FULLY FORWARD” position is reached, the piston of the rotary compactor is deactivated.

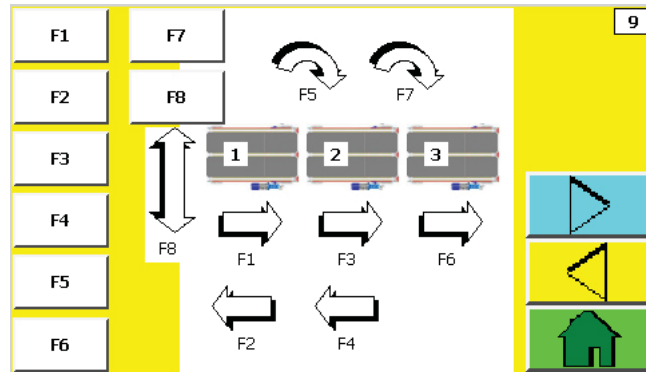
By pressing  from page 7, page 8 will appear



F1 IMP: RISE-DESCENT = this push-button is enabled only with the machine in manual running mode.
N.B. = THIS COMMAND IS AVAILABLE ONLY WHEN THE PAL-108D IS COMBINED WITH A BOX STACKER.
Press F1 if the stacker is ABOVE to move it down and press F1 to move it up when it is BELOW.

F2 STACKER CHAINS = Keeping F2 pressed activates the chains of the stacker (if present).

By pressing  from page 8, page 9 will appear



F1 CONVEYOR 1 FORWARD = this push-button is enabled only with the machine in manual running mode. By keeping F1 pressed, the chains of 1nd CONVEYOR are activated to move forward.

F2 CONVEYOR 1 BACK = this push-button is enabled only with the machine in manual running mode. By keeping F2 pressed, the chains of 1nd CONVEYOR are activated to move back upstream.

F3 CONVEYOR 2 = this push-button is enabled only with the machine in manual running mode. By keeping F3 pressed, the chains of the 2nd CONVEYOR (if any) are activated.

F4 CONVEYOR 2 BACK = this push-button is enabled only with the machine in manual running mode. By keeping F4 pressed, the chains of 2nd CONVEYOR are activated to move back upstream.

F5 CONVEYOR 1+2 = this push-button is enabled only with the machine in manual running mode. By keeping F5 pressed, the chains of both 1st and 2nd CONVEYOR (if any) are activated at the same time.


F6 CONVEYOR 3 = this push-button is enabled only with the machine in manual running mode. By keeping F6 pressed, the chains of the 3rd CONVEYOR (if any) are activated.

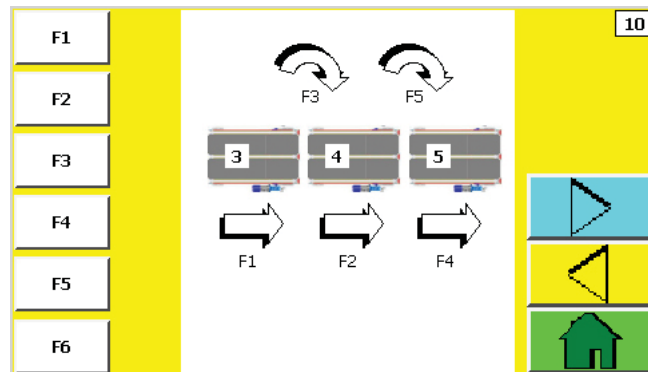
F7 CONVEYOR 2+3 = this push-button is enabled only with the machine in manual running mode. By keeping F7 pressed, the chains of both 2st and 3rd CONVEYOR (if any) are activated at the same time.

F8 CONVEYOR 1 TRANS. = this push-button is enabled only with the machine in manual running mode.

N.B. = THIS COMMAND MAY BE USED ONLY WHEN PALS IS COMBINED WITH A PALLET DISCHARGE CONVEYOR LINE.

By pressing F8, is the conveyor FORWARD it moves back, is the conveyor BACK it moves forward.

By pressing  from page 9, page 10 will appear



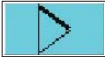
F1 CONVEYOR 3 = this push-button is enabled only with the machine in manual running mode. By keeping F1 pressed, the chains of the 3rd CONVEYOR (if any) are activated.

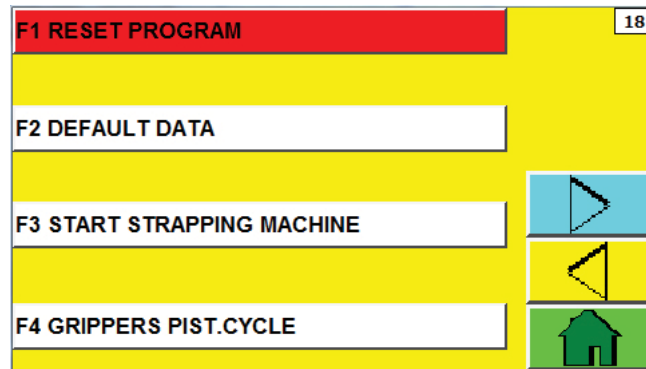
F2 CONVEYOR 4 = this push-button is enabled only with the machine in manual running mode. By keeping F2 pressed, the chains of the 4th CONVEYOR (if any) are activated.

F3 CONVEYOR 3+4 = this push-button is enabled only with the machine in manual running mode. By keeping F3 pressed, the chains of both 3rd and 4th CONVEYOR (if any) are activated at the same time.

F4 CONVEYOR 5 = this push-button is enabled only with the machine in manual running mode. By keeping F4 pressed, the chains of the 5th CONVEYOR (if any) are activated.

F5 CONVEYOR 4+5 = this push-button is enabled only with the machine in manual running mode. By keeping F5 pressed, the chains of both 4th and 5th CONVEYOR (if any) are activated at the same time.

By pressing  from page 10, page 18 will appear



F1 RESET PROGRAM = this push-button is enabled only with the machine in manual running mode. By keeping F1 pressed, a few parameters and variables stored by the machine during the manual or automatic operations may be reset; namely the machine is restored to its status of “restart position from function break due to abnormalities”.

F2 DEFAULT DATA = this push-button is enabled only with the machine in manual running mode. It is used to reset counts or times (see pages of VT185W from 40 to 47) back to the default values which are set on the new machine by SORMA.

For doing it, proceed as follows:

- 1) Press F2 and, by keeping it pressed, press the red mushroom-shaped [2] STOP button (see fig.5 chap.8).
- 2) Within 10 seconds, turn the machine off by switching the main switch [1] (see fig.5 chap.8) to [OFF].
- 3) Turn the machine on again by switching the main switch [1] (see fig.5 chap.8) to [ON].

F3 START STRAPPING MACHINE = this push-button is enabled only with the machine in manual running mode. F3 starts strapping the pallet from the strapping machine which is downstream of the PAL-108D.

F4 GRIPPERS PIST. CYCLE = this push-button is enabled only with the machine in manual running mode. Box handling cycle is carried out by step by means of suction caps (control valid only if an appropriate kit is present).

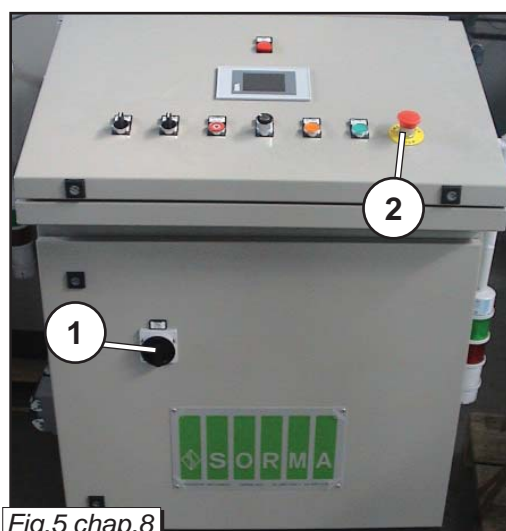
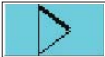
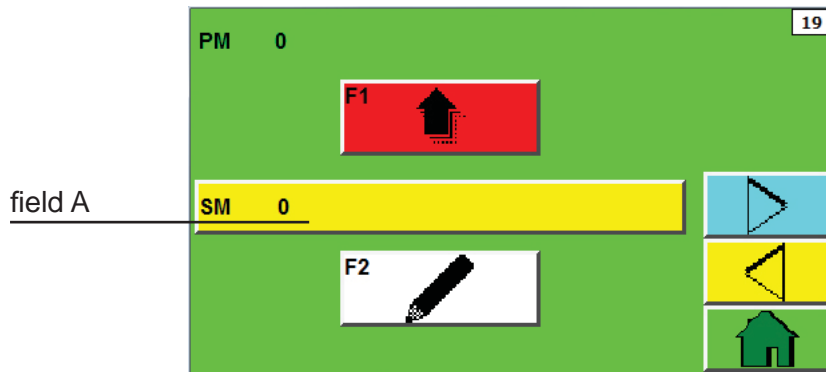


Fig.5 chap.8

By pressing  from page 18, page 19 will appear

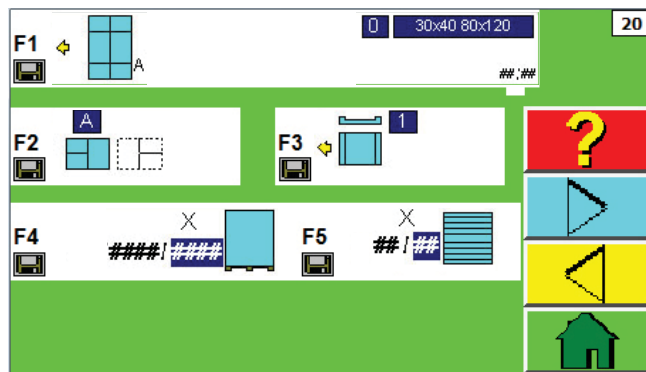


field A = symbolic field. The work recipe is selected which will be processed after the one currently being processed.

F1 = Pressing F1 starts execution of the work recipe indicated in field A.


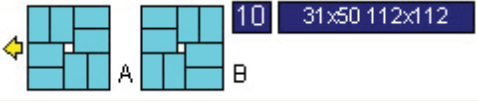
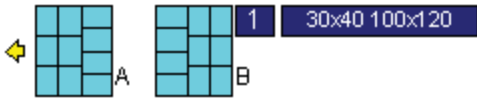




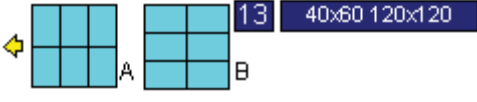
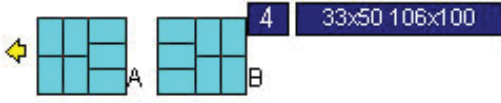


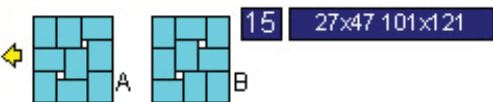

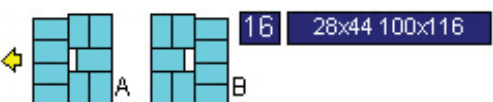
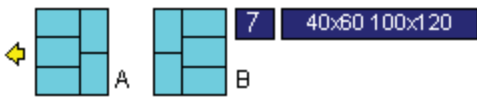

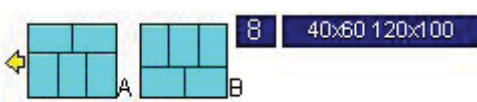





F2 = Pressing F2 enters the section where work recipes are constructed.

Press  from page 10, or press F2 from page 02 to go to page 20:



F1 = WORK PROGRAMS = it is possible to choose one of the programs in memory. This setting must be carried out with the machine not in automatic running mode.

