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COSTRUZIONI MECCANICHE

# ***FBG-108***

**PALLETISER**

Operating instructions

Manuale istruzioni

Mode d'emploi

Manual de instrucciones

<b>Date of this edition</b> 12/06	<b>Identification code</b> FBG/STD-01GBR (C.P.)	<b>Notes</b> with VT150
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**PALLETISER  
mod. FBG-108**

**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 an important part of the machine and should therefore be kept in a safe place where it can be consulted at will.

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.

**1.2 MANUFACTURER**

**SORMA S.P.A.**

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**1.3 CONFIDENTIALITY**

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.

SORMA reserves the right, at any time and without prior notice, to carry out any modifications it believes necessary, without any obligation to update the manual each time such a modification is made.

**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.



**Shows that inobservance of the relevant instructions may compromise personnel safety, causing injury or risk of death.**



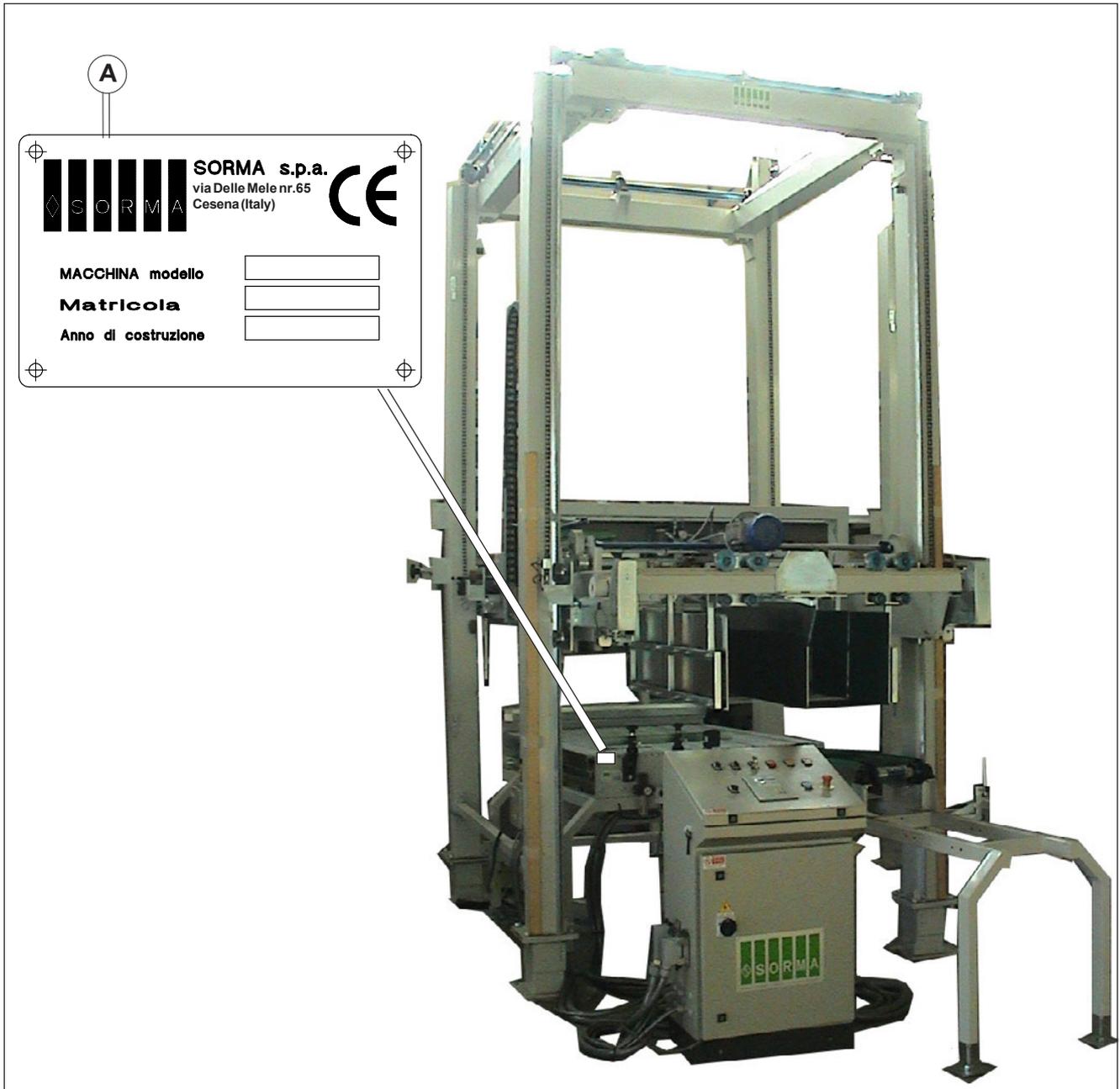
**Shows that inobservance of the relevant instructions may damage the equipment.**

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



 **CAUTION**

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).

### 2.1 ATTACHED DOCUMENTATION

The following documentation has been attached to this manual:

- *WIRING DIAGRAM*
- *SPARE PARTS CATALOGUE*

### 2.2 MACHINE'S TECHNICAL INTRODUCTION

The FBG-108 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.

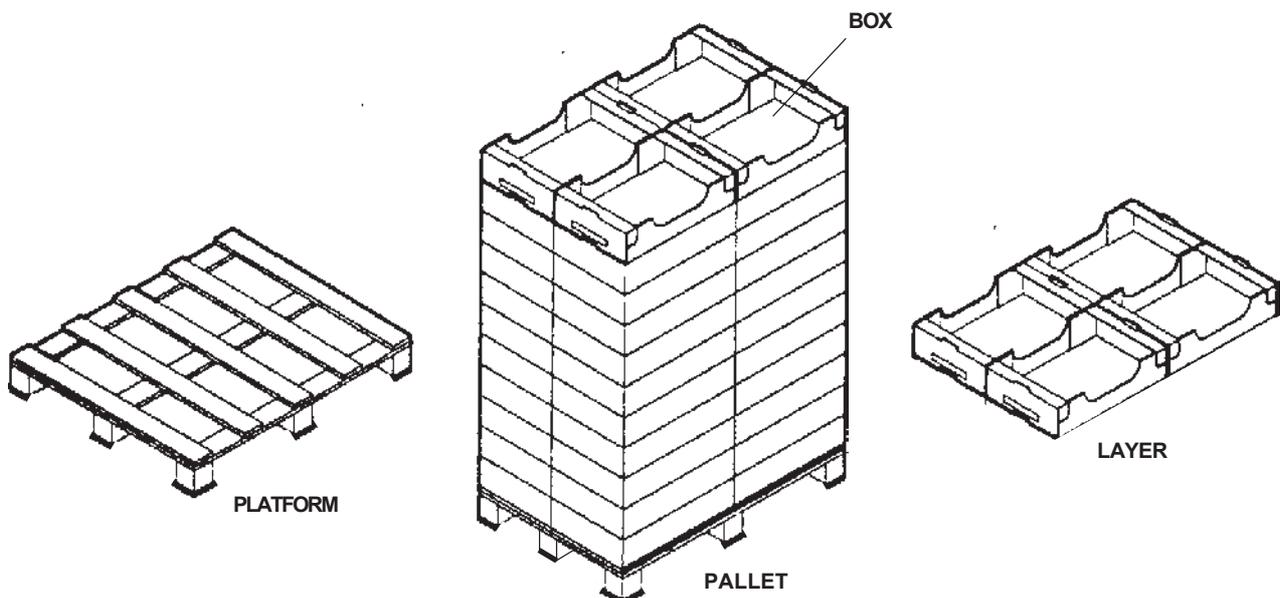
The FBG-108 machine must be used only for the purpose it was expressly designed for. Any other use is to be deemed improper and hence unreasonable.

The company Sorma S.p.a. shall not be held liable for any damage due to improper, mistaken or unreasonable use.

### 2.3 TYPE OF PLATFORM

The FBG-108 machine can palletize loads on three different types of platform:

- 800 x 1200 mm,
- 1000 x 1200 mm,
- 1040 x 1000 mm.



### 2.4 TECHNICAL DATA

- Machine weight: ..... 1600 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: ..... 400 NI/min
- Maximum weight of each layer of boxes: ..... 150 Kg
- Acoustic pressure: ..... 70 dB
- Working temperature: ..... between +0°C and +50°C
- Maximum height that may be palletized: ..... 2400 mm

- Throughput:.....	PLATEAUX	40x60	platform	1000x1200	1000	boxes/hour	infeed side 60
	"	40x60	"	1000x1200	945	boxes/hour	infeed side 40
<b>N.B.:</b> <i>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.</i>	"	40x60	"	800x1200	870	boxes/hour	infeed side 60
	"	40x60	"	800x1200	995	boxes/hour	infeed side 40
	"	40x50	"	1000x1200	1490	boxes/hour	infeed side 50
	"	40x50	"	1000x1200	880	boxes/hour	infeed side 40
	"	33x52	"	1000x1040	1200	boxes/hour	infeed side 52
	"	33x52	"	1000x1040	845	boxes/hour	infeed side 33
	"	30x50	"	1000x1200	1600	boxes/hour	infeed side 50
	"	30x50	"	1000x1200	930	boxes/hour	infeed side 30
	"	30x50	"	800x1200	1165	boxes/hour	infeed side 50
	"	30x50	"	800x1200	980	boxes/hour	infeed side 30
	"	30x40	"	1000x1200	900	boxes/hour	infeed side 40
	"	30x40	"	1000x1200	1055	boxes/hour	infeed side 30
	"	30x40	"	800x1200	1600	boxes/hour	infeed side 40
	"	30x40	"	800x1200	900	boxes/hour	infeed side 30

### 2.5 OVERALL DIMENSIONS

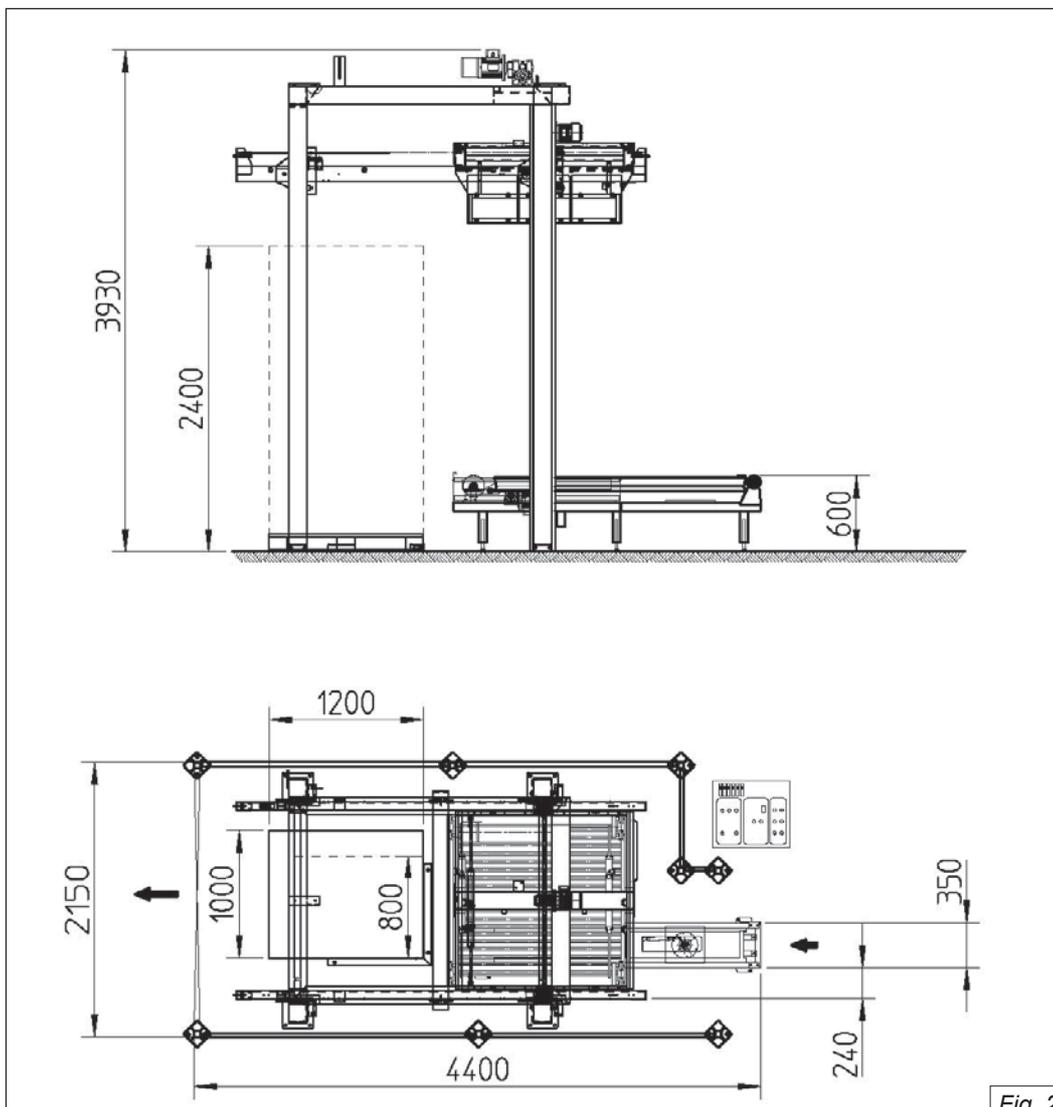


Fig. 2

**3.1 SHIPPING AND LIFTING**

The machine may be shipped packaged or unpackaged. It is generally unpackaged when shipped by motorway. Should the shipment be done by rail or by sea, it is generally packaged inside a wooden case. When handling it, pay attention to any notices on the outside of the packing.



