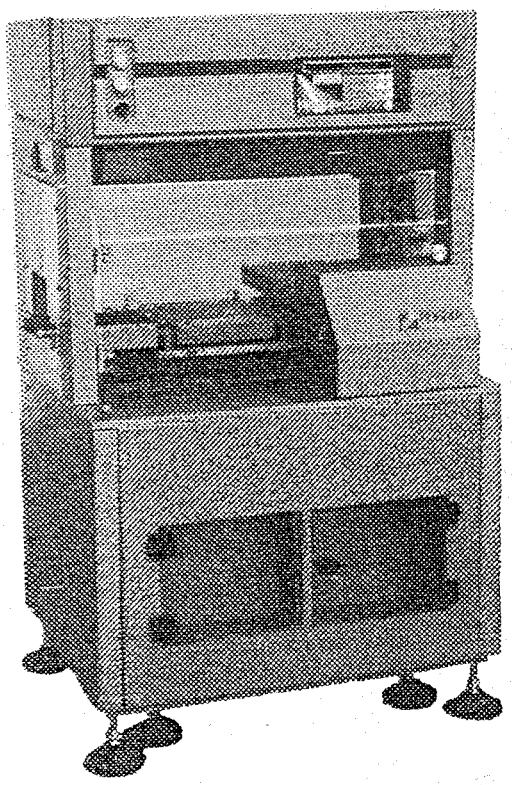
OPERATION AND MAINTENANCE MANUAL



To Change language, Power up Hold Keeping 4 pressed till you see tot error 4

* 1 = ITALIAN
* 4 = ENGLISH

CHECKWEIGHER

MODEL 05C3
VERSION 001

PRISMA
TECNOLOGIE INNOVATIVE

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On Newer m/cs:

To Access the setup parameters,

- Power off,
- Press '*'
- Power on keeping '*' pressed for 10sec.
- then O.K.

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1. INTRODUCTION

DICHIARAZIONE DI CONFORMITA'

CP .....

La società PRISMA INDUSTRIALE S.r.l..
con sede in FIDENZA (PARMA) ITALIA in via La Bionda,17
nella persona di BRUNETTI ALBERTO in qualità di rappresentante legale.

DICHIARA

Sotto la propria esclusiva responsabilità che la MACCHINA AUTOMATICA
NOME.....
TIPO.....
CODICE PRATICA.....
alla quale questa dichiarazione si riferisce è

CONFORME

alle Disposizioni Legislative che traspongono la Direttiva 89/392 CEE e/o successive modifiche.

LA MACCHINA NON DEVE ESSERE MESSA IN SERVIZIO PRIMA DI ESSERE RESA CONFORME ALLE DIRETTIVE C.E. DATO CHE L'UTILIZZATORE PREVEDE L'INCORPORAZIONE CON ALTRE MACCHINE.

FIDENZA .....

ALBERTO BRUNETTI

PRISMA
TECNOLOGIE INNOVATIVE

MANUAL DATA

MACHINE TYPE.....

MODEL.....

CLIENT CODE.....

MACHINE CODE.....

EPROM.....

MANUAL NUMBER.....

VERSION.....

EDITING DATE.....

WARNING

This manual, which contains essential information for safe machine installation, operation and maintenance, is an integral part of the product package and must be read before the machine is put into operation and then carefully preserved for consultation.
Use the manual properly and keep it intact. Do not rip out, remove or write over any part. Keep it in a safe place away from heat and damp.

1.3 TECHNICAL DATA

ENERGY REQUIREMENTS:

- Total input.....600 W
- Interruption capacity of main circuit breaker.....10 KA
- Electric input.....
- Power circuit.....
- Control circuit.....
- Pneumatic energy.....8 bar / max cap. 1300 l/min.

SUBSTANCES AND MATERIALS USED:

- Water: none
- Neutral gasses: none
- Acids and bases: none
- Inflammable products: none
- Toxic products: a lithium battery is located on the TN 208 (supply) card
- Iron: machine structure and protective shipping panel
- AISI 304 : conveyors
- Polymethylmethacrylate: protective safety coverings
- Copper: electrical wiring
- Polythene: protective shipping material
- Wood: protective shipping material

1.5 GENERAL DATA

- Model.....
- Year.....
- Machine code.....
- Client code.....
- Speed c.p.m.....
- Speed m/min.....
- mm Plate length.....
- **Min. Weight**.....
- **Max. Weight**.....
- **Resolution**.....
- **Full Scale**.....
- **Stable Weight**.....
- **Ms Average**.....
- **mm x pulse**.....
- **mm pcs dist**.....
- **mm FL --> FC**.....
- **mm FL --> MD**.....
- **mm FL delay**.....
- **ARCNet ID**.....
- **mm piece len**.....

2. MACHINE OVERVIEW

2.1 PERFORMANCE

The 05C3 system for continuous weight check is made up of:

A box containing the electric and electronic equipment.

Two structures, one inserted into the other but not physically connected. One structure holds the infeed conveyor and the weight reading system on top of which the weighing conveyor runs. The other structure houses the outfeed conveyor.

The infeed conveyor equally spaces the infeeding packages for weighing purposes.

On the outfeed conveyor, positioned downline of the weighing conveyor, there is an ejection device which removes from the packaging line any packages which are unweighable or outside set tolerance limits.

2.2 TECHNICAL ASSISTANCE

After having consulted the section of this manual dedicated to identifying the cause of machine breakdowns, you may find it necessary to contact PRISMA's TECHNICAL ASSISTANCE SERVICE (T.A.S.).
If qualified personnel are available through a local branch firm, they should be called. If not, contact PRISMA INDUSTRIALE s.r.l. directly, at their headquarters in Via La Bionda, no. 17, Fidenza (Parma), Italy, as follows:

a) Telephone PRISMA INDUSTRIALE s.r.l. and ask to speak with their TECHNICAL ASSISTANCE SERVICE to see if the problem can be resolved without dispatching a technician, or, if not, to identify the type of problem.

b) Send a written request for technical assistance via fax, including all information included on the EC label (see section 2.4), type of problem, the technician spoken with when phone contact was made and your fax number.

c) An answer will be sent by fax giving repair rates and days a technician is available; if the machine is still under warranty (this can be ascertained from the contract), only information regarding technician availability will be sent.

d) Fax your response to PRISMA INDUSTRIALE s.r.l., stating your acceptance of repair rates and indicating, from among those available, which day you prefer the technician to come.

WE CANNOT BE HELD RESPONSIBLE FOR BREAKDOWNS OR MALFUNCTIONING, EVEN OF MACHINES STILL UNDER WARRANTY, IF THE USER HAS FAILED TO FOLLOW THE ESTABLISHED PREVENTIVE MAINTENANCE PROGRAM.

2.3 GENERAL SAFETY PRECAUTIONS

Each type of machine intervention requires a specific level of operator training. A graded list of operator skill levels has been prepared based on the various types of operations to be carried out, and will be referred to in all descriptions of operations requiring human intervention. It is as follows:

QUALIFICATION LEVEL 0.1 — Base level machine operator without special training capable of carrying out only simple tasks and running the machine through the controls located on the keypad.

QUALIFICATION LEVEL 0.2 — Second level machine operator without special training capable of carrying out all tasks included in Qualification 0.1 as well as running the machine with safety devices turned off or removed in order to perform simple start-up adjustments or restart operation once it has been forcibly halted.

QUALIFICATION LEVEL 1 — Qualified mechanical maintenance engineer capable of running the machine under normal conditions, operate it with safety devices turned off or removed and work with the machine's mechanical parts to carry out all adjustment, maintenance and repair operations necessary. Not qualified to work on the electrical system when power is on.

QUALIFICATION LEVEL 2 — Qualified electrical maintenance engineer capable of running the machine under normal conditions, operate it with safety devices turned off or removed and work with the machine's mechanical parts to carry out all electrical adjustments, maintenance and repair operations necessary. Also qualified to work on the circuits housed in the electrical and electronic circuit box when power is on.

QUALIFICATION LEVEL 3 — Service engineer provided by the manufacturer to carry out complex operations under special conditions, and always with the agreement of the user (see section 2.2).

All operations described in this instruction manual regarding the entire range of machine functions have been closely examined by PRISMA INDUSTRIALE s.rl., and therefore the number of operators and their respective qualification levels (see previous page) as detailed in the following table is that required for optimal machine performance.

NOT FOLLOWING THESE MANNING LEVELS COULD COMPROMISE MACHINE PERFORMANCE OR EVEN RESULT IN A DANGEROUS WORKING ENVIRONMENT FOR THOSE INVOLVED IN THE OPERATIONS DESCRIBED.

Operations	# Operators	Qualification
Machine assembly	1	1
Electrical connection	1	2
Daily starting-up routine	1	0.2
Normal operation	1	0.1
Minor adjustments	1	0.2
Mechanical maintenance	1	1
Electrical maintenance	1	2
Pneumatic maintenance	1	1
Special maintenance	1	1
	1	2
	1	3

2.4 PERSONNEL PROTECTION

It is extremely important that accepted safety norms be observed during all machine operations in order to avoid any risk that could arise during the normal production cycle. In particular, no mechanical adjustments should be made to the machine by personnel not wearing special protective gloves (see sections 2.3 and 2.5).

2.5 SAFETY MEASURES

Despite the fact that during the design of this machine exhaustive studies were made to identify any and all situations that could jeopardize safety, not all potential risk could be eliminated given the need for rapid format change. Listed below are those risks that remain and how to avoid them:

- If the ejection system located on the outfeed conveyor consists of a pneumatic cylinder and a pallet diverting the product from the line, and if no guards are installed on the outfeed conveyor, this part of the machine could be easily accessed.
- The electrical circuit does not come equipped with an AUTOMATIC CIRCUIT BREAKER which must be installed by the client, bearing in mind that the interruption capacity must be at least equal to 10 KA and based, in any case, on the short circuit current of the installation.
- Since the pneumatic circuit does not come equipped with a circuit breaker, the user must disconnect this circuit every time maintenance work is performed.
- The rollers and reduction units on the infeed, weighing and outfeed conveyors and the pulley attached to the reduction unit shaft are partially exposed and it is imperative that maximum attention be paid to these moving parts during normal machine operation.

To avoid possible risk, the following general conditions must be respected during machine use:

- Do not disconnect the machine's safety devices.
- Do not operate the machine in automatic mode when its protective shields are not in place.
- Adjustment operations necessitating a reduced safety level must be carried out by a single individual and, when these operations are being effected, the machine must be declared off-limits to unauthorized personnel.
- Following any repair work requiring a reduced safety level, the machine's protective safety devices must be re-activated as soon as possible.
- Whenever any part of the machine is washed, the electrical and pneumatic disconnecting devices must be switched on.
- The machine's coverings, panels and controls should be cleaned with a soft cloth, either dry or slightly moistened with a dilute detergent. Do not use solvents.
- Do not place heavy weights on the scale pan or subject it to blows or strong vibrations.
- Do not modify any part of the machine for any reason whatsoever.
- Only start-up the machine as intended at the time of ordering.

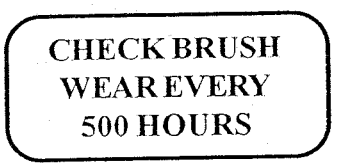
PRISMA INDUSTRIALE s.r.l. IS NOT RESPONSIBLE FOR ANY CONSEQUENCES OF MACHINE MALFUNCTION RESULTING FROM A LACK OF ADHERENCE TO THE ABOVE SAFETY PROCEDURES.

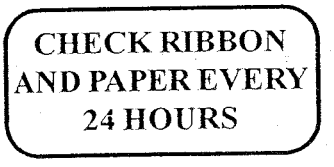
Explained below are the various warning signs that have been placed near the machine's high-risk zones.

This sign appears in the operational radius of the product ejection system. Operations cannot be carried out in this zone without previously having followed the applicable safety measures (e.g., disconnecting the electrical and pneumatic circuits):

This sign has been placed on the scalepan to indicate that, in order to avoid seriously damaging the machine, heavy weights should not be placed on the pan, nor should the weighing system be used for substances for which it was not intended.

The following warnings have been placed, respectively from left to right, on each direct current motor, each speed reduction gear and inside the printer, when present. They indicate the correct maintenance check intervals to be followed to avoid damage that could require special maintenance.





The following warning is has been prominently placed near the filter/reduction unit to remind operators that standard safety procedures must be observed.

PNEUMATIC CONNECTION TO THE MAINS MUST BE CARRIED OUT ACCORDING TO THE STANDARDS OF THE COUNTRY IN WHICH IT IS BEING USED.

TURN OFF PRESSION TO THE PNEUMATIC CIRCUIT AND DISCHARGE THE AIR WHENEVER MAINTENANCE WORK IS TO DONE.

The following warning is prominently placed either on the inside of the protective covering (when present) or on the outside of the electrical box to remind operators that standard safety procedures must be observed.

ELECTRICAL CONNECTION OF THE MACHINE TO THE POWER LINES MUST BE CARRIED OUT ACCORDING TO THE STANDARDS OF THE COUNTRY IN WHICH IT IS BEING USED.

THE END USER MUST PLACE AN AUTOMATIC CIRCUIT BREAKER WITH AN INTERRUPTION CAPACITY ADEQUATE TO THE INSTALLATION'S SHORT CIRCUIT CURRENT (AT LEAST EQUAL TO 10KA) UP LINE FROM THE BIPOLAR ISOLATOR LOCATED ON THE MACHINE.

Finally, the following notice summarizing the most important warnings and advice has been placed on the main body of the machine near the weighing system. These warnings and advice must be followed in order to avoid creating hazardous situations and to prevent damaging the machine and/or its parts. (Also see Chapter 2 MACHINE OVERVIEW, Chapter 4 INSTALLATION, Chapter 5 PREPARING TO OPERATE THE MACHINE and Chapter 6 START-UP).

DO NOT:

- OBSTRUCT THE MACHINE'S PROTECTIVE SAFETY DEVICES
- OPERATE THE MACHINE WHEN ITS PROTECTIVE DEVICES ARE NOT IN PLACE
- PLACE HEAVY WEIGHTS ON THE WEIGHING PAN OR SUBJECT IT TO BLOWS
- USE SOLVENTS TO CLEAN THE MACHINE
- MODIFY MACHINE PARTS

BE SURE TO:

- CLEAN THE MACHINE WITH ITS ELECTRICAL AND PNEUMATIC ISOLATORS ACTIVATED
- CLEAN THE MACHINE WITH A DRY CLOTH OR ONE SLIGHTLY MOISTENED WITH A DILUTE DETERGENT
- START UP THE MACHINE AS INTENDED AT THE TIME OF ORDERING
- LIMIT ACCESS OF UNAUTHORIZED PERSONNEL WHEN REPAIR WORK IS BEING DONE ON THE MACHINE WITHOUT ITS PROTECTIVE DEVICES IN PLACE
- REACTIVATE ALL THE MACHINE'S PROTECTIVE DEVICES AS SOON AS POSSIBLE AFTER REPAIR WORK HAS BEEN COMPLETED

The operator should always adhere to basic safety procedures, and in particular observe the following:

- This warning sign should be placed near the machine while maintenance operations are being carried out to keep personnel not involved away from the immediate work area:

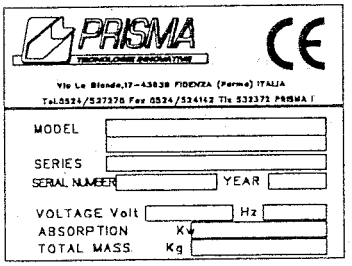
- This warning sign should be placed on the main electrical circuit breaker as well as the pneumatic circuit isolator switch:

The following warnings are extremely important in order to avoid electrical current-related risks:

WHENEVER MAINTENANCE OPERATIONS MUST BE CARRIED OUT ON THE PNEUMATIC CIRCUIT, CUT OFF CIRCUIT PRESSURE BY CLOSING THE INPUT VALVE AND RELEASING ANY AIR LEFT IN THE MACHINE CIRCUIT.

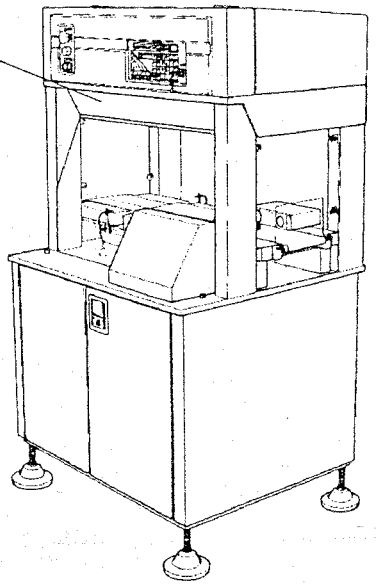
THE END USER MUST PLACE AN AUTOMATIC CIRCUIT BREAKER WITH AN INTERRUPTION CAPACITY ADEQUATE TO THE INSTALLATION'S SHORT CIRCUIT CURRENT (AT LEAST EQUAL TO 10KA) UP LINE FROM THE BIPOLAR ISOLATOR LOCATED ON THE MACHINE.

2.6 MACHINE I.D. PLATE



The machine's I.D. plate is located on the outside of the electrical box.

All the machine's identifying data have been engraved on this plate, and this information must appear in all communications between the user and manufacturer, for example for technical assistance requests, ordering spare parts, etc.



REMOVAL OF OR TAMPERING WITH THE I.D. PLATE IS STRICTLY PROHIBITED.

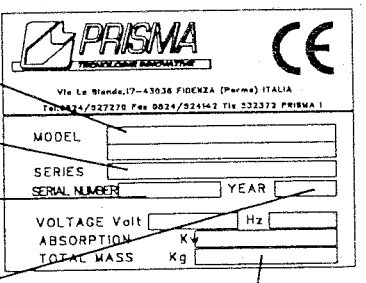
The following data has been inscribed on the plate:

MODEL:
Identifies the machine model.

SERIES:
Identifies the machine type.

NUMBER:
Gives the machine I.D. number.

YEAR:
Year the machine was built.



Important information for machine installation and connection:
VOLTAGE, ABSORPTION and TOTAL MACHINE WEIGHT.

3. HANDLING AND STORAGE

3.1 GENERAL PRECAUTIONS

This machine houses extremely delicate components. Placing heavy weights on the scalepan under which the weighing system is located, or overloading or subjecting it to sudden, intense blows CAN CAUSE SERIOUS DAMAGE.

ALL MACHINE HANDLING AND MOVING MUST BE CARRIED OUT BY QUALIFIED, AUTHORIZED PERSONNEL FOLLOWING ACCEPTED SAFETY NORMS.

3.2 PACKING AND UNPACKING

For shipping the machine can be packed in two ways:

1) Completely wrapped in polythene blister-wrap which adheres to the machine.

2) Completely wrapped in polythene blister-wrap and secured inside a wooden cratewhich,unless otherwise specified, enables the machine to be examined without dismantling of the crate.

In the first case, to unpack the machine, remove the polythene wrapping.
In the second case, to unpack the machine first open the wooden crate, then remove the polythene wrapping and finally release the machine from the base of the crate by removing any fastenings securing the feet of the machine to its wooden base.

3.3 TRANSPORTING THE PACKED MACHINE

Given the fact that the machine can be packed in two different ways (as described in section 3.2) two different methods of transport are required.
If wrapped in polythene only, the machine must be transported by means of a forklift truck able to support a mass greater than that indicated in paragraph 3.6 and equipped with two parallel forks long enough to be inserted at two points equidistant from the structure's barycentre, as illustrated in the figure below.

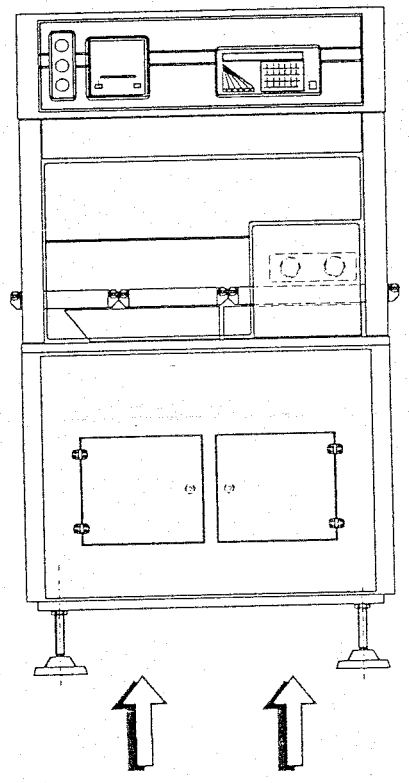


Figure 3.3.1 Forklift insertion points (lifting from below) for moving the machine when wrapped in polythene sheets only.

If the packing involves both the polythene film and wood crating, the machine must be moved as a unit by inserting the forks under the wood crate as illustrated below. A forklift capable of supporting the combined weight of the machine and its packing, as laid out in section 3.6, must be used.

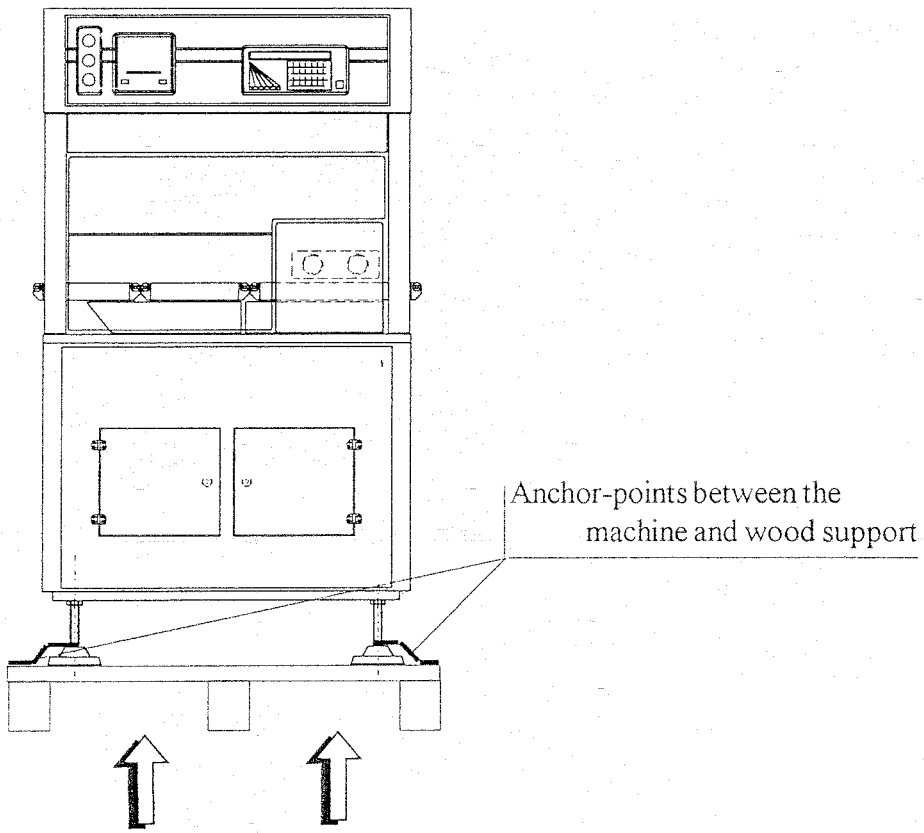


Figure 3.3.2 Forklift insertion points for moving the unit onto the wooden structure before removing the anchoring devices.