TABLE OF THE PALLETIZING PROGRAMS PAL-108D

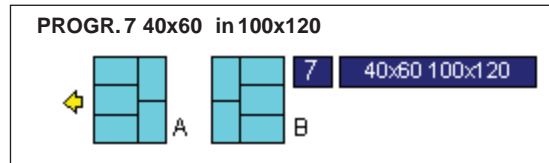
<p>PROGR. 0 30x40 in 80x120</p> 	<p>PROGR. 10 31x50 in 112x112</p> 
<p>PROGR. 1 30x40 in 100x120</p> 	<p>PROGR. 11 30x40 in 100x120</p> 
<p>PROGR. 2 30x50 in 80x120</p> 	<p>PROGR. 12 31x51 in 102x113</p> 
<p>PROGR. 3 30x50 in 100x120</p> 	<p>PROGR. 13 40x60 in 120x120</p> 
<p>PROGR. 4 33x50 in 120x120 o 106x120</p> 	<p>PROGR. 14 24x40 in 80x120</p> 
<p>PROGR. 5 40x50 in 100x120</p> 	<p>PROGR. 15 27x47 in 101x121</p> 
<p>PROGR. 6 40x60 in 80x120</p> 	<p>PROGR. 16 28x44 in 100x116</p> 
<p>PROGR. 7 40x60 in 100x120</p> 	<p>PROGR. 17 34x44 in 102x122</p> 
<p>PROGR. 8 40x60 in 120x100</p> 	<p>PROGR. 18 25x40 in 100x120</p> 
<p>PROGR. 9 20x30 in 80x120</p> 	<p>PROGR. 19 25x40 in 75x120</p> 
<p>PROGR. 20 20x30 in 100x120</p> 	<p>PROGR. 20 20x30 in 100x120</p> 

F2 = FLAT TYPE = symbolic field. This setting must be carried out with the machine not in automatic running mode. It allows to choose one from the four possible box layer combinations on pallet available.

N.B. = this function may be applied only if the selected program has the [A] and [B] combination.



example:



by setting:[A]: the PAL-108D palletizes the layout [A] only.

by setting:[B]: the PAL-108D palletizes the layout [B] only.

by setting:[IA]: the PAL-108D forms a pallet by alternating layout [A] layers with layout [B] ones, always starting from a first layout [A] layer.

by setting:[IB]: the PAL-108D forms a pallet by alternating layout [A] layers with layout [B] ones, always starting from a first layout [B] layer.

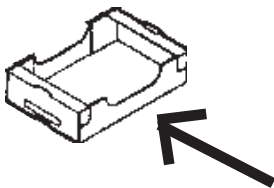
F3 = BOX ENTER = symbolic field. This setting must be carried out with the machine not in automatic running mode. It allows setting the box entry direction on the chain conveyor, between TIP and THROUGH depending on whether the boxes coming from the upstream machine enter the box turning device of the PAL-108D lengthwise or crosswise, it also tells the palletizing program whether the cases coming from the upstream machine enter:

- without label,
- with label in the box front,
- with label in the box back,
- with label in the box right side,
- with label in the box left side,

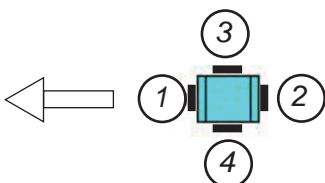
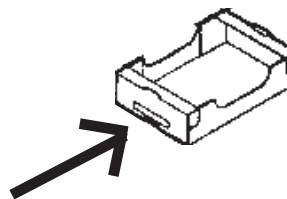


N.B.= THIS SETTING IS ONLY POSSIBLE IF THE MACHINE IS PROVIDED WITH BOX TURNING DEVICE AT 180°.

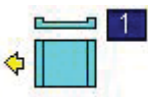
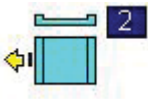
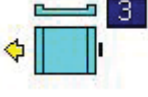

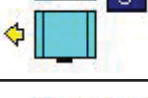
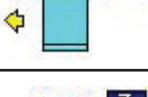
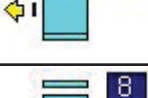



CROSSWISE ENTRY



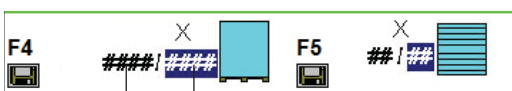
LENGTWISE ENTRY



- 1: LABEL IN FRONT = with the label in the box front.
- 2: LABEL BEHIND = with the label in the box back.
- 3: LABEL ON THE RIGHT = with the label on the right side of the box.
- 4: LABEL ON THE LEFT = with the label on the left side of the box.

	lengthwise entry	without label
	lengthwise entry	with label in the box front
	lengthwise entry	with label in the box back
	lengthwise entry	with label external
	lengthwise entry	with label inside
	crosswise entry	no side is taken into account
	crosswise entry	with label in the box front
	crosswise entry	with label in the box back
	crosswise entry	with label external
	crosswise entry	with label inside

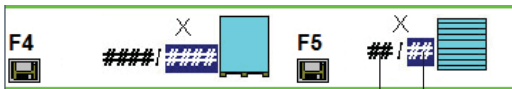
F4 = NUMBER OF PALLETS = numeric settable field, it allows setting the number of pallets to be formed.



numeric settable field, indicates the number of pallets to be implemented.


numeric settable field, it indicates the number of finished pallets, it increases when the last layer is laid down.

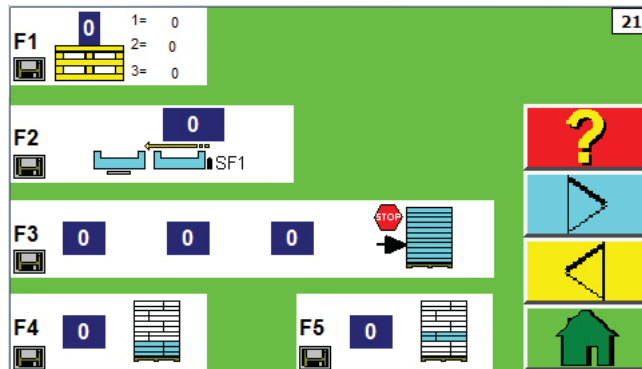
F5 = NUMBER OF LAYERS = numeric settable field, indicating the number of box layers to be stacked on the pallet.



numeric settable field, indicates the number of layers to be implemented on the pallet in construction.

numeric settable field, indicating the number of layers laid on the pallet being formed, it increases when the layer is laid down. It is set to zero when the pallet is discharged.

By pressing  from page 20, page 21 will appear



F1 = STOP PALLET = numeric settable field. It sets the position of pallet stop. Its values can be 1, 2 or 3. Each value is associated to a pallet length. This command works only if the palletizer is fitted on pallet discharge conveyors.

F2 = numeric settable field. Adjusts the stop of the box on the plate for the rotation. It is a memorisable parameter in the recipes.

F3 = STOP LAYER = numeric settable field. This setting must be carried out with the machine not in automatic running mode. It stops the machine after stacking a certain number of layers on pallet (maximum three stops can be set). To restart the machine press the AUTOMATIC RUN [4] button (see fig.6 chap.8) or set the key selector [A] of the PUSH-BUTTON PANEL FOR THE ACCESS TO THE WORKAREA (see fig.7 chap.8) back to the stand-by position. N.B. = The selector [A] is enabled to restart only in case that the access request has been made.



Fig.6 chap.8

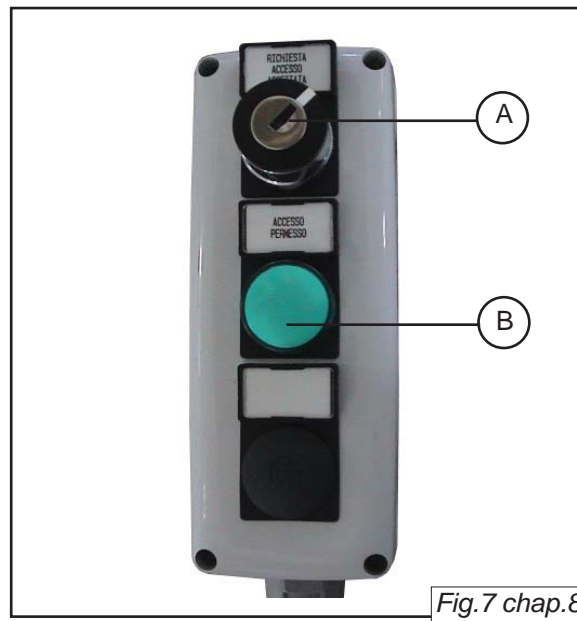
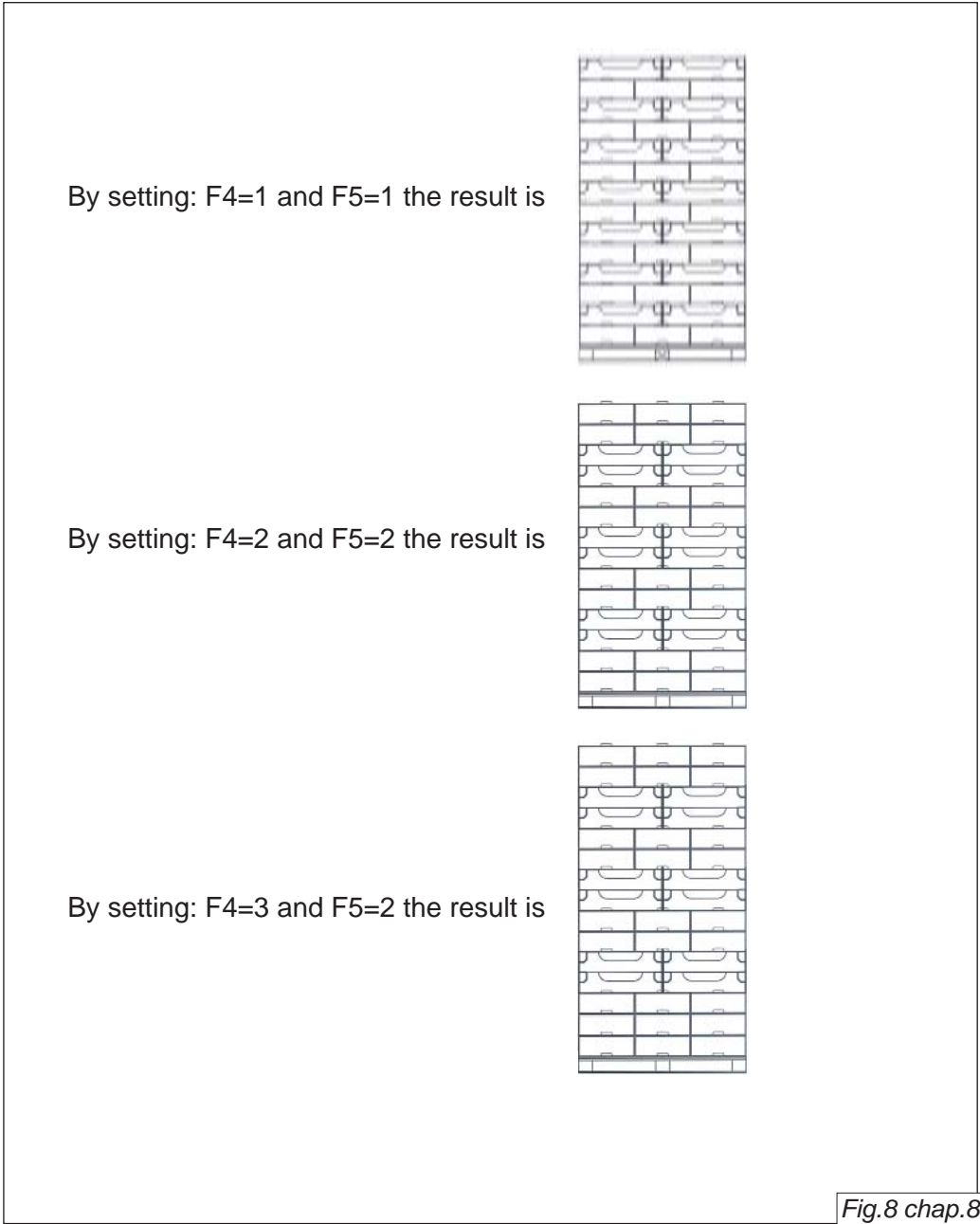



Fig.7 chap.8

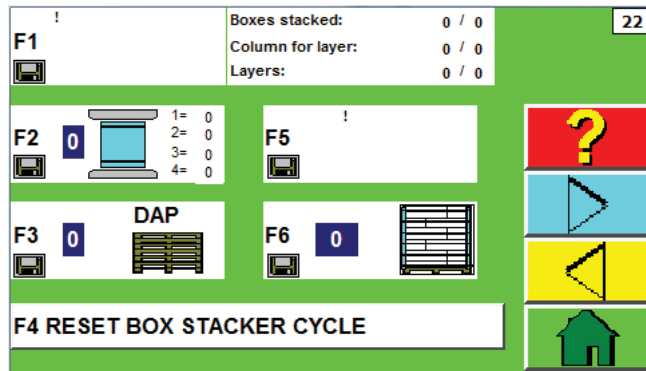
F4 = INITIAL UNCROSSED LAYERS = symbolic settable field. This parameter should be properly set, when a crossed program is selected. It is the number of initial layers to be stacked without being crossed.