**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 handle the machine, check:**  
 - the efficiency of the lifting media.  
 - the capacity of the lifting media.



**Before starting to move the machine, there must be the following conditions:**  
 - the area involved must be well lit (see fig. 1),  
 - the operator and the people accessing the moving area must wear gloves, safety shoes and safety helmet (see fig. 2),  
 - check the efficiency of the lifting media,  
 - check the capacity of the lifting media.

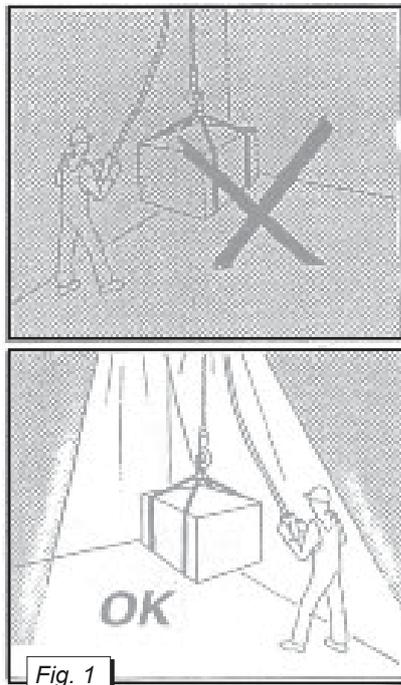


Fig. 1

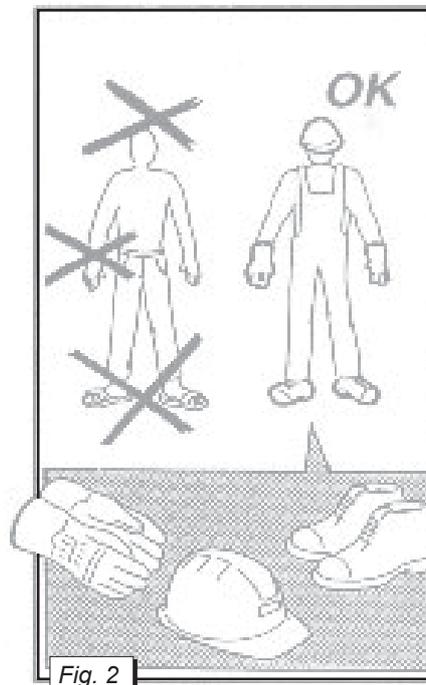


Fig. 2

- 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.

**4.1 SAFETY PROTECTIONS ASSEMBLY**

After the installation and positioning of the palletiser FBG-108, fit the relative safety protections and secure them properly to the ground with the relative expansion plugs supplied. Place the photocells [A] where **INPUT [D]** is located. Fit the removable reflectors [B] and secure them to the posts of the safety protections, making certain to align reflectors to the relative photocells (see fig. 10).

**4.2 SAFETY SYSTEM OPERATION**



**Unauthorised individuals are strictly forbidden to come near the machine.  
 Authorised personnel are allowed only after the machine has been deactivated.**

**Procedure 4.2a**

Every authorized and duly trained technician who wants to enter the working area of the machine through the **INPUT [D]** (see fig. 10) **must** follow this procedure, disable the automatic run of the palletiser, by turning clockwise the selector [B] on the push button panel (see fig.5 chap.6); the palletiser will stop and the green light [C] on the push button panel will come on (see fig.5 chap.6); by turning one of two brackets holding the reflector [B] (see fig. 10). In this way the palletiser is locked and the red light [6] on the control panel will flash (see fig.1 chap.6); all the controls are locked, and it will be possible to enter the working area in totally safe conditions. Insert the safety pin and remove it only before leaving the working area.

**Procedure 4.2b**

Once left the working area, to turn on the machine again, proceed as follows: reposition the reflector [B] (see fig.10), turn anticlockwise the selector [B] on the push button panel (see fig.5 chap.6), if necessary release the red mushroom-shaped push button [11] and press the AUTOMATIC RUNNING MODE green light button [9] (see fig. 1 chap. 6).

**N.B. = whenever restarting the machine in manual running mode or in automatic running mode always make sure that nobody or nothing has remained within the safety protections where the machine is working.**

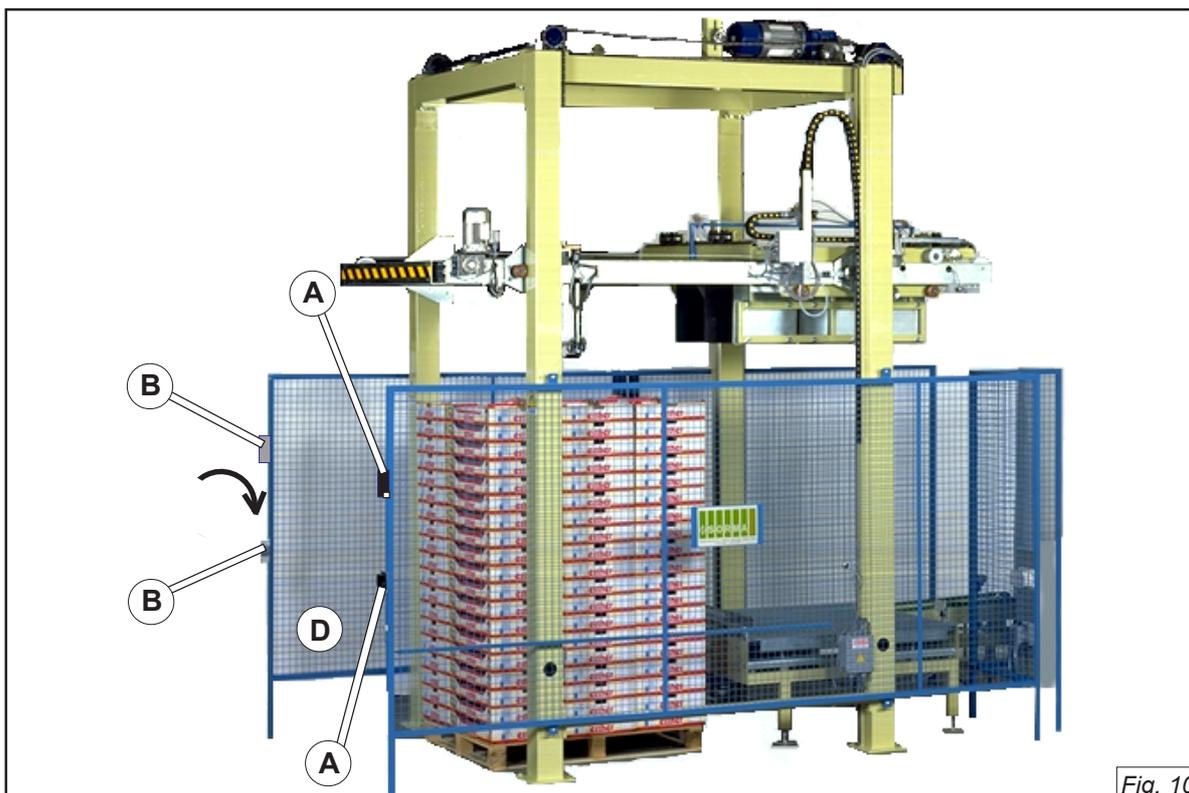


Fig. 10

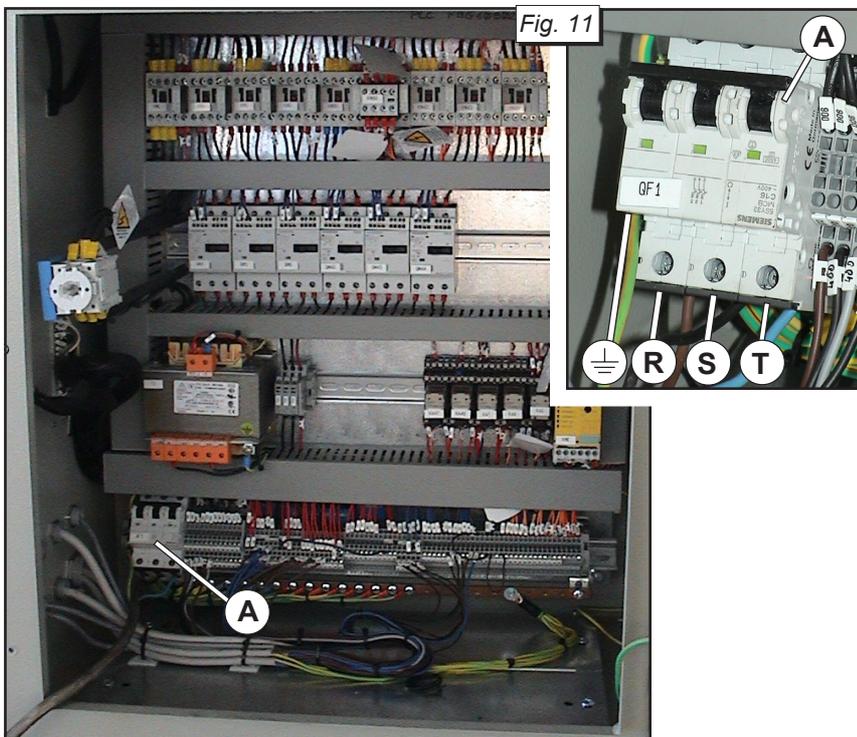
**4.3 WIRING CONNECTIONS**

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 11. 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 mmq** and connect it to the terminals **R S T** as shown on figure 11.

(every time check the minimum section according to the distance).



**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.**

**4.4 CONNECTION TO THE COMPRESSED AIR SYSTEM**

Make the connection of the compressed air system **[B]** (see fig. 12) to the filter unit and check with the pressure gauge **[C]** (see fig. 12) 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. 12) 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. 12) 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. 12) 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. 1 chap.6).

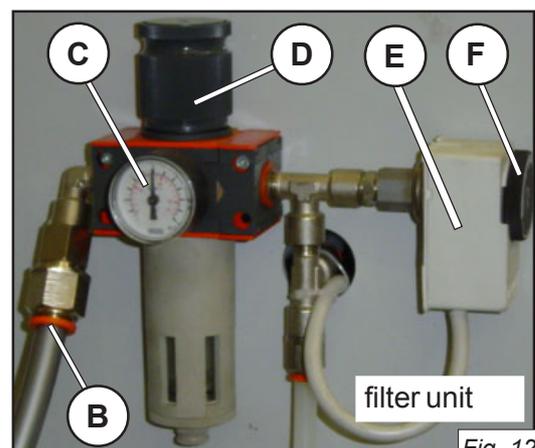


Fig. 12

**4.5 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. 1 chap. 6) to [ON].
- 2) Press the [7] MANUAL RUNNING MODE orange light button (see fig. 1 chap. 6).
- 3) Turn the selector [2] (see fig.1 chap.6) **SELECTOR I UPSTREAM BELT - FORWARD - BACK** to position FORWARD and verify that the running direction of the chains of the box advancement device allows the boxes to move forward towards the clamps of the FBG.
- 4) If the running direction is reversed, proceed as follows:
  - Set the [1] main switch (see fig. 1 chap. 6) placed on the electric panel to OFF, disconnecting the power supply line.
  - Disconnect the line isolator from the power supply (see fig. 13).
  - Disconnect the power supply cable of the line isolator (see fig. 14).
  - Use the isolator to signal the current operation (see fig. 15).
  - Exchange with each other 2 clamps of the 3 phases (R S T) of the power supply cable.