3.4 TRANSPORTING THE UNPACKED MACHINE

The unpacked machine can only be transported if the locking brackets (a) and spacers (b)(Figure 3.4.1) have not been removed; only handle the machine when these parts are fitted in place in order to avoid damaging the weight reading system.

When moving the unpacked machine it is very important not to subject the weighing conveyor to blows or place weights on it, as the delicate weight detection system is located under it.

FOR SAFETY REASONS, WHENEVER THE ALREADY UNPACKED MACHINE IS TO BE MOVED, BE SURE TO DISCONNECT BOTH THE ELECTRIC AND PNEUMATIC CIRCUITS.

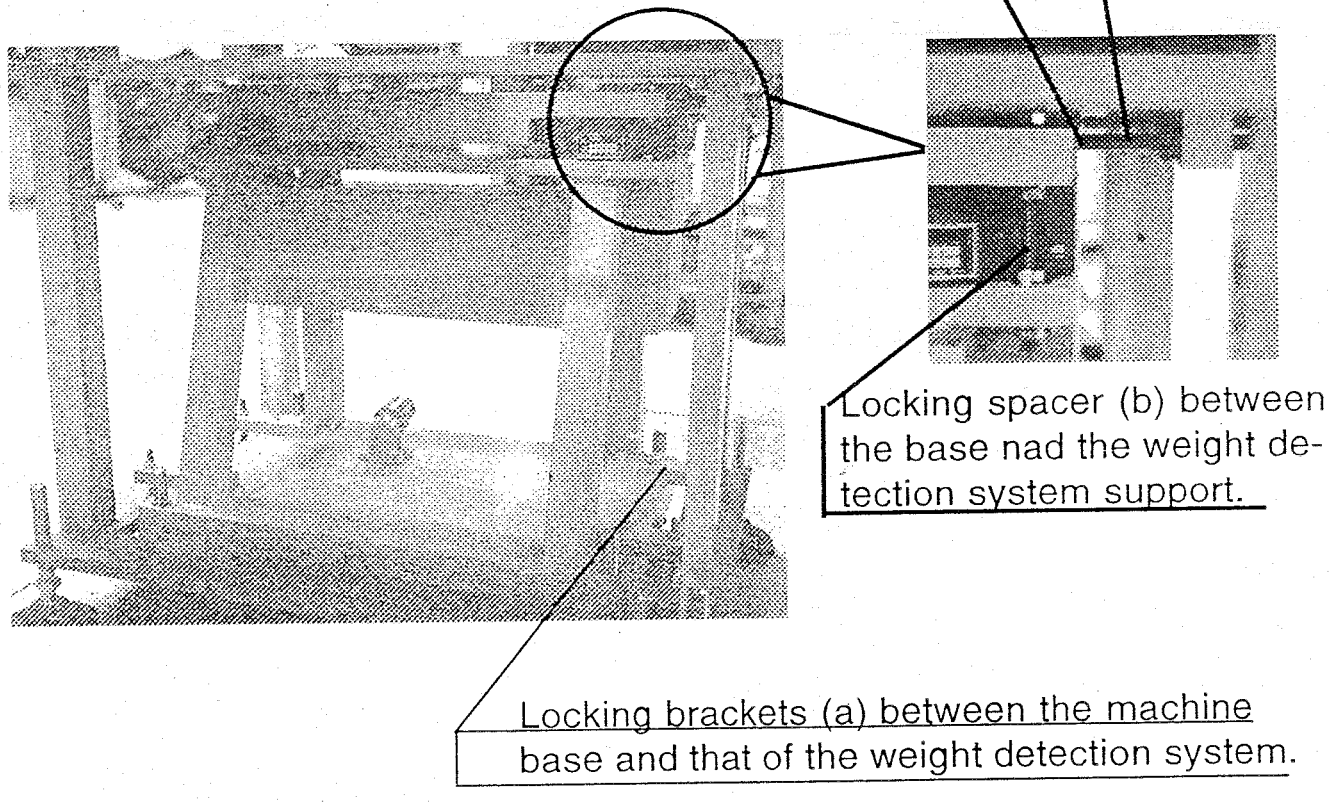


Figure 3.4.1

3.6 MASS TABLE

The machine is made up of two separate units which must be mechanically connected to each other for trasportation purposes (see paragraph 3.4).

COMPONENT	MASS (Kg) max
Standard version of machine	280 Kg
Version of machine with detection system fitted on the vibration dampers	400 Kg
Wooden packaging	100 Kg

3.6 MASS TABLE

The machine is made up of two separate units which must be mechanically connected to each other for trasportation purposes (see paragraph 3.4).

COMPONENT	MASS (Kg) max
Standard version of machine	280 Kg
Version of machine with detection system fitted on the vibration dampers	400 Kg
Wooden packaging	100 Kg

4. INSTALLATION

4.1 GENERAL PRECAUTIONS

Before commencing actual machine installation on-line, to insure operator safety, read Chapters 2 and 3, MACHINE OVERVIEW and HANDLING AND STORAGE.

CARRY OUT ALL INSTALLATION PROCEDURES WITH UTMOST CARE SINCE HEAVY WEIGHTS AND SUDDEN BLOWS CAN CAUSE SERIOUS DAMAGE TO THE SCALEPAN AS WELL AS THE UNIT AS A WHOLE.

4.2 ENVIRONMENTAL CONDITIONS

The technical specifications laid out in the contract of sale must be respected regarding the environmental conditions for machine operation. These can vary according to the type of product the machine is intended for, for example alimentary or pharmaceutical products, etc.
However, there are some basic requirements that will guarantee good operational results. In particular, the following conditions should be avoided or eliminated: drafts that could affect weighing and create false results, wide temperature swings (see section 1.3 TECHNICAL DATA) that could cause condensation within the electrical and electronic parts, and blows or strong vibrations that could not only create false results, but also damage the weighing system itself.
Static electricity and noise on the electrical lines are also extremely dangerous and can cause data loss as well as irreparable damage to the delicated weighing mechanism. These hazards must be eliminated by adopting the appropriate remedy.
If the machine is to remain inactive for more than one (1) month, please read section 3.5 STORAGE.
Should you have any doubts about specific environmental conditions, consult PRISMA'S TECHNICAL ASSISTANCE SERVICE.

4.3 ASSEMBLY COMPLETION

This type of machine is delivered fully assembled and therefore does not require further assembly before being positioned on-line. Be sure to position the machine before removing the protective shipping bars (see sections 3.4 TRANSPORTATION OF UNPACKED MACHINE and 4.5 REMOVING THE PROTECTIVE SHIPPING BARS).

4.4. COUPLING

When combining the machine with other units positioned up- and down-line, it is important to remember that the unit cannot be physically connected to any other kind of external component. In particular, there must never be electrical conductivity between the checkweigher and other external units, unless connected through the ground lead of the terminal board.
One in position on the line, unless otherwise specified, the machine must be perfectly horizontal and the other units up- and down-line must be able to guarantee smooth package flow.
To complete the machine's installation onto the line, the brackets must be removed as described in paragraph 4.5 REMOVING THE BRACKETS.

4.5. REMOVING THE BRACKETS

When the coupling operation has been completed, the two brackets (a) and four spacers (b), indicated in figure 3.4.1, must be removed; then the machine placed perfectly on the level and regulated for height by adjusting its feet.

Ensure that there is no contact between the spacer (c) and the weight detection system support structure; there should be a gap of 1-2 mm. as shown in figure 3.4.1 of paragraph 3.4. In order to make this gap, distance the machine unit from that of the weight detection system.

4.6 ELECTRICAL CONNECTION

Connect the machine to the electrical mains by bringing the electrical cable inside the electrical control box, shown in figure 4.6.1, using the terminal block provided and referring to the drawings included in section 8.2 ELECTRICAL DIAGRAMS.
Before connecting the machine, MAKE SURE that the electrical frequency and voltage values found both on the plate attached to the machine and in section 1.3 TECHNICAL DATA, correspond to those of the mains.
Note that the main circuit breaker must be placed on line by the user, taking into consideration the machine's power requirements as specified on the attached plate and in section 1.3 TECHNICAL DATA.
If in doubt, before connecting the machine, consult PRISMA'S TECHNICAL ASSISTANCE SERVICE (also see section 2.2 TECHNICAL ASSISTANCE).

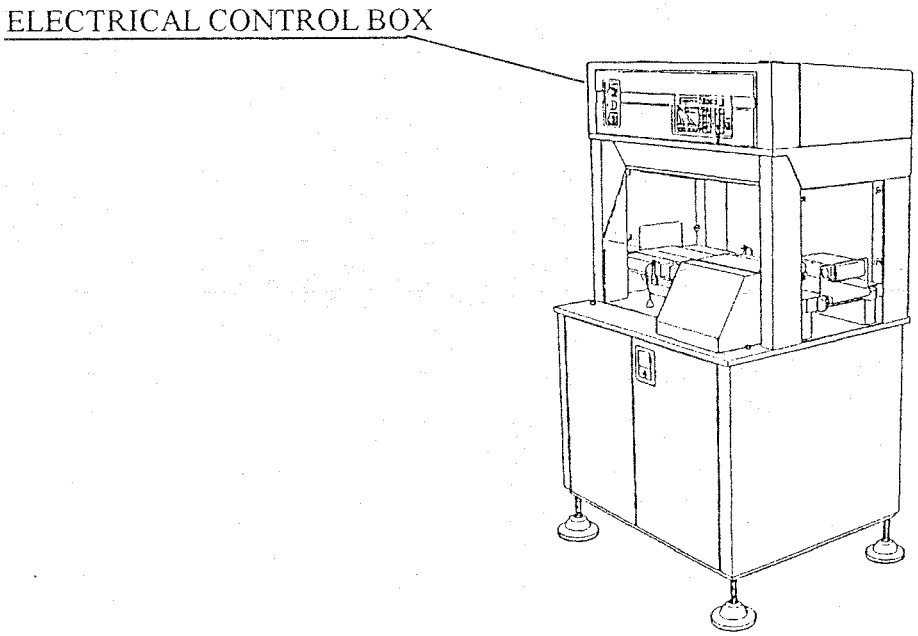


Fig. 4.6.1

MACHINE CONNECTION TO THE ELECTRICAL MAINS MUST BE UNDERTAKEN IN CONFORMITY WITH THE REGULATIONS IN FORCE IN THE COUNTRY IT IS BEING OPERATED.

THE END USER MUST PLACE AN AUTOMATIC CIRCUIT BREAKER WITH AN INTERRUPTION CAPACITY ADEQUATE TO THE INSTALLATION'S SHORT CIRCUIT CURRENT (AT LEAST EQUAL TO 10KA) UP LINE FROM THE BIPOLAR ISOLATOR LOCATED ON THE MACHINE.

4.7 PNEUMATIC CONNECTION

The machine has a single pneumatic system that controls a Filter/Reduction unit that can be clearly seen on the machine frame.
Refer to section 1.3 TECHNICAL DATA for acceptable pressure levels.
If in doubt, before connecting the machine, consult PRISMA'S TECHNICAL ASSISTANCE SERVICE (also see section 2.2 TECHNICAL ASSISTANCE).

PNEUMATIC CONNECTION OF THE MACHINE TO THE ELECTRICAL MAINS MUST BE UNDERTAKEN IN CONFORMITY WITH THE REGULATIONS IN FORCE IN THE COUNTRY IT IS BEING OPERATED.

5. PREPARING TO OPERATE THE MACHINE

5.1 GENERAL PRECAUTIONS AND CONDITIONS

This machine was designed to automatically carry out continuous weight check. All its various units must only be used as specified in the machine's contract of sale and not for any other purpose.
In addition, all regulations currently in effect in the country in which the machine will be operated must be respected.
If it has not already been read, please consult Chapter 2 MACHINE OVERVIEW before proceeding.

PRISMA INDUSTRIALE s.r.l. IS NOT RESPONSIBLE FOR DAMAGE TO PERSONS, ANIMALS OR PROPERTY CAUSED BY IMPROPER MACHINE USE.

5.2 CONTROLS AND SIGNALS

The following controls (illustrated in figure 5.2.1) are located on the upper part of the machine's electrical control box:

- **Run button**
- **Power light**
- **Stop button**
- **Keypad for programming**
- **Alphanumeric display**

The **run button** is activated after the machine has been connected to the electrical mains and the **power light** is on, to start up the conveyors which are subsequently halted using the **stop button**. Both buttons as well as the power light are labelled with their function to ease identification.
The **keypad** is used to enter program data and display production information.
The **alphanumerica display** displays in turn entered and processed data, but without displaying production graphs (see section 5.6 DESCRIPTION OF KEYPAD AND DISPLAY).

- Located inside the machine's electrical control box there are also **three potentiometers** through which the speed of the conveyors can be adjusted. If a supplementary card that uses the relevant program parameters to make speed adjustments is present, these three potentiometers will NOT be installed.

- **Personal computer for the management of a network of machines (on request).**
Programming and production management may also be supported by a centralized data system that utilizes a Personal Computer and allows two-way operation of a minimum of one and a maximum of 32 machines.

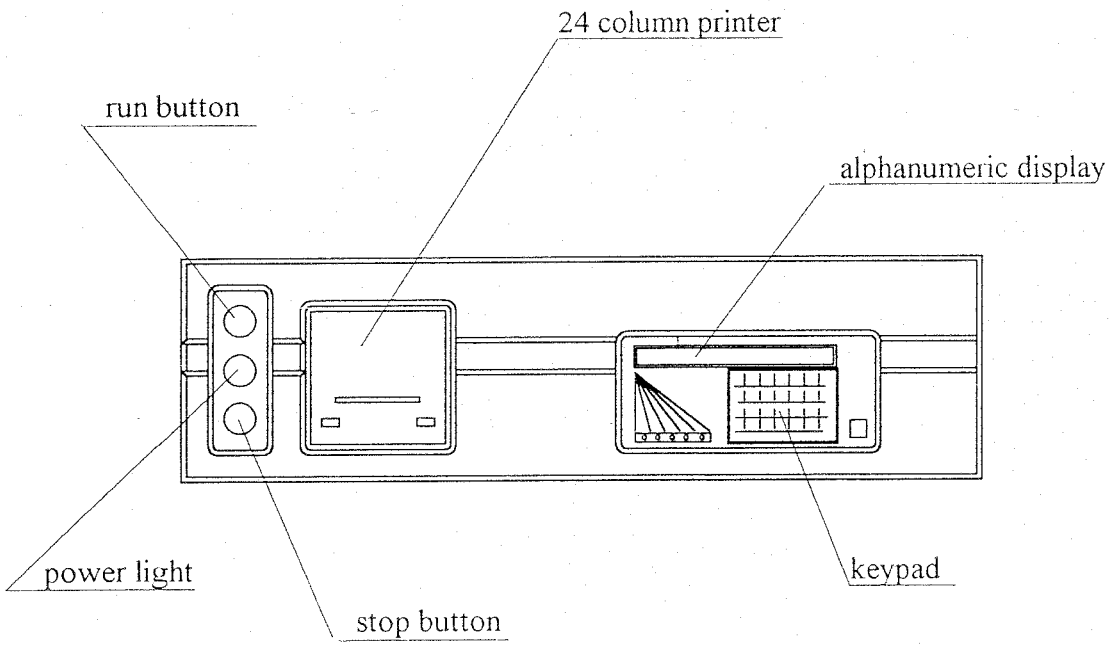


Figure 5.2.1

5.3 SAFETY DEVICES

This very important section describes all machine safety devices, both fixed and movable, and is divided into two parts: 1) mechanical devices and 2) electrical devices.

PRISMA INDUSTRIALE s.r.l. IS NOT RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONS, ANIMALS OR PROPERTY RESULTING FROM UNAUTHORIZED MODIFICATIONS TO THE MACHINE'S SAFETY SYSTEM.

All mechanical safety devices located on the machine and indicated in Fig. 5.3.1 are fixed, but may be removed by means of a simple setscrew wrench. Only the front protection is openable thanks to hinges. A safety microswitch can be present on it in order to stop the machine working in case of opening.

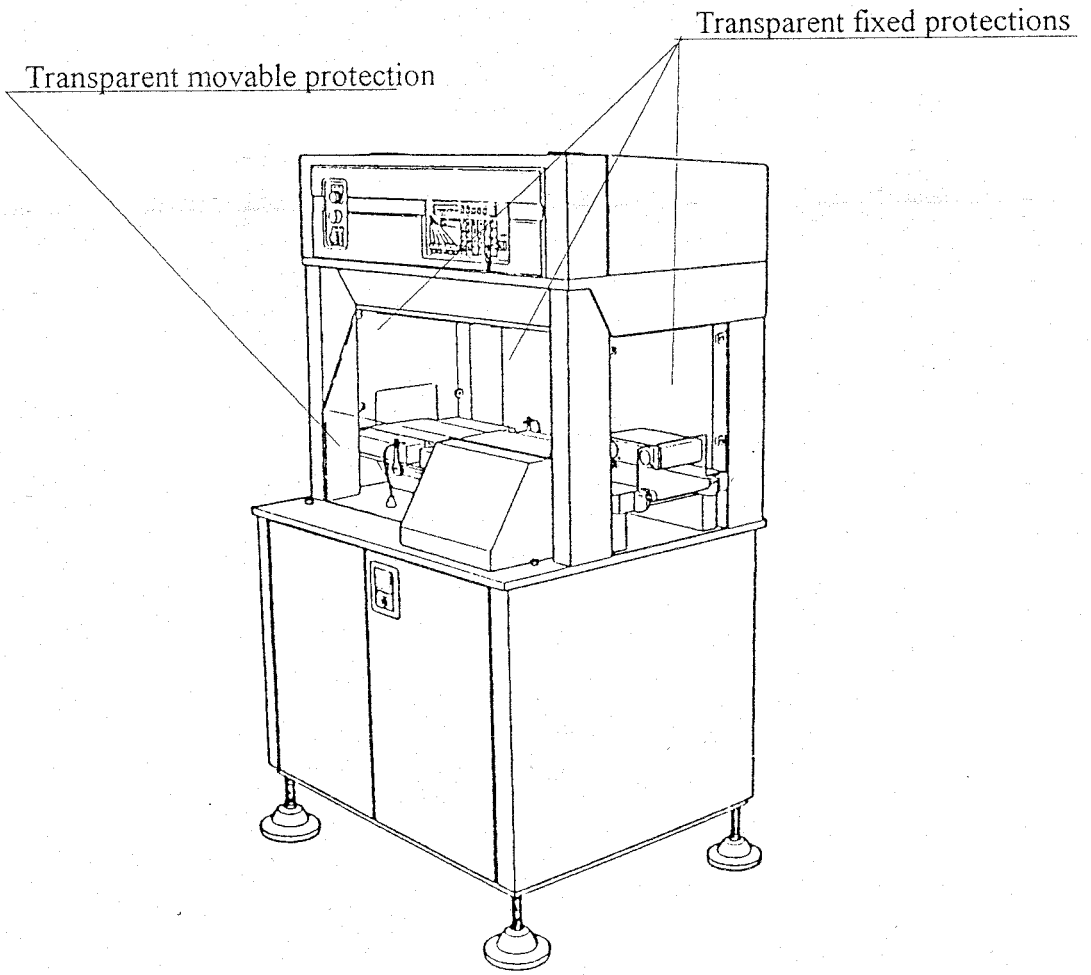


Figure 5.3.1

Part of the system of electrical safety devices consists of the fuses (see the electrical diagrams for voltage values) for the infeed and outfeed conveyors as well as all other machine voltages. The installation has been designed to include an on-line bipolar isolator, as illustrated in figure 5.3.4, followed by a magnetothermic switch that meets the requirements laid out in section 8.2 ELECTRICAL DIAGRAMS.

THE END USER MUST PLACE AN AUTOMATIC CIRCUIT BREAKER WITH AN INTERRUPTION CAPACITY ADEQUATE TO THE INSTALLATION'S SHORT CIRCUIT CURRENT (AT LEAST EQUAL TO 10KA) UP LINE FROM THE BIPOLAR ISOLATOR LOCATED ON THE MACHINE.

The main isolator can be locked and therefore set to zero for maintenance purposes. Bear in mind, however, that even when locked inthe zero (0) position, i.e., circuit sectioned off, ELECTRICAL CURRENT IS STILL PRESENT in the terminal screws that connect the mains cable to the isolator. Therefore, for maintenance purposes, we recommend that the electricity be shut off up-line at the line isolator.
As described in section 5.2 CONTROLS AND SIGNALS, the front part of the electrical control box also contains a stop button that halts the conveyors which can then be re-activated by pressing the run button (see figure 5.2.1).

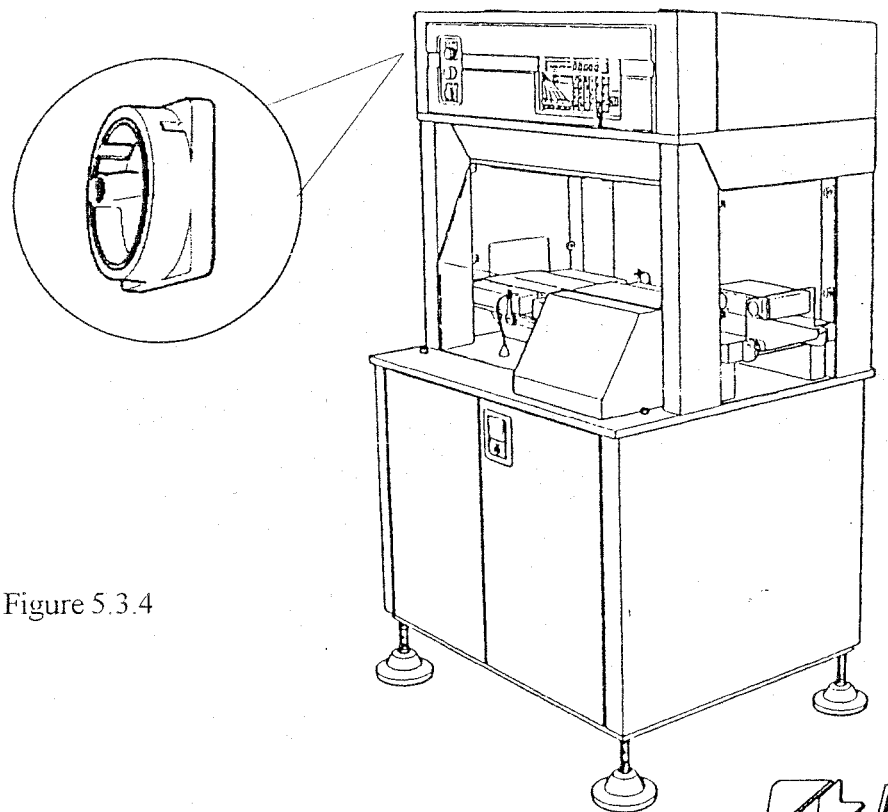
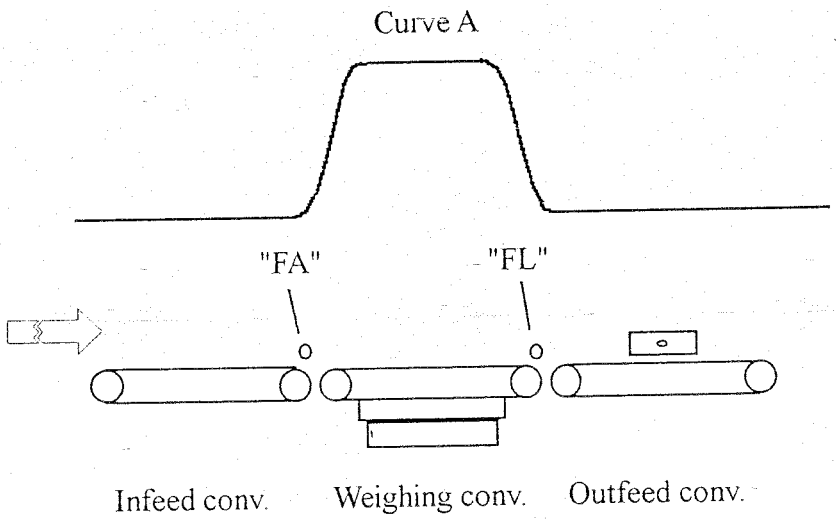


Figure 5.3.4

5.4 PRINCIPLES OF OPERATION

The packages to be checked, arriving from a separate packaging machine, are taken up by the INFEED CONVEYOR which equally spaces them out and transports them at the correct line speed. The packages pass in front of a photocell labelled "FA" that checks that they are distanced properly and then onto the WEIGHING CONVEYOR at the end of which is located another photocelle ("FL") that defines the precise moment the package is weighed and synchronizes those packages that are unweighable or outside set weight limits that must be ejected.
After being weighed, the packages move onto the OUTFEED CONVEYOR on which the diversion system for the packages on the line is located.