F5 = INITIAL UNCROSSED LAYERS = symbolic settable field. This parameter should be properly set, when a crossed program is selected. It is the number of box layers to be laid in the same direction.

EXEMPLE:



By pressing  from page 21, page 22 will appear



F1 = BOXES TO BE STACKED = numeric settable field. This setting must be carried out with the machine not in automatic running mode. By selecting 1 the stacker works as a normal belt conveyor, by selecting 2 two boxes at a time are stacked. By selecting 3 three boxes at a time are stacked.




F2 = STACKER OPENING = numeric settable field. This setting must be carried out with the machine not in automatic running mode. Its values can be 1, 2, 3 or 4. The setting value depends on the size of the box being processed.

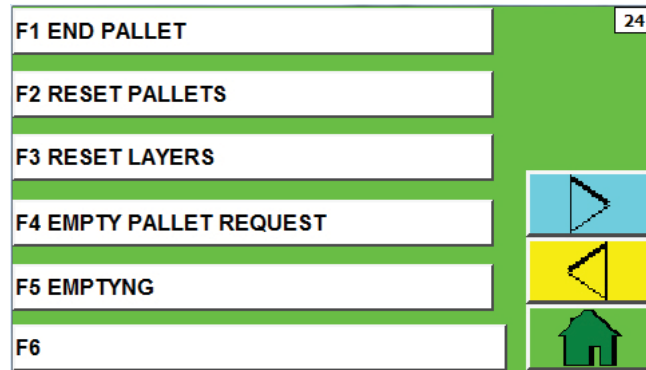
F3 = DESTACKER = field active only when the machine is linked to Ethernet. The destacker is selected from which the pallets are withdrawn.

F4 BOX STACKER CYCLE RESET = button enabled only when the machine is in manual mode. Pressing F4 resets the cycle of the stacker upstream the PAL-108D.

F5 = PALLET LABELLING = field active only when the machine is linked to Ethernet. The type of label application on the pallet is selected.

F6 = STRAPPING PROGRAM = field active only when the machine is linked to Ethernet. The strapping program is selected.

By pressing  from page 22, page 24 will appear



F1 END PALLET = this push-button is enabled only with the machine in manual running mode. By pressing F1 the palletizer executes the last layer and communicates that the pallet is ready for discharge.

F2 RESET PALLETS = By pressing F2 the number of pallets actually carried out is reset.

F3 RESET LAYERS = By pressing F3 the number of layers actually carried out is reset.


F4 EMPTY PALLET REQUEST = Push-button enabled with machine in automatic or manual run. Press F4 to make the request of an empty pallet to the upstream machine.

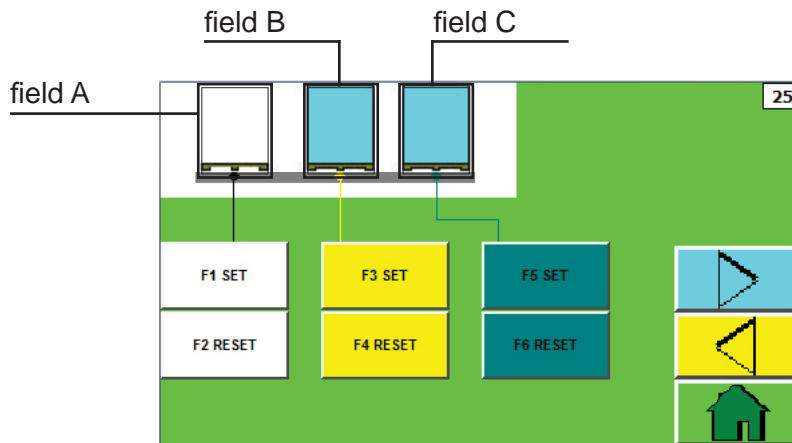
F5 EMPTYNG = By pressing F5 the box entry blocks in the box turning device (or in the stacker, if present). The boxes already present on the box turning device and on the roller unit are loaded on to the platform and stored on the pallet. The pallet is evacuated.

F6 = free option.



Check the stability of the boxes in that the last layer is incomplete.

By pressing  from page 24, page 25 will appear



This page displays whether there are pallets on the first and second conveyor. Each field (A, B, C) may be fixed, blinking or absent.

Fixed: the machine has the pallet presence in memory and the relative photocell senses the pallet.

Blinking:

- the machine has the pallet presence in memory but the relative photocell does not sense the pallet;
- the machine does not have the pallet presence in memory but the relative photocell does not sense the pallet.

Absent: the machine does not have the pallet presence in memory and the relative photocell does not sense anything.

Every SET command stores the pallet presence on the machine. The SET command is valid in any status in which the machine is (emergency, manual or automatic).

Every RESET command deletes the pallet presence from the machine's memory. The RESET command is valid in any status in which the machine is (emergency, manual or automatic).


Example relative to field B:

Fixed: the machine has the pallet presence in memory in the pallet formation area and photocell SF2A senses the pallet.

Blinking:

- the machine has the pallet presence in memory in the formation area and photocell SF2A does not sense the pallet;
- the machine does not have the pallet presence in memory in the formation area and photocell SF2A senses the pallet.

Absent: the machine does not have the pallet presence in memory in the formation area and photocell SF2A does not sense anything.

By pressing  from page 25, page 26 will appear

D1	CYCLE ROLLER CONVEYOR	,0 - ,0	26
D2	ARCH CYCLE	,0	
D3	BOX PUSHING	,0	
D4	PLATFORM	,0	
D5	TOTAL CYCLE	,0 - ,0	
D6	BOX STACKER CYCLE	0 - 0	
D7	TOTAL PALLETS	0	
D8	BOX / MINUTES	0	
D9	PALLET STACKER CYCLE	,0	

D1 CYCLE ROLLER CONVEYOR = indicates the time (in tenths of a second) required by the roller conveyor to carry out a complete cycle.

D2 ARCH CYCLE = indicates the time (in tenths of a second) required by the arch to carry out a complete cycle (from when the arch leaves the home position, puts down the boxes and returns to the home position).

D3 BOX PUSHING = indicates the time (in tenths of a second) required by the box pushing device to carry out one cycle.

D4 PLATFORM = indicates the time (in tenths of a second) required by the (layer-carrying) platform to carry out a complete cycle (from when the platform moves forward, puts down the boxes and returns to the home position).

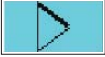
D5 TOTAL CYCLE = indicates the time (in tenths of a second) calculated from when the last box enters the roller conveyor to form one layer and the moment when the last box of the next layer reaches the roller conveyor.

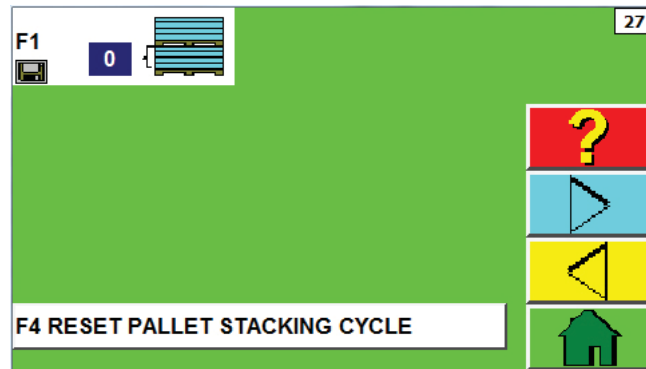
D6 BOX STACKER CYCLE = indicates the time (in tenths of a second) required by the stacker to carry out a complete cycle.

D7 TOTAL PALLETS = display field only, indicates the number of pallets done since the machine has been operating.

D8 BOX / MINUTES = display field only, indicates production in boxes/minute.

D9 PALLET STACKER CYCLE = indicates the time (in tenths of a second) used to perform a pallet stacking cycle (if foreseen).

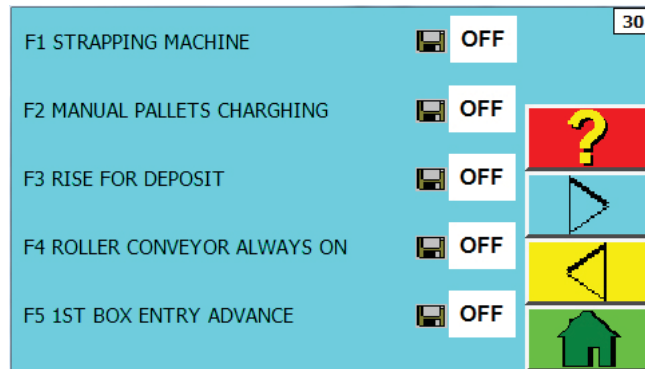
By pressing  from page 26, page 27 will appear



F1 = LAYER FIRST HALF-PALLET = indicates the number of layers the first half-pallet is composed of, when working with half-pallet stacking.

F4 RESET PALLET STACKING CYCLE = By keeping F4 pressed, a few parameters and variables stored by the machine during the manual or automatic operations may be reset, as far as the half-pallet stacking cycle is concerned; namely the machine is restored to its status of “restart position from function break due to abnormalities”.

Press  from page 26, or press F3 from page 02 to go to page 30:




F1 STRAPPING MACHINE = set [ON] to send the signal to the strapping machine of binding cycle start, when the pallet is on the corresponding conveyor. Set [OFF] to skip the binding cycle.

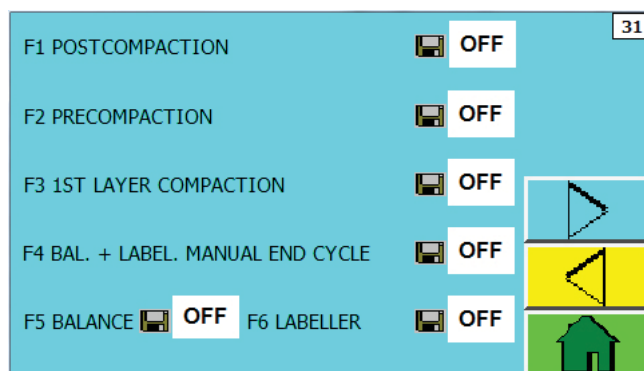
F2 MANUAL PALLETS CHARGING = set [ON] if the empty pallets charging is done by hand below the palletizing arch and above the pallet discharge conveyor. Set [OFF] in all the other cases of pallet feeding.

F3 RISE FOR DEPOSIT = by setting the machine's arch to [ON], the PAL-108D carries out an extra rise prior to opening the platform and putting down the layer of boxes onto the pallet. (N.B.= It is used to obtain a better joint between boxes). By setting it to [OFF], the arch does not carry out any extra rise prior to putting down the boxes (N.B. = The extra rise is controlled by the value being set to counter 203, see page 44 of the VT185W terminal).

F4 ROLLER CONVEYOR ALWAYS ON = by setting to [ON], the continuous movement of the roller conveyor is activated, by setting to [OFF] the roller conveyor is activated only under certain work phases.

F5 1ST BOX ENTRY ADVANCE = not yet implemented.

By pressing  from page 30, page 31 will appear



F1 POSTCOMPACTION = by setting to [ON], a further compaction process is added (to the standard one) to the layer which was previously put down onto the pallet (N.B.= It is used to obtain a better joint between boxes). By setting to [OFF], the PAL-108D will not carry out any post-compaction.

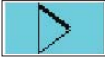
F2 PRECOMPACTION = By setting to [ON], compaction is added to the layer of boxes on the platform, before this last one is put down with later compaction (always present) when the layer is put down onto the pallet (N.B.= It is used to obtain a better joint between boxes).
By setting to [OFF], the PAL-108D carries out the only programmed compaction type (always present).