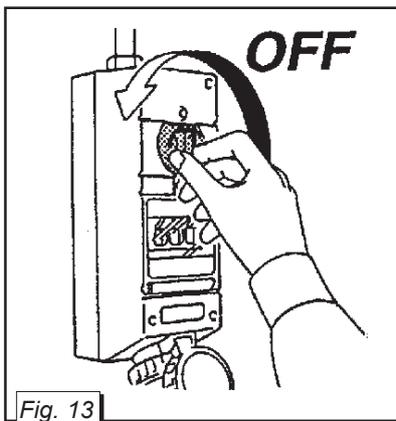


Fig. 13

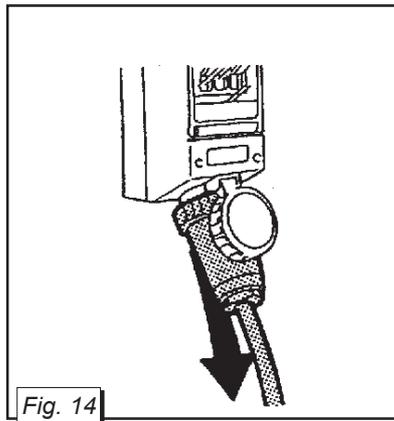


Fig. 14

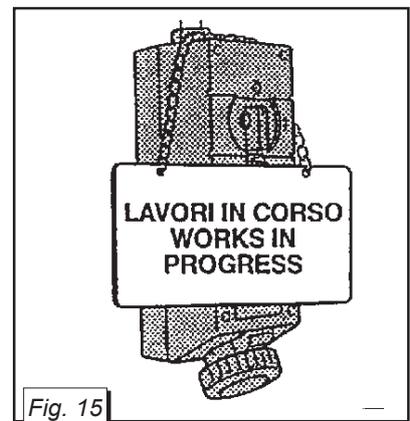


Fig. 15

**4.6 COMBINATIONS**

Any combination to other machines or conveyor belts must be completed by the installer, paying special attention to mechanical levelling among the various machines and if necessary making suitable guards around the processing area. If the machine is to be used on line with other machines, an expert electrician will be required to connect the power cables among the various machines, according to the instructions in the enclosed wiring diagram.

## 5.1 SAFETY WARNINGS

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 machine must be managed by a person responsible for choosing, training and monitoring the staff employed on the machine during its use.
- 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 must be suitably marked off in order to avoid collisions between the operator and any means of conveyance or handling moving near the machine.
- 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, with suitable environmental, temperature and humidity conditions.
- Never stand on the machine: some components are unable to hold up the weight of a person.
- 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.
- Never introduce material other than the one provided for into the machine.

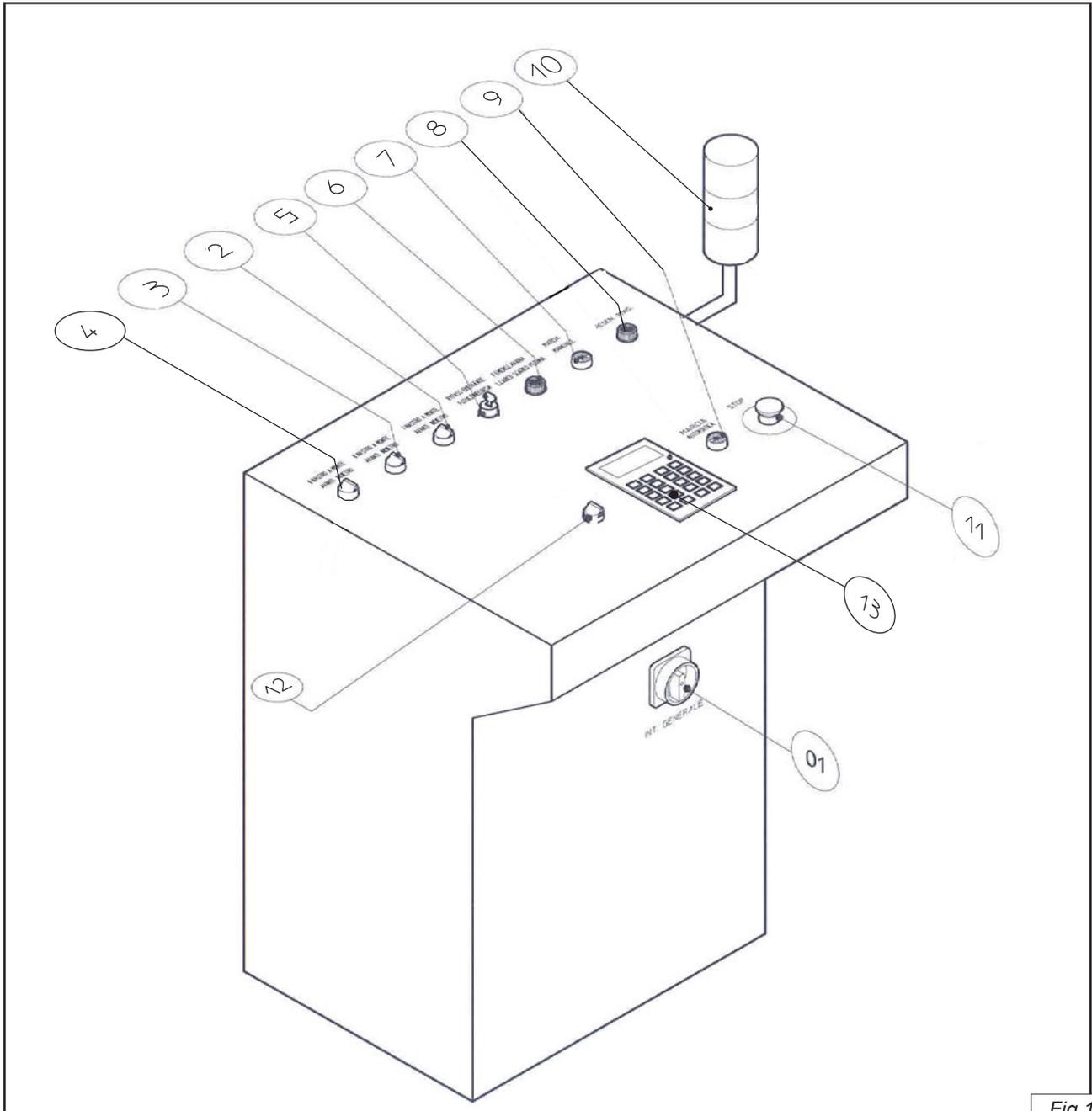
- Never start up the machine with people near either working area (fruit and vegetable inlet or outlet).
- Before starting up the machine, make sure that no foreign matter has been forgotten in or on the machine.
- The operator (even if a maintenance engineer) is strictly forbidden to access the switchboard or the electronic panel without authorisation, issued by the person responsible, expressly guaranteeing his proven experience in this kind of operations.  
Such operations must be performed complying with technical rules able in any case to ensure the safety of the above mentioned maintenance engineers.
- Examine the safety stickers and plates applied to the machine carefully, and comply with the instructions they provide.



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

<p><b>WARNING</b></p> <p><b>MACHINE WITH AUTOMATIC STARTUP</b></p> <p><b>USE SUITABLE PRECAUTIONS</b></p>	<p><b>WARNING</b></p> <p><b>DO NOT PUT YOUR HANDS UNDER THE SAFETY HOOD</b></p>	
 <p><b>DO NOT REPAIR OR ADJUST WHILE MOVING</b></p>	 <p><b>DO NOT REMOVE THE SAFETY DEVICES</b></p>	 <p><b>LOOK OUT FOR YOUR HANDS</b></p>
 <p><b>OPENING FORBIDDEN to unauthorized persons</b></p> <p><b>THE PANEL MAY BE OPENED BY ELECTRICIANS ONLY</b></p>	 <p><b>CUT POWER OFF BEFORE OPENING</b></p>	 <p><b>380 Volt</b></p>

**6.1 ELECTRIC PANEL CONTROL BOARD**



**Fig.1**

- **[1] MAIN SWITCH** - Enables/disables the machine power supply.  
 OFF = no power supply to the panel.  
 ON = panel powered up.
  
- **[2] SELECTOR I UPSTREAM BELT - FORWARD - BACK** = With the machine in manual or automatic running mode, by rotating the selector to FORWARD, it allows moving the belt (or chains of the case launching device) forward and enabling the go-ahead signal for the second upstream belt (if present) or for the upstream machine (if present).  
 In the manual running mode, when a case reaches the photocell at the end of the belt, it stops; in the automatic running mode, the case is fed forward on the chain conveyor with case turning device [B] (see fig.1 chap.2). The BACK function is not present in the standard version; if it is present, it allows reversing the belt direction as long as one case is sensed by the microswitch placed at the beginning of the last upstream belt.

- **[3] SELECTOR II UPSTREAM BELT - FORWARD - BACK** = With the machine in manual or automatic running mode, by rotating the selector to FORWARD, it allows moving the belt (or chains of the case launching device) forward and enabling the go-ahead signal for the third upstream belt (if present) or for the upstream machine (if present). In the manual running mode, when a case reaches the photocell at the end of the belt, it stops; in the automatic running mode, the case is fed forward on the first upstream belt. The BACK function is not present in the standard version; if it is present, it allows reversing the belt direction as long as one case is sensed by the microswitch placed at the beginning of the last upstream belt.

- **[4] SELECTOR III UPSTREAM BELT - FORWARD - BACK** = With the machine in manual or automatic running mode, by rotating the selector to FORWARD, it allows moving the belt (or chains of the case launching device) forward and enabling the go-ahead signal for the upstream machine (if present). In the manual running mode, when a case reaches the photocell at the end of the belt, it stops; in the automatic running mode, the case is fed forward on the second upstream belt. The BACK function is not present in the standard version; if it is present, it allows reversing the belt direction as long as one case is sensed by the microswitch placed at the beginning of the last upstream belt.

- **[5] KEY SELECTOR = BYPASS EMERGENCY PHOTOC. LIMITSW. -**

**VERY IMPORTANT: THE KEY OF THIS SELECTOR SHOULD NEVER BE IN THE LOCK EXCEPT WHEN IT IS USED BY THE OPERATOR, DULY AUTHORIZED AND TRAINED TO THE USE OF THIS COMMAND.**

We are obliged to use the BYPASS EMERGENCY when the palletizer is in emergency status (red light [6] lit and fixed) (see fig.1 of this chap.), because of:

1) PALLET in unloading phase stopped before the protections' safety photocells, in case of plant with conveyors (see fig.2),

2) PALLETIZER ARCH with maximum/minimum height limit switch enabled.

The BYPASS function is obtained by inserting the key and turning the selector to the right by keeping it rotated and simultaneously pressing the orange [7] MANUAL RUN button first and the "F1 I CONVEYOR" (page 8 of VT150) command in case 1 then, until releasing the photocells; or the "F1 CLAMP RISE" or "F2 CLAMP DESCENT" command (page 11 of VT150), to remove the emergency of case 2, until disabling the limit switches; now return the key selector to the initial position.

- **[6] RED LIGHT -**

- *Fixed* - **EMERGENCY** = indicates machine stopped because:

- the red mushroom-shaped STOP button [11] (see fig. 1 of this chap.) has been pressed.
- external emergency (example mushroom-shaped STOP button remotely stopped).
- no air pressure in the compressed air circuit.
- microswitch on safety protections' doors tripped.
- the safety microswitch of the pin locking the translation arch [E] (see fig.1 chap.2) has tripped.
- the microswitch for the maximum / minimum height of the translation arch [E] (see fig.1 chap.2) has tripped.
- the safety photocells placed on the pallet outfeed protections have tripped.

- *Slow flashing light* = Indicating that the machine is waiting for reboot or for platform unloading or pallet loading with roller conveyor and chain conveyor with case turning device in automatic running mode in these cases:
  - in case of plant with conveyors, if all photocells are occupied by completed pallets to be unloaded by the operator or by the automatic shuttle.
  - the palletizer completed the pallet, if no conveyors are available or if empty platforms are lacking.
  
- *Fast flashing light* = Indicating the stop of the machine or a part of it because of a fault in a plc input. (N.B. = in addition to this light's flashing, the machine faults are also indicated in the VT150 [13] terminal by pressing the  key when its led is flashing, so the current fault cause is displayed).
  
- *Very fast flashing light* = Indicating:
  - RESET DATA (F4 of page 10 of VT 150) is effected.
  - STORE HOME HEIGHT (F2 of page 10 of VT 150) is effected.
  - STORE MAX.HEIGHT (F3 of page 10 of VT 150) is effected.
  - RESET PROGRAM (F4 of page 20 of VT 150) is effected.
  
- **[7] 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.



**WHEN THE LIGHT IS OFF, ALWAYS MAKE SURE THAT THE INTERNAL LAMP IS NOT BLOWN.**

- **[8] POWER ON WHITE LIGHT = VOLTAGE PRESENT** -
  - when lit: the machine is connected to the power supply.
  - when off: the machine is not connected to the power supply or one of the fuses in the processing network of the 110 VAC power source is disconnected.



**WHEN THE LIGHT IS OFF, ALWAYS MAKE SURE THAT THE INTERNAL LAMP IS NOT BLOWN.**

- **[9] 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.

*N.B. = BY PRESSING THIS BUTTON, ANY ALARM SHOWN IN THE VT TERMINAL DISPLAY WILL BE CANCELLED (provided that the cause is removed).*



**WHEN THE LIGHT IS OFF, ALWAYS MAKE SURE THAT THE INTERNAL LAMP IS NOT BLOWN.**

- [10] MULTIPLE LIGHT + SIREN =

- **GREEN** -

when lit: The machine is working in automatic running mode.

when off: The machine is working in emergency status or in manual running mode.

- **RED** - It corresponds to the red light [6] (see fig.1 of this chap.) of the electric panel.