Fig. 5.4.1



As the packages moves along the scalepan it enters the weighing unit until the point in which the bend flattens out creating "Curve A" (see figure 5.4.1). It then moves onto the outfeed conveyor where the ejection system, which is synchronized by the "FL" photocell, is located.

5.5 DESCRIPTION OF THE ELECTRONIC UNIT

The Model C8 digital electronic unit is made up of a series of EUROPA-model cards housed in a rack for easy insertion and removal of specific-task cards.
The electronic unit, of standard design as illustrated in figure 5.5.1, interfaces with the operator through a front panel made up of keypad and display (a Personal Computer can also be used, if desired).
Model C8 has a number of automatic functions, the most important of which include:

- Continuous electronic self-calibration between weighings to guarantee that the initial weighing zero is always constant.

- Sending and/or receiving of data to/from a central computer unit, either already in the customer's possession or supplied by us.

- Division into five (5) pre-set weight categories and real-time display of the pertinent category on the monitor or alphanumeric display.

- Storage of one hundred product formats with their relative characteristics that can be driven either from the control panel or remote device.

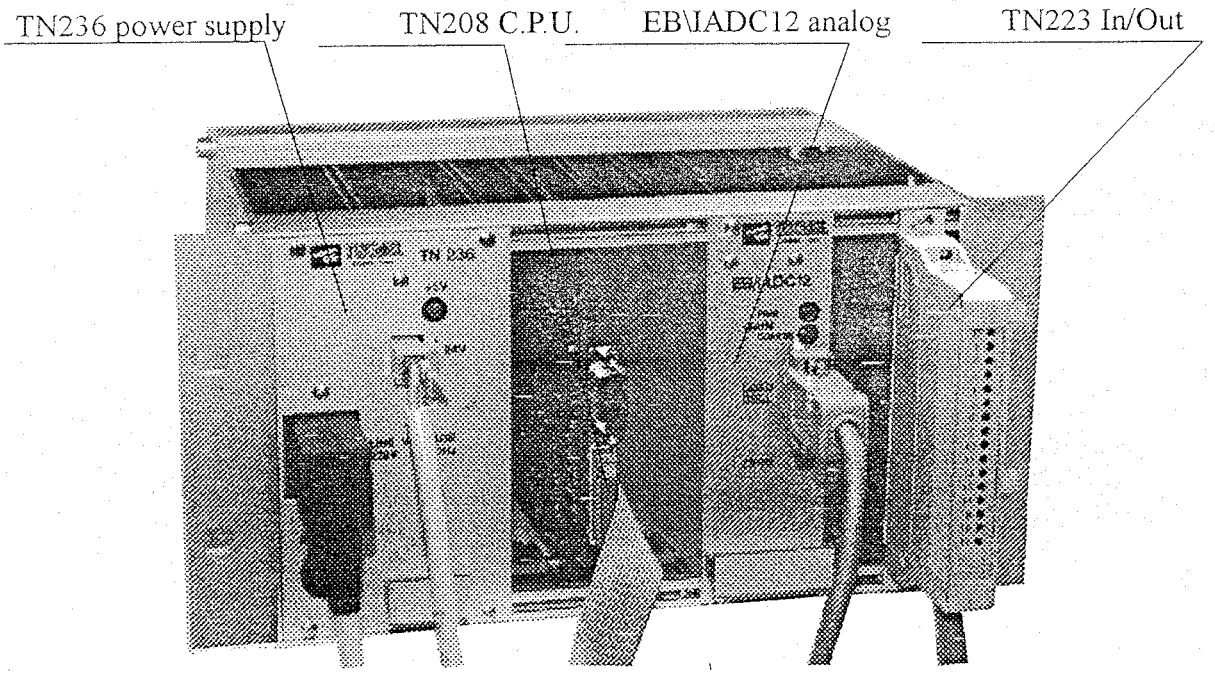


Figure 5.5.1

5.6 MEMORY STRUCTURE

Before examining how programming controls the actual running of the machine, a general explanation of how its memory and programs are structured is in order.
The machine's memory should be thought of as a single area subdivided into a number of smaller parts, in this case one hundred (100), called "programs". Each program is further divided into four groups or pages of data called "SETUP", "RUN + *", "RUN" and "CALIB" (see Fig. 5.6.1).
Each program also has a section of data in common for the operator during normal machine operation to check production that cannot be displayed or accessed.
Each program contains specific data for a single product and production type (format) and can be called up from memory at any time and changed. The procedures for storing and retrieving data for the various programs is explained in Chapter 6 START UP.

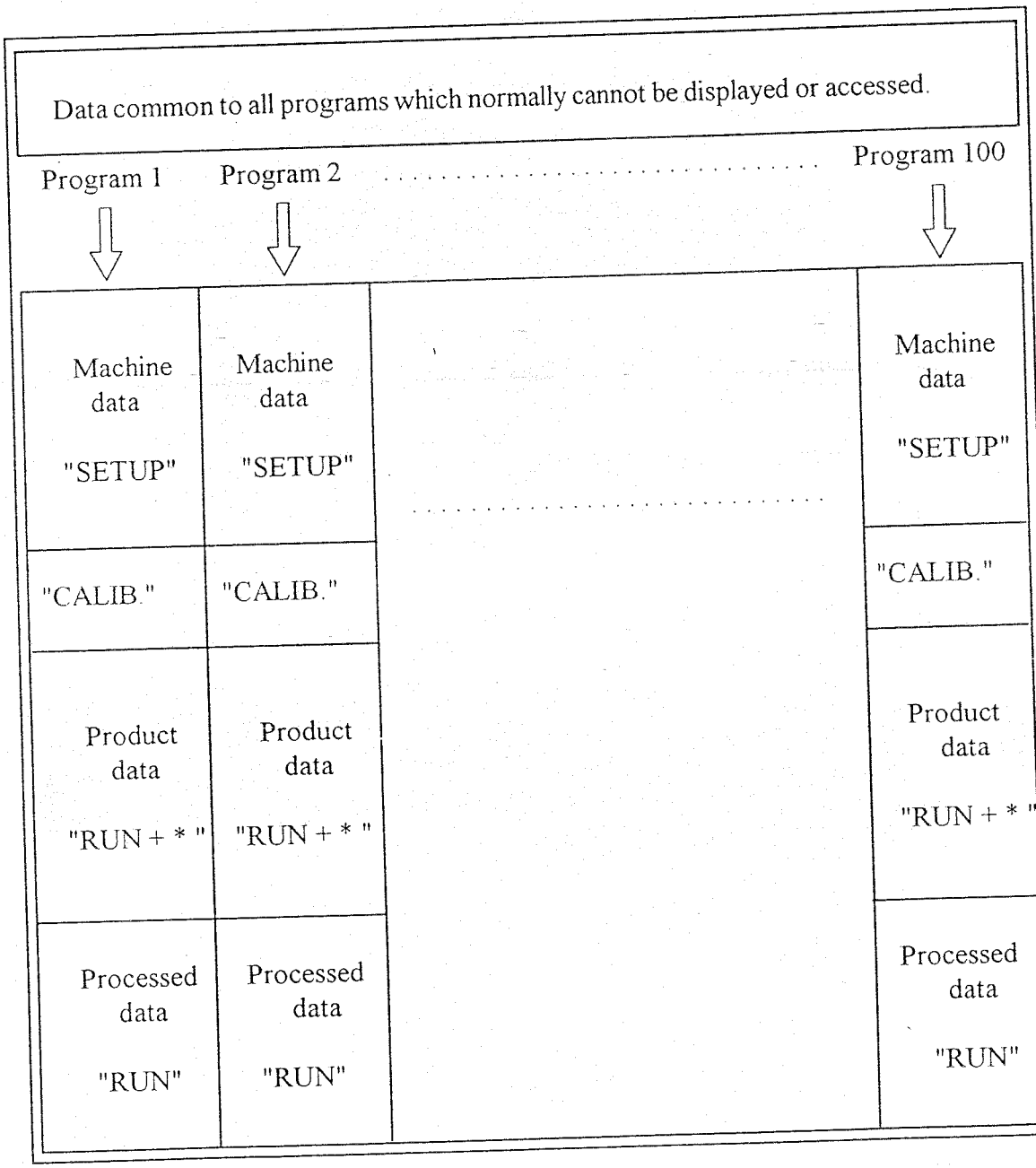
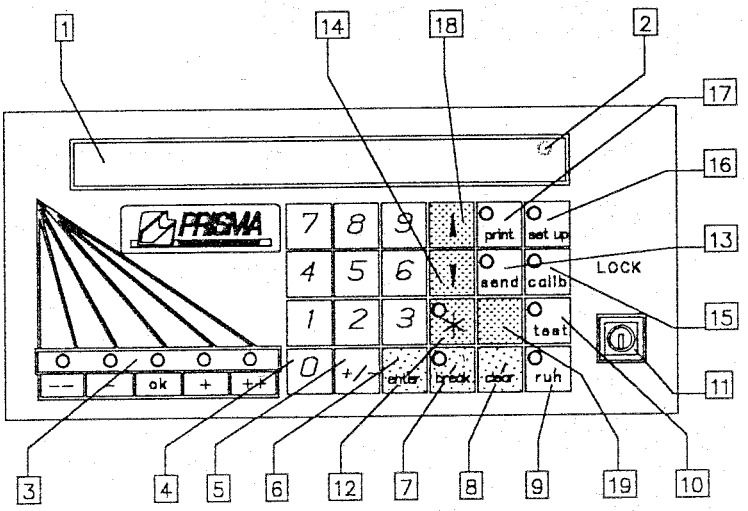


Figure 5.6.1 MEMORY SUBDIVISION

5.7 DESCRIPTION OF THE KEYPAD AND DISPLAY

The keypad and display represent the means of communication between the operator and the machine. This section explains each of the keypad components and their function for displaying or programming data.
The standard version comes equipped with the display shown in Fig. 5.7.1, but it can also be run from a personal computer if desired.

Fig. 5.7.1



The numbers in Fig. 5.7.1 refer to the descriptions found on the pages that follow.

THE KEYPAD PERMITS DIRECT ACCESS TO THE MACHINE'S COMPUTER SYSTEM. PROGRAM DATA SHOULD ONLY BE MODIFIED BY PERSONNEL POSSESSING EXCELLENT KNOWLEDGE OF MACHINE FUNCTIONING. PRISMA INDUSTRIALE s.r.l. IS NOT RESPONSIBLE FOR DAMAGE CAUSED BY IMPROPER PROGRAMMING.

Description of the front panel components:

PART	DESCRIPTION

1 Alphanumeric data display. Only displays the parameter and its value (does not display production graphs).

2 Signals that self-calibration has been completed. Lights up briefly when, through the "FA" photocell (see Fig. 5.4.1), the machine electronics runs a self-calibration cycle, i.e., calculates the new zero value of the checkweighing system.

3 Lights up briefly the symbol of the weight category the packages being weighed belong to. These categories are specified according to weight limits entered by the production manager.

4 [0] ..... [9]

Numeric keypad zero (0) to nine (9) used to enter program data.

5 [+/-]

Changes the algebraic symbol (+/-) that appears before the number to be entered.

6 [enter]

Renders newly-keyed data operative BUT NOT DEFINITIVE. The new data values will continue to flash until this key is pressed. To change or erase this data and return to the previously-entered value, press key #7 (BREAK) instead of this key.

7 [O break]

Interrupts the current data stream being input, returns to the previously-stored values and definitively cancels any on-going status alarms if the cause of the alarm has been solved, or provisionally if the cause has not been eliminated (the alarm will re-appear after a few seconds).

8 [clear]

Cancels the data values currently appearing on the display (processed data). If pressed together with the "ENTER" key, all processed data values are cancelled and these values are then sent to a printer or data storage device.

PART DESCRIPTION

9 

Normal operation key. When activated, the machine is ready to weigh in-coming packages, eject those not conforming to set weight limits, store production data, communicated with a remote unit, run the system and handle any alarm situations that might arise.

10 

When this key is pressed, the machine regularly checks the packages and, if necessary, removes them from the production line, but does not increment the counters that keep track of the total number of pieces and their relative categories, does not up-update calculations and cannot communicate with any peripheral devices.

11 

Mechanical key which, if not inserted, blocks data modification, but allows previously-stored programs to be called up using the "ARROW" keys (#14 and #18).

12 

When the RUN key (#9) is activated, allows various parts of the program currently being used to be displayed. As seen in Fig. 5.6.1, the two parts of the program that can be switched back and forth between are "RUN - processed data" and "RUN + * - product data".

13 

Transmits data in manual mode. Pressing this key transmits data to a remote computer unit but not through the parallel port and the processed data is not cancelled.

14 

This key displays the various parameters contained in the current page. The information on the page can be scrolled through by holding the key down.

15 

This key allows access to the procedures for adjusting the "sensibility" and "full scale" of the checkweigher, as well as the calibration of the metal detector. Because ideal regulation values are linked to the data entered in the "Machine data SET-UP" page, refer to the data contained both in the table located inside the machine as well as that in Chapter 9 APPENDICES.

PART DESCRIPTION

16 

Pressing this key accesses a part of the data included in the "Machine data SETUP" page. Because the data contained in the "Machine data SETUP" page are linked to product type, operating speed and physical characteristics of the system, refer to the data contained both in the table located inside the machine as well as that in Chapter 9 APPENDICES.

17 

Command to transmit data in manual mode. Pressing this key sends the data to the parallel port only and processed data is not cancelled.

18 

This key displays the various parameters contained in the currently-active page. The material can be scrolled through by holding down the key.

19 

In the standard model, this is the only yellow key without a label and has no function.

5.8 DESCRIPTION OF MACHINE PARAMETERS

As previously described, data is displayed on an alphanumeric display with large-size characters and divided into two parts: on the left the function description and on the right its numeric value (either the entered or processed value).

Before examining the individual parameters in detail, please note the following:

-Always use ARROW keys 14 and 18 to examine parameters, following the instructions laid out below.

-Pressing the two ARROW keys simultaneously displays the first parameter on the active page.

- To change data, enter the new value, press "ENTER" and permanently store it using the **"STORE?"** parameter located on the "Product data RUN + * " page.

- On the "Product data RUN + * " and "Machine data SETUP" pages, any value may be disactivated and consequently cleared from the display if, while the value is being displayed, the "CLEAR" and "BREAK" (CLEAR + BREAK) keys are pressed simultaneously.

- To re-display the data values disactivated by the "CLEAR + BREAK" keys, press and hold down the "ENTER" key while simultaneously pressing the two "ARROW" keys.

- After the booster battery has been replaced, or when a C.P.U. that has never been programmed is turned on, in order to be able to enter data, the "CLEAR" and " * " (CLEAR + *) keys must first be pressed, and while, holding them down, electrical power sent to the machine.
This allows the program to reset the standard machine and logic values to allow for future data modification that otherwise could not be effected.

- A jumper labelled J8 is present on the C.P.U. which is used to enable the EPROM program. If the jumper is not activated, the program present in the C.P.U.'s RAM will be enabled.

- The J4 jumper located on the TN 223 In/Out card allows the speed to be read in two different ways:
1) If the jumper is set to the 100 Hz side, the system will use the frequency generator located on the power supply card. The signal present at input 107 will be ignored.
2) If the jumper is set to the IN7 side, the 107 input signal will be used which is normally generated by a tachymetric sensor located on the outfeed conveyor.

- A J3 jumper located on the TN223 In/Out cards must be present on any In/Out card that may be added (jumper not normally present) to change the address of the values.

- The parameters regarding the metal detector (not present in this model) are usually all disactivated, and in any case have no impact on machine functioning.

Described below are the parameters contained in the system data page common to all programs and which may only be accessed by service personnel: SET UP + ENTER TOGETHER

PARAMETER	DESCRIPTION
Min Weight PASAGE MIN 2.0 :	From 00002 to 15000. Expressed in grams and indicates the minimum weight the machine will recognize. If the weighing system registers a weight below that which has been set for this value, the **"UNDERWEIGHT"** alarm is triggered.
Max Weight PASAGE MAX 500.0 :	From 00002 to 15000. Expressed in grams and indicates the maximum weight the machine will recognize. If the weighing system registers a weight above that which has been set for this value, the **"OVERWEIGHT"** alarm is triggered.
Resolution 01 :	From 00 to 11. The parameter which determines machine resolution, i.e., to the gram or tenth of a gram. The resolution level is specific to the machine model and is therefore determined by construction factors (see table in Fig. 5.8.1)
Full Scale BAS ECHELLE 03 :	From 1 to 6. This value, which SHOULD NOT be changed, is linked to machine, production and product characteristics. Changing this value could affect the functioning of the checkweigher since it alters the number of divisions of the signal emanating from the weighing system.
Stable Wgt. POIDS STABLE 001.0 :	From 0 to 250. Expressed in grams, it is the maximum acceptable range for the signal coming from the weighing system for carrying out its weighing and self-calibration readings. This value SHOULD NOT be changed.
mS Average MS MOYEN REG 064 :	From 10 to 200. Expressed in milliseconds (0.001 sec), it describes the size of the parts into which the signal curve arriving from the weighing system is divided. This value SHOULD NOT be changed.
mS Tare Int. 0050 :	From 50 to 8000. Time in milliseconds of the stable signal, i.e., the time following the passage of the last package meeting the preset **Stable Wgt.** limits in front of the "FA" photocells before the machine self-calibrates (see Fig. 5.4.1), i.e., recalculates the new zero value for the signal coming from the scalepan.

PARAMETER		DESCRIPTION
Dynamic Diff 0	:	From -9999 to +9999. The value of the CONSTANT difference between the statically-read weight, i.e., the real weight and the dynamically-read weight. This value is added or subtracted to each weight reading, and must be calculated when the machine is ready for production on-line and for each different format.
mm x pulse 0 4.9	:	From 01 to 10. Expressed in millimeters, it is used to correctly carry out all calculations and is equal to the advancement in millimeters of the conveyor belt for each pulse that arrives at the speed sensor in gate on the TN223 In/Out card. This sensor is normally made up of a sensor that reads the teeth of a pulley attached to the drive shaft of the outfeed conveyor on which the system that shunts off-line the packages not conforming to specifications is located.
mm pcs. dist PRS OBJECT 0200	:	Minimum 50. The smallest acceptable distance between the objects passing over the scalepan. If this distance is not respected, the **"PCS. DISTANCE"** alarm is triggered. This value is fixed, and is equal to, or slightly larger than, the distance between the "FA" (self-calibration) and "FL" (read) photocells.
mm FL - - > FC 100		From 100 to 2500. The real distance in millimeters between the "FL" (read) photocell and the expulsion control photocell normally located immediately after the ejectors.
mm FL - - > MD 100	:	Not used on this type of machine.
mm FL delay READ FL 000	:	From 00 to 50. This value, which SHOULD NOT be modified, is used to delay, in millimeters, the "FL" (read) photocell signal and is therefore equivalent to the physical displacement of the photocell itself. Please note that all parameters expressed in millimeters which use "FL" as a departure reference point will be added on to the value entered into this parameter.

PARAMETER		DESCRIPTION
System Opt.	:	Type in the sum of the desired options as listed in the table in Fig. 5.8.2 at the end of this section.
0064		
Alarm Enable	:	From 0 to 255. Displays the alarm signals. Type in the sum of the numbers associated with the desired alarms as listed in the table in Fig. 6.6.2 on page 6.22.
ART ALARMS. 255		
Out 06 Enab.	:	From 0 to 255. Activates the out corresponding to the alarms selected (see section 5.9 CONNECTIONS) only when the alarms that have actually been selected (by entering the value of the sum of the numbers corresponding to the individual alarms as listed in the table in Fig. 6.6.2 on page 6.22) are present.
ART CONT 06 254.		
ARCnet ID	:	From 68 to 95. This parameter, which SHOULD NOT be modified, defines ARCnet node that allows for machine identification when connected to a network.
68.		

PARAMETER		DESCRIPTION
Hour/Minutes	:	Sets the production clock. The clock is updated from the "Processed data RUN" page according to the time that was manually inserted.
Weekday/Day	:	Sets the day of the week, with MONDAY AS NUMBER 1 plus the day of the month. The calendar is updated from the "Processed data RUN" page according to the date that was manually inserted.
Month/Year	:	Sets the month and year (just the last two numbers, e.g., 1995 is entered as 95). The calendar is updated from the "Processed data RUN" page according to the date that was manually inserted.
Gauss Points	:	From 001 to 100. Defines the resolution of the Gauss curve relative to production and can only be displayed on a personal computer. The lower the value, the higher the resolution.
Sample pcs.	:	From 005 to 200. Defines the number of pieces to be used as a batch sample. Each sampling represents a point on the graph.
K graph avg.	:	From 01 to 10. The division factor of the average error calculated based on a number of pieces equal to the value entered into the **Sample pcs.** parameter in order to obtain maximum resolution in the graphs displayed on the personal computer on-line to the machine.
K graph st.d	:	From 001 to 100. The division factor of the standard deviation calculated based on a number of pieces equal to the value entered into the **Sample pcs.** parameter in order to obtain maximum resolution in the graphs displayed on the personal computer on-line to the machine.