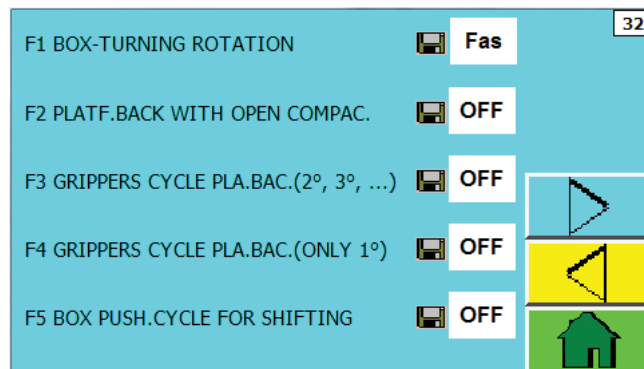
F3 1ST LAYER COMPACTION = by setting to [ON] compaction to the box layer is carried out on the platform when the 1st layer of boxes is laid on the empty pallet.
Set [OFF] to skip compaction.

F4 BAL.+LABEL. MANUAL END CYCLE = if the weighing device and the applicator are present in the line, by setting [ON] once completed the application, the pallet is evacuated only after a manual consent (by means of pressing an appropriate button).

F5 BALANCE = if the weighing device is present in the conveyor line, by setting [ON] weighing is carried out.

F6 LABELLER = if the label applicator is present in the conveyor line, by setting [ON] the label is applied.

By pressing  from page 31, page 32 will appear




F1 BOX-TURNING ROTATION = allows choosing 2 rotation speeds of the boxes turning device plate (control valid only if an appropriate kit is present).

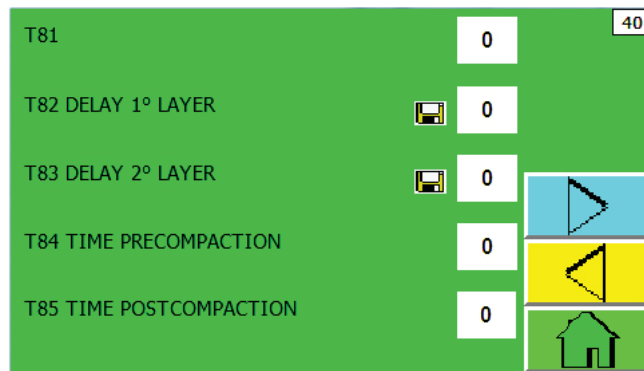
F2 PLATF.BACK WITH OPEN COMPAC. = by setting [ON] the platform goes back with the compactors open.

F3 GRIPPERS CYCLE PLA.BAC. (2°, 3°, ...) = by setting [ON], from the 2nd to the last layer, the suction caps cycle is performed with the platform back (control valid only if an appropriate kit is present).

F4 GRIPPERS CYCLE PLA.BAC. (ONLY 1°) = by setting [ON], only for the 1st layer, the suction caps cycle is performed with the platform back (control valid only if an appropriate kit is present).

F5 BOX PUSH. CYCLE FOR SHIFTING = by setting [ON], the box pusher movement cycle is enabled during formation of the various one-layer rows on the roller to help their traversing.

By pressing  from page 32, page 40 will appear



T81 = free option.

T82 DELAY 1° LAYER = numeric settable field. It is used for putting down the first layer only. It indicates the time (in hundredths of a second) from when the falling arch detects the empty pallet up to when it stops to put down the *first layer*.


T83 DELAY 2° LAYER = numeric settable field. It is used for putting down the second and later layers. It indicates the time (in hundredths of a second) from when the falling arch detects the last layer being put down onto the pallet to when it stops to put down the *layer*.

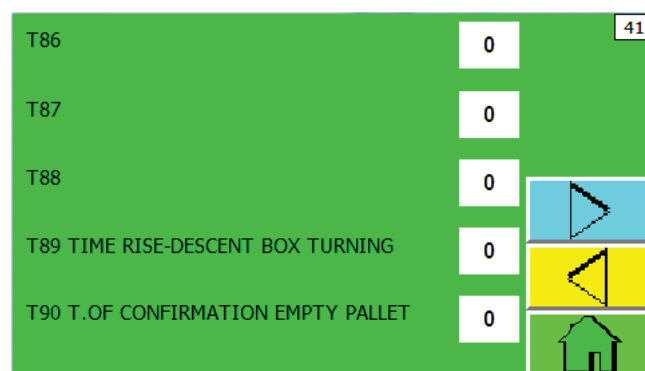
T84 TIME PRECOMPACTION = numeric settable field.

It indicates the time (in hundredths of a second) for compacting the palletized boxes.

T85 TIME POSTCOMPACTION = numeric settable field.

It indicates the time (in hundredths of a second) for post-compacting the palletized boxes.

By pressing  from page 40, page 41 will appear



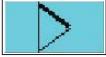
T86 = free option.

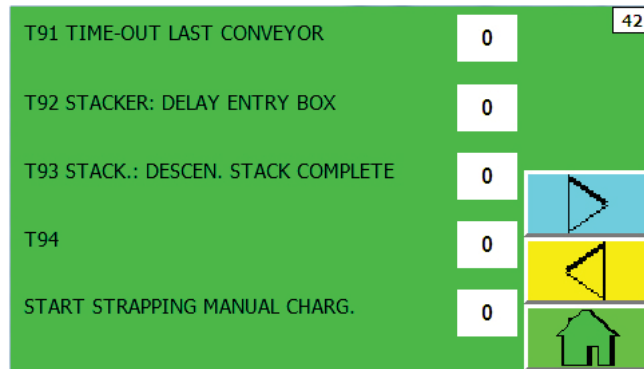
T87 = free option.

T88 = free option.

T89 TIME RISE-DESCENT BOX TURNING = numeric settable field. It indicates the time (in hundredths of a second) required by the box turning device to rise at the maximum height or to descend from the maximum height of the stand-by position.

T90 T.OF CONFIRMATION EMPTY PALLET = numeric settable field. It indicates the waiting time before confirming that the empty pallet is present on the conveyor (time ranging from 1 to 26 seconds).

By pressing  from page 41, page 42 will appear



T91 TIME-OUT LAST CONVEYOR = numeric settable field.

Active only when the PAL-108D is in line with other discharge conveyors.

It indicates the time (in hundredths of a second) of uninterrupted reading by the relative photocell, to confirm that there are no more pallets on the last conveyor.

T92 STACKER: DELAY ENTRY BOX = numeric settable field.


It indicates the time (in hundredths of a second) which must elapse from the moment in which the stacker starts lifting the box when the next box enters.

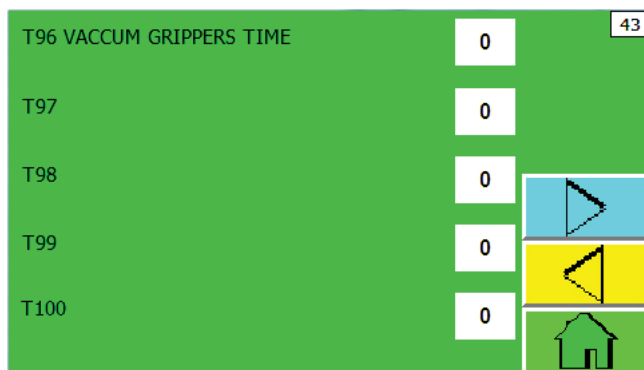
T93 STACK.: DESCEN. STACK COMPLETE = numeric settable field.

It indicates the time (in hundredths of a second) which must elapse from the moment in which the stacker starts descending when the formed line is discharged.

T94 = free option.

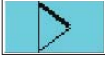
T95 START STRAPPING MANUAL CHARG. = it indicates the time elapsing from when the pallet discharge conveyor laid the pallet below the strapping machine to when the binding process of the strapping machine actually starts.

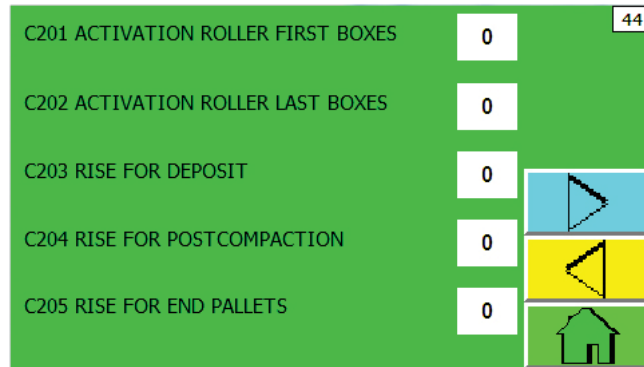
By pressing  from page 42, page 43 will appear



T96 VACCUM GRIPPERS TIME = numeric settable field. It indicates the time after which the empty is considered realised by the suction caps.

T97 = T98 = T99 = T100 = free option.

By pressing  from page 43, page 44 will appear




C201 ACTIVATION ROLLER FIRST BOXES = numeric settable field. It indicates the time during which the roller conveyor remains in motion to allow all the boxes but the last one to reach the roller conveyor itself.

C202 ACTIVATION ROLLER LAST BOXES = numeric settable field. It indicates the time during which the roller conveyor remains in motion to allow the last box in the row to reach the roller conveyor itself.

C203 RISE FOR DEPOSIT = numeric settable field. It indicates by how much the arch should rise to deposit a layer of boxes. (N.B. = this is possible only if [F3 RISE FOR DEPOSIT] has been set to [ON] (page 30 of the VT185W terminal).

C204 RISE FOR POSTCOMPACTION = numeric settable field.
It indicates a count for the palletizing arch rise and for recompacting the layer of deposited boxes. This count depends on the setting on page 31 of the VT185W terminal.

C205 RISE FOR END PALLETS = numeric settable field. It indicates a count for the palletizing arch rise, after completing the pallet. This count is possible if the PAL-108D is supplied with one or more discharge conveyors. If the PAL-108D is not equipped with any conveyors, the arch at the end of the pallet rises until activating the microswitch SM18.

By pressing  from page 44, page 45 will appear



C206 BOX STOP 25 = numeric settable field.

It is the time required by the 25 cm long box to centre itself on the box turning device.

C207 BOX STOP 30 = numeric settable field).

It is the time required by the 30 cm long box to centre itself on the box turning device.

C208 BOX STOP 40 = numeric settable field.


It is the time required by the 40 cm long box to centre itself on the box turning device.




C209 BOX STOP 50 = numeric settable field.

It is the time required by the 50 cm long box to centre itself on the box turning device.

C210 BOX STOP 60 = numeric settable field.

It is the time required by the 60 cm long box to centre itself on the box turning device.

By pressing  from page 45, page 46 will appear

C211 C211 BOX ADVANCEMENT (TO EXCEED D1)	0		46
C212 BOX ADVANCEMENT (TO EXCEED D2)	0		
C213 ARCH UP	0		
C214 NUMBER BOXES LAST LAYER	0		
C215 STACK.: BOX ENTRY FOR END STACK	0		


C211 BOX ADVANCEMENT (TO EXCEED D1) = numeric settable field. It specifies the minimum distance the box must run to exceed the teeth D1 (which are about 40 cm from the roller conveyor's start).





C212 BOX ADVANCEMENT (TO EXCEED D2) = numeric settable field. It specifies the minimum distance the box must run to exceed the teeth D2 (which are about 60 cm from the roller conveyor's start).

C213 ARCH UP = numeric settable field. It indicates the minimum height reached by the arch (in case that the PAL-108D works on the ground), when the pallet is terminated.

C214 NUMBER BOXES LAST LAYER = numeric settable field. It allows setting the number of boxes laid on the last pallet layer.
N.B. = For more stability of the pallet, set a number of boxes of at least one or two box lines.

C215 STACK.: BOX ENTRY FOR END STACK = numeric settable field.
It indicates the stretch run by the finished line before letting the next box enter.

By pressing  from page 46, page 47 will appear

C216 Layers number for empty pallet	0		47
C217 Arch rise stop, platform forward.	0		
C217 Arch rise stop, platform forward.	0		
C219 Stop pallet 1000 strapping conv.	0		
C220 Stop pallet 1200 strapping conv.	0		

C216 Layers number for empty pallet = it indicates the number of layers to be realised to be able to call the pallet empty.

C217 Arch rise stop, platform forward. = it indicates how far the arch must be lifted, once maximum height of the pallet is reached, before making the platform go forward.

C218 = free option.