- **SIREN** - Emitting an acoustic signal lasting approximately:

- 0,5 seconds = start / stop in emergency status or after a machine in-phase stop.

- 1 second = after completing the pallet or after stopping the clamp because there is no pallet.

- 2 seconds = in case of plant with conveyors, all the photocells are occupied by completed pallets, except the pallet being formed.

- 5 seconds = in case of plant with conveyors, all the photocells are occupied by completed pallets, including the pallet being formed (see fig.2).

- [11] **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.**

- [12] **STRAPPING MACHINE DISABLED / ENABLED** = Present in case of plants with conveyors and strapping machine, it allows enabling/disabling the strapping machine automatic operation, which can be placed on conveyor II or III.

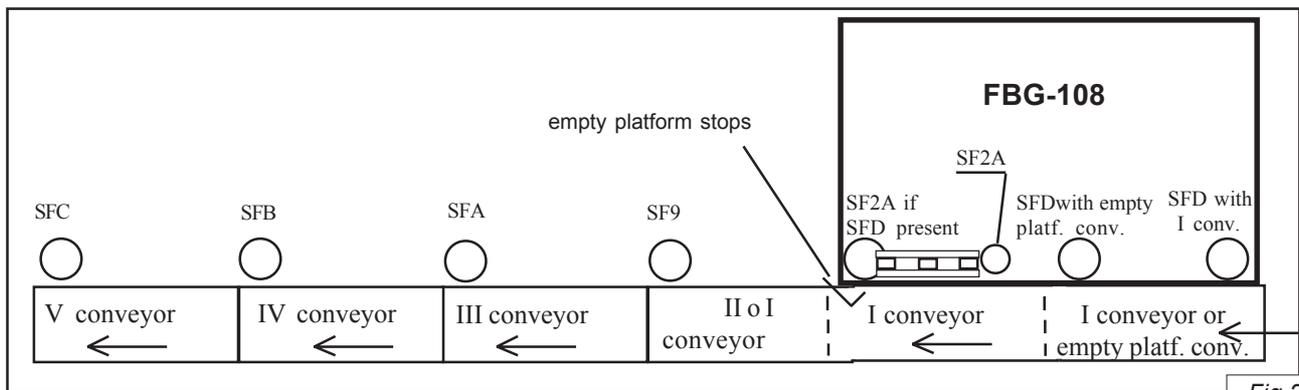
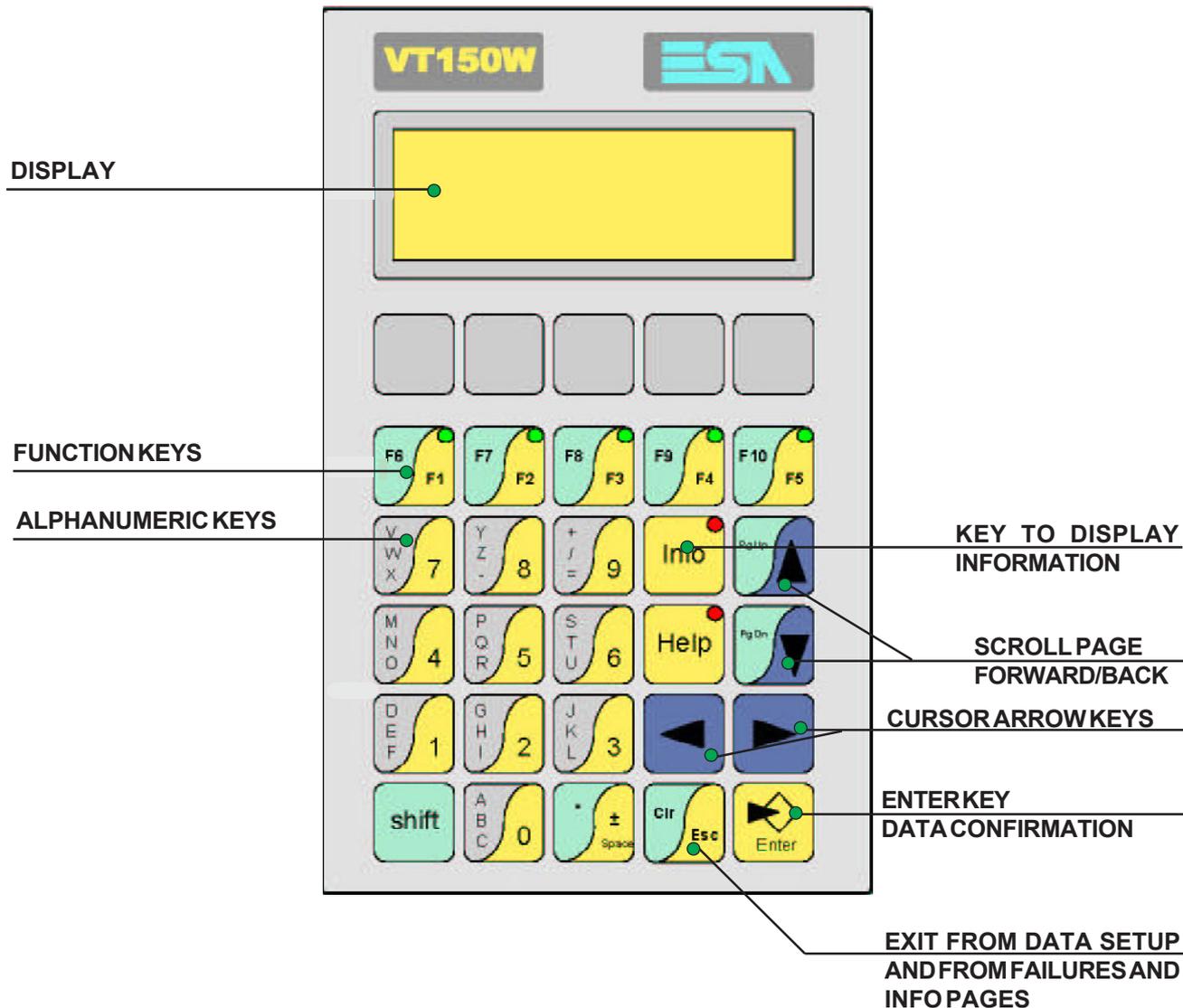


Fig.2

- [13] VT 150 TERMINAL



Use the VT 150 terminal to:

- 1) Carry out all the machine's manual controls (page 5 through 11).
- 2) Set and create working programs (page 20 through 21).
- 3) Check the output of the machine (page 22 through 23).
- 4) Configure the machine (page 30 through 33).
- 5) Set the machine operating times and counts (pages 40 through 49).
- 6) Check any machine failures.

**N.B. = TO IDENTIFY THE TYPE OF FAILURE (WHEN THE RED LIGHT [6] IS ON AND FLASHING OR FIXED) PRESS THE INFO KEY ON THE VT 150W TERMINAL TO HAVE FURTHER INFO**

**- PRESS CLR  
ESC TO EXIT THE FAILURE DESCRIPTIONS.**

**DESCRIPTION OF THE FUNCTION KEYS:**

     = these keys allow the user to enter the function associated with the selected page without pressing the SHIFT key, corresponding to the right bottom corner reference (F1-F2-F3-F4-F5).

 +  = it allows using the F10 function: to return to page 2 from any page.

 = when the red LED of the INFO key is on, the VT screen will display the info messages (e.g. failure type description).

 = when the red LED of the HELP key is on, by pressing it, more detailed information on the various failures with relative solution will be displayed (for example: X5 failure).

 = they allow to scroll the pages and the settable values within a field after entering it with the  key.

   = by pressing this key (in case of page with data to be set), the user may move inside the page itself.

 = when combined with another key, with this key the user may execute a second function.

 = unused command.

 = this key is only used as ESC (without pressing SHIFT) and allows leaving the page where the password is required.

 = (with the machine in manual running mode) it allows:  
 - when pressed for the first time, to enter the field desired (after positioning the cursor on it) for editing;  
 - when pressed for the second time, to confirm the modified value without saving it permanently.

 = the alphanumeric keys have the sole function of numbers, so they are used without SHIFT, they allow modifying a settable field featured by an alphanumeric value.

**6.1.a PROCEDURE TO MODIFY THE SETTABLE FIELDS BY SELECTING AMONG TWO OR MORE OPTIONS**

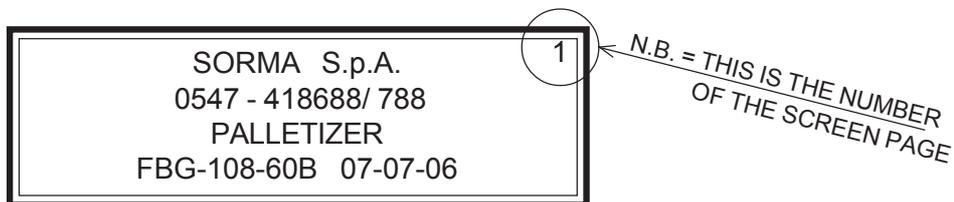
- 1) By means of   move to the field concerned.
- 2) Press  .
- 3) By means of   select the value desired, for example [ON] or [OFF].
- 4) Press  to store the new setting.

**6.1.b PROCEDURE TO MODIFY THE SETTABLE FIELDS BY ENTERING A NUMERIC VALUE**

- 1) By means of   move to the field concerned.
- 2) Press  .
- 3) Press the alphanumeric keys  , enter the value desired.
- 4) Press  to store the new setting.

**6.1.c DESCRIPTION OF THE SCREEN PAGES OF VT 150:**

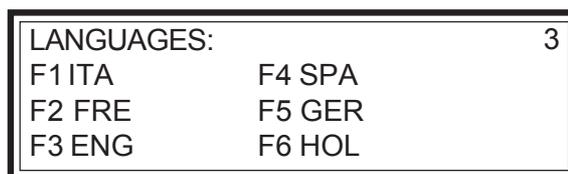
After setting the main switch [1] (see fig.1 of this chap.) to the [ON] position, the VT 150W terminal is enabled and the display showing the main page is turned on:



By pressing  from the main page, the operator can access page 2:



By pressing  again, page 3 will appear (from which the language may be selected):



To go back to the first page press  (by pressing this key the pages are scrolled through cyclically 1-2-3-1-2-3-...etc.)

From page 2:

F1 MANUAL RUN F2 AUTOMATIC RUN F3 MACHINE CONFIGUR. F4 TIMERS COUNTERS	2
---	---

press  to access page 5:

F10 RETURN TO MENU Manual manoeuvres are execut.pressing the keys F1 F2 F3 F4	5
--	---

press  from page 5 to access page 6:

F1 ROLLERS LAYER F2 RISE ROL. STOPPER F3 CHAINS TURN-CASE F4 RISE TURN. CHAINS	6
---	---

*THESE COMMANDS ARE ONLY ENABLED WITH THE MACHINE IN MANUAL RUNNING MODE:*

 F1 ROLLERS LAYER = When this key is kept pressed, the rollers of the roller conveyor for tray formation turn.

 F2 RISE ROL.STOPPER = When this key is kept pressed, the pallet on the roller conveyor moves to the high position.

 F3 CHAINS TURN-CASE = When this key is kept pressed, the chains of the case turning device turn.

 F4 RISE TURN.CHAINS = When this key is kept pressed, the chains of the case turning device move to the high position.

press  from page 6 to access page 7:

F1 RISE TURN-CASE F2 SPIN OF 90 DEGREE F3 SPIN OF 180 DEG. F4 COMPACTOR PALLET	7
---	---

*THESE COMMANDS ARE ONLY ENABLED WITH THE MACHINE IN MANUAL RUNNING MODE:*

 F1 RISE TURN-CASE = When this key is kept pressed, the case turning device moves to the high position.

 F2 SPIN OF 90 DEGREE = When this key is kept pressed, the case turning device makes a 90° rotation clockwise, when the key is released, it returns to the home position even though it has not finished its rotating movement.

 F3 SPIN OF 180 DEGREE = If the case turning device is provided with piston for 180° rotation, when this key is kept pressed, it makes a 90° rotation counterclockwise, when the key is released, it returns to the home position even though it has not finished its rotating movement.

 F4 COMPACTOR PALLET = When this key is kept pressed, if the pallet compactor in the first conveyor is present, it moves forward up to the limit switch; when it is released, it returns to the home position.

press  from page 7 to access page 8:

F1	I CONVEYOR	8
F2	II CONVEYOR	
F3	III CONVEYOR	
F4	IV CONVEYOR	

*THESE COMMANDS ARE ONLY ENABLED WITH THE MACHINE IN MANUAL RUNNING MODE:*

 F1 I CONVEYOR = When this key is kept pressed, if the I conveyor is present, its chains turn until the pallet dims photocell SF9 at the end of the I or II conveyor (see fig. 2).

 F2 II CONVEYOR = When this key is kept pressed, if the II conveyor is present, its chains turn until the pallet dims photocell SF9 at the end of the I or II conveyor (see fig. 2).

 F3 III CONVEYOR = When this key is kept pressed, if the III conveyor is present, its chains turn until the pallet dims photocell SFA at the end of the III conveyor (see fig. 2).