PARAMETER		DESCRIPTION
% Max - batch	:	From 000.0 to 100.0. Enabled under **System Opt.** and is used to limit the percentage of "products -" (NOT - -) within a batch. When the number of "pieces -" reaches the percentage value entered for the parameter, if it is activated, the machine temporarily sets **Thresh. -** equal to **Thresh. - -** and consequently expels from the line even those packages falling within **Thresh. -** and **Thresh. - -** (For a more detailed discussion of thresholds, see below).
Line Code	:	From 0 to 9999. The line number which can appear on either a hardcopy printout or other controller device for document identification if more than one machine is in use.
Enable - -	:	Either 00 or 01. If set at 00, the machine does not take into consideration packages below the preset weight limit in calculating production statistics on the "Processed data RUN" page and enables the activation of the out to eject them from the line. If set at 01, the packages below the preset weight limit are including in production statistics and the out activation for the + + category is disabled. (For more information on product ejection, see section 5.9 CONNECTIONS).
Enable + +	:	Either 00 or 01. If set at 00, the machine does not take into consideration packages above the preset weight limit in calculating production statistics on the "Processed data RUN" page and enables the activation of the out to eject them from the line. If set at 01, the packages above the preset weight limit are including in production statistics and the out activation for the + + category is disabled. (For more information on product ejection, see section 5.9 CONNECTIONS).
mm piece len	:	Minimum 20. Length of the object to be weighed expressed in millimeters if a tachometer is present or if its function is simulated by the TN 226 (power supply) card. If the simulated speed is internally generated, the values expressed in millimeters will only correspond to the real values if the actual speed of the conveyors is equal to the simulated speed and displayed in the "Processed data RUN" page under the **Meters/min** parameter. If this is not the case, use the following equation:

$$\frac{\text{Simulated speed}}{\text{Actual speed}} \times \text{Real length} = \textbf{mm piece len}$$

PARAMETER		DESCRIPTION
Input Speed	:	From 000 to 127. Expressed in meters per minute and refers to the infeed conveyor. Functions only when the optional speed control card is present. Given the fact that it can be stored and recalled, this value expedites format change. If a speed control card is not present, the value listed in the data table in Chapter 9 APPENDICES must be entered into this parameter (in this case, it will not affect speed adjustment which will take place, as is normal, using a potentiometer located in the electrical box).
Weigh. Speed	:	From 000 to 127. Expressed in meters per minute and refers to the weighing conveyor. Functions only when the optional speed control card is present. Given the fact that it can be stored and recalled, this value expedites format change. If a speed control card is not present, the value listed in the data table in Chapter 9 APPENDICES must be entered into this parameter (in this case, it will not affect speed adjustment which will take place, as is normal, using a potentiometer located in the electrical box).
Options	:	From 0 to 255. Allows the activation of one or more options as described in Fig. 5.8.3. To activate more than one option simultaneously, key in the sum of the numbers of the individual functions desired.
Delay - -	:	Minimum 75. The delay following which the 24VDC signal at the outfeed is triggered to eject a package below the preset weight limit after that package has passed in front of the "FL" read photocell (see section 5.9 CONNECTIONS). It is expressed in millimeters if a tachometer is present or if its function is simulated by a TN226 (power supply) card. If the simulated speed is internally generated, the values expressed in millimeters will only correspond to the real values if the actual speed of the conveyors is equal to the simulated speed and displayed in the "Processed data RUN" page under the **Meters/min** parameter. If this is not the case, use the following equation:

$$\frac{\text{Simulated speed}}{\text{Actual speed}} \times \text{Distance FL - ejector} = \textbf{Delay - -}$$

Delay + +	:	Functions the same way as parameter **Delay - -** but for packages exceeding **Thresh. + +**. Controls the ejection out for overweight packages (see section 5.9 CONNECTIONS).

PARAMETER		DESCRIPTION
Delay NW	:	Functions the same way as the **Delay - -** and + + parameters, but for NON WEIGHAB. packages, i.e. those that are either improperly distanced one from the other or longer than the value loaded under **mm piece len**. Controls the ejection out for unweighable packages (see section 5.9 CONNECTIONS).
Ej. Time - -	:	From 0.01 to 2.55. Expressed in seconds and controls the length of the ejection signal of the respective out (see section 5.9 CONNECTIONS) to remove pieces outside tolerance limits.
Ej. Time + +	:	From 0.01 to 2.55. Functions the same way as the **Ej. Time - -** parameter, but for packages over the preset weight limit.
Ej. Time NW	:	From 0.01 to 2.55. Functions the same way as **Ej. Time - -** and + +, but for packages that are NON WEIGHAB. (see section 5.9 CONNECTIONS).
MD - - Consec	:	From 0 to 255. The maximum number of consecutive contaminated or underweight packages the machine will accept before activating the **"MD -- CONSEC"** alarm (see section 6.6). A zero setting disactivates the parameter.
N. Exclud. FB	:	From 001 to 255. Relates to feedback. Enter under this parameter the number of pieces normally present between the fill point and weighing conveyor.
N. Average FB	:	From 001 to 064. Relates to feedback. Enter into this parameter the number of pieces the machine will use each cycle to calculate the average error which will determine which out on the TN223 (In/Out) card will be activated the eliminate package weight error. Remember that for this calculation, the system only uses the number of accepted pieces, i.e., those that either fall within **Thresh. - -** and **Thresh. + +** limits, or those outside these limits but with **Enable - -** and **Enable + +** parameters set at 01 (see "Machine data SETUP" page). It is good practice to enter at least 10 pieces in order to obtain a valid calculation of the average weight error.
Wgt. Offs. FB	:	From 000 to 100. Relates to feedback. Enter the value, in grams, under which the average error will not activate filling modifications. This value is always determined in relation to the FILLING SYSTEM PRECISION and RESOLUTION of the checkweigher.

PARAMETER		DESCRIPTION
Constant FB	:	From 000 to 255. Relates to feedback. It is the average error multiplication factor calculated on the **"N. Average FB"** and is used to obtain size corrections appropriate to the filling system.

Described below are the parameters from the "Product data RUN + *" page:

PARAMETER		DESCRIPTION
Batch Code	:	From 00000 to 32767. Number of the currently-active batch in the process of completion. When the batch has been terminated, this value will be sent to a data collection point to be included in the production data for that particular batch. Must be updated manually at the end of each lot.
Batch Size	:	From 10 to 32000. Number of accepted pieces, i.e., those pieces of correct weight and size produced in an hour of continuous production time. This constitutes a machine "batch", an important value because at the end of each batch, the machine sends all processed data pertaining to that batch to a peripheral device and then, following transmission, resets to zero all values contained in the "Processed data - RUN" page for that batch (see below in this section).
Product Code	:	From 00000 to 32767. Code number that may be assigned to allow for rapid production identification in printouts or following format change.
Nominal Wgt.	:	From 00000 to 15000. Bound by the values entered for **Max Weight** and **Min Weight**. Expressed in grams, it is the weight used to determine, depending on the THRESHOLD values entered, when a package is either under or over the set weights. For example: **Nominal Wgt.** = 100.0 grams **Thresh. - -** = -10.0 grams **Thresh. + +** = 10.0 grams Packages weighing 89.9 grams or less and 110.1 grams or more will be considered outside tolerance limits.
Nominal Tare	:	From 0000 to 9999. Expressed in grams, it is the combined weight of everything that makes up the product package to be weighed, excluding the product itself. The weight displayed (INST. WEIGHT) is equal to the difference between the read weight and the value loaded under **Nominal Tare**. The weight that appears on the display is that subject to the limits entered for THRESH. - - and + +. For example: **Nominal Wgt.** = 100.0 grams **Nominal Tare** = 8.0 grams Read weight = 110.0 grams The **Inst. Weight** (displayed) equals "Read weight (-) **Nominal Tare** value": 110.0 - 8.0 = 102.0

PARAMETER		DESCRIPTION
Thresh. - -	:	From -1 to -510. Expressed in grams, the negative weight limit of the **Nominal Wgt.** below which the weighed object is considered outside tolerance limits. When an object is under the weight limit, the 24VDC output is activated (see section 5.9 CONNECTIONS), the "- -" category lights up briefly on the front panel (see section 5.7 DESCRIPTION OF THE KEYPAD AND DISPLAY), and the piece counter for this category is incremented on the "Processed data - RUN" page.
Thresh. -	:	From -1 to -510. Expressed in grams, it is the lower limit for the **OK** (acceptable) category. This value can be used to limit the number of packages, under the set weight limit but not exceeding the value entered under **Thresh. - -**, within a given batch, through the **Batch % Max** parameter in the "Machine data SETUP" page. Limitation of the number of packages included within the **Thresh. - -** and **Thresh. -** parameters makes up an average error rate for weight within a given lot that tends to be positive and therefore easily conforming to legislative constraints. When an object exceeds this limit, the "-" category lights up briefly on the front panel (see section 5.7 DESCRIPTION OF THE KEYPAD AND DISPLAY), and the piece counter for this category is incremented on the "Processed data - RUN" page.
Thresh. +	:	From 000 to 510. Expressed in grams, it is the upper limit for the **OK** (acceptable) category. Used by the system to display graphs and increment the piece counter for the "+" category. When an object exceeds this limit, the "+" category lights up briefly on the front panel (see section 5.7 DESCRIPTION OF THE KEYPAD AND DISPLAY), and the piece counter for this category is incremented on the "Processed data - RUN" page.
Thresh. + +	:	From 000 to 510. Expressed in grams, the positive weight limit of the **Nominal Wgt.** above which the weighed object is considered outside tolerance limits. When an object is over the weight limit, the appropriate 24VDC out is activated (see section 5.9 CONNECTIONS), the "+ +" category lights up briefly on the front panel (see section 5.7 DESCRIPTION OF THE KEYPAD AND DISPLAY), and the piece counter for this category is incremented on the "Processed data - RUN" page.

PARAMETER		DESCRIPTION
Store ?	:	From 1 to 100. Definitively stores previously-modified data in one of the one hundred (100) available programs. To store data, remember to key in the program number which will begin to flash on-screen, and confirm by pressing "ENTER". Only data stored following this procedure can later be called up during format change.
Recall ?	:	From 1 to 100. Used to call up one of the previously-stored programs. Key in the number of the program you wish to activate which will begin to flash on the screen, and confirm by pressing "ENTER". When a program is called up using this parameter, remember that all data processed under the previously-active program will be sent to a peripheral device for archiving and then PERMANENTLY CANCELLED.

Described below are the parameters contained in the "CALIB." page which are also examined in detail in section 6.2 INITIAL SETTING OF THE CHECKWEIGHER

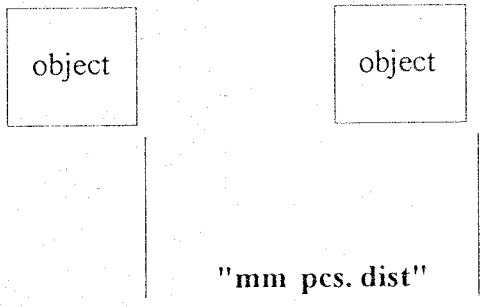
PARAMETER		DESCRIPTION
CALIBRATION	:	This is a read-only parameter, no value can be entered for it from the keypad. It is used for the initial setting of the checkweigher and, after this initial setting, for static weighing of objects. This operation must be performed before data is input under the "Product data - RUN + *" page.

Described below are the data processed and displayed under the "Processed data - RUN" page. Remember that these parameters can be: 1) displayed only and not changed; 2) reset to zero using the CLEAR key (#8) or by recalling another already-stored program; 3) sent to remote data archive systems.

PARAMETER		DESCRIPTION
"date - time"	:	Calendar and clock that are continuously updated. Their values are initially set through the corresponding parameters found in the "Machine data - SETUP" page.
Inst. Weight POIDS INST	:	Display of weight read dynamically from which is subtracted the value inserted under the **Nominal Tare** value and algebraically added to the value contained in **Dynamic Diff.**
Inst. Error ERR INS	:	Display of the difference between **Nominal Wgt.** and **Inst. Weight** described above.
Non weighab. NON PESABLES	:	The number of packages transported along the checkweigher since the last zero reset that could not be weighed because one or more preconditions for a weight reading were lacking. Packages are considered unweighable if:

- The package is longer than the value entered under **mm piece len** in the "Machine data - SETUP" page.

- Two or more packages are not correctly distanced, i.e., the fronts of the packages are closer than the minimum value entered in the "Machine data - SETUP" page under **"mm pcs. dist"**. For example:



Grand Total TOTAL GÉN	:	Can reach up to 999999. Displays the total number of all packages that have moved along the weighing conveyor since last zero reset (using "ENTER + CLEAR" or "RECALL ?"). Packages considered **Non weighab.** ARE NOT included in this total.

PARAMETER		DESCRIPTION
Total Accep.	:	Can reach up to 999999. Displays the total number of packages according to the **Grand Total**, minus all packages outside tolerance limits (**Thresh.** - - and **Thresh.** + +) if **Enable** - - and **Enable** + + are set to zero (0). If these parameters are not set to zero, packages outside the tolerance limits will be considered acceptable.
Total - -	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the last zero reset with a weight less than that set by **Thresh.** - -.
Total -	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the last zero reset with a weight falling within the limits set by **Thresh.** - - and **Thresh.** -.
Total OK	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the last zero reset with a weight falling within the limits set by **Thresh.** - and **Thresh.** +.
Total +	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the last zero reset with a weight falling within the limits set by **Thresh.** + and **Thresh.** + +.
Total + +	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the last zero reset with a weight greater than that set by **Thresh.** + +.
Total MD	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the last zero reset in which the metal detector (MD) found to be contaminated.
Avg. Error	:	Expressed in grams with an approximation of a tenth greater than the system's resolution. Calculated based on the number of pieces loaded under **Total Accep.** and indicates the weight average error compared to the **Nominal Wgt.** of each accepted package.
Stand. Dev.	:	Expressed in grams with an approximation of a tenth greater than the system's resolution. Calculated based on the number of pieces loaded under **Total Accep.** For further information, contact PRISMA's TECHNICAL ASSISTANCE SERVICE (see section 2.2 TECHNICAL ASSISTANCE).
Grand Tot. B	:	Can reach up to 999999. Displays the total number of all packages that have moved along the weighing conveyor since the last completed batch or last zero reset (using "ENTER + CLEAR" or "RECALL ?"). Packages considered **Non weighab.** ARE NOT included in this total.

PARAMETER		DESCRIPTION
Total Accep. B	:	Can reach up to 999999. Displays the total number of packages according to the **Grand Total B**, minus all packages outside tolerance limits (**Thresh. - -** and **Thresh. + +**) that have been transported from the start of the batch if **Enable - -** and **Enable + +** are set to zero (0). If these parameters are not set to zero, packages outside the tolerance limits will be considered acceptable. Please note that the current production batch and end-batch condition are determined by the value entered under the **Batch Size** parameter found on the "Product data - RUN + * " page.
Total - - B	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the start of the batch with a weight less than that set by **Thresh. - -**. Please note that the current production batch and end-batch condition are determined by the value entered under the **Batch Size** parameter found on the "Product data - RUN + * " page.
Total - B	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the start of the batch with a weight falling within the limits set by **Thresh. - -** and **Thresh. -**. Please note that the current production batch and end-batch condition are determined by the value entered under the **Batch Size** parameter found on the "Product data - RUN + * " page.
Total OK B	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the start of the batch with a weight falling within the limits set by **Thresh. -** and **Thresh. +**. Please note that the current production batch and end-batch condition are determined by the value entered under the **Batch Size** parameter found on the "Product data - RUN + * " page.
Total + B	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the start of the batch with a weight falling within the limits set by **Thresh. +** and **Thresh. + +**. Please note that the current production batch and end-batch condition are determined by the value entered under the **Batch Size** parameter found on the "Product data - RUN + * " page.
Total + + B	:	Can reach up to 999999. The sum of all packages transported by the weighing conveyor since the start of the batch with a weight greater than that set by **Thresh. + +**. Please note that the current production batch and end-batch condition are determined by the value entered under the **Batch Size** parameter found on the "Product data - RUN + * " page.

PARAMETER	DESCRIPTION
Avg. Error B	Expressed in grams with an approximation of a tenth greater than the system's resolution. Gives the average weight error with respect to the **Nominal Wgt.** of each acceptable package and part of the batch that is currently being produced or just finished. It is calculated using the number of objects entered as the value for the **Batch Size** parameter located in the "Product data - RUN" page. Automatically resets to zero when the number of objects counted equals the value set in **Batch Size** and begins recalculating with the next objects to arrive. If the batch is not completed, the average error is still calculated based on the number of acceptable packages that have passed through since the last automatic resetting to zero at the end of the previous completed batch.
Stand. Dev. B	Expressed in grams with an approximation of a tenth greater than the system's resolution. It is calculated using the number of objects entered as the value for the **Batch Size** parameter. Automatically resets to zero when the number of objects counted equals the value set in **Batch Size** and begins recalculating with the next objects to arrive. If the batch is not completed, the average error is still calculated based on the number of acceptable packages that have passed through since the last automatic or manual resetting to zero at the end of the previous completed batch. For more information on how this parameter is calculated, contact PRISMA's TECHNICAL ASSISTANCE SERVICE (see section 2.2 TECHNICAL ASSISTANCE).
% Pcs. - B	Indicates the percentage of "-" category packages that have passed through the checkweigher from the beginning of the current batch. It is calculated using the number of objects entered as the value for the **Batch Size** parameter. Automatically resets to zero when the number of objects counted equals the value set in **Batch Size** and begins recalculating with the next objects to arrive. If the batch is not completed, the average error is still calculated based on the number of acceptable packages that have passed through since the last automatic or manual resetting to zero at the end of the previous completed batch.
Avg. Error S	Expressed in grams with an approximation of a tenth greater than the system's resolution. Gives the average weight error with respect to the **Nominal Wgt.** of the packages indicated in the **Pcs campione** parameter (see below, this section).

PARAMETER		DESCRIPTION
Stand. Dev. S	:	Expressed in grams with an approximation of a tenth greater than the system's resolution. Calculated based on the number of packages contained in the **Pcs campion** parameter. For additional information on the method used to calculate this parameter, contact PRISMA's TECHNICAL ASSISTANCE SERVICE (see section 2.2 TECHNICAL ASSISTANCE).
Meters/min	:	Gives the linear speed of the conveyors through a proximity sensor that reads the teeth of a pulley attached to the drive shaft of the outfeed conveyor. Although the reading is only effected for outfeed conveyor, the others move along at the same speed thanks to a system which, if properly adjusted, automatically regulates the speed of the infeed and weighing conveyors as well. If the speed is simulated through the circuit located on the TN226 (power supply) card, the displayed value will be proportional to the value given a pulse in the **mm x pulse** parameter located on the page of data common to all programs, even if the conveyors travel at different speeds.

VALUE ENTERED FOR THE "Resolution" PARAMETER	RESOLUTION
Resolution = 00	1
Resolution = 01	0,1
Resolution = 02	0.01
Resolution = 03	0,001
Resolution = 04	2
Resolution = 05	0,2
Resolution = 06	0,02
Resolution = 07	0,002
Resolution = 08	5
Resolution = 09	0,5
Resolution = 10	0,05
Resolution = 11	0,005

Figure 5.8.1 (List of possible resolution levels depending on machine model).

OPTIONS SELECTABLE UNDER THE "System Opt." PARAMETER	VAL.
Enables communication with the metal detector through the "B" serial port and parameters to drive the detector from the display.	1
Enables the Feed Back option and parameters to drive it from the display.	2
Enables the "% Max - Batch" parameter.	4
Enables automatic updating of the "Nominal Wgt." parameter value. Based on tare variations (mobile media system).	8
Enables the "A" serial port for communication with the C.P.U. microprocessor (no printout).	16
Enables the "A" serial port for communication with the "Marchesini" protocol (no printout).	32
Exclusion of the accepted products check generally carried out through the control photocell called FC.	64
Enable rejection of a product -which will be classified as "unweighable" - at the starting, after a serius alarm, i.e. always present on the 107 and 106 outputs.	128

Figure 5.8.2 (Possible settings for the "System Opt." parameter).

OPTIONS SELECTABLE UNDER THE "Options" PARAMETER	VAL
Enables 80-column format printout.	1
Enables the insertion, through the Personal Computer, of Personalized Text Lines to appear on printouts.	2
Enables the automatic ejector test during the self-test phase immediately following machine power up.	4

Figure 5.8.3 (Possible settings for the "Options" parameter).

5.9 CONNECTIONS

A number of important connections to environments outside the unit can be effected through the IN/OUT card. The standard model has eight in and eight out gates. The in gates are occupied in part by the machine's sensors and in part by commands arriving from outside the system. The out gates are used to control the machine's system for removing packages not conforming to set standards, as well as its alarms. For the metal detector, the connections for its photocell, speed sensor and ejector are connected within the detector itself.
All the ins/outs have a voltage level of 24VDC.
To ACTIVATE AN IN GATE, feed it a voltage level of +24 located on the terminal block inside the electrical control box.
To CONNECT AN OUT GATE, connect one conductor to the +24 voltage ground located on the terminal block, labelled GND, and the other to the output desired.
The table in Fig. 5.9.1 identifies the in/out gates located on the card.

IN	DESCRIPTION
120	ALARM RESET
121	ENABLE CONTINUOUS EJECTION
122	EJECTION CONTROL PHOTOCELL
123	AIR PRESENT CONTROL SENSOR
124	BIN FULL SIGNAL PHOTOCELL
125	SELF-CALIBRATION PHOTOCELL
126	READ PHOTOCELL
127	SPEED SENSOR
OUT	**DESCRIPTION**
100	EJECTION - -
101	FEED BACK-SIGNAL LOW WEIGHT LEVEL
102	FEED BACK-SIGNAL HIGH WEIGHT LEVEL
103	EJECTION NW
104	EJECTION + +
105	NOT USED
106	FIXED AND SETTABLE ALARMS
107	ALL ACTIVE ALARMS

Figure 5.9.1 In/Out Gates

Described below are the IN GATES shown in Fig. 5.9.1 located on the terminal board of the control panel.

IN 120 : When the +24 signal arrives at this gate, all alarms in effect will be automatically cancelled if the cause of the alarm has been removed.

IN 121 : When a +24 signal arrives at this gate, and for as long as this signal is in effect, all packages passing through on the conveyors will be ejected through out 103.

IN 122 : This gate controls if the ejection of products not conforming to the preset standards and for which the ejection-from-the-line function has been activated has actually occurred. Connected to this gate is a photocell which the system uses to check if, when an object must be ejected, in front of the photocell there is an empty space corresponding to the position of the ejected package.

IN 123 : This gate checks for the presence of pressurized air at the entrance of the pneumatic circuit through the use of a pressure switch. When the pressure falls below the minimum level required to guarantee the functioning of the ejection system, the **NO AIR PRESS** alarm is activated. If no pressure switch is present, there will be a jumper between this in gate and the +24VDC signal located on the terminal board.

IN 124 : Through the use of a sensor, this gate controls the level of the discharge bin, if present. If the sensor located near the edge of the bin registers the presence of the product, the **BIN FULL** alarm will be activated. If no sensor is present, there will be a jumper between this in gate and the +24VDC signal located on the terminal board.

IN 125 : A self-calibrating photocell is connected to this gate so that when it is not tripped by the product, the signal is high (+24). The signal tripping time (product present) functions as follows: the first passage of +24 - 0V triggers the beginning of a period of time which lasts as long as the object length; during this period, no further products passing by are considered. When this time expires, the status of the photocell is tested and if the signal is still at 0V, the **"PCS. LENGTH"** alarm is activated. The distance (in millimeters) between the packages is also compared with the value of the **"mm piece len"** parameter and, if it is shorter, the **"PCS. DISTANCE"** alarm is activated (see section 6.6 ALARMS).