C219 Stop pallet 1000 strapping conv. = field only for the SORMA TECHNICAL SUPPORT. **(N.B. enter these fields with the supervision of Sorma S.p.A. technicians only).**

C220 Stop pallet 1200 strapping conv. = field only for the SORMA TECHNICAL SUPPORT. **(N.B. enter these fields with the supervision of Sorma S.p.A. technicians only).**

9.1 Maintenance e cleaning

Maintenance and cleaning procedures are essential to keep your machine in the best operating conditions, to provide users with more safety measures and your machine with a longer life. Although the above concept is certainly valid, the **PAL-108D** needs little and easy maintenance. Obviously maintenance operations should be carried out also at the end of the seasonal working cycle, after which the machine remains stopped for rather long periods. And in case that residual deposits or dirtying effects are more evident than average, time intervals need to be anticipated accordingly.



It is strictly forbidden to tamper, to remove and to amend the safety devices of the machine. In such cases, the manufacturer declines every responsibility regarding the safety of the machine.



Do not amend machine parts to adapt other devices unless previously authorised by Sorma S.p.A.; in case of unauthorised amendments, Sorma S.p.A. will not consider itself responsible of the consequences.



The activities described in this paragraph must be **carried out only** by qualified staff, and precisely:

1. **Sorma S.p.A. Technician** with the help of local labour,
2. **Trained technician** who has attended specialisation and training courses and with experience with regard to installation, start-up and maintenance of the machine, and is aware of the accident-prevention Standards.



Should a defect threaten the safety of the functioning, the machine must be immediately stopped.



Only use Sorma S.p.A. spare parts that must be assembled by specialised staff.



Before performing any maintenance operation, lubricating parts, adjustments, replacing spare parts or cleaning machine equipment, it is strictly necessary to:

- 1) **disconnect your machine from the power supply using the main switch on the front side of the electric panel (set it to [0]) and padlock the main switch (see fig.1 chap.9).** The main switch lock key should be exclusively given to a maintenance operator (duly skilled, trained and authorised to service your machine). Afterwards power cords and pneumatic air supply pipes should be disconnected.
- 2) **bleed pressure from the pneumatic circuit by closing the inlet valve [A] (see fig.1 chap.9) and bleeding the residue air in the machine's circuit.**

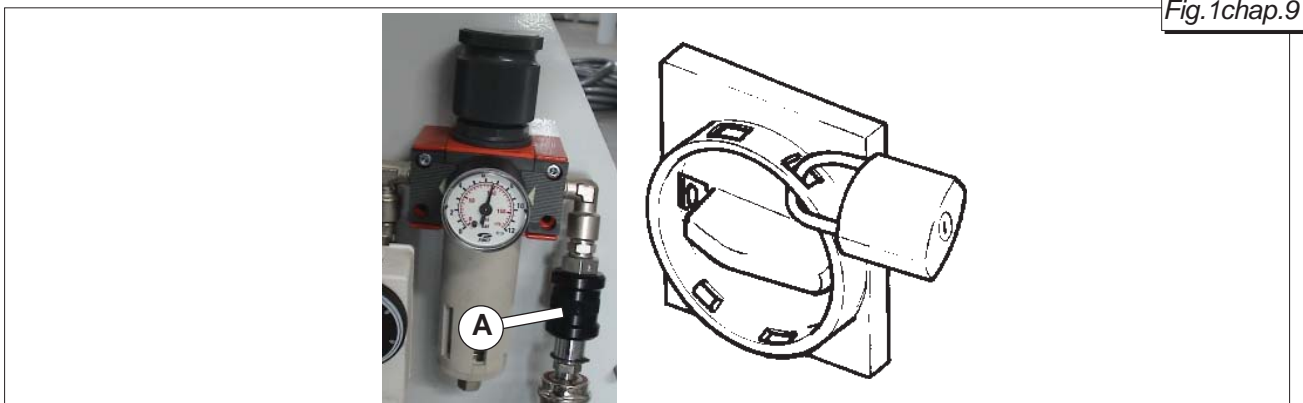


Fig.1chap.9

9.2 Pictograms and inspection tables

Tables have been set out for the carrying out of the requested inspection, showing the machine and certain of its parts, from which it is immediately possible to understand the type of requested check. Symbols can be seen on the tables, representing the type of check and the periodicity of the control.

9.2.1 Decoding the pictograms

Visual check



check any damages, lubricant leaks, high wear condition.



The visual check operations can expose eyes to a dangerous situation. It is therefore necessary to wear protection glasses during these operations.



Aural monitoring



check the presence of unusual noises.



For noise emissions above 85 dBA, it is necessary to wear acoustic protection devices.

Fastening



check the fastening of the bolts and/or screws holding the components.



It is compulsory to wear protection gloves when carrying out the fastening operations.



Adjustment



check the position of the component and eventually restore the location.



It is compulsory to wear protection gloves when carrying out the measuring operations.



Cleaning

check the cleaning state of the elements.

Handling

check, by handling, the functioning of the components (e.g.: friction test).



It is compulsory to wear protection gloves when carrying out the handling operations.

**Lubrication**

check the lubrication state of the components.



It is compulsory to wear protection gloves when carrying out the lubrication operations.

**9.3 Check**

During daily operations, the different mechanical parts of the machine must be regularly checked.

9.4 Lubrication

Particular attention must be taken during lubrication. Ensure there is sufficient lubricant on all mechanical parts in motion. Lubricate at regular intervals.

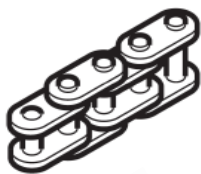
9.5 Cleaning

The dirt, sand residues, etc., can accumulate and cause damages. We recommend to frequently clean the entire machine. Use compressed air or a dry clean cloth.

9.6 Mechanical inspections

Below are the tables and indications on the points of inspection and prescribed checks for each machine part.