 F4 IV CONVEYOR = When this key is kept pressed, if the IV conveyor is present, its chains turn until the pallet dims photocell SFB at the end of the IV conveyor (see fig. 2).

press  from page 8 to access page 9:

F1	IV CONVEYOR	9
F2	V CONVEYOR	
F3	EMPTY PALLET REQ.	
F4	EMPTY PALL.STOPS	

*THESE COMMANDS ARE ONLY ENABLED WITH THE MACHINE IN MANUAL RUNNING MODE:*

 F1 IV CONVEYOR = When this key is kept pressed, if the IV conveyor is present, its chains turn until the pallet dims photocell SFB at the end of the IV conveyor (see fig. 2).

 F2 V CONVEYOR = When this key is kept pressed, if the V conveyor is present, its chains turn until the pallet dims photocell SFC at the end of the V conveyor (see fig. 2).

 F3 EMPTY PALLET REQ. = When this key is kept pressed, if the pallet dispenser (DAP) is present, the contact of empty pallet request from upstream machine is closed.

 F4 EMPTY PALL.STOPS = When this key is kept pressed, if the empty pallet stops on the I roller conveyor are present, they move to the high position.

press  from page 9 to access page 10:

F1 CLAMP OP./CLOSE	10
F2 STORE HOME HEIGHT	
F3 STORE MAX. HEIGHT	
F4 RESET DATA	



F1 CLAMP OP./CLOSE = When this key is kept pressed, if the clamp is open it closes, if it is closed it opens. N.B. = *THIS COMMAND IS ENABLED WITH THE MACHINE IN MANUAL RUNNING MODE*



F2 STORE HOME HEIGHT = When this key is kept pressed, with the clamp above the roller conveyor and the machine in emergency status, the current height of the clamp from the roller conveyor surface level is stored as HOME height, provided that it is comprised between approximately 18 cm and 45 cm.



F3 STORE MAX. F2 STORE HOME HEIGHT = When this key is kept pressed, with the clamp above the roller conveyor and the machine in emergency status, the current height of the clamp from the roller conveyor level surface is stored as as maximum height, provided that it is comprised between approximately 108 cm and 216 cm.



F4 RESET DATA = To set the values of timers and counters back to the default ones: with the machine in manual running mode, keep this key pressed, then press the **RED MUSHROOM-SHAPED STOP BUTTON [11]** (see fig.1) and release both of them, then turn off the electric panel and turn it on again by means of the **MAIN SWITCH [1]** (see fig.1);

For resetting the memory of PLC, with the machine in automatic running mode, the clamp stopped, open and positioned above the roller conveyor, keep this key pressed then press the **RED MUSHROOM-SHAPED STOP BUTTON [11]** (see fig.1) and release both of them, then turn off the electric panel and turn it on again by means of the **MAIN SWITCH [1]** (see fig.1), then press **MANUAL RUN ORANGE LIGHT BUTTON [7]** (see fig.1).

**N.B.= AFTER THIS OPERATION ALL THE SETTINGS ON THE VT150 ARE DELETED AND ALL THE CASES, PLATFORMS AND PALLETS PRESENT IN THE WORK AREA SHOULD BE REMOVED.**

The **“HOME POSITION”** is a waiting position above the roller conveyor at a height, defined as **“HOME HEIGHT”**, which measured from the roller conveyor level surface, must be at least 15 centimetres from the case heights, in such a way to allow their movement along the roller conveyor.

N.B. = with the machine in manual running mode, if the keys on page 11 of the VT150 terminal are pressed, **F1 CLAMP RISE** or **F2 CLAMP DESCENT**, the clamp rise and descent movements will stop whenever the clamp is at the **HOME HEIGHT**.

press  from page 10 to access page 11:

F1	CLAMP RISE	11
F2	CLAMP DESCENT	
F3	CLAMP FORWARD	
F4	CLAMP BACK	

*THESE COMMANDS ARE ONLY ENABLED WITH THE MACHINE IN MANUAL RUNNING MODE:*



**F1 CLAMP RISE** = When this key is kept pressed, the clamp rises until stopping when the maximum height is reached or when reaching the height at which the minimum / maximum height limit switch is tripped; or when reaching the home position or when the height is reached for which photocell SF2D (see fig.3) is not dimmed by the pallet anymore (if this last one is higher than the home position).



**F2 CLAMP DESCENT** = When this key is kept pressed, the clamp descends until stopping when the home height is reached; if the clamp is placed above the roller conveyor, when pressed again, the clamp descends until stopping when the height of the roller conveyor with proximity switch SP5 enabled (see fig.3) is reached; or, if the clamp is above the pallet, when the height at which photocell SF2D (see fig.3) is dimmed by the pallet with the clamp open, or when the cases are laid with the camp closed.

*BY SIMULTANEOUSLY PRESSING THE TWO KEYS **F1 (CLAMP RISE) + F2 (CLAMP DESCENT)**, BOTH MOVEMENTS OF THE CLAMP (RISE - DESCENT) ARE DISABLED.*



**F3 CLAMP FORWARD** = When this key is kept pressed, if the clamp is on the same or a higher level than the home height and photocell SF2D is not dimmed by the pallet, it moves forward to the pallet until stopping above the pallet with proximity switch SP28 (see fig.3) enabled.

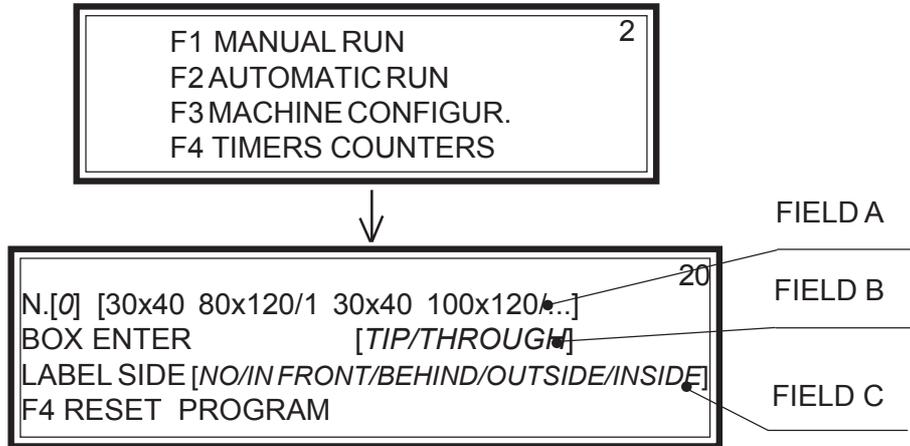


**F4 CLAMP BACK** = When this key is kept pressed, if the clamp is on the same or a higher level than the home height and photocell SF2D is not dimmed by the pallet, it returns to the roller conveyor until stopping above it with proximity switch SP29 (see fig.3) enabled.

*BY SIMULTANEOUSLY PRESSING THE TWO KEYS **F3 (CLAMP FORWARD) + F4 (CLAMP BACK)**, BOTH MOVEMENTS OF THE CLAMP (FORWARD - BACK) ARE DISABLED.*

press  from page 2 to access page 20:

page 40 can also be reached from page 11 by pressing  :



Where:

 +  = to go back to page 2.

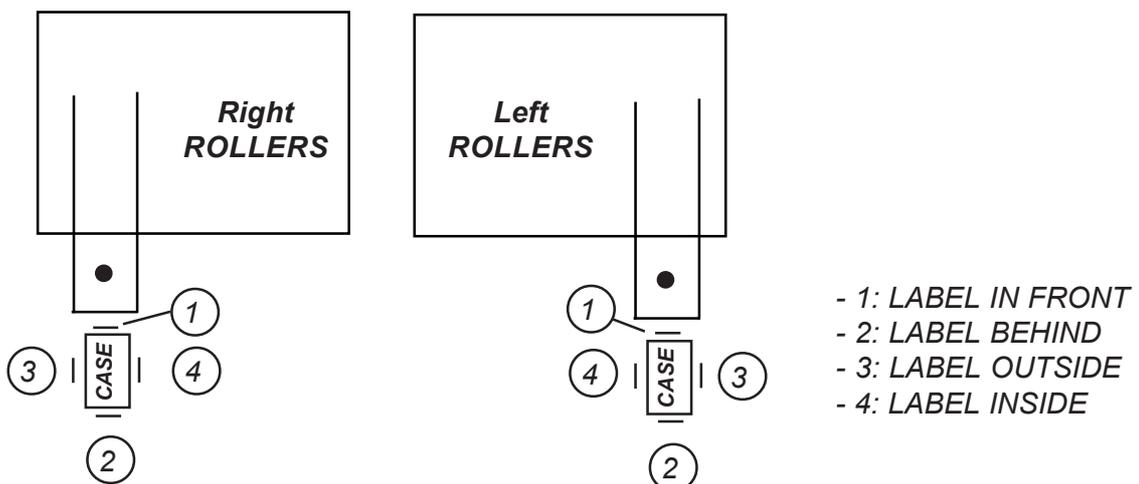
**N.B.** = change these parameters with the machine **NOT** in the AUTOMATIC RUNNING MODE.

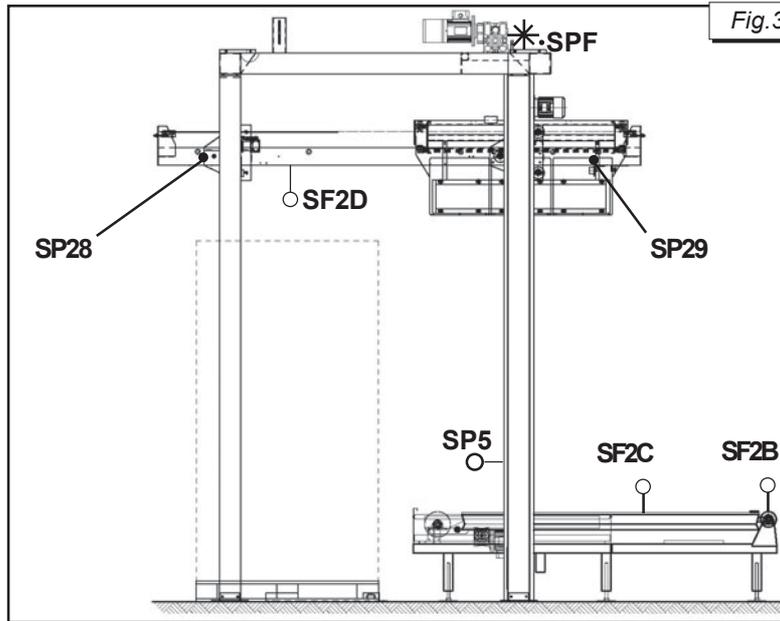
Field A: [N.[x] YxZ - KxJ] = It allows setting (through the 6.1.a procedure) the work program X desired; YxZ indicates the dimensions of the case, KxJ indicates the dimensions of the platform (see fig.4).

Field B: BOX ENTER [TIP/THROUGH] = It allows setting the case infeed direction on the chain conveyor with case turning device [B] (see fig.1 chap.2), TIP or THROUGH (through the 6.1.a procedure).



Field C: LABEL SIZE [NO/IN FRONT/BEHIND/OUTSIDE/INSIDE] = It allows setting (through the 6.1.a procedure) the position of the case side which will be left outside in the pallet layout; if [No] is set, no side is taken into account.





<p>PR.0 R90 30x40 IN THE 80x120 cm</p> <p>BOX THROUGH 1 x LAYER: 18s PROD: 1600 c/h</p> <p>BOX TIP 1 x LAYER: 32s PROD: 900 c/h</p>	<p>PR.5 R95 40x50 IN THE 100x120 cm</p> <p>BOX THROUGH 1 x LAYER: 14,5s PROD: 1490 c/h</p> <p>BOX TIP 1 x LAYER: 24,5s PROD: 880 c/h</p>
<p>PR.1 R91 30x40 IN THE 100x120 cm</p> <p>BOX THROUGH 1 x LAYER: 40s PROD: 900 c/h</p> <p>BOX TIP 1 x LAYER: 34s PROD: 1055 c/h</p>	<p>PR.6 R96 40x60 IN THE 80x120 cm</p> <p>BOX THROUGH 1 x LAYER: 16,5s PROD: 870 c/h</p> <p>BOX TIP 1 x LAYER: 14,5s PROD: 995 c/h</p>
<p>PR.2 R92 30x50 IN THE 80x120 cm</p> <p>BOX THROUGH 1 x LAYER: 18,5s PROD: 1165 c/h</p> <p>BOX TIP 1 x STRATO: 22s PROD: 980 c/h</p>	<p>PR.7 R97 40x60 IN THE 100x120 cm</p> <p>BOX THROUGH 1 x LAYER: 18s PROD: 1000 c/h</p> <p>BOX TIP 1 x LAYER: 19s PROD: 945 c/h</p>
<p>PR.3 R93 30x50 IN THE 100x120 cm</p> <p>BOX THROUGH 1 x LAYER: 18s PROD: 1600 c/h</p> <p>BOX TIP 1 x LAYER: 31s PROD: 930 c/h</p>	<p>PR.8 R98 25x40 IN THE 100x120 cm</p> <p>WITH NARROW CHAIN WITHOUT TURN-CASE</p>
<p>PR.4 R94 33x52 IN THE 104x100 cm</p> <p>BOX THROUGH 1 x LAYER: 18s PROD: 1200 c/h</p> <p>BOX TIP 1 x LAYER: 25,5s PROD: 845 c/h</p>	<p>PR.9 R99 20x30 IN THE 80x120 cm</p> <p>WITH NARROW CHAIN WITHOUT TURN-CASE</p>

Fig.4



**F4 RESET PROGRAM** = When this key is pressed with the machine **NOT** in automatic running mode, the memories of the cases being fed onto the chain conveyor with case turning device [B] and onto the roller conveyor surface [D] (see fig.1 chap.2), this command should be used when one of the three settings in the A, B, C fields of this page is changed.