IN 126 : This gate is connected to a photocell the system uses to synchronize the weight read-out and to activate ejection delays. When the set delay time expires, the relevant gate is activated. This signal works the same way as that of gate 125 to avoid false read-outs.

IN 127 : This gate is normally connected to a sensor used to count the teeth on a gear wheel, the pitch of which is entered in the **"mm x pulse"** parameter, in order to measure conveyor speed

Described below are the OUT GATES shown in Fig. 5.9.1 located on the terminal board of the control panel.

OUT 100 : This gate is activated when a package falling outside the **"Thresh. - -"** limit after the relevant **"Delay - -"** interval and for the relevant length of time **"Ej. Time - -"** is detected.

OUT 101 : This gate is activated when, during feedback, the average error result calculated on the basis of the number of pieces entered under the **N. Average FB** parameter, has an absolute value that is negative and greater than the value in grams entered for the **Wgt. Offs. FB** parameter. The gate activation time is proportional to the value entered under parameter **Constant FB**.

OUT 102 : This gate is activated when, during feedback, the average error result calculated on the basis of the number of pieces entered under the **N. Average FB** parameter, has an absolute value that is positive and greater than the value in grams entered for the **Wgt. Offs. FB** parameter. The gate activation time is proportional to the value entered under parameter **Constant FB**.

OUT 103 : This gate is activated when a package is detected to be unweighable according to the criteria entered under **"Delay NW"** and **"Ej. Time NW"**. It is also used for continuous ejection of all packages moving through when "IN 121" is activated.

OUT 104 : This gate is activated when a package exceeds the **"Thresh. + +"** limit, following the relevant **"Delay + +"** and **"Ej. Time + +"**.

OUT 105 : NOT USED

OUT 106 : This gate is activated simultaneously with the alarms selected under the **Enable Out 06** parameter and when one of the critical, non-selectionable, alarms is present (see table in Fig. 6.6.2).

OUT 107 : This gate is activated when any alarm is in effect and remains activated until the problem has been resolved.

Please refer to Chapter 6 START-UP, and in particular section 6.6 ALARMS, for a complete discussion of all alarms displayed for the operator according to the system in gate signals present.

Important: In this model, out gate 105 will never be activated since no metal detector is not present.

CONSULT ALWAYS THE DIAGRAM DESCRIBING THE IMPUTS AND OUTPUTS OF THE ELECTRONIC EQUIPEMENT(CHAPTER 8 DRAWINGS AND DIAGRAMS BECAUSE THIS COULD CONTAIN LITTLE DIFFERENCES WITH RESPECT TO THE DESCRIPTION THIS IS THE DIAGRAM CORRECT FOR YOUR MACHINE.

6. START-UP

6.1 GENERAL PRECAUTIONS

Before starting up the machine, make sure that everything in the previous chapters has been carefully read and understood, especially Chapter 2 MACHINE OVERVIEW and Chapter 5 PREPARING TO OPERATE THE MACHINE, both of which contain essential information about machine safety.

Once the above information is clear, start up the machine using the following procedure:

- ☐ Turn on electrical power to the electrical control box by throwing the main switch;
- ☐ Activate pressure to the filter/reduction unit;
- ☐ Wait for the self-test routine to finish.

At this point the machine is ready to be calibrated following the procedures laid out in this chapter and according to the special production and product requirements of each individual installation.

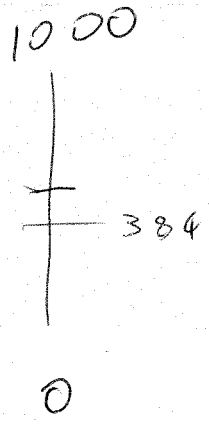
6.2 INITIAL SETTING OF THE CHECKWEIGHER

The initial setting procedure for the checkweigher is two-part: 1) regulation of the signal emanating from the weighing system and 2) calculation of the **Dynamic Diff.** We will call the regulation of the signal coming from the weighing system "ZERO AND GAIN ADJUSTMENT"; for the initial setting, follow the procedure described in this chapter, and for subsequent adjustments the one set out in section 7.2 PREVENTIVE MAINTENANCE.
The **Dynamic Diff.** must be calculated for every format change loaded into one of the machine's available programs, as well as each time a product characteristic or conveyor speed changes.
A detailed description for how to effect the ZERO AND GAIN ADJUSTMENT is laid out in the table in Fig. 6.2.2. There are two copies of this table, one to keep with the manual and the other to give to maintenance personnel. Once the ZERO AND GAIN adjustment has been carried out, the **Dynamic Diff.** must be calculated for each product following the procedure laid out in the table in Fig. 6.2.3 which also has a duplicate copy.

THE TWO SETTING OPERATIONS FOR THE CHECKWEIGHER ARE THE "ZERO AND GAIN ADJUSTMENT" AND THE "CALCULATION OF THE DYNAMIC DIFFERENCE", BOTH OF WHICH ARE ESSENTIAL FOR CORRECT MACHINE FUNCTIONING.

FULL SCALE	TOTAL DIVISIONS	WORKING DIVISIONS	MAXIMUM WEIGHING	ZERO POINTS	OPTIMAL ZERO
1	24576	20000	**21504**	3072	**1536**
2	12288	10000	**10752**	1536	**768**
3	6144	5000	**5376**	768	**384**
4	3072	2500	**2688**	384	**192**
5	1536	1200	**1344**	192	**96**
6	768	600	**672**	96	**48**

Figure 6.2.1 FULL SCALE table



CARRYING OUT THE ZERO AND GAIN ADJUSTMENT
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Push the "CALIB." key once. The "DYNAMIC DIFF" parameter will appear along with a number to the right of it.
This number should correspond to the "OPTIMAL ZERO" value based on the total number of divisions and the FULL SCALE used (see table, figure 6.2.1). If the value displayed does not correspond to the OPTIMAL ZERO, make adjustments using the TRIMMER labelled ZERO on the panel of the ANALOG card.
Push down on the weighing conveyor and then let it slowly rise. The value displayed should always be that of the previous setting (OPTIMAL ZERO). If the original setting does not return, look fo some impediment (usually of a mechanical nature) that is creating friction and keeping the system from moving freely. Remove any impediments and repeat the procedure from the beginning.
-REPEAT THE FOLLOWING PROCEDURE AT LEAST THREE TIMES- Press the CLEAR button, check that the value "0" appears and then place a fairly heavy weight (but less than that indicated as the MAX WEIGHT in the table in figure 6.2.1) on the weighing conveyor. If the value displayed does not correspond to the weight on the conveyor, make adjustments using the TRIMMER labelled GAIN-COARSE on the ANALOG card panel. Remove the weight fromthe weighing conveyor.
Remove the weight and press the CLEAR key to see if the value returns to zero. Place the weight on the conveyor and, if the weight displayed is not correct, make adjustments using the TRIMMER labelled GAIN-FINE.
Repeat the last step until the machine returns to zero when the weight is removed from the conveyor.

Figure 6.2.2 Making the zero and gain adjustment.

USE OF "SPAN ADJ" AND ZERO SETTING

In order to make it adjustable to various real needs, the balance is provided with 6 different "SPAN ADJ" possibilities and well as two versions of the 433 programme with resolution 0.1 g. 445 with resolution 1g.

The best SPAN ADJ to use is the one whose maximum weighing operation is the closest to the heaviest object to check.
The table shows all the SPAN ADJ possibilities and the optimal zero level adjustment for each of them (unloaded pan readings).
(LOOK IN SETUP DATA).

SPAN ADJ	TOTAL DIVISIONS	DIVISIONS	MAXIMUM WEIGHING OPERATION	ZERO POINTS	OPTIMAL ZERO ±
. 1	24576	20000	21504	3072	1536
. 2	12288	10000	10752	1536	768
. 3	6144	5000	5376	768	384
. 4	3072	2500	2688	384	192
. 5	1536	1200	1344	192	96
. 6	768	600	672	96	48

± 30

During the zero adjustement, disregard the decimal point.

Example:

Span adjustement = 5
Optional zero = 96
If the accuracy is 0.1 g., the correct walue to be read is 9.6, since the decimal point must be disregarded.

1/ INSERT PROG. KEY (311)
2/ PRESS CALIBRATION BUTTON
3/ PRESS ↓ ONCE → "READ WEIGHT"
4/ STOP M/C.
5/ READ DISPLAY (IGNORE DECIMAL POINT).
6/ ADJUST ZERO TRIMMER ON LOAD CELL P.C.B TO GIVE REQ'D READING, OF OPTIMUM ZERO
7/ PRESS CLEAR, PUT KNOWN WEIGHTS ON LOAD CELL
8/ ADJUST GAIN (FINE) TRIMMER TO EXACT WEIGHT.
9/ PRESS CLEAR TO ZERO

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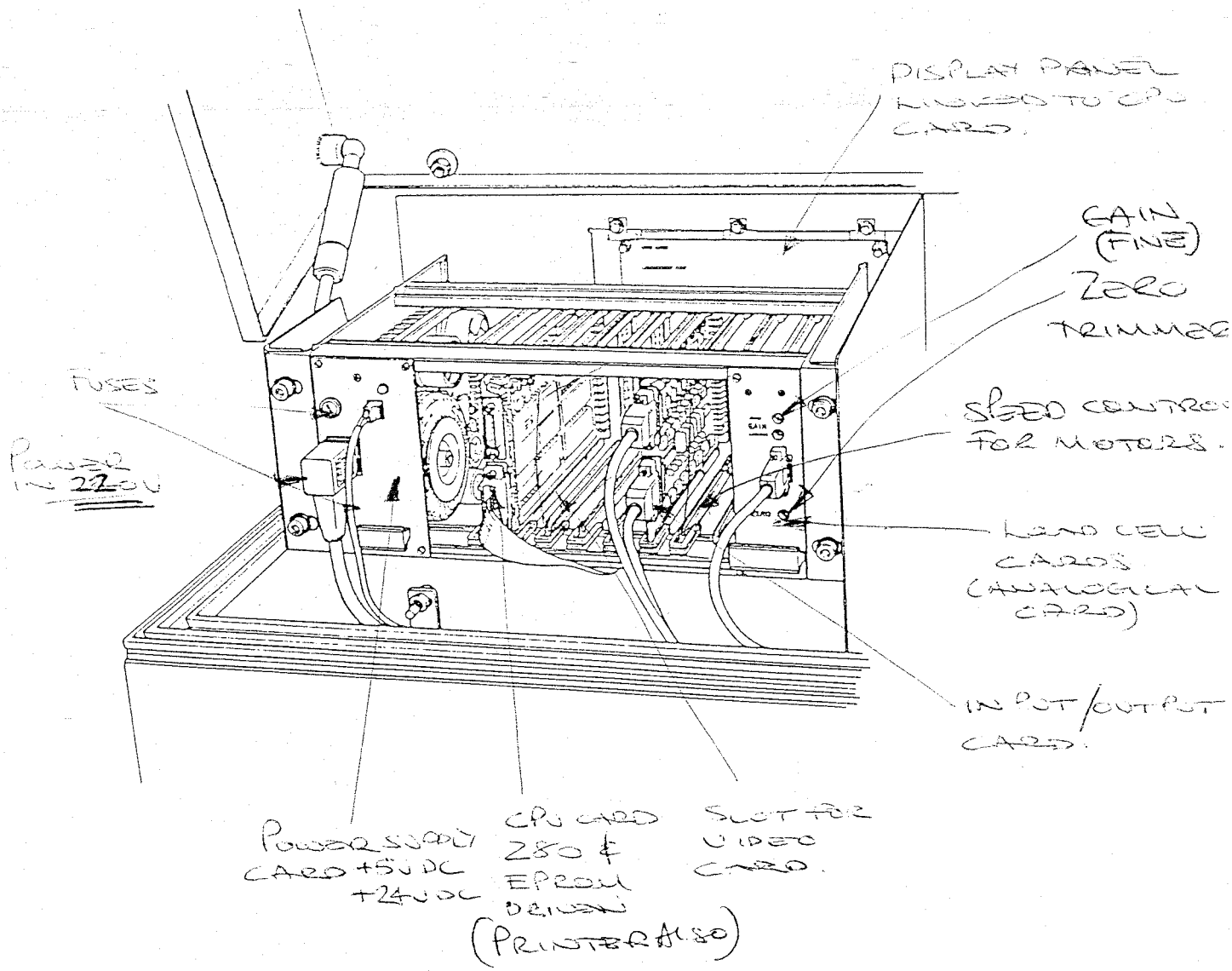
SPAN ADJUSTMENT ACCORDING TO THE MACHINE TEST DATA

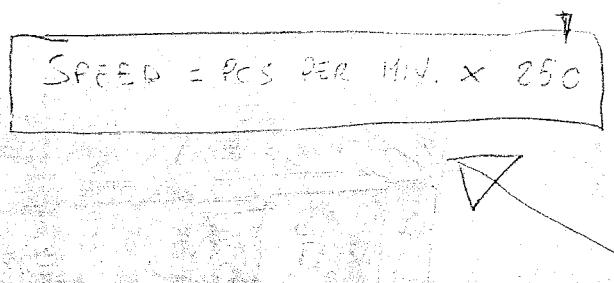
Set the "SET UP" Span adjustment and MS. mean according to the value showed on the machine internal table.
Press the "CALIBRATION" key in order to display the entry READ WEIGHT.
Unload the scalepan, lift it and then lightly push it downwards; make sure that the values read are the same as the OPTIMAL ZERO ones showed on the span adjustment table.
NOTE: Disregard the decimal point.
If the value do not correspond to the ones on the table, operate the "ZERO" trimmer on the ANALOGIC card.
Then press the "CLEAR" push button to set to zero.
Put a known weight on the scalepan and check that on the display there is the weight value.
If necessary, make use of the "GAIN" trimmer on the analogic card.



NOMINAL WEIGHT = ~~[illegible]~~ WEIGHT OF WHOLE PRODUCT IF TARE = 0

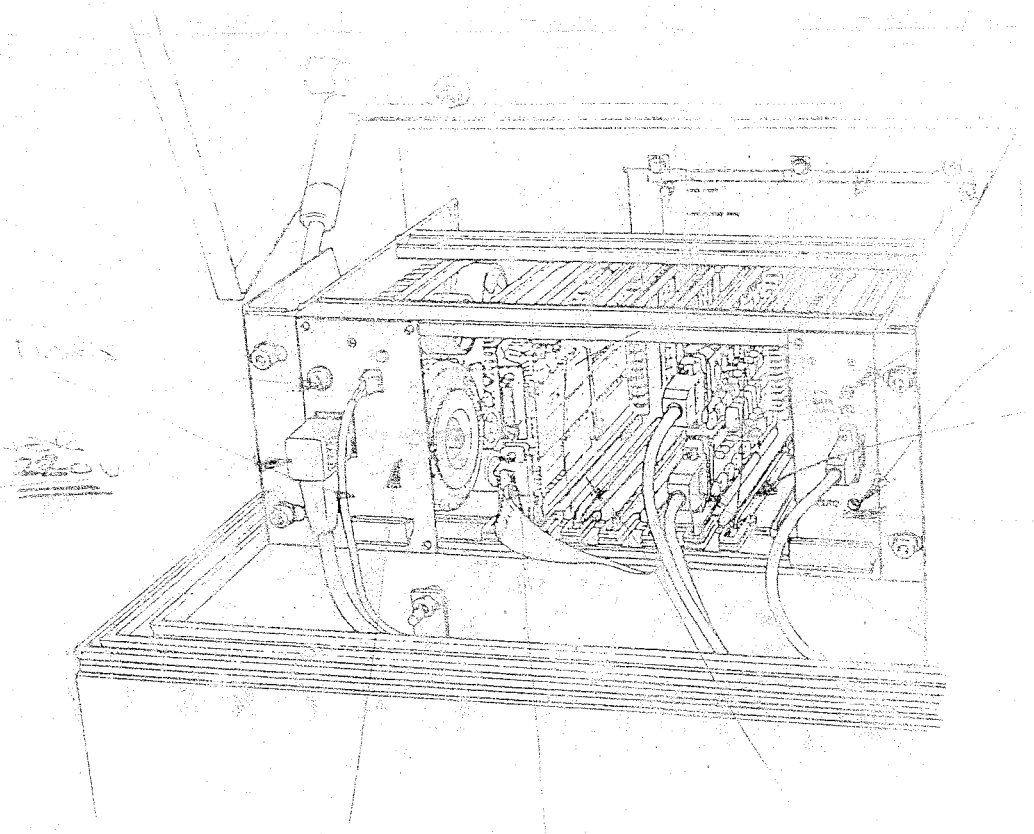
= WEIGHT OF PRODUCT & NOT PACKAGING IF TARE IS IMPOSED IN MEMORY.

WIDTH OF WEIGHT CELL CONVEYOR



SPAN ADJUSTMENT ACCORDING TO THE MACHINE TEST DATA

Set the "SET UP" Span adjustment and MS. mean according to the value showed on the machine internal table.
Press the "CALIBRATION" key in order to display the entry REAL WEIGHT
Unload the scalepan, lift it and then lighly push it downwards. Make sure that the values read are the same as the OPTIMAL ZERO ones showed on the span adjustment table.
NOTE: Disregard the decimal point.
If the value do not correspond to the ones on the table, operate the "ZERO" trimmer on the ANALOGIC card.
Then press the "CLEAR" push button to set to zero.
Put a known weight on the scalepan and check that on the display there is the weight value.
If necessary, make use of the "GAIN" trimmer on the analogic card.



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NOMINAL WEIGHT = ~~GROSS~~ WEIGHT OF WHOLE PRODUCT IF TARE = 0.

= WEIGHT OF PRODUCT & NOT PACKAGING IF TARE IS IMPOSED IN MEMORY.

WIDTH OF WEIGHT CELL CONVEYOR

SPEED = PCS PER MIN. x 250

CARRYING OUT THE ZERO AND GAIN ADJUSTMENT
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Push the "CALIB." key once. The "DYNAMIC DIFF" parameter will appear along with a number to the right of it.
This number should correspond to the "OPTIMAL ZERO" value based on the total number of divisions and the FULL SCALE used (see table, figure 6.2.1). If the value displayed does not correspond to the OPTIMAL ZERO, make adjustments using the TRIMMER labelled ZERO on the panel of the ANALOG card.
Push down on the weighing conveyor and then let it slowly rise. The value displayed should always be that of the previous setting (OPTIMAL ZERO). If the original setting does not return, look fo some impediment (usually of a mechanical nature) that is creating friction and keeping the system from moving freely. Remove any impediments and repeat the procedure from the beginning.
-REPEAT THE FOLLOWING PROCEDURE AT LEAST THREE TIMES- Press the CLEAR button, check that the value "0" appears and then place a fairly heavy weight (but less than that indicated as the MAX WEIGHT in the table in figure 6.2.1) on the weighing conveyor. If the value displayed does not correspond to the weight on the conveyor, make adjustments using the TRIMMER labelled GAIN-COARSE on the ANALOG card panel. Remove the weight fromthe weighing conveyor.
Remove the weight and press the CLEAR key to see if the value returns to zero. Place the weight on the conveyor and, if the weight displayed is not correct, make adjustments using the TRIMMER labelled GAIN-FINE.
Repeat the last step until the machine returns to zero when the weight is removed from the conveyor.

Figure 6.2.2 Making the zero and gain adjustment.

MP4 Prisma check weigher

16/06/2004

To access machine set-up

Power **OFF**
Press '*'
Power **ON** Keeping * presses in for 6 seconds

CHECK AND SET ALL VALUES IF NECESSARY

Carry out a zero gain adjustment
Press 'Calib'
Screen should show 38.4
If not adjust trimmer marked zero on Analogue card
Then pushing plate down and releasing value should go back to 38.4

Press 'Calib', Press 'Clear'
Screen shows 0.000
Place 100g weight on 4 corners and screen should show 100.0

Errors

No Auto-tare = comes up if after ½ the batch number the machine has not stopped or had a gap which allows it to self calibrate
*/ Try setting Batch size to a higher value.

Setting for check weigher values

T. Eject	MD	0.50	
Retard	MD	0.075	
Moyenne	MD	0.010	
Compens	MD	01	
Siensib	MD	10	
Constante	FB	001	
Cor.Poids	FB	000.0	
N.Moyen	FB	004	
I. Exclus	FB	004	
DM- Consec		000	
Eject	NP	0.30	
Eject	++	0.30	**(0.5)**
Eject	- -	0.30	**(0.5)**
Retard	NP	0075	
Retard	++	0165	
Retard	- -	0165	
'tions		004	
T.Pesage		030	
T. Entrée		030	
Lons. Obj		1000	**(200)**
Itude	++	01	
Itude	- -	00	
De ligne		0001	
Max - lot		000.0	
Gra.d.std		100	

Gra.moyon		10	
Echant.		050	
Nts guass		010	
Us /Anrieie		0001	
Ur/S/M		0001	
Arcnet	ID	55	**(65)**
Apt.sort.06		254	
Apt.Alarms		0064	
Retard	FL	000	
mm FL→ MD		0400	**(100)**
mm FL→ FC		0400	**(100)**
mm Pas Object		0450	**(200)**
mm X Impuls.		04.9	
Diff. Dynam.		0000.0	
Ms Int. tare		0600	**(50)**
Ms Moyen Reg		040	**(64)**
Poids Stable		001.0	
Bas Echelle		03	
Resolution		01	
Pesage Max.		0120.0	**(500)**
Pesage Min.		0010.0	**(2.0)**

Note: Changed to figures in Brackets on 10/10/03

To Access Machine Set Up

12

Power off.
Press '*'
Power On keeping '*' pressed for 6secs.

Check And Set If Neccessary All Values!

Carry Out A Zero Gain Adjustment
: Press [Calib]
: Screen should show 38-4
: If not, Adjust Trimmer Marked Zero on Analog Card.
Then Pushing Plate Down And Releasing,
Value Should Go Back To 38-4.

Press [Calib], Press [Clear]
Screen shows 0.000
Place 100g weight on 4 corners And Screen
Should Show 100-0

Errors
No Autotare = comes Up If After
½ the Batch No:, The Machine Has Not
stopped or had A Gap Which Allows
It To Self Calibrate.

*/ Try Setting Batch Size To A
Higher Value.

To Access Machine Set Up

12

Power off.
Press '*'
Power On keeping '*' pressed for 6secs.

Check And Set If Neccessary All Values!

Carry Out A Zero Gain Adjustment

: Press [Calib]
: Screen should show 38.4
: If not, adjust Trimmer marked Zero on Analog Card.

Then Pushing Plate Down And Releasing,
Value should go back to 38.4.

Press [Calib], Press [Clear]
Screen shows 0.000
Place 100g weight on 4 corners And Screen
Should show 100.0

Errors

No Autotare = comes up if After ½ the Batch No:, The Machine Has Not stopped or had A Gap Which Allows It To Self Calibrate.

*/ Try Setting Batch Size To A Higher Value.