LEGEND



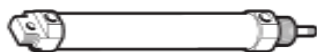
Chain



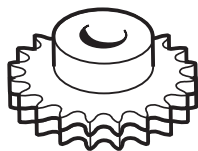
Support



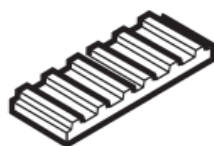
Motion rod



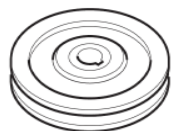
Cylinder



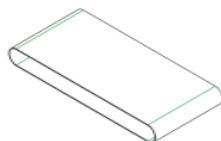
Pinion



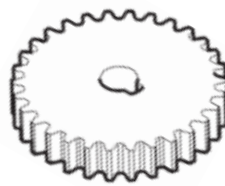
Toothed belt



Pulley



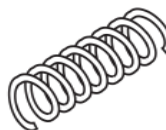
Belt



Cogwheel



Sucker



Spring



Sliding bar



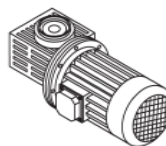
Sliding guide



Ball runner blocks and guides

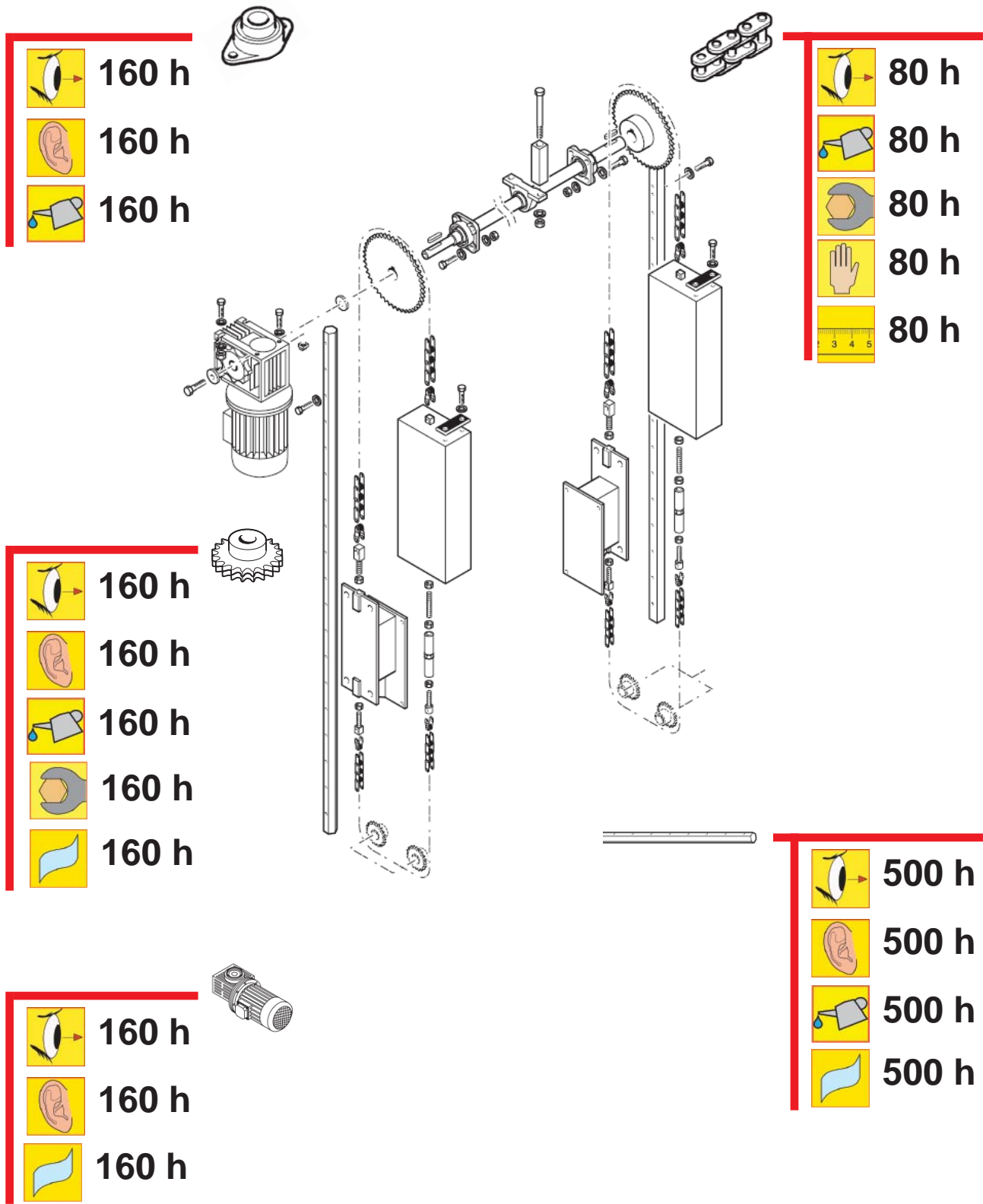


Belt

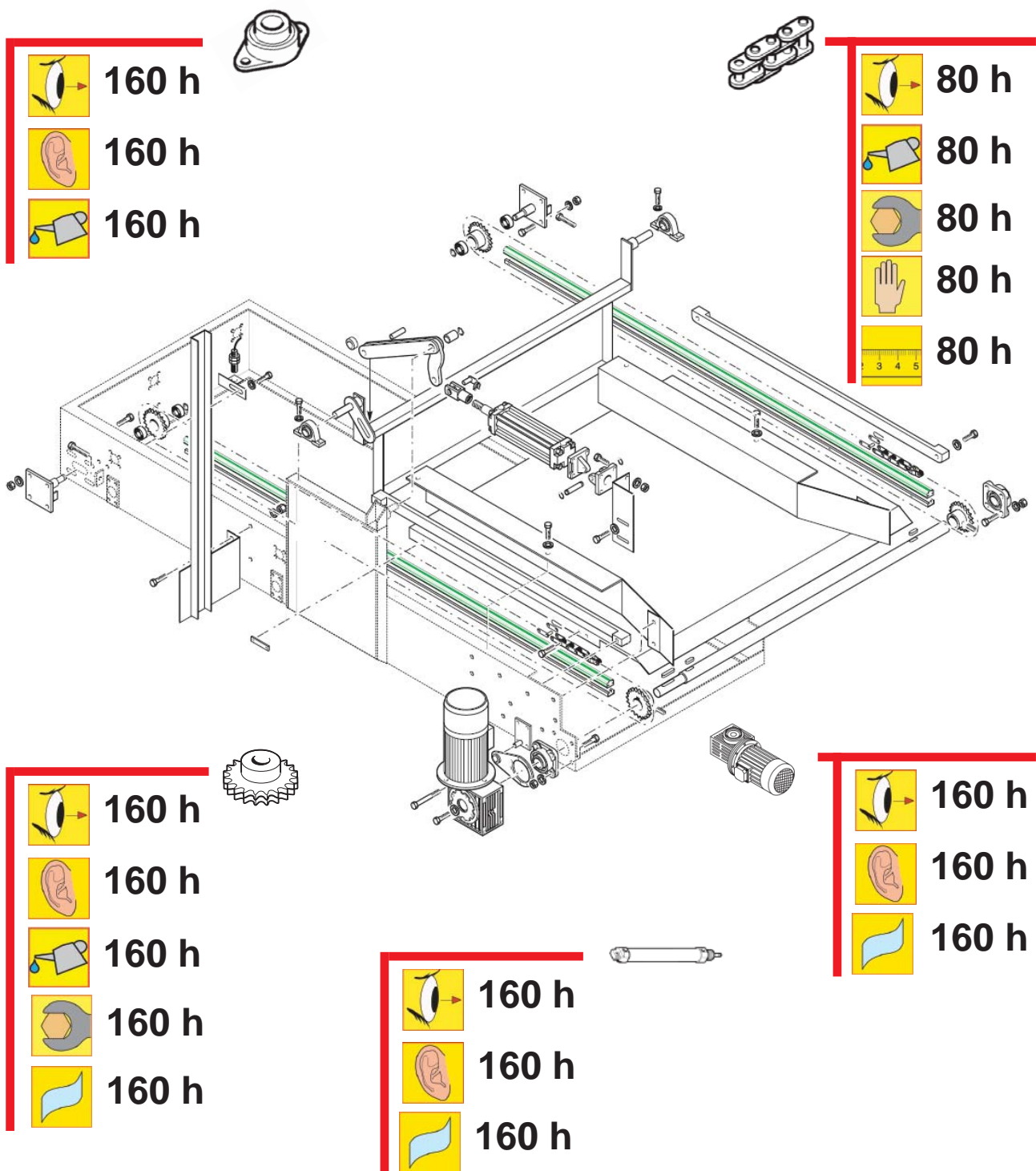


Gearmotor

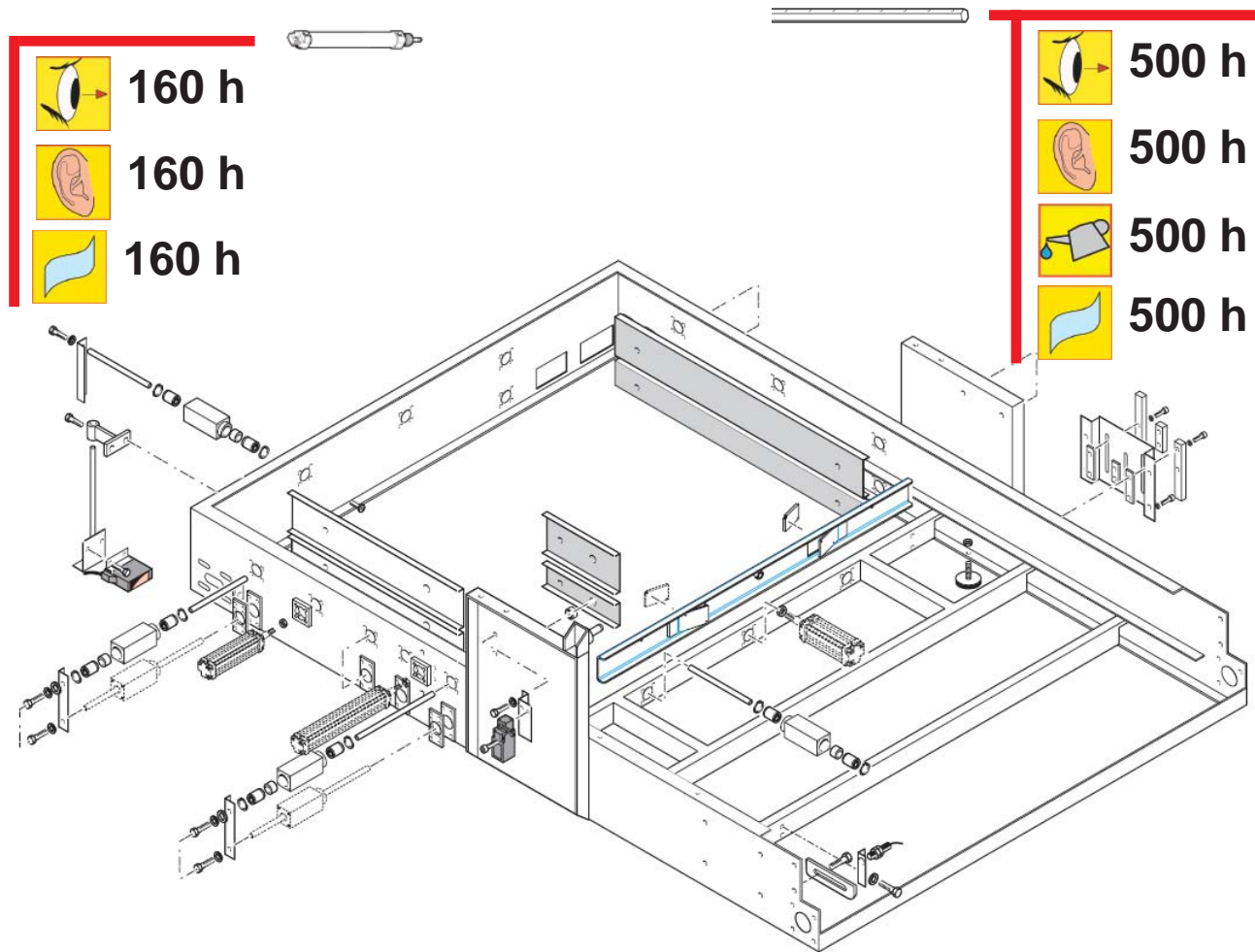
Upright movement



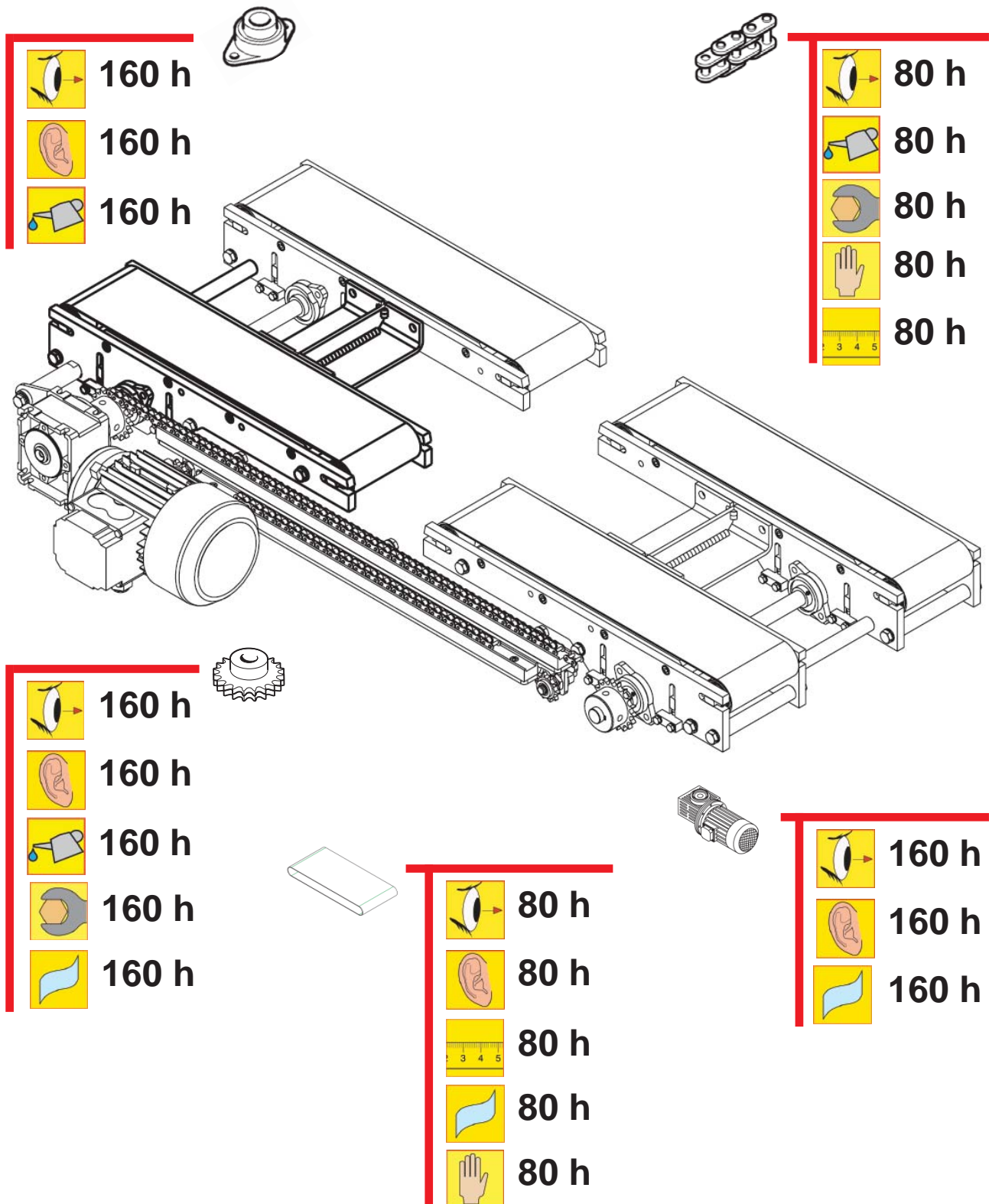
Horizontal movement



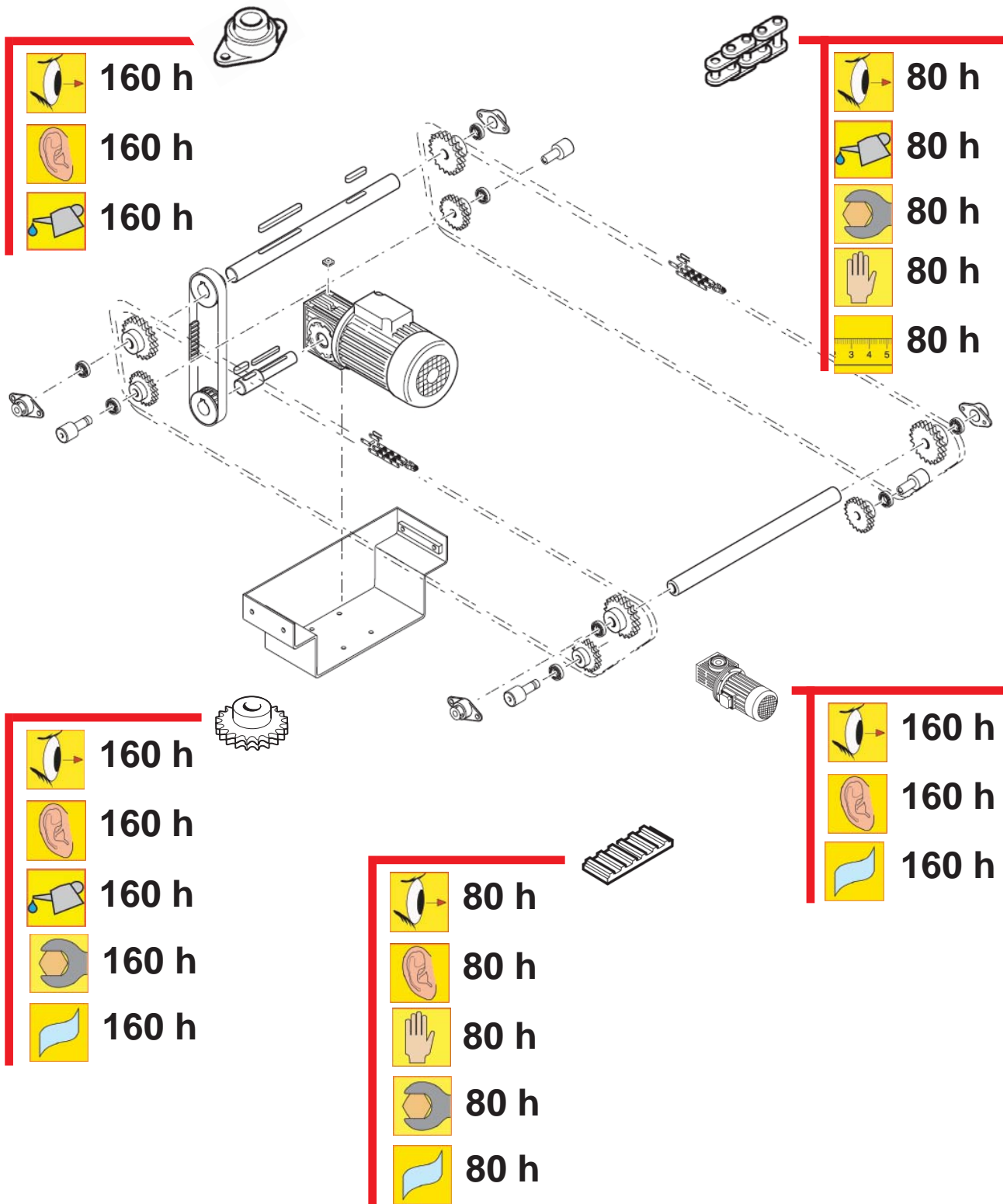
Platform frame






Crate turning device - belt and motorization

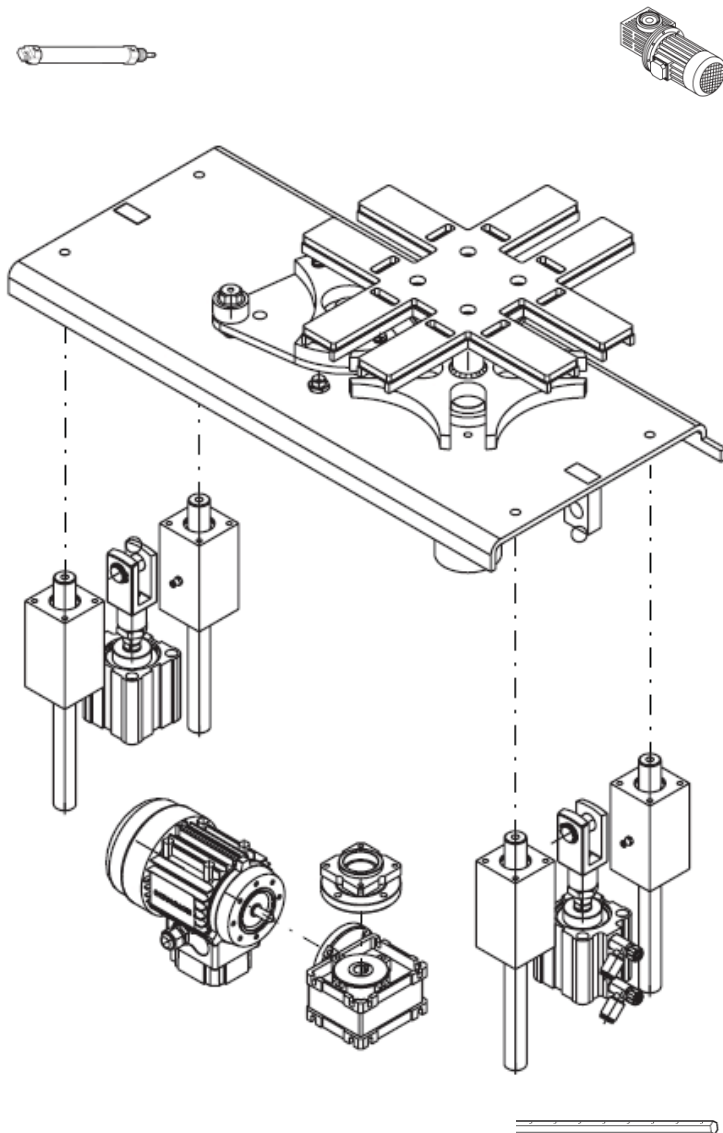





Crate turning device - motorization







Crate turning device

-  160 h
-  160 h
-  160 h



-  160 h
-  160 h
-  160 h

-  500 h
-  500 h
-  500 h
-  500 h

Mobile roller unit



160 h



160 h



160 h



80 h



80 h



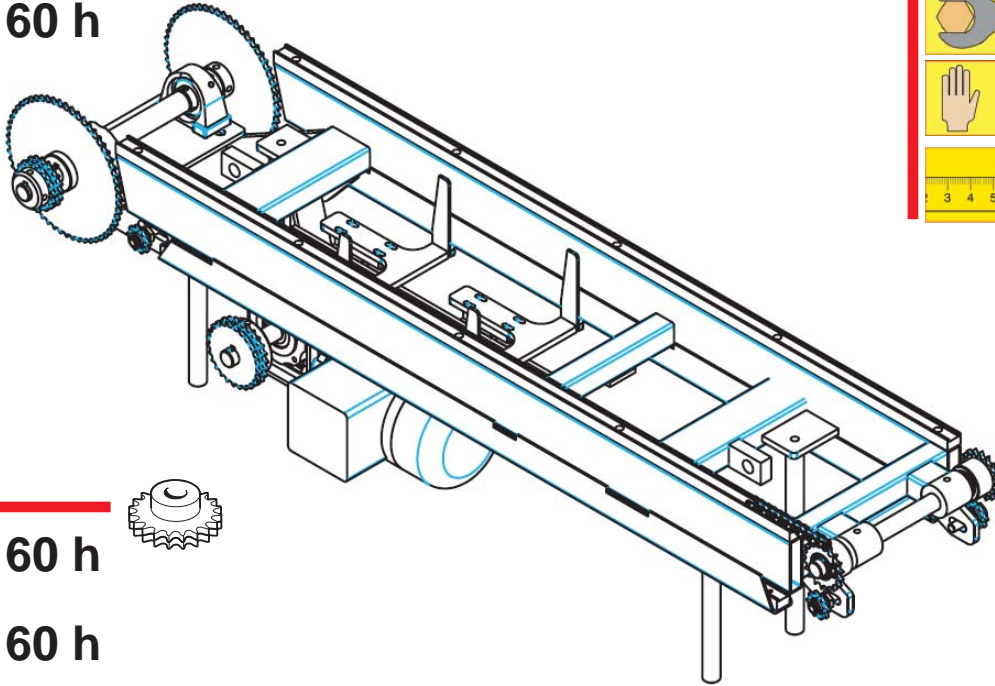
80 h



80 h



80 h



160 h



160 h



160 h



160 h



160 h



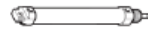
160 h



160 h



160 h



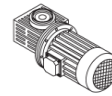
160 h






160 h







160 h








Roller unit

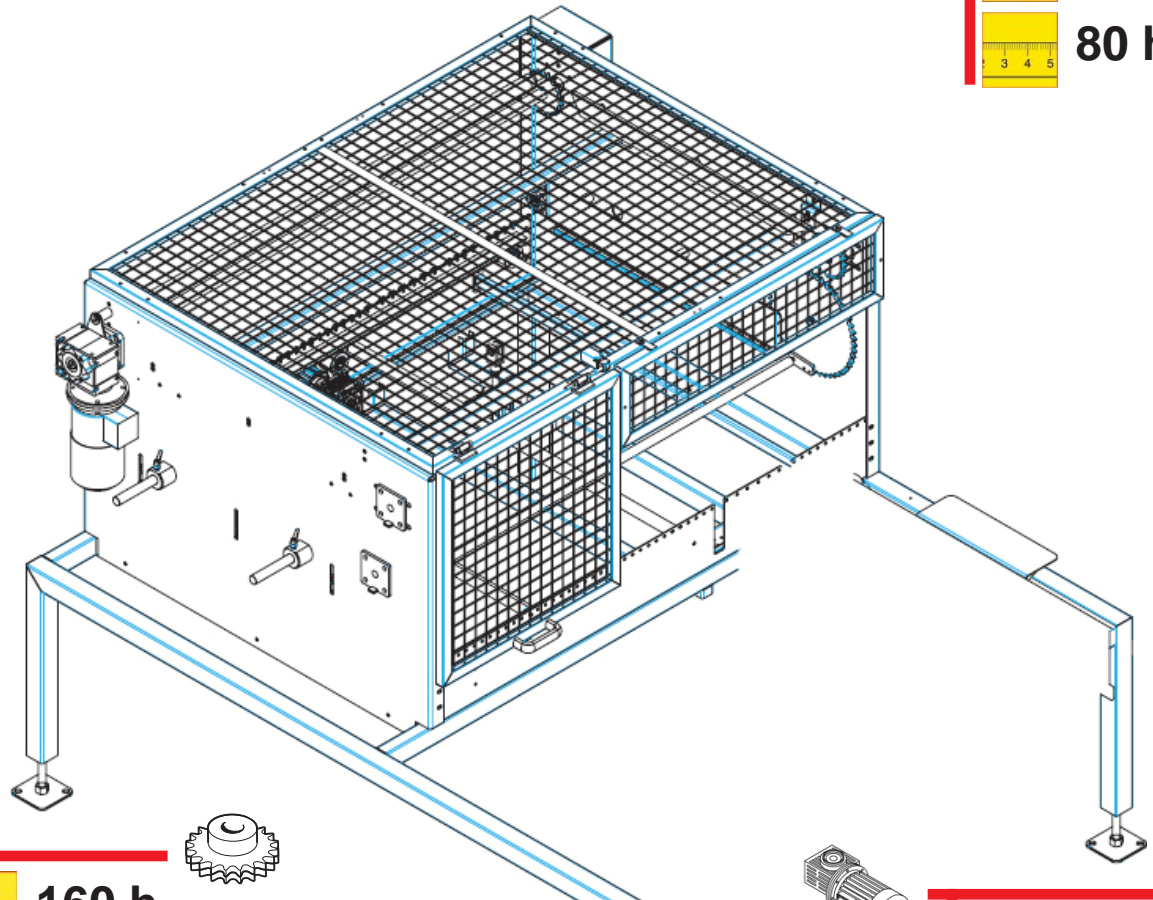
-  160 h
-  160 h
-  160 h







-  160 h
-  160 h
-  160 h
-  160 h








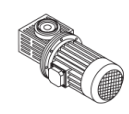
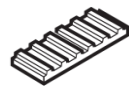
-  80 h
-  80 h
-  80 h
-  80 h
-  80 h






-  160 h
-  160 h
-  160 h
-  160 h
-  160 h



-  80 h
-  80 h
-  80 h
-  80 h
-  80 h



-  160 h
-  160 h
-  160 h