**N.B.** = Before or after the “RESET PROGRAM” command, remove any cases entered onto the chain conveyor with case turning device [B] and onto the roller conveyor surface [D] (see fig.1 chap.2).

press  from page 20 to access page 21:

LAYERS	[—]	OF [—]	21
BOXES	[—]	OF [—]	
PALLETS	[—]	OF [—]	
F1 Res.L. F2 B. F3 P			

Where:

**LAYERS** = Display field only, 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 unloaded.

**OF** = Settable field (through the 6.1.b procedure), it is the number of case layers to be laid on the platform to complete the pallet.

*As soon as the number of layers being set is reached, the siren beep sounds for 1 second; the machine remains in automatic running mode to allow infeeding any further cases onto the roller conveyor. If the “PALL.END HEIGHT” (page 33 of VT150) field is set to:*

- *[MAX.]: the arch [E] (see fig.1 chap.2) positions itself at the maximum height with the clamp above the roller conveyor and it remains still in this position until the pallet has been unloaded and an empty platform has been positioned;*
- *[HOME]: the arch [E] (see fig.1 chap.2) moves to the “HOME HEIGHT” position with the clamp above the roller conveyor and when the first half of the layer is completed, it comes down up to the height at which it is taken on the roller conveyor. As soon as the layer is terminated, the clamp closes and the arch remains still until the pallet has been unloaded and an empty platform has been positioned.*

*If conveyors are present and the loading of the empty platform occurs automatically, when this last one is positioned, the palletizer restarts in the automatic running mode, if the empty platform loading occurs manually, even with conveyors, to restart the palletizer it is necessary to keep the Automatic Run [9] (see fig.1 chap.6) pressed for half a second.*

**BOXES** = Display field only, indicating the number of cases counted with the SF2C (see fig.3) photocell and being fed onto the roller conveyor [D] (see fig.1 chap.2).

**OF** = Settable field (through the 6.1.b procedure), it allows setting the number of cases that the operator wishes to let be fed onto the roller conveyor.

*Once the number being set is reached, the siren beep sounds and the red light [10] (see fig.1 chap.6) flashes; the palletizer lays the last case layer if complete, then it makes an in-phase stop, with the arch [E] (see fig.1 chap.2) in the home position or at the maximum height above the roller conveyor, then the machine leaves the automatic running mode and remains in manual run.  
If the number being set is [0], the machine remains in the automatic running mode.*

**PALLETS** = Display field only, indicating the number of complete pallets, it increases when the last layer is laid down.

**OF** = Settable field (through the 6.1.b procedure), it allows setting the number of pallets to be formed.

When the last layer of the last pallet is laid, the siren beep sounds and the red light [10] (see fig. 1 chap. 6) flashes, the palletizer makes an in-phase stop, with the arch [E] (see fig. 1 chap. 2) in the home position or at the maximum height, then the machine leaves the automatic running mode and remains in manual run.  
 If the number being set is [0], the machine remains in the automatic running mode.



F1 Reset LAYERS = It resets the number of LAYERS laid on the platform being formed.

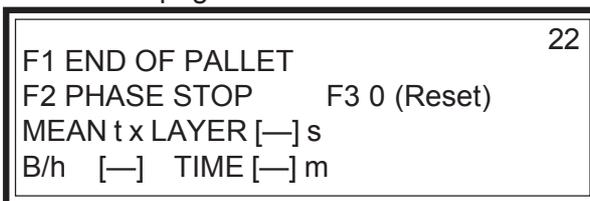


F2 Reset BOXES = It resets the number of BOXES counted since the latest Reset BOXES command.



F3 Reset PALLETS = It resets the number of PALLETS counted since the latest Reset PALLETS command.

press  from page 21 to access page 22:



Where:



F1 END OF PALLET = After pressing this button, the machine lays the last layer and senses the pallet as finished.



F2 PHASE STOP = This command is enabled with the machine in automatic running mode. When pressed, the palletizer makes an in-phase stop, with the arch [E] (see fig. 1 chap. 2) in the home position or at the maximum height, or above the roller conveyor and the clamp open, then the machine leaves the automatic running mode and remains in manual run.



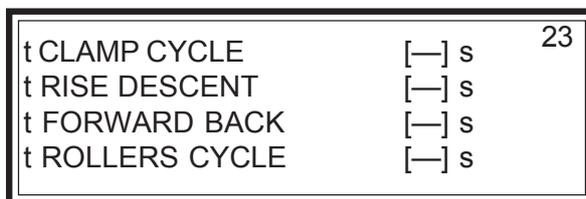
F3 0 (Reset) = Press F3 to reset all the mean values.

MEAN t x LAYER s = Display field only, indicating the time (in seconds) of the palletizing cycle per one layer with the machine in Automatic running mode.

B/h = Display field only, indicating the number of boxes being palletized per each hour of Automatic run.

TIME m = Display field only, indicating the time (in minutes) elapsed since the latest mean reset with the machine in Automatic running mode.

press  from page 22 to access page 23:



Where:

TIME CLAMP CYCLE = Display field only, indicating the time (in seconds) of the last palletizing cycle, measured since when the layer gripping starts up to its return to the home position or to the maximum height.

TIME RISE DESCENT = Display field only, at the end of a clamp rise or descent movement, it indicates the time (in seconds).

TIME FORWARD BACK = Display field only, at the end of a clamp forward or back movement, it indicates the time (in seconds).

TIME ROLLERS CYCLE = Display field only, at the end of a rollers cycle (namely when the chain of the case turning device descends), it indicates the time (in seconds).

press  from page 2 to access page 30:

F1 MANUAL RUN	2
F2 AUTOMATIC RUN	
F3 MACHINE CONFIGUR.	
F4 TIMERS COUNTERS	

page 30 can also be reached from page 23 by pressing  :

F10 RETURN TO MENU	30
I CONVEYOR	[OFF/ON]
II CONVEYOR	[OFF/ON]
III CONVEYOR	[OFF/ON]

 +  = to go back to page 2.

I CONVEYOR = Settable field (through the 6.1.a procedure), if the I conveyor (see fig.2 chap.6) is present, [ON] is selected; if it is not present, [OFF] is selected.

II CONVEYOR = Settable field (through the 6.1.a procedure), if the II conveyor (see fig.2 chap.6) is present, [ON] is selected; if it is not present, [OFF] is selected.

III CONVEYOR = Settable field (through the 6.1.a procedure), if the III conveyor (see fig.2 chap.6) is present, [ON] is selected; if it is not present, [OFF] is selected.

press  from page 30 to access page 31:

IV CONVEYOR	[OFF/ON]	31
V CONVEYOR	[OFF/ON]	
PHOTOC. DEPOSIT	[OFF/ON]	
MANUAL LOADING	[OFF/ON]	

IV CONVEYOR = Settable field (through the 6.1.a procedure), if the IV conveyor (see fig.2 chap.6) is present, [ON] is selected; if it is not present, [OFF] is selected.

V CONVEYOR = Settable field (through the 6.1.a procedure), if the V conveyor (see fig.2 chap.6) is present, [ON] is selected; if it is not present, [OFF] is selected.

PHOTOC. DEPOSIT = Settable field (through the 6.1.a procedure), when [ON] is selected the clamp lays the complete layer onto the pallet after that photocell SF2D (see fig.3), placed below the clamp itself, has been dimmed by the upper layer of cases; this allows to obtain a lighter weight of the arch on the platform. When [OFF] is selected the clamp lays the layer during the later rising cycle when the chains are not tightened enough because of the cases laid on the pallet.

MANUAL LOADING = Settable field (through the 6.1.a procedure), with the I conveyor present, in case that the empty platform is placed automatically, by dimming photocell SF2D, [ON] is selected, whereas in case that the I conveyor is present, the empty platform is loaded manually, by dimming photocell SF2A (see fig.2), [OFF] is selected.

press  from page 31 to access page 32:

MACHINE TEST	[OFF/ON]	32
STRAPPING MACH.	[OFF/ON]	
STRAPP. CONVEYOR	[III/II]	
TURN-CASE 180 D.	[OFF/ON]	

Where:

MACHINE TEST = Settable field (through the 6.1.a procedure), with [ON], when the operator will enable the machine to operate in automatic running mode, it will simulate the palletizing cycle by repeatedly doing all the operations that are necessary to form a case layer on the roller conveyor, to take it with the clamp and to lay it on the empty platform, although the cases are not present. To stop this simulation, the operator will have to set [OFF] in this field.

**N.B.** = it is recommended to set ON only if this is suggested by the SORMA S.p.A. TECHNICAL SUPPORT, without cases being processed and without full pallet below the arch.

STRAPPING MACH. = Settable field (through the 6.1.a procedure), if the strapping machine being controlled automatically is present, [ON] is selected; if it is not present, [OFF] is selected.

STRAPP. CONVEYOR = Settable field (through the 6.1.a procedure), in case that, with the previous field set to [ON], is the strapping machine set to II conveyor, [II] is selected; is it set to III conveyor, [III] is selected.

TURN-CASE 180 D. = Settable field (through the 6.1.a procedure), if the case turning device is provided with piston for 180° rotation in one cycle only, [ON] is selected; in case of normal case turning device requiring two separate 90° cycles for a 180° rotation, [OFF] is selected.

press  from page 32 to access page 33:

[OFF/ON]		33
PALL. END HEIGHT	[MAX. / HOME]	
[OFF/ON]		
[OFF/ON]		

Where:

PALL. END HEIGHT = Settable field (through the 6.1.a procedure), when [HOME] is selected, as the pallet is completed, the arch positions itself at the home position, when [MAX] is selected, when the pallet is completed, the arch positions itself at the maximum height (see field OF page 21 of VT150).

press  from page 2 to access page 40:

page 40 can also be reached from page 33 by pressing  :

F1 MANUAL RUN	2
F2 AUTOMATIC RUN	
F3 MACHINE CONFIGUR.	
F4 TIMERS COUNTERS	



WAITING TIMES [cs]	40
81 [—]s RESET SFD-SF2A	
82 [—]s RESET SF2A-SF9	
83 [—]s RESET SF9-SFA	

Where:

 +  = to go back to page 2.

From page 40 to page 49 the values are planned through the 6.1.b procedure.

From 81 to 85 = Numeric settable fields, they allow entering the maximum time values (in seconds) that a platform can take to pass between the two photocells indicated while the conveyor is running. After this time has elapsed, if the platform has not dimmed the second photocell, the conveyors are stopped and the pallet must be removed.

81 = s RESET PLATFORM SFD-SF2A = From the end of the dimming of photocell SFD to the dimming of photocell SF2A on I conveyor, with empty platform loading in automatic mode (see fig.2 of this chap.).

82 = s RESET PLATFORM SF2A-SF9 = From the start of the I conveyor with pallet on photocell SF2A to the dimming of photocell SF9, positioned at the end of the I or II conveyor (see fig.2 of this chap.).

83 = s RESET PLATFORM SF9-SFA = From the end of the dimming of photocell SF9 to the dimming of photocell SFA at the end of the III conveyor (see fig.2 of this chap.).

press  from page 40 to access page 41:

84 [—]s	RESET SFA-B	41
85 [—]s	RESET SFB-SFC	
86 [—]s	CONVEY.RESTART	
87 [—]	COMPACT.PALLET	

Where:

84 = s RESET PLATFORM SFA-SFB = From the end of the dimming of photocell SFA to the dimming of photocell SFB at the end of the IV conveyor (see fig.2 of this chap.).

85 = s RESET PLATFORM SFB-SFC = From the end of the dimming of photocell SFB to the dimming of photocell SFC at the end of the V conveyor (see fig.2 of this chap.).

86 = s CONVEY.RESTART = Numeric settable field, it allows entering a waiting time (in seconds) before restarting the I and II conveyor, when they are still after one platform has been unloaded from the II conveyor (see fig.2 chap.6).

87 = COMPACT.PALLET = Numeric settable field, it allows setting the time (in hundredths of a second) for which the platform compactor, if present on the I conveyor, is fed forward to properly position the empty platform.

press  from page 41 to access page 42:

88 [—]	CLOSED CLAMP	42
89 [—]	CLAMP OPENING	
90 [—]	I LAYER DEPOS.	
91 [—]	LAYERS>I DEP.	