HOW TO CALCULATE THE "DYNAMIC DIFF."
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Take a package whose "Dynamic Diff." you wish to calculate and get its exact weight.
Enter the (gross) weight under the "Nominal Wgt." parameter and enter 0 under "Nominal Tare".
Make note of these values, if necessary, and then reset by pressing "ENTER + CLEAR".
Pass the same package through at least 20 times, making sure it is accepted each time, i.e., that it does not fall under the "- -" or "+ +" category.
From the "Avg. Error T" parameter on the "Processed data - RUN" page, make note of the average error, i.e., the difference between the "Nominal Wgt." and "Inst. Weight".
Invert the sign on the "Avg. Error T" value and enter it under the "Dynamic Diff." parameter which is found under the data common to all programs.
Return to "Processed data - RUN" and begin production.

Figure 6.2.3 How to calculate the "DYNAMIC DIFF".

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HOW TO CALCULATE THE "DYNAMIC DIFF."
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Take a package whose "Dynamic Diff." you wish to calculate and get its exact weight.
Enter the (gross) weight under the "Nominal Wgt." parameter and enter 0 under "Nominal Tare".
Make note of these values, if necessary, and then reset by pressing "ENTER + CLEAR".
Pass the same package through at least 20 times, making sure it is accepted each time, i.e., that it does not fall under the "- -" or "+ +" category.
From the "Avg. Error T" parameter on the "Processed data - RUN" page, make note of the average error, i.e., the difference between the "Nominal Wgt." and "Inst. Weight".
Invert the sign on the "Avg. Error T" value and enter it under the "Dynamic Diff." parameter which is found under the data common to all programs. Return to "Processed data - RUN" and begin production.

Figure 6.2.3 How to calculate the "DYNAMIC DIFF".

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6.3 LOADING PRODUCTION FORMATS

As stated previously, there are one hundred (100) available programs, each of which can store information for a different product. These programs can be recalled easily through the **"Recall ?"** parameter. The table in figure 6.3.1 explains the procedure for inputing product data into an available program.

WHEN NEW DATA IS INPUT INTO AN ALREADY-EXISTING PROGRAM, THE VALUES PREVIOUSLY STORED IN THAT PROGRAM ARE PERMANENTLY ERASED BY THE NEW DATA.

STORING PRODUCT DATA IN A PROGRAM
Make sure that there are still available programs in which to enter data, or decide which program to overwrite. (To overwrite a program file, just type the new data over the old and store it under the program number desired.)
Check that the data input on the "Product data - SETUP" page is the same as that shown in section 9.1 DATA TABLE.
Input all product data to be stored into the "RUN + * product data" page, leaving out those not used, for example, feed back or speed information.
Bring up the "STORE ?" parameter and key in the number of the program you wish to store the new data under. This number will begin to flash. Confirm your choice by pressing "ENTER"; the number will stop flashing and the weight check data stored.
Carry out the initial setting of the metal detector by following the procedure described in section 6.3.

Important: since this model does not contain a metal detector, please disregard the last instruction above.

Figure 6.3.1 Storing product data in a program.

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STORING PRODUCT DATA IN A PROGRAM
Make sure that there are still available programs in which to enter data, or decide which program to overwrite. (To overwrite a program file, just type the new data over the old and store it under the program number desired.)
Check that the data input on the "Product data - SETUP" page is the same as that shown in section 9.1 DATA TABLE.
Input all product data to be stored into the "RUN + * product data" page, leaving out those not used, for example, feed back or speed information.
Bring up the "STORE ?" parameter and key in the number of the program you wish to store the new data under. This number will begin to flash. Confirm your choice by pressing "ENTER"; the number will stop flashing and the weight check data stored.
Carry out the initial setting of the metal detector by following the procedure described in section 6.3.

Important: since this model does not contain a metal detector, please disregard the last instruction above.

Figure 6.3.1 Storing product data in a program.

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6.4 CHANGING FORMAT

Changing format is normally a very quick process that serves to prepare the machine for checking a different product than the one previously in production, using information stored through the procedure described in section 6.3 LOADING PRODUCTION FORMATS. Figure 6.4.1 illustrates how to recall data stored in one of the machine's one hundred available programs.

FROM THE MOMENT IT IS CALLED UP, THE FORMAT CHANGE OPERATION CAUSES THE PREVIOUSLY-ACTIVE PROGRAM TO CEASE: PROCESSED DATA FOR THE PREVIOUS PROGRAM IS SENT TO AN ARCHIVING DEVICE AND THE DATA IS CANCELLED AND CANNOT BE RETRIEVED.

RECALLING A PREVIOUSLY-STORED PROGRAM
Call up the "RECALL ?" parameter from the "RUN + * product data" page.
Make note of manually-input data, if necessary, or when no other storage device (printer, computer, etc.) is available.
Key in the number of the program you wish to access. The new number will begin to flash.
Confirm the change format operation by pressing "ENTER". The number will stop flashing and the program will be activated.
Check that the correct program has, in fact, been activated by calling up the "RUN + * product data" page.
At this point, production can begin.

Figure 6.4.1 Changing format.

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RECALLING A PREVIOUSLY-STORED PROGRAM
Call up the "RECALL ?" parameter from the "RUN + * product data" page.
Make note of manually-input data, if necessary, or when no other storage device (printer, computer, etc.) is available.
Key in the number of the program you wish to access. The new number will begin to flash.
Confirm the change format operation by pressing "ENTER". The number will stop flashing and the program will be activated.
Check that the correct program has, in fact, been activated by calling up the "RUN + * product data" page.
At this point, production can begin.

Figure 6.4.1 Changing format.

6.5 ALLARMI

This section will examine all alarm messages the machine displays, their causes and possible steps a line operator with a 01 or 02 skill qualification level can take to remedy them (see section 2.3 GENERAL SAFETY PRECAUTIONS). If the cause of the alarm requires the attention of more highly qualified personnel, consult Chapter 7 MAINTENANCE. Various possible ways to interface the machine with outside environments and related safety measures will also be discussed.
Let's examine the type of alarm messages the machine displays. There are two different types: system alarms and function alarms.
There are four system alarms for weight checking as indicated in figure 6.5.1, and five for the metal detector (not present in this model). These alarms often require either the substitution of the relative logic card or the cleaning of oxidation build-up on the contact points between the card and rack connector, using a special aerosol solvent. These contact points can be accessed by removing the card from its slot after having unscrewed the two screws at the top and bottom that hold it in place.

ALARM	CARD FAILURE
TEST ERROR 1	C.P.U.
TEST ERROR 2	ANALOG
TEST ERROR 3	INPUTS/OUTPUTS
TEST ERROR 4	KEYPAD

Figura 6.5.1 System errors (Checkweigher).

The function alarms refer to problems generated outside the system and include photocell and sensor, as well as production line malfunctions, for example, if the product to be handled is not uniform or jams.
The messages are visually displayed and some of them can be cleared from the display through the **Alarm Enable** parameter found in the "Machine data - SETUP" page.
If more than one alarm appears simultaneously, a page is created that can be called up by pressing "*" when the "RUN" key is activated.
The presence of just one alarm, even if it is not displayed, causes the "BREAK" key to light up and the 107 output to be activated, while, depending on the type of alarm, output 106 may also be activated as described below in this section.
Often these alarm situations can be solved by simply returning the machine to normal operating conditions, but they can sometimes require the intervention of maintenance personnel who must follow accepted safety procedures as indicated in Chapter 2 MACHINE OVERVIEW, using Chapter 7 MAINTENANCE as a reference.
These alarms can be interfaced with the outside through the connections located on the IN/OUT card (see section 5.9 CONNECTIONS).

The alarm messages are:

NO KEY : Applicable only if the key-switch actually appears next to the keypad. This messages appears when the key is missing and an attempt has been made to change the machine functioning mode (passing between the "SETUP", "CALIB", "TEST" or "RUN" pages) or data contained in the currently-operating program. The only operation that can be carried out without the key is the calling up of a previously-stored program. Use the "BREAK" key to clear.

UNDERWEIGHT : Appears when the weighing system registers a package weighing less than the value entered under the **Min. Weight** parameter. Use the "BREAK" key to clear.

OVERWEIGHT : Appears when the weighing system registers a package weighing more than the value entered under the **Max. Weight** parameter. Use the "BREAK" key to clear.

BIN FULL : Appears when a sensor located at the edge of a discard bin registers the continuous presence of the product, indicating that the bin is full. Use the "BREAK" key to clear.

PROGR. NOT OK : Appears if an attempt has been made to call up a non-existent program or if, when the machine is powered up, erroneous data has been detected in the currently-active program. Eliminated by the "BREAK" key and, in the former situation, by calling up an existing program. In the latter situation (erroneous data in the currently-active program), all parameters must be re-input first using the "CLEAR + * " keys when the machine is switched on, and then using the data in contained in section 9.1 DATA TABLE, re-enter all parameters required, including those concerning product characteristics. If data is lost again and the message reappears, the cause of the failure, generally electrical in nature (high level of line noise), must be eliminated.

% MAX - BATCH : Appears when the percentage of pieces in the less category "-" inside the current lot has reached the value entered under **% MAX - BATCH** in the "Machine data - SETUP" page. When this alarm appears, the machine automatically sets the **Thresh. - -** value equal to that of **Thresh. -** until the lot is completed, and therefore all packages weighing less than the **Thresh. -** value are ejected. Eliminated by the "BREAK" key when the lot is complete.

MD - - CONSEC : Appears when the **MD - - Consec.** parameter is not equal to zero, and is disactivated when set to 0. If a value is entered under this parameter, when the system registers a series of contaminated packages or pertaining to the "- -" category equal to the value entered, this alarm is activated. It can be used, for example, to halt the machine that fills the packages.

NO AUTO TARE : Appears when half of the total number of packages loaded into the **Batch Size** parameter have passed through the Checkweigher without the machine being able to perform the auto tare operation. Eliminated by the "BREAK" key after the auto tare has been performed by removing one or two packages from the production line (self-calibration takes place when the first package passes through following a stable signal equal to or greater than the value loaded into the **mS Tare Int.** parameter).

PCS LENGTH : Appears when the self-calibration photocell has been tripped by an object longer than the length entered for the **mm piece len** parameter. It can be caused either by too-low a value entered for **mm piece len** compared to the actual length of the product, or a package positioned badly as it moves through that registers as being longer than one correctly placed. Eliminated by the "BREAK" key.

PCS. DISTANCE : Appears when the auto tare photocell registers two packages closer than the distance present in the **mm pieces dist** parameter. In this case, the first package is considered NON WEIGHABLE and the appropriate output is activated. It can be caused by improper product feed or too-low speed for the number of product pieces, thus inhibiting correct distancing. Use the "BREAK" key to clear.

OFF ZERO : One of the causes of the activation of this alarm is when the OPTIMAL ZERO value set (see section 6.2 INITIAL SETTING OF THE CHECKWEIGHER) is 12.5% greater than the optimal value for the **Full Scale** used. Another situation that may trigger it is the carrying out of an auto tare when, because of a jam-up, there are packages present on the weighing conveyor. Use the "BREAK" key to clear the alarm after having adjusted the OPTIMAL ZERO value as explained in section 6.2, or having restored the line to correct operational status.

METAL FAULT : Appears when the metal detector electronics are not operating in a regular fashion. A number indicating the type of problem detected will appear next to the alarm.
NOTE: because this model does not contain a metal detector, this alarm will never appear.

NO AIR PRESS : Appears when the sensor that checks for the presence of pressurized air (located at the beginning of the pneumatic circuit), registers a pressure level inferior to the minimum acceptable level for the correct functioning of the system that ejects packages not conforming to set standards. Use the "BREAK" key to clear. If no sensors to check for air pressure are present, the input for the air pressure sensor is usually connected by a jumper to the +24V DC located on the terminal board.

EJECT FAULT : Appears only when a package that has triggered the activation of an output ("- -", "+ +", "NW", "MD") passes in front of the ejection check photocell placed after the ejection system, instead of being removed from the line. May be used to stop the checkweigher conveyor belt downline so that the package(s) not conforming to set batch standards may be removed manually.

6.1 GENERAL PRECAUTIONS

Before starting up the machine, make sure that everything in the previous chapters has been carefully read and understood, especially Chapter 2 MACHINE OVERVIEW and Chapter 5 PREPARING TO OPERATE THE MACHINE, both of which contain essential information about machine safety.

Once the above information is clear, start up the machine using the following procedure:

- ☐ Turn on electrical power to the electrical control box by throwing the main switch;
- ☐ Activate pressure to the filter/reduction unit;
- ☐ Wait for the self-test routine to finish.

At this point the machine is ready to be calibrated following the procedures laid out in this chapter and according to the special production and product requirements of each individual installation.

B SHIFT

FULL SCALE	TOTAL DIVISIONS	WORKING DIVISIONS	MAXIMUM WEIGHING	ZERO POINTS	OPTIMAL ZERO
1	24576	20000	21504	3072	1536
2	12288	10000	10752	1536	768
3	6144	5000	5376	768	384
4	3072	2500	2688	384	192
5	1536	1200	1344	192	96
6	768	600	672	96	48

Figure 6.2.1 FULL SCALE table

CARRYING OUT THE ZERO AND GAIN ADJUSTMENT
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Push the "CALIB." key once. The "DYNAMIC DIFF" parameter will appear along with a number to the right of it.
This number should correspond to the "OPTIMAL ZERO" value based on the total number of divisions and the FULL SCALE used (see table, figure 6.2.1). If the value displayed does not correspond to the OPTIMAL ZERO, make adjustments using the TRIMMER labelled ZERO on the panel of the ANALOG card.
Push down on the weighing conveyor and then let it slowly rise. The value displayed should always be that of the previous setting (OPTIMAL ZERO). If the original setting does not return, look fo some impediment (usually of a mechanical nature) that is creating friction and keeping the system from moving freely. Remove any impediments and repeat the procedure from the beginning.
-REPEAT THE FOLLOWING PROCEDURE AT LEAST THREE TIMES- Press the CLEAR button, check that the value "0" appears and then place a fairly heavy weight (but less than that indicated as the MAX WEIGHT in the table in figure 6.2.1) on the weighing conveyor. If the value displayed does not correspond to the weight on the conveyor, make adjustments using the TRIMMER labelled GAIN-COARSE on the ANALOG card panel. Remove the weight fromthe weighing conveyor.
Remove the weight and press the CLEAR key to see if the value returns to zero. Place the weight on the conveyor and, if the weight displayed is not correct, make adjustments using the TRIMMER labelled GAIN-FINE.
Repeat the last step until the machine returns to zero when the weight is removed from the conveyor.

Figure 6.2.2 Making the zero and gain adjustment.

HOW TO CALCULATE THE "DYNAMIC DIFF."
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Take a package whose "Dynamic Diff." you wish to calculate and get its exact weight.
Enter the (gross) weight under the "Nominal Wgt." parameter and enter 0 under "Nominal Tare".
Make note of these values, if necessary, and then reset by pressing "ENTER + CLEAR".
Pass the same package through at least 20 times, making sure it is accepted each time, i.e., that it does not fall under the "- -" or "+ +" category.
From the "Avg. Error T" parameter on the "Processed data - RUN" page, make note of the average error, i.e., the difference between the "Nominal Wgt." and "Inst. Weight".
Invert the sign on the "Avg. Error T" value and enter it under the "Dynamic Diff." parameter which is found under the data common to all programs.
Return to "Processed data - RUN" and begin production.

Figure 6.2 3 How to calculate the "DYNAMIC DIFF".

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HOW TO CALCULATE THE "DYNAMIC DIFF."
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Take a package whose "Dynamic Diff." you wish to calculate and get its exact weight.
Enter the (gross) weight under the "Nominal Wgt." parameter and enter 0 under "Nominal Tare".
Make note of these values, if necessary, and then reset by pressing "ENTER + CLEAR".
Pass the same package through at least 20 times, making sure it is accepted each time, i.e., that it does not fall under the "- -" or "+ +" category.
From the "Avg. Error T" parameter on the "Processed data - RUN" page, make note of the average error, i.e., the difference between the "Nominal Wgt." and "Inst. Weight".
Invert the sign on the "Avg. Error T" value and enter it under the "Dynamic Diff." parameter which is found under the data common to all programs. Return to "Processed data - RUN" and begin production.

Figure 6.2.3 How to calculate the "DYNAMIC DIFF".

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6.3 LOADING PRODUCTION FORMATS

As stated previously, there are one hundred (100) available programs, each of which can store information for a different product. These programs can be recalled easily through the **"Recall ?"** parameter. The table in figure 6.3.1 explains the procedure for inputing product data into an available program.

⚠ WHEN NEW DATA IS INPUT INTO AN ALREADY-EXISTING PROGRAM, THE VALUES PREVIOUSLY STORED IN THAT PROGRAM ARE PERMANENTLY ERASED BY THE NEW DATA.

STORING PRODUCT DATA IN A PROGRAM
Make sure that there are still available programs in which to enter data, or decide which program to overwrite. (To overwrite a program file, just type the new data over the old and store it under the program number desired.)
Check that the data input on the "Product data - SETUP" page is the same as that shown in section 9.1 DATA TABLE.
Input all product data to be stored into the "RUN + * product data" page, leaving out those not used, for example, feed back or speed information.
Bring up the "STORE ?" parameter and key in the number of the program you wish to store the new data under. This number will begin to flash. Confirm your choice by pressing "ENTER"; the number will stop flashing and the weight check data stored.
Carry out the initial setting of the metal detector by following the procedure described in section 6.3.

Important: since this model does not contain a metal detector, please disregard the last instruction above.

Figure 6.3.1 Storing product data in a program.

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6.4 CHANGING FORMAT

Changing format is normally a very quick process that serves to prepare the machine for checking a different product than the one previously in production, using information stored through the procedure described in section 6.3 LOADING PRODUCTION FORMATS. Figure 6.4.1 illustrates how to recall data stored in one of the machine's one hundred available programs.

FROM THE MOMENT IT IS CALLED UP, THE FORMAT CHANGE OPERATION CAUSES THE PREVIOUSLY-ACTIVE PROGRAM TO CEASE: PROCESSED DATA FOR THE PREVIOUS PROGRAM IS SENT TO AN ARCHIVING DEVICE AND THE DATA IS CANCELLED AND CANNOT BE RETRIEVED.

RECALLING A PREVIOUSLY-STORED PROGRAM
Call up the "RECALL ?" parameter from the "RUN + * product data" page.
Make note of manually-input data, if necessary, or when no other storage device (printer, computer, etc.) is available.
Key in the number of the program you wish to access. The new number will begin to flash.
Confirm the change format operation by pressing "ENTER". The number will stop flashing and the program will be activated.
Check that the correct program has, in fact, been activated by calling up the "RUN + * product data" page.
At this point, production can begin.

Figure 6.4.1 Changing format.

6.5 ALLARMI

This section will examine all alarm messages the machine displays, their causes and possible steps a line operator with a 01 or 02 skill qualification level can take to remedy them (see section 2.3 GENERAL SAFETY PRECAUTIONS). If the cause of the alarm requires the attention of more highly qualified personnel, consult Chapter 7 MAINTENANCE. Various possible ways to interface the machine with outside environments and related safety measures will also be discussed.
Let's examine the type of alarm messages the machine displays. There are two different types: system alarms and function alarms.
There are four system alarms for weight checking as indicated in figure 6.5.1, and five for the metal detector (not present in this model). These alarms often require either the substitution of the relative logic card or the cleaning of oxidation build-up on the contact points between the card and rack connector, using a special aerosol solvent. These contact points can be accessed by removing the card from its slot after having unscrewed the two screws at the top and bottom that hold it in place.

ALARM	CARD FAILURE
TEST ERROR 1	C.P.U.
TEST ERROR 2	ANALOG
TEST ERROR 3	INPUTS/OUTPUTS
TEST ERROR 4	KEYPAD

Figura 6.5.1 System errors (Checkweigher).

PROGR. NOT OK : Appears if an attempt has been made to call up a non-existent program or if, when the machine is powered up, erroneous data has been detected in the currently-active program. Eliminated by the "BREAK" key and, in the former situation, by calling up an existing program. In the latter situation (erroneous data in the currently-active program), all parameters must be re-input first using the "CLEAR + * " keys when the machine is switched on, and then using the data in contained in section 9.1 DATA TABLE, re-enter all parameters required, including those concerning product characteristics. If data is lost again and the message reappears, the cause of the failure, generally electrical in nature (high level of line noise), must be eliminated.

% MAX - BATCH : Appears when the percentage of pieces in the less category "-" inside the current lot has reached the value entered under **% MAX - BATCH** in the "Machine data - SETUP" page. When this alarm appears, the machine automatically sets the **Thresh. - -** value equal to that of **Thresh. -** until the lot is completed, and therefore all packages weighing less than the **Thresh. -** value are ejected. Eliminated by the "BREAK" key when the lot is complete.

MD - - CONSEC : Appears when the **MD - - Consec.** parameter is not equal to zero, and is disactivated when set to 0. If a value is entered under this parameter, when the system registers a series of contaminated packages or pertaining to the "- -" category equal to the value entered, this alarm is activated. It can be used, for example, to halt the machine that fills the packages.

NO AUTO TARE : Appears when half of the total number of packages loaded into the **Batch Size** parameter have passed through the Checkweigher without the machine being able to perform the auto tare operation. Eliminated by the "BREAK" key after the auto tare has been performed by removing one or two packages from the production line (self-calibration takes place when the first package passes through following a stable signal equal to or greater than the value loaded into the **mS Tare Int.** parameter).

PCS LENGTH : Appears when the self-calibration photocell has been tripped by an object longer than the length entered for the **mm piece len** parameter. It can be caused either by too-low a value entered for **mm piece len** compared to the actual length of the product, or a package positioned badly as it moves through that registers as being longer than one correctly placed. Eliminated by the "BREAK" key.

SPEED SENSOR : Appears when the (24VDC) signal of the encoder used to read conveyor belt speed and synchronize all product checking operations has not reached the TN223 IN/OUT card. Use the "BREAK" key to clear once the signal has been restored.

FA FAULT : The auto tare photocell has been blocked for too long or the read photocell has been tripped three times but no (24VDC) signal has reached the TN223 IN/OUT card at the auto tare photocell input. There may be a package in front of the photocell or the electrical circuit that delivers the (24VDC) signal to the TN223 card may be interrupted. It may also be caused by the photocell being set too high up, and therefore not tripped by passing objects. Use the "BREAK" key to clear once any blockage has been removed or the electrical circuit restored.

FL FAULT : The read photocell has been blocked for too long or the auto tare photocell has been tripped three times but no (24VDC) signal has reached the TN 223 IN/OUT card at the read photocell input. There may be a package in front of the photocell or the electrical circuit that delivers the (24VDC) signal to the TN223 card may be interrupted. It may also be caused by the photocell being set too high up, and therefore not tripped by passing objects. Use the "BREAK" key to clear once any blockage has been removed or the electrical circuit restored.

FC FAULT : Appears when the ejection check photocell placed right after the ejection system has been untripped for too long or when an "acceptable" package has passed in front of the read photocell but not in front of the ejection control sensor. Use the "BREAK" key to clear once any fault present has been remedied.

As can be seen above, all alarm situations can be eliminated by the "BREAK" key. If the alarm condition persists (output 107 remains active), the message is re-displayed within 60 seconds following the pressing of the "BREAK" key. If more than one alarm is active simultaneously, the machine displays the most serious one first, then, once the "BREAK" key is pressed, subsequent alarm messages are displayed.
When the "CALIBRATION" and "Machine data - SETUP" pages are active, the program cannot generate the alarm messages and the "BREAK" key does not function. These pages should only be entered when no alarm messages are displayed.