9.7 Routine and extraordinary maintenance

The **routine maintenance** entails:

- 1) checking the functioning state of the various parts,
- 2) eliminating or correcting anomalies, even those that, despite not constituting immediate danger or technical bad service, can lead to inconveniences in case of their prolonging.

The **extraordinary maintenance** consists in the full replacement of machine parts when necessary.

For every routine maintenance intervention, below is the indicative frequency, calculated in hours of functioning and a detailed description of the intervention procedure.

9.7.1 Routine maintenance sheets

Daily check, through visual check, the general wear conditions of the machine.
A table is attached:

Type of intervention	Frequency (hours)		
	40	160	500
Mechanical interventions			
Lubrication		•	
Check reducers			•
Cleaning of compressed air filter			•
Tensioning of the conveyor belts		•	
Check belts			•
Check sliding bar			•
Check sliding guides			•
Cleaning of frame			•
	120	500	1000
Electric interventions			
Cleaning of fans/exchangers filters		•	
Inspect photocells	•		
General cleaning of the electric control board		•	

Lubrication

Proceed with relative greaser inserting lubricant inside the greasers.
The bearings used are of watertight type and do not require maintenance.
However, the user is free to periodically grease, in particular in case of using the machine in extremely dusty environments.

Check reducers

Check there are no oil/grease leaks on the reducers.

Cleaning of compressed air filter

- 1) Loosen the cup containing the air filter.
- 2) Remove the filter and clean it using compressed air.
- 3) Assemble the filter again and tighten the cup.

Check belts

The belts and the chains must be periodically checked. Check tensioning and wear.