Where:

88 = CLOSED CLAMP = Numeric settable field, it allows entering the waiting time (in hundredths of a second) with di arch [E] (see fig.1 chap.2) still to allow clamp closing to reach the gripping pressure required.

89 = CLAMP OPENING = Numeric settable field, it allows entering the delay time (in hundredths of a second) for opening the clamp to deposit the layer.

90 = I LAYER DEPOS. = Numeric settable field, it allows entering a delay time (in hundredths of a second) for the clamp rise after depositing the I layer on the platform; to be modified only with the "PHOTOC. DEPOSIT" field (pag.31 of VT150) set to [ON].

91 = LAYERS>I DEP. = Numeric settable field, it allows entering a delay time (in hundredths of a second) for the clamp rise after depositing the I layer on the platform; to be modified only with the "PHOTOC. DEPOSIT" field (pag.31 of VT150) set to [ON].

press  from page 42 to access page 43:

92 [—]		43
93 [—]		
94 [—]	COMPACT. BOXES	
95 [—]	TURN-CASE HIGH	

Where:

92 e 93 = free option.

94 = COMPACT. BOXES = Numeric settable field, it allows entering a time (in hundredths of a second) for the boxes compactor forward movement, in the first half of the roller conveyor's layer. This is an optional device.

95 = TURN-CASE HIGH = Numeric settable field, it allows entering a time (in hundredths of a second) required by the case turning device with the case to rise up to the high position, before doing the case rotation.

press  from page 43 to access page 44:

96 [—]	SPIN OF 90	44
97 [—]	TURN-CASE LOW	
98 [—]	SPIN OF 90-180	
99 [—]	ROLLERS START	

Where:

96 = SPIN OF 90 = Numeric settable field, it allows entering a time (in hundredths of a second) required by the case turning device with the case to make the 90° clockwise and counterclockwise rotation, even with the case turning device provided with 180° rotation piston.

97 = TURN-CASE LOW = Numeric settable field, it allows entering a time (in hundredths of a second) required by the case turning device with case to reach the low position, before restarting the conveyor's chains.

98 = SPIN OF 90-180 = Numeric settable field, it allows entering a time (in hundredths of a second) required by the case turning device with case to make the second part of the 180° counterclockwise rotation, with the case turning device provided with 180° rotation piston.

99 = ROLLERS START = Numeric settable field, it allows entering a time (in hundredths of a second) required by the conveyor chains to descend below the roller conveyor, before starting the rollers.

press  from page 44 to access page 45:

00 [—]	LAYERS STOP	45
01 [—]	STOPS RISE UP	
02 [—]	STOP ON SF9	
03 [—]	STOP ON SFA	

Where:

00 = LAYERS STOP = Numeric settable field, it allows setting the number of layers to be reached to have the palletizer make an in-phase stop, with the arch [E] (see fig.1 chap.2) in the home position or at the maximum height, so that the operator can have access to the work area. By setting [0], the machine will not make this stop.

01 = STOPS RISE UP = Numeric settable field, it allows entering a time (in hundredths of a second) for:

- confirmation of platform sensing by photocell SF2A (see fig.2 of this chap.) before the I conveyor's stop;
- confirmation of failed outfeeding pallet sensing before the empty platforms stops rise, with automatic loading of empty platform.

02 = STOP ON SF9 = Numeric settable field, it allows entering a time (in hundredths of a second) for confirmation of platform sensing by photocell SF9 (see fig.2 of this chap.) before the II conveyor's possible stop.

03 = STOP ON SFA = Numeric settable field, it allows entering a time (in hundredths of a second) for confirmation of platform sensing by photocell SFA (see fig.2 of this chap.) before the III conveyor's possible stop.

press  from page 45 to access page 46:

04	[—]	STOP ON SFB	46
05	[—]	STOP ON SFC	
06	[—]	STOP FROM SF9	
07	[—]	STOP FROM SFA	

Where:

04 = STOP ON SFB = Numeric settable field, it allows entering a time (in hundredths of a second) for confirming the platform sensing by photocell SFB (see fig.2 of this chap.) before the IV conveyor's possible stop.

05 = STOP ON SFC = Numeric settable field, it allows entering a time (in hundredths of a second) for confirming the platform sensing by photocell SFC (see fig.2 of this chap.) before the V conveyor's possible stop

06 = STOP FROM SF9 = Numeric settable field, it allows entering a time (in hundredths of a second) for confirming the failed outfeeding platform sensing by photocell SF9 (see fig.2 of this chap.) to the III conveyor before the possible start of the I conveyor, with an outfeeding pallet.

07 = STOP FROM SFA = Numeric settable field, it allows entering a time (in hundredths of a second) for confirming the failed outfeeding platform sensing by photocell SFA (see fig.2 of this chap.) to the IV conveyor before the possible start of the II conveyor, with an outfeeding pallet.

press  from page 46 to access page 47:

08	[—]	FROM ROLLERS	47
09	[—]	CO.HOME HEIGHT	
10	[—]	CO.MAX. HEIGHT	
11	[—]	BOX 24 STOPPED	

Where:

08 = FROM ROLLERS = Numeric settable field, it allows setting the number of counts with proximity switch SPF (see fig.3) to stop the arch rise in the automatic running mode, if photocell SF2D (see fig.2) is not dimmed by the pallet, before being able to move the closed clamp forward.

09 = CO.HOME HEIGHT = Numeric settable field, it allows setting the number of counts with proximity switch SPF (see fig.3) corresponding to the home height of the clamp from the roller conveyor's level surface, alternatively to the "STORE HOME HEIGHT" command on page 10 of VT 150.

10 = CO.MAX. HEIGHT = Numeric settable field, it allows setting the number of counts with proximity switch SPF (see fig.3) corresponding to the maximum height of the clamp from the roller conveyor's level surface, alternatively to the "STORE MAX. HEIGHT" command on page 10 of VT 150.

*From 11 to 15 = Numeric settable fields, they allow entering a time (in hundredths of a second) required by the case, from the failed dimming of photocell SF2B (see fig.3), with the chain of the conveyor running, to reach the centre of the case turning device, in such a way to be properly rotated. This time is different for each case length.*

11 = BOX 24 STOPPED = It is the time (in hundredths of a second) for the cases whose side parallel to the chains is 24 cm long (see fig.4 PR8).

press  from page 47 to access page 48:

12	[—]	BOX 30 STOP	48
13	[—]	BOX 40 STOPPED	
14	[—]	BOX 50 STOPPED	
15	[—]	BOX 60 STOPPED	

Where:

12 = BOX 30 STOP = It is the time (in hundredths of a second) for the cases whose side parallel to the chains is 30 cm long (see fig.4 PR0 and PR1 and PR2 and PR3 and PR4).

13 = BOX 40 STOPPED = It is the time (in hundredths of a second) for the cases whose side parallel to the chains is 40 cm long (see fig.4 PR0 and PR1 and PR5 and PR6 and PR7).

14 = BOX 50 STOPPED = It is the time (in hundredths of a second) for the cases whose side parallel to the chains is 50 cm long (see fig.4 PR2 and PR3 and PR4 and PR5).

15 = BOX 60 STOPPED = It is the time (in hundredths of a second) for the cases whose side parallel to the chains is 60 cm long (see fig.4 PR6 and PR7).

press  from page 48 to access page 49:

16	[—]	COMP.ROW 120	49
17	[—]	COMPACT.ROW 100	
18	[—]	CHAINSRISE UP	
19	[—]	COM.ON ROLLERS	

Where:

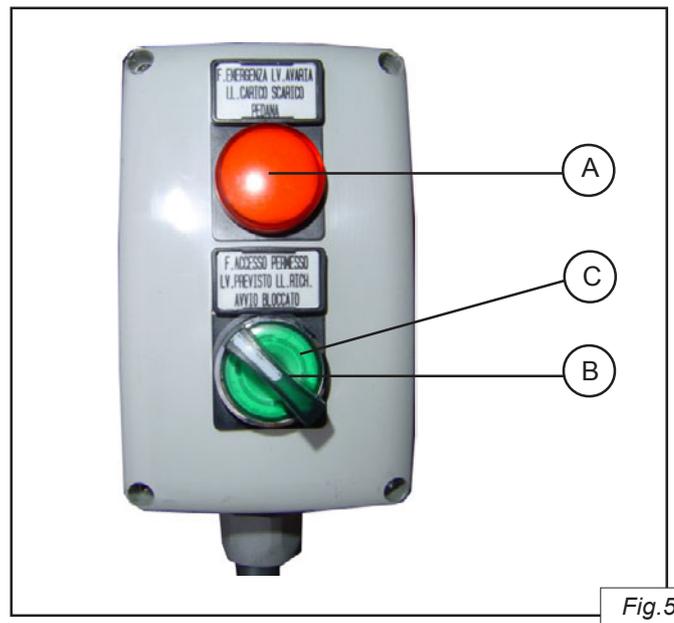
16 = COMP. ROW 120 = Numeric settable field, it allows entering a waiting time (in hundredths of a second) from the failed dimming of photocell SF2C (see fig.3) by the last case of a 120 cm-long row to compact the cases on the roller conveyor before the conveyor chains descent.

17 = COMPACT. ROW 100 = Numeric settable field, it allows entering a waiting time (in hundredths of a second) from the failed dimming of photocell SF2C (see fig.3) by the last case of a 100 cm-long row to compact the cases on the roller conveyor before the conveyor chains descent.

18 = CHAINS RISE UP = Numeric settable field, it allows entering a waiting time (in hundredths of a second) from the rollers rotation start to move a case row before the conveyor chains rise.

19 = COM.ON ROLLERS = Numeric settable field, it allows setting a time (in hundredths of a second) for rollers rotation to move a case row.

6.1.d PUSH-BUTTON PANEL FOR THE ACCESS TO THE WORK AREA [D] (see fig.10 chap.4):



- [A] **RED LIGHT** = t corresponds to the red light [6] (see fig.1 of this chap.) of the electric panel.
- [B] **SELECTOR FOR ACCESS REQUEST** = with the machine in automatic running mode, by rotating the selector clockwise, the palletizer makes an in-phase stop, with the arch [E] (see fig.1 chap.2) in the home position or at the maximum height or over the roller conveyor and the open clamp, so the palletizer's restart remains inhibited.
- [C] **GREEN LIGHT** =
  - *Fixed*: - ACCESS ALLOWED; indicating that palletizer stopped in emergency status or in manual running mode or in in-phase stop with the selector rotated clockwise to inhibit the palletizer restart.
  - *Slow flashing light*: indicating that an in-phase stop was requested but the palletizer is still running.
  - *Fast flashing light*: indicating that the palletizer is about to make an in-phase stop to allow an access:
    - when the pre-set number of layers has been reached (in field 00=LAYERS STOP on page 45 of the VT150),
    - when a pallet has been completed and the empty platform should be loaded manually.

**7.1 ADJUSTMENTS**

**THE ADJUSTMENTS MUST NEVER BE DONE BY UNAUTHORIZED PERSONNEL, MOREOVER THEY MUST NEVER BE DONE WHILE THE MACHINE IS WORKING**, to avoid being caught by moving parts or being victim of serious injuries.



Before performing any maintenance operation, lubricating parts, replacing spare parts or cleaning machine equipment, it is strictly necessary to 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). The main switch lock key should be exclusively given to a maintenance operator (duly skilled, trained and authorized to service your machine). Afterwards power cords and pneumatic air supply pipes should be disconnected.

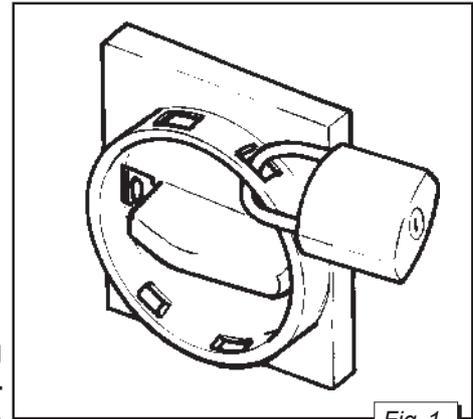


Fig. 1



When entering the working area while the machine is connected to power, follow the procedure 4.2a; when restarting the machine follow the procedure 4.2b.

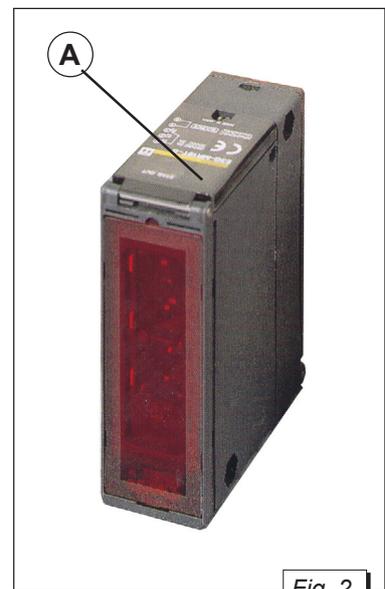


Fig. 2

**7.2 ADJUSTMENT AND CONTROL OF THE PHOTOCELLS WITH REFLECTOR (fig.2)**

Once the machine is fed, check that, in case of no obstacles on the trajectory of the optical beam, the red light **[A]** (see fig.2), is lit. If this is not the case, adjust the reflector or photocell in such a way to reflect the beam. The adjustment can occur manually by exerting a slight pressure on the brackets, if this is not sufficient loosen the supporting screws and adjust properly.