6.4

6.2 INITIAL SETTING OF THE CHECKWEIGHER

The initial setting procedure for the checkweigher is two-part: 1) regulation of the signal emanating from the weighing system and 2) calculation of the **Dynamic Diff.** We will call the regulation of the signal coming from the weighing system "ZERO AND GAIN ADJUSTMENT"; for the initial setting, follow the procedure described in this chapter, and for subsequent adjustments the one set out in section 7.2 PREVENTIVE MAINTENANCE.
The **Dynamic Diff.** must be calculated for every format change loaded into one of the machine's available programs, as well as each time a product characteristic or conveyor speed changes.
A detailed description for how to effect the ZERO AND GAIN ADJUSTMENT is laid out in the table in Fig. 6.2.2. There are two copies of this table, one to keep with the manual and the other to give to maintenance personnel. Once the ZERO AND GAIN adjustment has been carried out, the **Dynamic Diff.** must be calculated for each product following the procedure laid out in the table in Fig. 6.2.3 which also has a duplicate copy.

THE TWO SETTING OPERATIONS FOR THE CHECKWEIGHER ARE THE "ZERO AND GAIN ADJUSTMENT" AND THE "CALCULATION OF THE DYNAMIC DIFFERENCE", BOTH OF WHICH ARE ESSENTIAL FOR CORRECT MACHINE FUNCTIONING.

6.6

CARRYING OUT THE ZERO AND GAIN ADJUSTMENT
Turn on machine power, wait for the self test routine to finish and then insert the key, if it exists, into the front of the panel.
Push the "CALIB." key once. The "DYNAMIC DIFF" parameter will appear along with a number to the right of it.
This number should correspond to the "OPTIMAL ZERO" value based on the total number of divisions and the FULL SCALE used (see table, figure 6.2.1). If the value displayed does not correspond to the OPTIMAL ZERO, make adjustments using the TRIMMER labelled ZERO on the panel of the ANALOG card.
Push down on the weighing conveyor and then let it slowly rise. The value displayed should always be that of the previous setting (OPTIMAL ZERO). If the original setting does not return, look fo some impediment (usually of a mechanical nature) that is creating friction and keeping the system from moving freely. Remove any impediments and repeat the procedure from the beginning.
-REPEAT THE FOLLOWING PROCEDURE AT LEAST THREE TIMES- Press the CLEAR button, check that the value "0" appears and then place a fairly heavy weight (but less than that indicated as the MAX WEIGHT in the table in figure 6.2.1) on the weighing conveyor. If the value displayed does not correspond to the weight on the conveyor, make adjustments using the TRIMMER labelled GAIN-COARSE on the ANALOG card panel. Remove the weight fromthe weighing conveyor.
Remove the weight and press the CLEAR key to see if the value returns to zero. Place the weight on the conveyor and, if the weight displayed is not correct, make adjustments using the TRIMMER labelled GAIN-FINE.
Repeat the last step until the machine returns to zero when the weight is removed from the conveyor.

Figure 6.2.2 Making the zero and gain adjustment.

SPEED SENSOR : Appears when the (24VDC) signal of the encoder used to read conveyor belt speed and synchronize all product checking operations has not reached the TN223 IN/OUT card. Use the "BREAK" key to clear once the signal has been restored.

FA FAULT : The auto tare photocell has been blocked for too long or the read photocell has been tripped three times but no (24VDC) signal has reached the TN223 IN/OUT card at the auto tare photocell input. There may be a package in front of the photocell or the electrical circuit that delivers the (24VDC) signal to the TN223 card may be interrupted. It may also be caused by the photocell being set too high up, and therefore not tripped by passing objects. Use the "BREAK" key to clear once any blockage has been removed or the electrical circuit restored.

FL FAULT : The read photocell has been blocked for too long or the auto tare photocell has been tripped three times but no (24VDC) signal has reached the TN 223 IN/OUT card at the read photocell input. There may be a package in front of the photocell or the electrical circuit that delivers the (24VDC) signal to the TN223 card may be interrupted. It may also be caused by the photocell being set too high up, and therefore not tripped by passing objects. Use the "BREAK" key to clear once any blockage has been removed or the electrical circuit restored.

FC FAULT : Appears when the ejection check photocell placed right after the ejection system has been untripped for too long or when an "acceptable" package has passed in front of the read photocell but not in front of the ejection control sensor. Use the "BREAK" key to clear once any fault present has been remedied.

As can be seen above, all alarm situations can be eliminated by the "BREAK" key. If the alarm condition persists (output 107 remains active), the message is re-displayed within 60 seconds following the pressing of the "BREAK" key. If more than one alarm is active simultaneously, the machine displays the most serious one first, then, once the "BREAK" key is pressed, subsequent alarm messages are displayed.
When the "CALIBRATION" and "Machine data - SETUP" pages are active, the program cannot generate the alarm messages and the "BREAK" key does not function. These pages should only be entered when no alarm messages are displayed.

As has already been stated, interface between the alarms and environments outside the machine system can be accomplished in three ways. One is through output 107 that is always activated when an alarm situation is present. The second is through output 106 that is activated only when alarms selected using the **"Out 06 Enable"** parameter, or a critical alarm, are present. The third possibility is offered by the **"Alarm Enable"** parameter which allows or inhibits the display of some alarm messages. In the second and third cases, in order to display or activate output 106, the value or sum of values relative to the alarm messages to be displayed or sent to output 106 must be input into the respective parameter. Please note that a number of critical alarms are always present on both output 106 and 107.
The table in figure 6.5.2 gives the values for the alarms that can be selected and their presence on the display and output 106.

ALARM	Alarm Enable	Out 06 Enable
BIN FULL	1	1
PROGR. NOT OK	2	2
% MAX - BATCH	4	4
MD - - CONSEC	8	8
NO AUTO TARE	16	16
PCS. LENGTH	32	32
PCS. DISTANCE	64	64
OFF ZERO	128	128
METAL FAULT	FIXED	FIXED
NO AIR PRESS	FIXED	FIXED
EJECT. FAULT	FIXED	FIXED
SPEED SENSOR	FIXED	FIXED
FA FAULT	FIXED	FIXED
FL FAULT	FIXED	FIXED
FC FAULT	FIXED	FIXED
NO KEY	-	-
UNDERWEIGHT	FIXED	FIXED
OVERWEIGHT	FIXED	FIXED

Note: the METAL FAULT alarm cannot be activated on this model.

Figura 6.5.2 Alarm values.

7. MAINTENANCE

7.1 GENERAL PRECAUTIONS

This chapter describes the main maintenance operations and causes of machine malfunction.

ALL MAINTENANCE OPERATIONS MUST BE CARRIED OUT ACCORDING TO THE GENERAL SAFETY STANDARDS REQUIRED IN THE USER'S COUNTRY. IN PARTICULAR, THE PROVISIONS DETAILED IN SECTION 2.3 "GENERAL SAFETY PRECAUTIONS", 2.4 "PERSONAL MEANS OF PROTECTION" AND 2.5 "SAFETY MEASURES" SHOULD BE FOLLOWED.

When the machine is undergoing maintenance, electrical power must be cut off. To do so, switch off the main knife switch set up-line on the machine feeding line.

FOLLOWING ANY MAINTENANCE OPERATION, THE MACHINE SHOULD BE RE-STARTED BY THE TECHNICIAN RESPONSIBLE FOR MAINTENANCE WHO WILL CARRY OUT ALL NECESSARY PRELIMINARY CHECKS.

7.2 PREVENTIVE MAINTENANCE

In order to reduce machine down-time, always an undesirable occurrence, we advise the use of the preventive maintenance plan summarized in tables 7.2.1, 7.2.2 and 7.2.3. below. A duplicate copy of these table has been included for maintenance personnel, and they constitute a useful tool for carrying out preventive maintenance as well as identifying the cause of any breakdown which may arise. Should there be any doubt about how to dismantle a particular machine part, please refer to section 7.3 DISASSEMBLING.

MAINTENANCE OF MECHANICAL COMPONENTS

PART	OPERATION	EVERY	DATE
ROLLERS	check for wear	90 days	___ ___ ___
BELTS	check tension	15 days	___ ___ ___
BELTS	check for wear	90 days	___ ___ ___
CONVEYORS	check tension	15 days	___ ___ ___
CONVEYORS	check centering	15 days	___ ___ ___
CONVEYORS	check for wear	60 days	___ ___ ___
PINIONS	check for wear	60 days	___ ___ ___
BEARINGS	check for wear	3000 hours	___ ___ ___

Fig. 7.2.1 Mechanical preventive maintenance. MANUAL COPY.

MAINTENANCE OF MECHANICAL COMPONENTS

PART	OPERATION	EVERY	DATE
ROLLERS	check for wear	90 days	___ ___ ___
BELTS	check tension	15 days	___ ___ ___
BELTS	check for wear	90 days	___ ___ ___
CONVEYORS	check tension	15 days	___ ___ ___
CONVEYORS	check centering	15 days	___ ___ ___
CONVEYORS	check for wear	60 days	___ ___ ___
PINIONS	check for wear	60 days	___ ___ ___
BEARINGS	check for wear	3000 hours	___ ___ ___

Fig. 7.2.1 Mechanical preventive maintenance. MAINTENANCE COPY.

MAINTENANCE OF ELECTRICAL COMPONENTS

PART	OPERATION	EVERY	DATE
PHOTOSENSOR	check centering	10 days	__ __ __
PHOTOSENSOR	wipe dust off	5 days	__ __ __
SPEED ENCODERS	check blocking rings clamping	30 days	__ __ __
SOLENOID VALVE	check triggering	24 hours	__ __ __
TERMINAL BOARDS	tighten screws	120 days	__ __ __
PRINTER	check ribbon	24 hours	__ __ __
PRINTER	check paper	24 hours	__ __ __
MOTOR BRUSHES	check for wear	500 hours	__ __ __
ZERO AND GAIN ADJ.	check settings	10 days	__ __ __

Fig. 7.2.2 Electrical preventive maintenance. MANUAL COPY.

MAINTENANCE OF ELECTRICAL COMPONENTS

PART	OPERATION	EVERY	DATE
PHOTOSENSOR	check centering	10 days	___ ___ ___
PHOTOSENSOR	wipe dust off	5 days	___ ___ ___
SPEED ENCODERS	check blocking rings clamping	30 days	___ ___ ___
SOLENOID VALVE	check triggering	24 hours	___ ___ ___
TERMINAL BOARDS	tighten screws	120 days	___ ___ ___
PRINTER	check ribbon	24 hours	___ ___ ___
PRINTER	check paper	24 hours	___ ___ ___
MOTOR BRUSHES	check for wear	500 hours	___ ___ ___
ZERO AND GAIN ADJ.	check settings	10 days	___ ___ ___

Fig. 7.2.2 Electrical preventive maintenance. MAINTENANCE COPY.

MAINTENANCE OF PNEUMATIC COMPONENTS

PART	OPERATION	EVERY	DATE
REDUCTION UNIT	Drain condensation water	10 days	___ ___ ___
FILTER	Clean	10 days	___ ___ ___
PIPES	Check for leakages	30 days	___ ___ ___
SOLENOID VALVE	Check discharge holes	10 days	___ ___ ___

Fig. 7.2.3 Pneumatic preventive maintenance. MANUAL COPY.

MAINTENANCE OF PNEUMATIC COMPONENTS

PART	OPERATION	EVERY	DATE
REDUCTION UNIT	Drain condensation water	10 days	___ ___ ___
FILTER	Clean	10 days	___ ___ ___
PIPES	Check for leakages	30 days	___ ___ ___
SOLENOID VALVE	Check discharge holes	10 days	___ ___ ___

Fig. 7.2.3 Pneumatic preventive maintenance. MAINTENANCE COPY.

7.3 DISASSEMBLING

This section describes the disassembling procedures and most frequently required adjustments during normal machine operation. These are useful as part of a comprehensive preventive maintenance plan, as described in the previous section.

The compontents examined below are:

- Rollers
- Conveyors and vibration dampers
- Belts and reducers
- Speed encoders
- Optical fiber photosensor
- Electronic cards

ROLLERS

All rollers are normally self-lubricated, and therefore do not require special maintenance, except for a periodic wear check. All rollers on the machine are adjusted to stretch and exactly center the conveyor belts as indicated in figure 7.3.1 . To disassemble and replace rollers, the adjusting screws shown in figure 7.3.1 must always be completely loosened, then the rollers can be removed sideways with respect to the running direction.

IN ORDER TO CARRY OUT THIS OPERATION CORRECTLY WITHOUT CAUSING DAMAGE, THE ENTIRE CONVEYOR UNIT MUST BE DISMANTLED FROM THE MACHINE STRUCTURE.

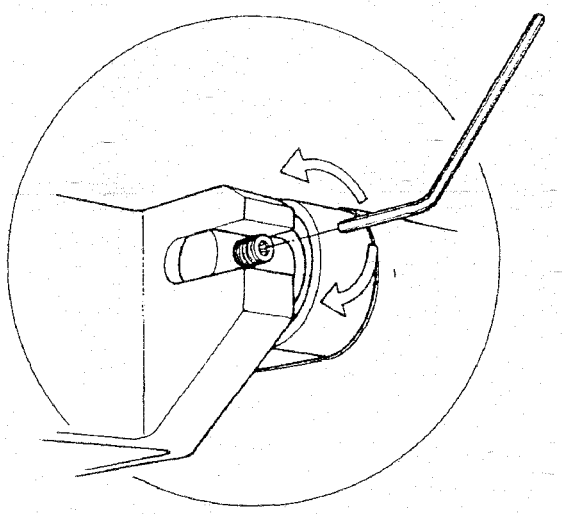

Figure 7.3.1 Detail of the roller adjustment and disassembling screw.

CONVEYORS AND VIBRATION DAMPERS

In order to avoid damaging the weighing apparatus or vibration damping unit located between the scalepan and the machine structure, some adjustment operations such as the changing of the rollers or conveyor belts require the complete disassembling of the weight detection system's conveyor unit. In order to remove this unit, loosen the four clamping screws, as indicated in figure 7.3.2., and disconnect the motor connectors located underneath the conveyor belt itself. The scalepan is supported by four vibration-damping units which are, in turn, supported by the main structure. The dimensions of these vibration dampers have been specially conceived to reduce equipment vibration to a minimum. They can be easily disassembled, as shown in figure 7.3.2.

It is also advisable to disassemble the units if maintenance work has to be done on the infeed and outfeed conveyors. In order to remove these conveyors, disconnect the cables running from the motors to the terminal board which is fitted in the lower housing of the machine. Then loosen the four clamping screws shown in figure 7.3.2.

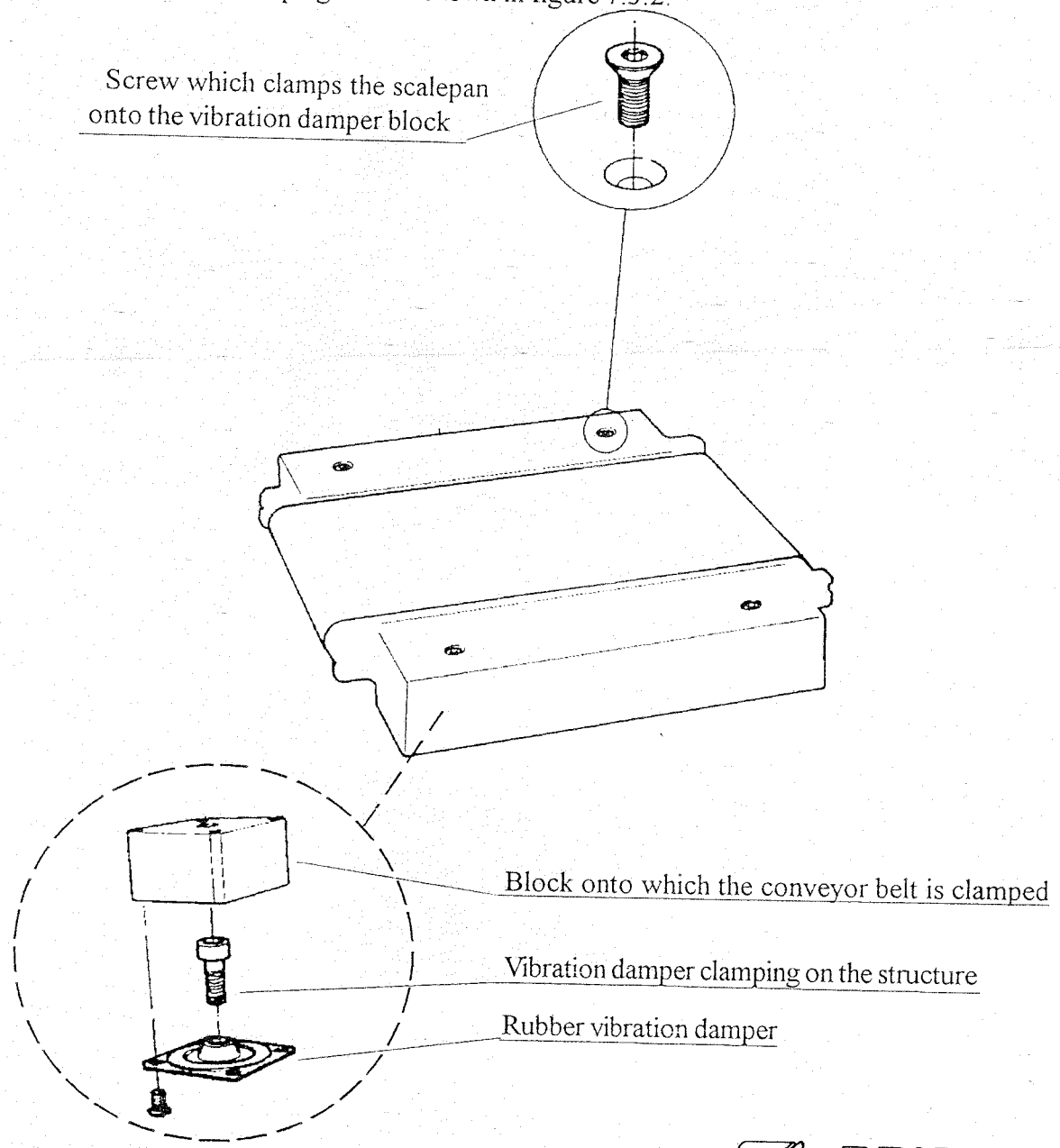

Figure 7.3.2 Conveyor and vibration damper.

BELTS AND REDUCTION UNITS

The belts as well as the chains must be periodically checked for tension and wear in order to reduce the undesirable consequences of machine downtime as much as possible.
Always keep in mind that there are two belts on the infeed conveyor and two others on the outfeed conveyor. One is contained within the reduction unit, whereas the other transmits the movement to the conveyor (see figure 7.3.3). To adjust the belt tension inside the reduction unit, loosen the clamping screws of the reduction unit itself. When loosened, the reduction unit can be regulated based on motor performance. To adjust the drive belt, the motor must be rotated and then blocked by means of its clamp. The tension of the reduction unit belt must be adjusted so that its maximum swing is two millimeters (Figure 7.3.5), and for the drive belt three millimeters, as indicated in the figure 7.3.4 on the next page.

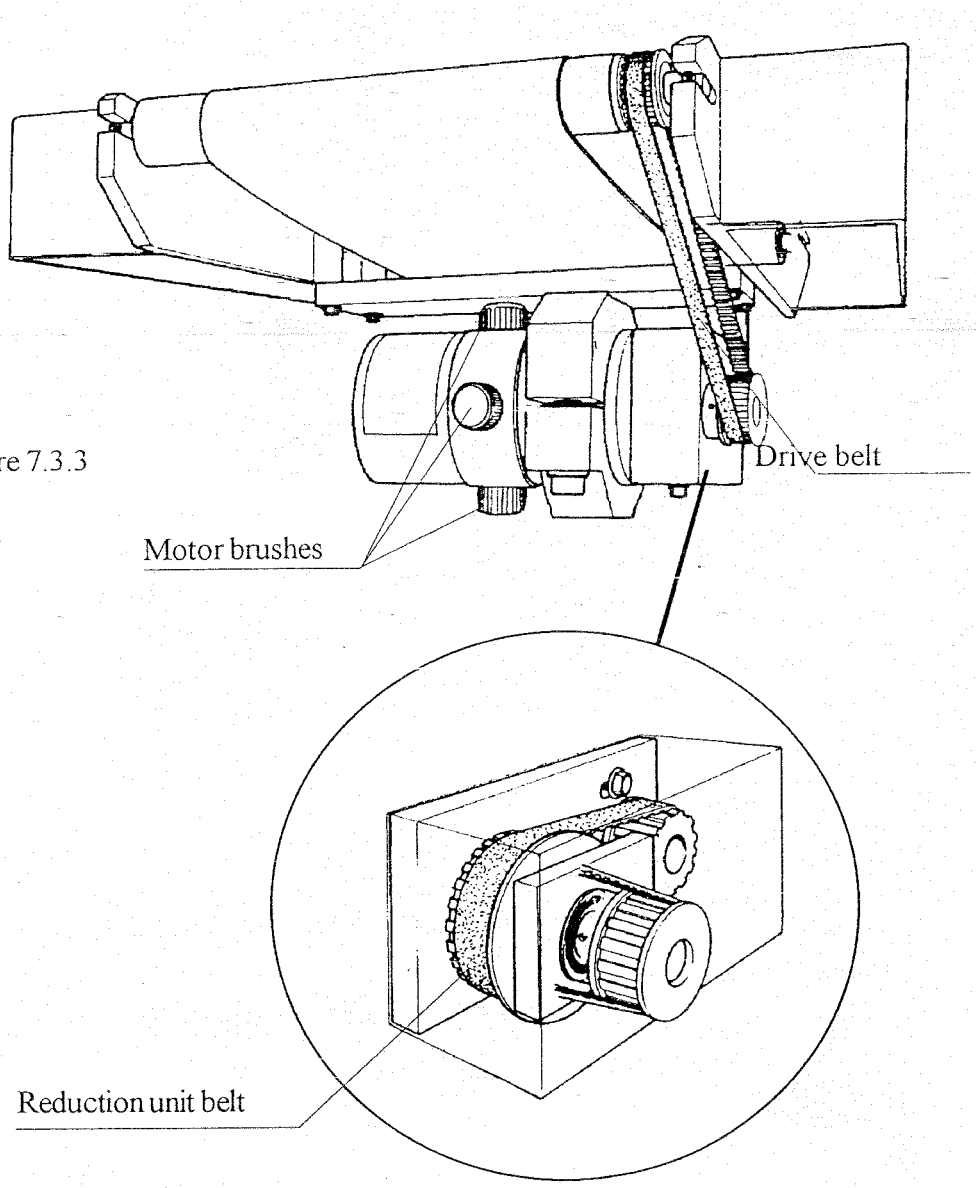

Figure 7.3.3

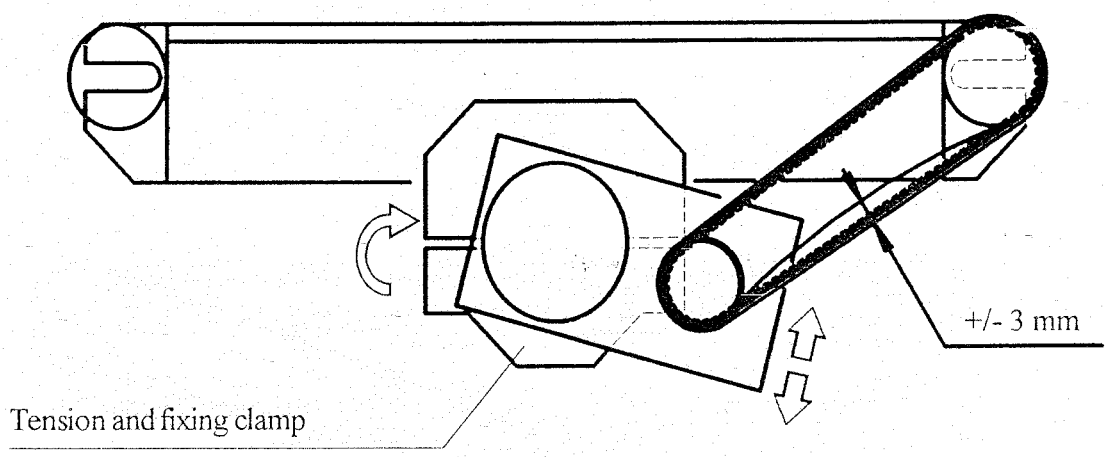

Figure 7.3.4 Belt drive.