Remember that for every transporter a belt is present which transmits the motion from the gearmotor to the conveyor belt.

To adjust the tension of the transmission belt the fastening screws of the gearmotor must be loosened, so that the same can move using the appropriate adjustment slots. The adjustment of the belt of the gearmotor must be such to allow the flexion of the same belt at a maximum of three millimetres in the central area.

Check sliding bars

Proceed with relative greaser inserting lubricant inside the greasers.

Check sliding guides

Proceed with the relative greasing of the guide, only where requested.

Cleaning of frame

Clean the doors and frame using a cloth slightly damp with clean water.

Cleaning of fans/exchangers filters

WARNINGS: *the intervention frequency very much depends on the environment in which it is positioned the electric control board; if particular dirty or dusty, frequency must be increased.*

- 1) Dismantle the plastic cap of the filter on the electric control board.
- 2) Remove the filter and clean it using compressed air.
- 3) Assemble the filter and cap again.

Inspect photocells

WARNINGS: *the intervention frequency very much depends on the environment in which the machine works; if particular dirty or dusty, frequency must be increased.*

This system requires an alignment of the two photocell and reflector devices and, therefore, when these are not aligned or when a body is present between the two that cannot be crossed by the ray, the photocell is “engaged” meaning the signal is different from that supplied by the same when it is functioning and without product transitions.

It is therefore necessary to carefully adjust the position of the photocells and regularly clean the surface interested by the signal using a dry cloth.

To dismantle the photocell and the reflector, loosen the fastening screws of the clamps.



The position of the photocell is determined in function of the system and product features. To amend its original position can jeopardise the correct functioning of the entire system.

General cleaning of the electric control board

- 1) Remove using compressed air and clean with a dry cloth any residue on the controls panel of the electric control board.
- 2) Remove any dust residue from inside the electric control board using compressed air.

9.7.2 Extraordinary maintenance

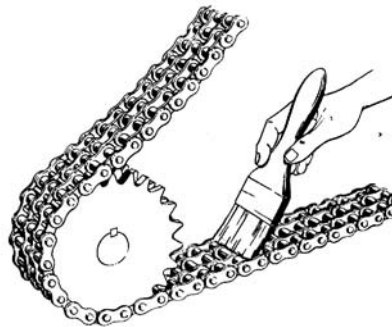
Chain transmission

A chain transmission is used to transmit the movement between the two shafts of the same machine, as well as between an electric motor, or any other source of power, and an independent mechanism. The chains are subject to extensions, wear and corrosion.

Lubrication

An appropriate lubrication is important to guarantee long duration of a chain transmission. In fact, during working, the pins, the bushes, the rollers, the internal and external sides of the plates, the teeth sides of the pinions, rotate one in relation to the other and would be destroyed if the surfaces were not protected by a film of lubricant. Lubrication protects the chain from oxidation and from corrosion, contributing in decreasing the noise of the same transmission.

The lubricant must be periodically applied with a brush or with a manual lubricator and must be applied inside the chain's ring and, preferably, on the edges of the plates. It is necessary to adjust the frequency of the applications and the amount of lubricant so as to have complete lubrication, but without squirts and drippings. Usually, an application of oil every working week is sufficient in most cases.



Chain Transmission Assembly

An accurate assembly of a chain transmission allows obtaining a long period of service from the same.

Fastening of the shafts

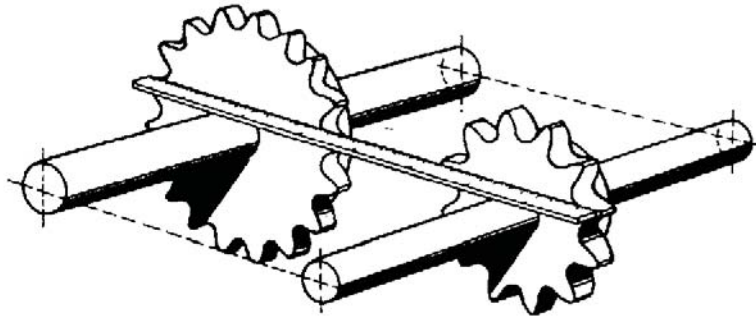
Any misalignments due to premature subsidence of the supports significantly reduce the useful life-span of the chain and can often cause its breaking.

Alignment of the shafts

Check that the shafts are correctly aligned and parallel.

Alignment of the pinions

Verify the axial alignment of the toothed wheels by means of a ruler; the ruler must rest against the worked side of the pinions. Should the wheel base be significant, such not to allow the use of the ruler, use a flexible thread, assuring that during the operation, the same is well tensioned. Should, for one of the shafts be envisioned a axial clearance, it is best to temporarily fix the shaft in its normal working position and proceed with the alignment of the pinions.

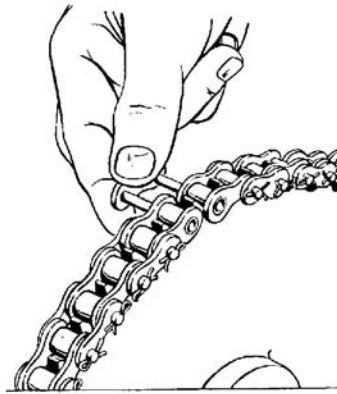


Assembly of the chain

Before assembling the chain, ensure that the alignment of the shafts has been carried out correctly and that subsequent amendments have not occurred.

Dismantle the joining handle and wrap the chain on to the toothed wheels, so that the two ends slot in the tooth bottom of one of the pinions.

When replacing a worn chain with a new one, ensure that the profile of the teeth of the pinions is not worn. We recommend not assembling new handles in a significantly worn chain. In fact, the chain step would no longer be even and the transmission would function at jerks.



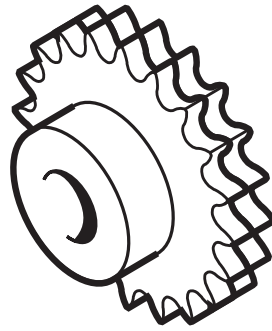
Insert the two pins of the joint handle in the two free holes of the two opposite internal handles. Assemble the external plate of the joint handle and fix it using the relative clip. After having assembled the clip, slightly strike the pins of the joint handle using a hammer, so that the clip perfectly adheres against the plate of the joint handle.

The following results are obtained with this operation:

1. The re-balancing of the clearances between external and internal plates is assured, enabling the lubricant to enter between the two plates.
2. A correct assembly of the joint handle assures a good functioning of the chain, reducing the possibility of jig.
3. Maximum duration of the clip is assured.

If possible, it is best to avoid the use of the false handle.

Pinions



The pinions are the toothed wheels on which the chains rotate, transmitting the movement. The life-span of a pinion is limited, it is therefore some times necessary to replace it. A pinion can be idle or motor. For the extraction of a pinion, the following must be taken into consideration:

Motor Pinions

Dismantle the stop device (Seeger, or head screw, etc.) and remove the pinion.

Idle Pinions

Dismantle the supports fixing the shaft, by loosening the pins (built-in hexagon head-less screw). Loosen the pins of the locking ring that hold the pinion on the shaft.

Supports for Bearings

The bodies of the supports are made of cast iron or printed steel sheet. The cast iron ones are provided with greaser. The supports are suitable for working in places with variable temperatures between -5° and $+50^{\circ}\text{C}$.

Lubrication

Before starting lubrications, accurately clean the greaser. The grease must be introduced with pressure, making the bearing rotate and continuing until the fresh grease leaks from the same bearing.

Avoid excessive pressure so as not to damage the seal gaskets.

The lubrication intervals depend on the working conditions and significantly differ.



We recommend greasing at least every two weeks during the working seasons.

Assembly instructions

The shaft must be perfectly cylindrical, clean, with the ends rounded off to facilitate introduction in the bearing's hole. Never use the hammer as it may damage the bearing.

When assembly on the shaft is complete, make the shaft turn to verify its free and correct rotation.

When installing a support, the relative bearing must not be locked on the shaft until the body is securely fastened to the machine. In this way, the bearing can assume its correct position on the same shaft without damaging stresses arising.

Locking using the pins

For a good fastening, and to facilitate future dismantling, make a hole on the shaft to host the point of the locking pin. Upon drilling, firstly remove the pin and position the unit on the shaft. Choose a drill bit with size corresponding to the lower diameter of the threading of the internal ring and make a hole on the shaft of 1 or 2 mm. Put back the pin and fasten on shaft as usual.

Ball Bearings

All ball bearings assembled on the machine are equipped with protection against dust and humidity which also prevents the leaking of the grease. Check their efficiency and, in particular, that functioning is regular and silent.

Check wear of contactors

- 1) Open the electric control board containing the contactors.
- 2) Restore power supply to the electric control board by rotating the main switch.
- 3) Place the machine in automatic start and observe the contactors during their functioning.
- 4) Replace the contactors that “flare up” with contactors of equal features.

Check PLC battery

- 1) Open the electric control board containing the PLC.
- 2) Check that the “battery low” LED on the PLC is switched off; If it is switched-on, replace the battery with an identical one.

Check protection circuit

- 1) Visually inspect all earth connections inside the electric control board and between the various parts of the machine, checking they are in order.
- 2) Carry out an instrumental check of the protection circuit with methods and instruments compliant with that prescribed in the Standard in force in the country of use of the machine.

9.8 General procedure to be carried out at the end of maintenance

Once maintenance is completed, connect the electric power supply and the pneumatic supply again and ensure that:

- 1) all safety devices are functioning;
- 2) all tools used are put back in their place;
- 3) all mobile parts have been secured;
- 4) everyone has left the dangerous areas;
- 5) the functioning of the machine is correct before starting production.

10.1 Re-installation



The activities described in this paragraph must be carried out only by qualified staff, and precisely:

- **SORMA S.p.A. technician** with the help of local labour;
- **trained technician** who has attended specialisation and training courses and with experience with regard to installation, start-up and maintenance of the machine, and is aware of the accident-prevention Standards.

To dismantle the machine, in case of sale, re-installation or storage at the client's premises, proceed according to the following general dismantling procedure:

- a) depending on the dimensions of the transport mean available and the number of parts in which to subdivide the machine, decide how to dismantle it and in which parts;
- b) position the mobile parts of the machine in the most favourable position for transport;
- c) in correspondence of the joining points, number all parts that will be separated, so as to make future re-assembly easier;
- d) disconnect the electric power supply and the pneumatic supply;
- e) disconnect all electric cables as follows:
 1. disconnect the cables in the electric control board;
 2. remove them from the conduits to the unit they are connected to;
- f) mechanically dismantle the machine subdividing it in the established parts;
- g) mechanically block or strap all parts that may move during transport;
- h) replace the vent cap with a blind cap in the gearmotors that might find themselves in a position such to leak oil.

For new placement and connection refer to the relative paragraphs in this manual.

10.2 Storage

In case of prolonged storage, leave the machine covered from rain and wind and, possibly, in a dry place.

Protect, in particular, electric parts, electric control boards and control panels and all parts sensitive to humidity and low temperatures.

10.3 Demolition and disposal of the machine



The operations must be carried out by qualified staff

At the end of the machine's life-span, to dismantle the same, remove the identification serial number, the use manual and any layouts that have been kept with the disposal documents issued by the appropriate authorised companies.

Before demolition, it is compulsory to eliminate all parts that can damage the environment:

- Disconnect the machine from the electric and pneumatic systems.
- Separate the electric parts, which: cables, buttons, connectors, electric and motor components; the electric and electronic equipment must be disposed of separately from the machine.
- Proceed with the dismantling of the individual components, grouping them according to their composition.
- The machine is made mainly of components in steel, aluminium, iron, plastic materials silicone rubber and silicone.
- Remove the plastic components, which: hand wheels, transparent screens, support feet, tube support chain, etc.

Now contact appropriate authorised companies for disposal and scrapping.



The disposal of the machine must be carried out in compliance with the legal dispositions in force in the country of the user.



All materials composing the machine must be disposed of according to the Standards in force.

The lubricants must be disposed of separately in appropriate structures, always according to the Standards in force.



It is forbidden to abandon or disperse components or small or large sized parts in the environment, to avoid causing accidents or polluting the environment.



The exhausted oils, the oil residues and the objects soaked with oil, must be disposed of through appropriate collection points and not drained in the urban channels.