**7.3 ADJUSTMENT OF THE DIRECT DETECTION PHOTOCELLS (fig.3)**

In the FBG-108 the direct detection photocells (see fig.3) are those used for counting the cases between chain conveyor and roller platform and the one detecting the presence of a pallet mounted on the relative rabbet. In the event of any counting problems to be traced back to the case infeed photocell adjustment, regulate the trimmer **[B]** starting from the FAR position counterclockwise until the leds **[C]** turn off, then mark the position indicated by the trimmer.

Then position one case short side being fed in before the photocell, afterwards regulate its trimmer **[B]** from the NEAR position clockwise until the leds **[C]** turn on, mark this position too, now move the trimmer **[B]** halfway between the two marked positions. As for the pallet presence photocell adopt the same procedure, by dimming the photocell with an empty pallet.

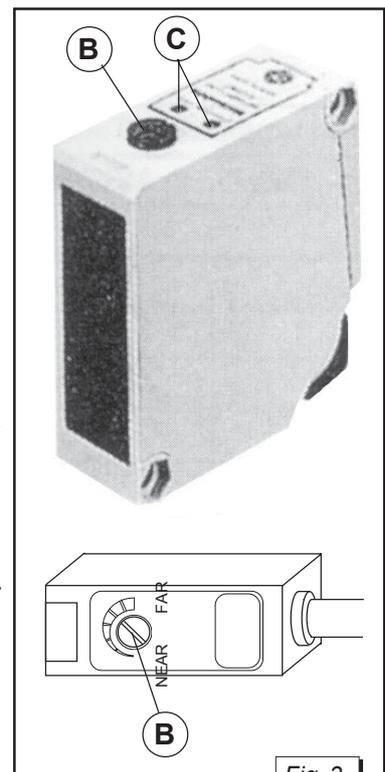
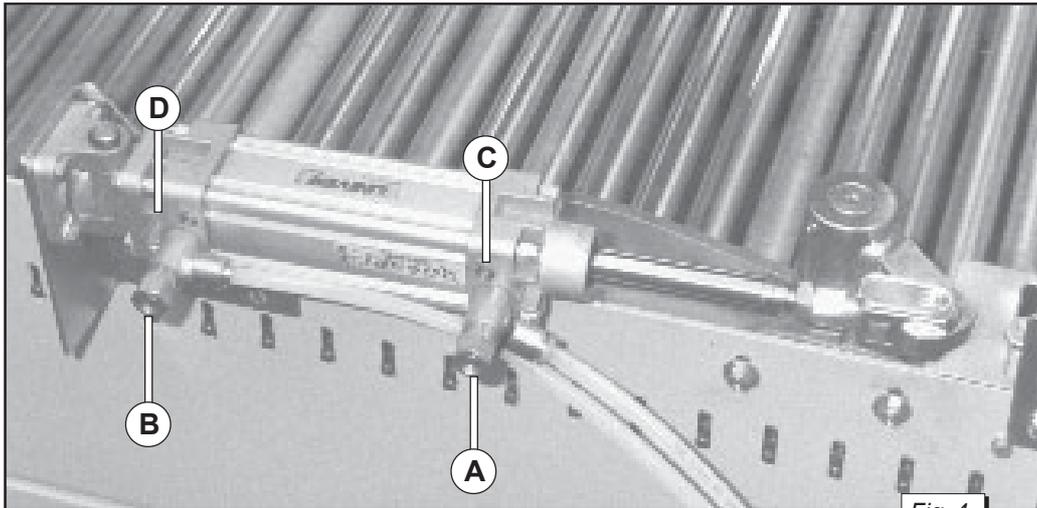


Fig. 3



*Fig. 4*

**7.4 PNEUMATIC PISTONS - Speed adjustment (fig.4)**

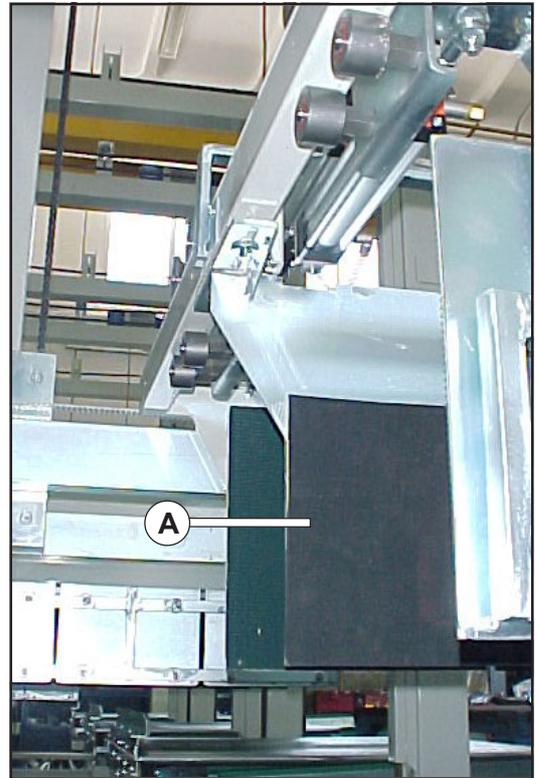
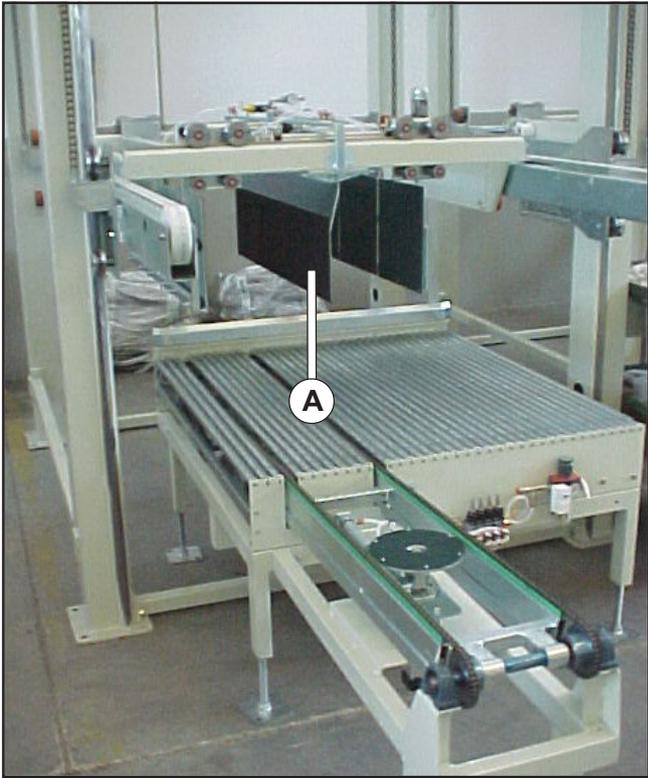
To adjust the extension speed of each piston, work on the adjusting screw **[A]** (see fig.4).  
 To adjust the return speed, work on the adjusting screw **[B]** (see fig.4).  
 Unscrew to increase speed, screw to diminish speed.

**7.5 PNEUMATIC PISTONS - Deceleration adjustment (fig.4)**

To adjust the intensity of deceleration during the outcoming phase of each piston stem, work on the adjusting screw **[C]** (see fig.4).  
 To adjust deceleration speed during the stem return, work on the adjusting screw **[D]**.  
 Unscrew to diminish braking intensity, screw to increase it.

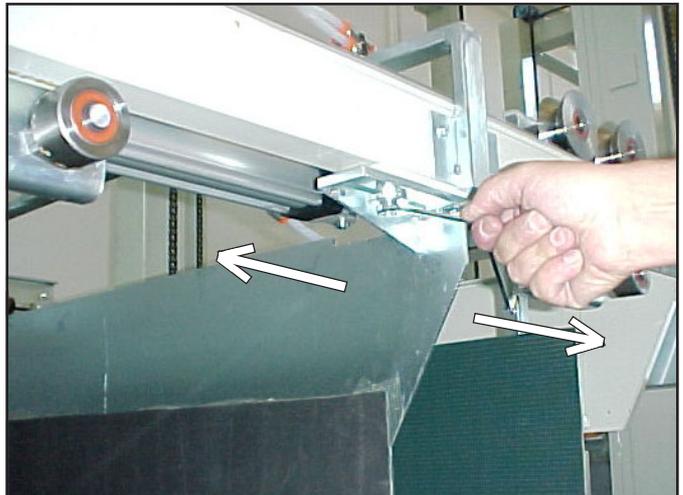
**7.6 CENTRAL ADJUSTMENT FOR LAYER CLAMPING**

Depending on the type of boxes to be palletised, the central sheet [A] must be placed either in the very right-hand or in the very left-hand side.



- For boxes 40x60 and 30x40 place the sheet [A] in the same side of the turn-case.

- For boxes 30x50 place the sheet [A] in the opposite side of the turn-case.



**8.1 MAINTENANCE**

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 **FBG-108** 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.



**Before performing any maintenance operation, lubricating parts, replacing spare parts or cleaning machine equipment, it is strictly necessary to 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). The main switch lock key should be exclusively given to a maintenance operator (duly skilled, trained and authorized to service your machine). Afterwards power cords and pneumatic air supply pipes should be disconnected.**

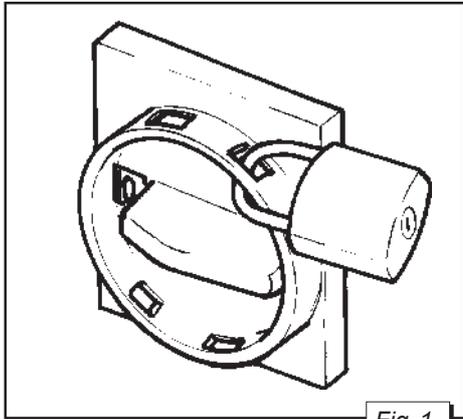


Fig. 1

**8.2 ROUTINE MAINTENANCE TABLE**

DESCRIPTION	KIND OF OPERATION	SCHEDULE
PHOTOCELLS AND REFLECTORS	Surface cleaning	End of the working
BEARING SUPPORTS	Greasing	Once a week
IDLE PINS, BEARINGS AND SLIDE GUIDES	Greasing	Once a week or end of the working
ROLLER PLATFORM	Surface cleaning	Once a week or end of the working
POWER CABINET	Surface cleaning	Once a week
ELECTRIC MOTORS	Surface cleaning, blow compressed air near the aeration openings.	Once a week
BELT CONVEYORS	Control the surface of the belts to check their state, and replace them in case they are not suitable to assure their good operation anymore.	Once a week
CHAIN CONVEYORS	Check and adjust the chains with the relative tensioners and grease.	Once a month
AIR FILTER UNIT	Filter cleaning	Once a month
PNEUMATIC CYLINDER FITTINGS AND THROTTLES	Dismantle and clean the fittings and the throttles using dry air.	Once a month
PNEUMATIC CYLINDERS	Check proper operation of the actuation speed adjustment throttles and the brakes. Act on them to optimise efficiency and functionality.	Once a month

**8.3 INVERTER MAINTENANCE TABLE**

Inside the electric panel there are two inverters:

- for clamp forward and clamp back,
- for clamp rise and clamp descent.

The inverter requires very little maintenance: just keep it clean, do not let it overheat and do not put it in a place which is too humid and hot. Make sure the cables are firmly held in their terminals and that there is no trace of discolouring or other signs of overheating.



**Before operating on any contact, always cut off the main power source and make sure that the inside condenser charge warning light (CHARGE) is not lit.**

PARTS TO INSPECT	KIND OF CONTROL	REMEDY
Terminal strips, fastening screws, outside cables, connectors, etc.	Loose screws. Connectors fitted poorly.	Tighten the screws.
Cooling fins	Accumulation of dirt and dust.	Blow a jet of compressed air (without condensate) at a pressure of 4 to 6 kg cm <sup>2</sup> .
Printed circuit board	Accumulation of metal particles mixed with oil.	Clean the board. If the board cannot be cleaned, replace it.
Cooling fan	Presence of strange noise or heavy vibrations. More than 20,000 working hours have gone by.	Replace the cooling fan.
Power elements	Accumulation of dirt and dust.	Blow a jet of compressed air (without condensate) at a pressure of 4 to 6 kg cm <sup>2</sup> .
Filter condenser	Discoloured or gives out a bad smell	Replace the inverter.

N.B. = Consult the user and maintenance manual of the inverters that are inside the electric panel.