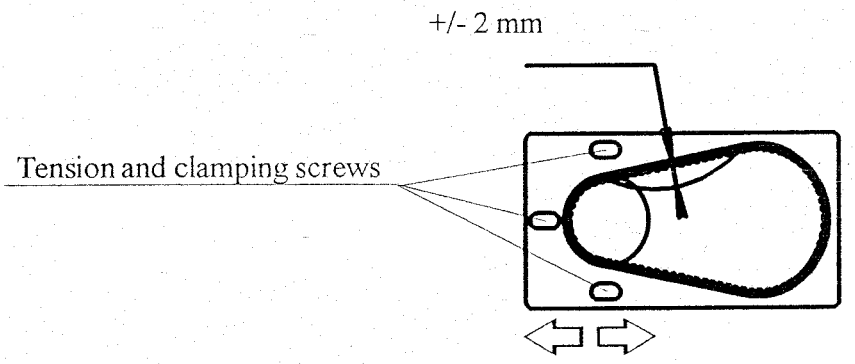

Figure 7.3.5 Reduction unit.

If the version of the machine on which the checks and adjustments are to be carried out does not have reduction gears, there is only one belt and this transmits the motion directly from the motor shaft to the conveyor. In order to adjust the tensioning of the belt, shift the motor support after having loosened the screws locking it in place. The belt must be tightened in such a way that there is a maximum oscillation of three millimetres (see Figure 7.3.6).

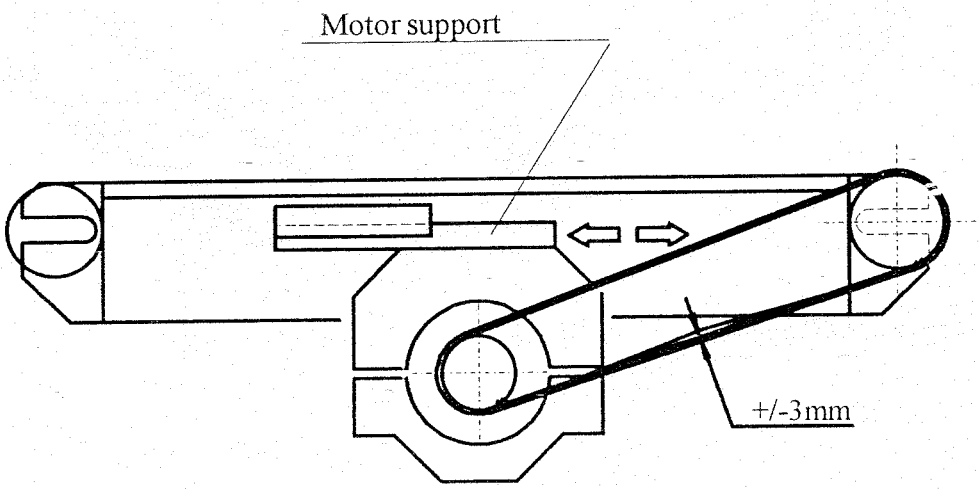

Figure 7.3.6

SPEED ENCODER

There is a pinion attached to the gearmotor shaft of the outfeed conveyor motor. This is appropriately sized and enables the constant reading of the conveyor speed through a proximity sensor. This reading is of fundamental importance for the correct functioning of all machine operations.
Figure 7.3.7 indicates the position the sensor must occupy in order to read the speed. Figure 7.3.8 shows the required position of the pinion for reading the speed.

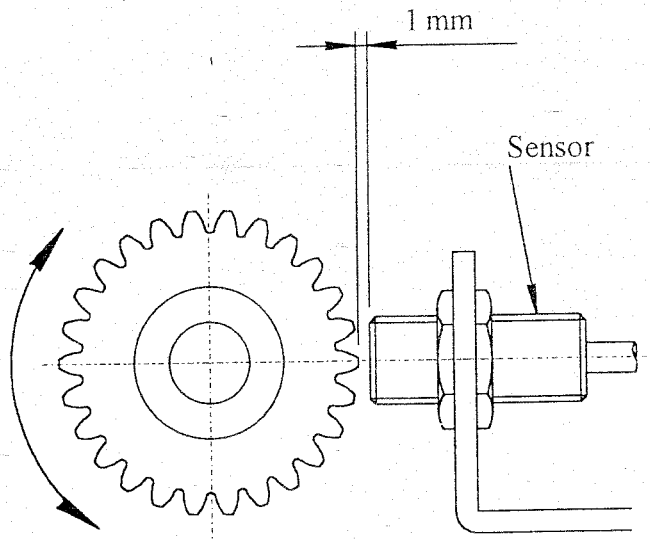

Figura 7.3. 7

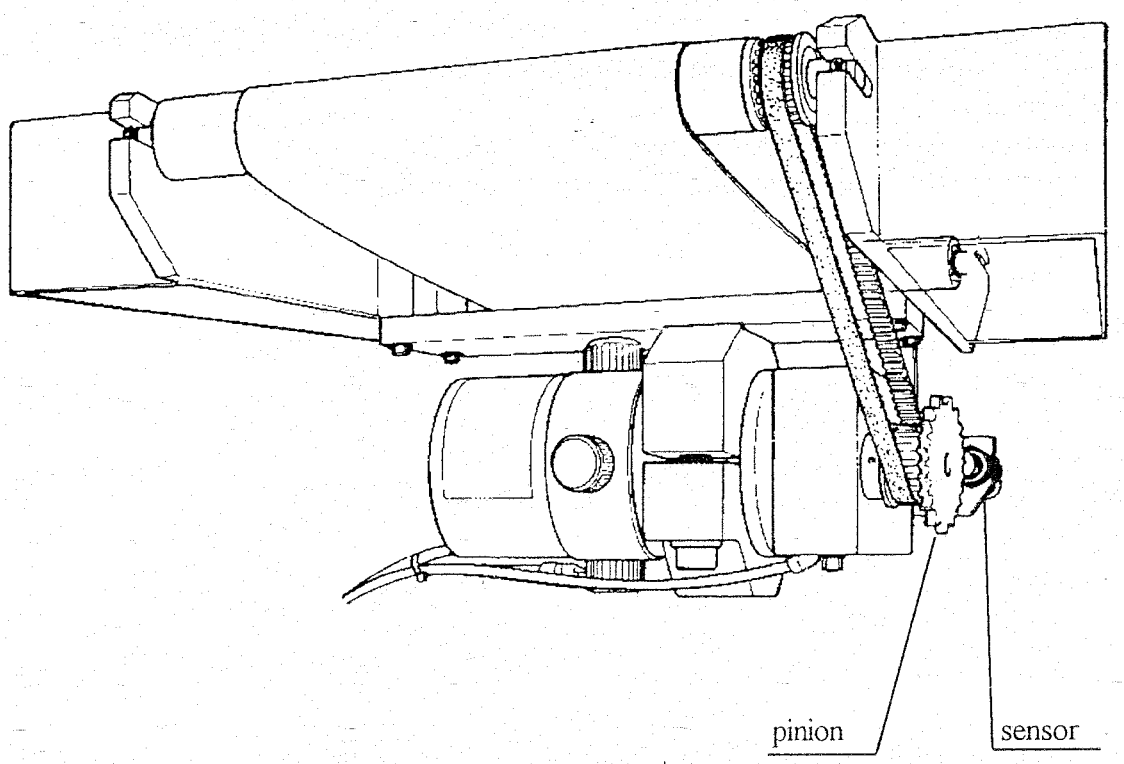

Figure 7.3.8. Position of the pinion and speed encoder

PHOTOSENSORS

Various types of photosensor are installed on the machine: fibre optics type, direct reflection type and barrier type, i.e. able to both transmit and receive.
In the latter system the two devices (transmitter and receiver) must be aligned.
When not aligned, or when a foreign body blocks the beam between the transmitter and receiver, the photosensor is "engaged", resulting in a different signal than the one normally sent when no product passes through.
The photosensors must, therefore, be kept aligned and the signal eye cleaned regularly.
To disassemble the photosensors, loosen the ring nuts from their supports and then disconnect the fibre optics from the amplifier unit fitted on the terminal board inside the machine's lower housing. On the barrier-type photosensors, the fibre optics can be disconnected by slightly loosening off the ring nut holding the fibre itself in place (Fig. 7.3.9).

THE POSITION OF THE PHOTSENSOR IS DETERMINED ON THE BASIS OF SYSTEM AND PRODUCT CHARACTERISTICS. IF THEIR ORIGINAL POSITION IS MODIFIED, IT COULD AFFECT THE CORRECT FUNCTIONING OF THE ENTIRE SYSTEM.

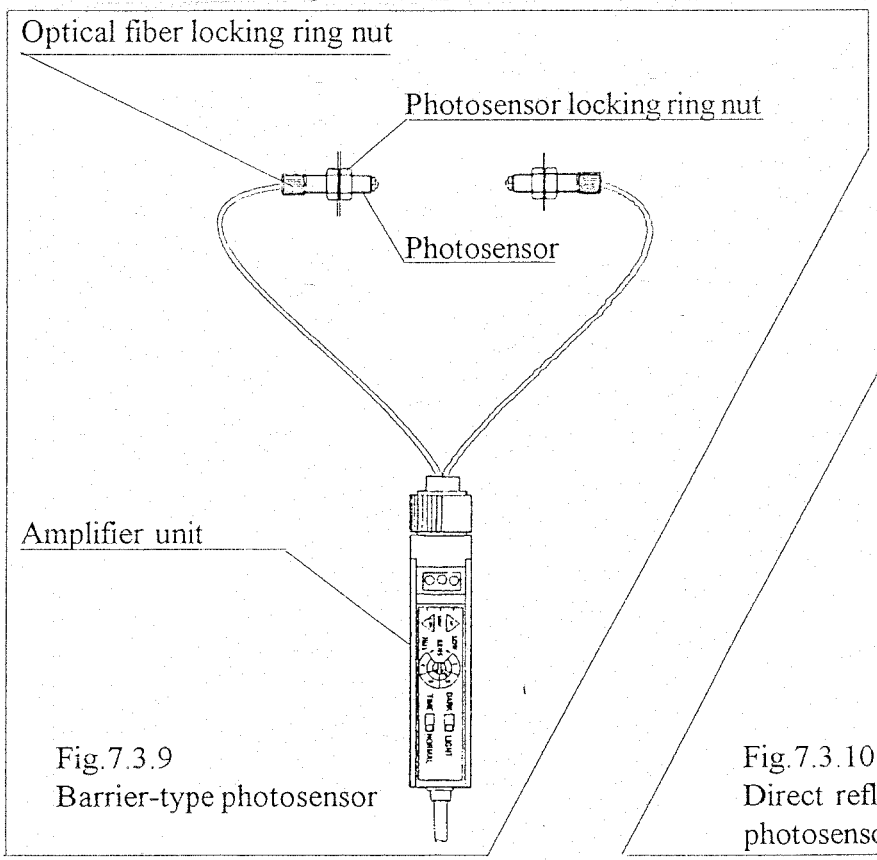

Fig.7.3.9
Barrier-type photosensor

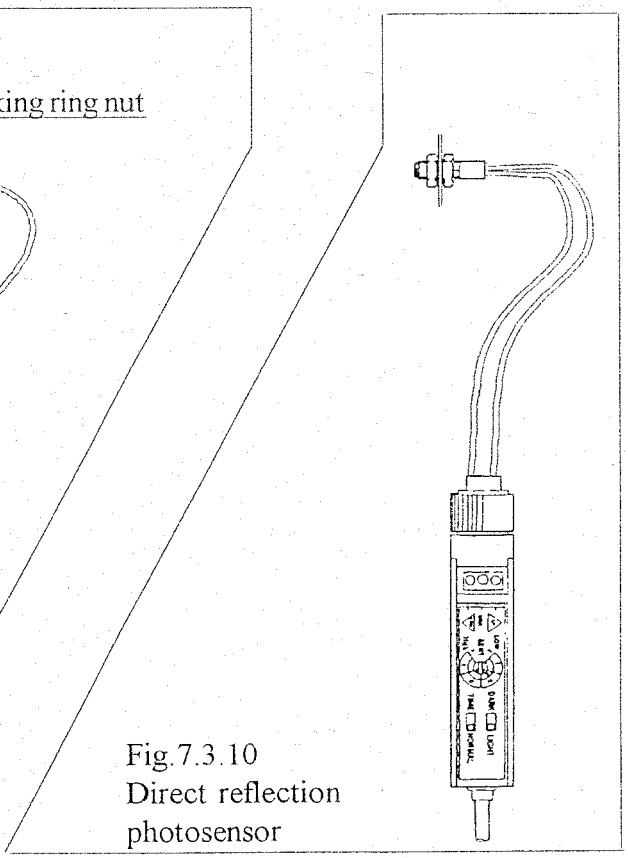

Fig.7.3.10
Direct reflection photosensor

MOTOR BRUSHES

Located on the infeed and weighing conveyors are direct current motors with four drive brushes that must be replaced when worn. To replace, disassemble the motor, disconnect the power supply wire and loosen the clamp. To reach the brushes, remove the four plastic protective coverings (by simply lifting them off), and unhook the anchoring springs located directly under the plastic coverings (see figure 7.3.3).

ELECTRONIC CARDS

It may be necessary to dismantle the electronic cards in order to carry out adjustment or maintenance operations. This operation is not difficult, but should be done with care. On some models, the frame fastening screws must be removed in order to extract the card. On others, the red hooks attached to the frame must be released while simultaneously withdrawing the card (see figure 7.3.11). The TN 223 (In/Out) connector/interface is attached using two screws embedded as shown in the figure below.

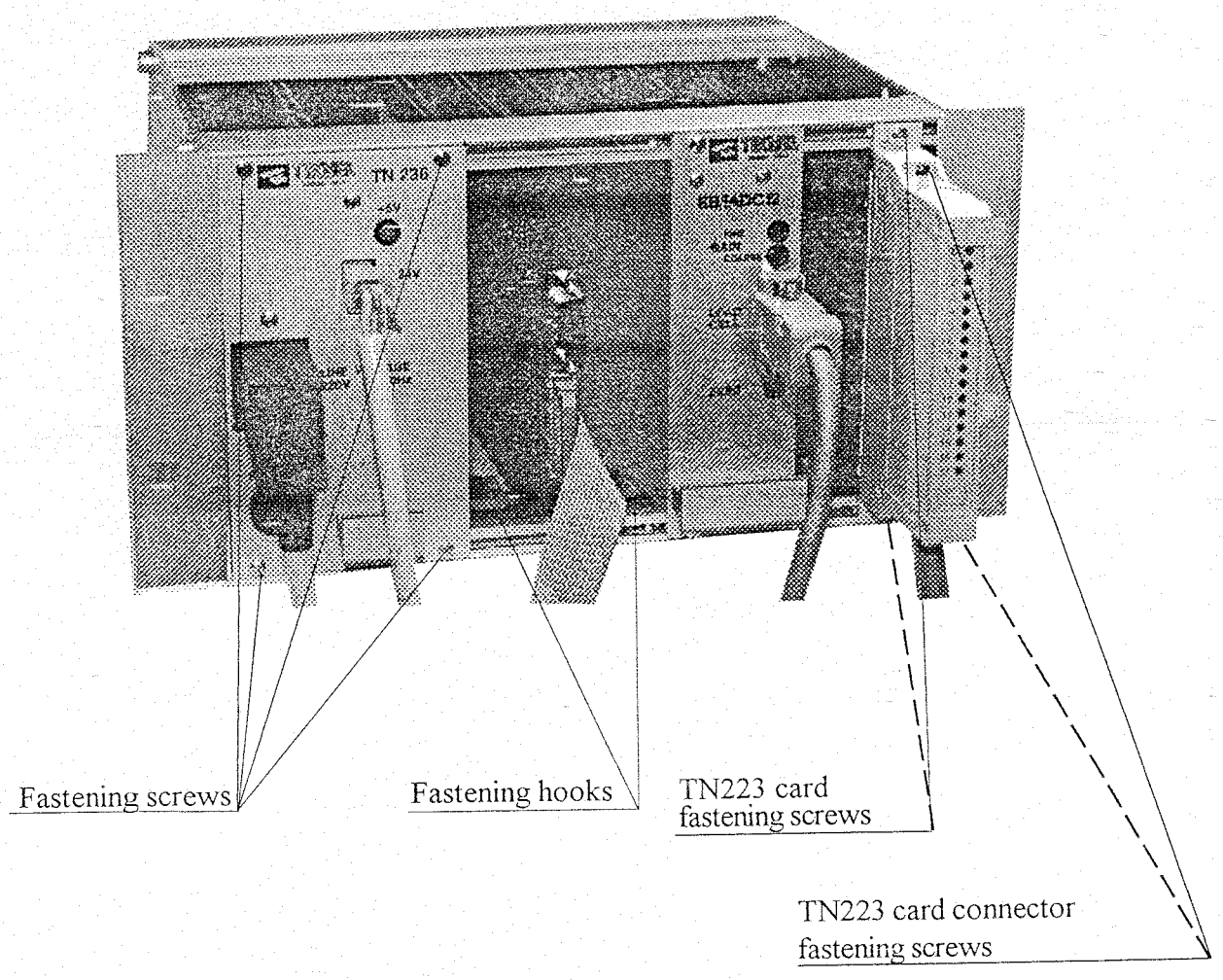

Figure 7.3.11

7.4 TROUBLESHOOTING

This section examines the most frequent problems that may arise during machine operation and the steps which can be taken to solve them.

SHOULD SERIOUS MACHINE DAMAGE OCCUR WHICH TECHNICIANS WITH QUALIFICATION LEVELS 1 AND 2 ARE UNABLE TO SOLVE, PLEASE REFER TO SECTION 2.2 "TECHNICAL ASSISTANCE" FOR THE CORRECT MODE OF RESOLVING THE PROBLEM.

To resolve problems signalled by the display of alarm messages, refer to section 6.6 ALARMS.

PROBLEM : - When the ON button is pressed, the conveyors fail to move, but the power indicator lights up

SOLUTIONS : - Check that the fuses on the motor speed control card are in good working order (refer to section 8.2 ELECTRICAL DRAWINGS).
- Check that the electrical conductors which bring the current to the motors are connected correctly.
- Check for motor brush wear.

PROBLEM : - When the ON button is pressed, nothing happens.

SOLUTIONS : - Check that 24VDC voltage is being supplied by the card of the power supply unit, which houses the 24VDC protection fuses on its panel.

PROBLEM : - When the same object passes through several times, the weight readouts vary greatly.

SOLUTIONS : - Check that the calibration and speed adjustment have not been modified and that the data on the "machine data - SETUP" page have not been changed.
- Check that no strong vibrations are present on the conveyor due to wear of mechanical parts, such as rollers, bearings, belt, motor
- Check that the packages are not moving about as they pass through on the weighing conveyor, as this could cause some disturbance.
- Check that the weighing conveyor is free to move and in particular that there are no bits of product between the weighing unit and the machine frame.
- Check that no abrupt movements from nearby equipment, even occasional as a consequence of a particular action, are causing the weighing system to vibrate.
- Check that the self-calibration photocell is being tripped before the package enters into contact with the weighing conveyor.

PROBLEM : - When packages pass through, they are not always weighed.

SOLUTIONS : - Check that packages are of the right length with respect to the "**mm piece len**" value set in the " machine data - SETUP" page.
- Check that packages are correctly spaced with respect to the "**mm pcs dist**" value entered in the page of data common to all programs.

PROBLEM : - The packages are not ejected correctly.

SOLUTIONS : - Check that the "—" and "++" ejection limits are correctly set and with the relevant sign (+/-).
- Check that the ejection device is in good working order by operating the solenoid valve manually.
- Check that the " **DELAY --/++/NW**" parameters are correctly set.
- Check that the values of the "**Ej. Time --/++/NW**" parameters are correctly set. Times may be too short and therefore the actuator (cylinder, flap etc.) may not be activated before the ejection time has elapsed.

PROBLEM : - The machine is working, but during normal operation the weight read no longer corresponds to the real weight of the object.

SOLUTIONS : - The machine is set to carry out the self-adjustment of the zero value, but it must be given the opportunity to do so at least once every hour (see the description of the "**mS Tare Int**" parameter on the page common to all programs).

PROBLEM : - The machine is working, but does not transmit information to the data storage or printing systems.

SOLUTIONS : - Check that the connectors and cables are correctly hooked up (e.g., check for severed cables or unplugged connectors).
- Press the "SEND" and then "PRINT" keys to effect manual transmission of the data stored.
N.B.: If a lot has never been completed (see "**Batch Size**"), for the transmission system to operate correctly, first carry out the automatic completion of a lot.

PROBLEM : - The machine is in good working order but, after a period of time without being connected to the power supply source, when it is next switched on data is lost and the "**PROGR NOT OK**" alarm appears.

SOLUTIONS : - Simultaneously press the "CLEAR" and "*" keys and, while holding them down, feed power to the machine to enter the pre-set data values which can then be changed manually according to the data supplied in the table in Chapter 9 APPENDICES.

PROBLEM : - When the main switch is turned on, the electronic equipment is not activated.

SOLUTIONS : - Check the electronic equipment fuses
- Check that the flying plug for the 220VAC power supply normally connected to the power supply unit card is correctly plugged into the socket.

8. DRAWINGS AND DIAGRAMS

8.1 PART LAYOUT

Layouts of all parts making up the electrical circuit can be found on the pages which follow.

8.2 ELECTRICAL WIRING DIAGRAMS

All electrical wiring diagrams can be found on the pages which follow.

9. APPENDICES

9.1 DATA TABLE

The page which follows is part of the files kept by PRISMA INDUSTRIALE s.r.l. for each machine and shows the data calculated when the machine was manufactured. Since this data is specific to the machine for which this manual was prepared, the latter cannot be used for any other machine, even of the same model.