



**MACHINES AND EQUIPMENT FOR PCB
PRODUCTION**

**COMPANY
WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001 : 2000 =**

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OPERATING AND MAINTENANCE MANUAL

MODULE:

**UNLOADER
Mod. 650/06**

DICHIARAZIONE DI CONFORMITA' / DECLARATION OF CONFORMITY
KONFORMITÄTERKLÄRUNG / DECLARATION DE CONFORMITÉ
DECLARACIÓN DE CONFORMIDAD/ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ



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MODELLO / MODEL

UNLOADER Mod. 650/06

N° MATRICOLA / SERIAL NUMBER

3495/2006

ANNO DI COSTRUZIONE / YEAR OF MANUFACTURE

2006

OCCLEPPO S.R.L. DICHIARA sotto la sua esclusiva responsabilità che la macchina a cui la presente dichiarazione si riferisce è conforme alle prescrizioni delle seguenti direttive:

OCCLEPPO S.R.L. DECLARES on its own responsibility that the machine to which the declaration refers, conforms with the prescription at the following directives:

DIRETTIVE

98/37 CEE - 73/23 CEE - 89/336 CEE - 91/263 CEE - 92/31 CEE - 93/68 CEE

DIRECTIVES

98/37 EEC - 73/23 EEC - 89/336 EEC - 91/263 EEC - 92/31 EEC - 93/68 EEC

LUOGO / PLACE/ MECTO:

VIA LAGO N. 39 13040 ALICE CASTELLO (VC)

COGNOME - NOME - / SURNAME - NAME

OCCLEPPO FRANCESCO

POSIZIONE / POSITION

PRESIDENT

DATA / DATE

15/05/2006

Firma / Signature



This chapter reports the general index for an easy consultation of the operating and maintenance manual of "UNLOADER MODULE Mod. 650/06".

Each chapter is divided in paragraphs (ex. 1.1 Introduction) and in possible subparagraphs (ex. 5.4.1 Cleaning of the module is the subparagraph of paragraph 5.4 Suggestions for maintenance).

Each chapter is identified and easily traceable through a dividing which reports the number of the chapter and then, the number of the chapter appears in the heading of the different pages of the chapter, on top right.

NOTE:

Before working on the equipment, it is necessary that all personnel, (conductors, workers, maintenance engineers, personnel assigned to the use of the line) has read with attention all instructions contained in the following manual.



0. GENERAL INDEX

CHAPTER 1	GENERAL INFORMATION
CHAPTER 2	DESCRIPTION OF THE MODULE
CHAPTER 3	SAFETY AND PROTECTION
CHAPTER 4	TRANSPORT AND INSTALLATION
CHAPTER 5	MAINTENANCE



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1. GENERAL INFORMATION

1.1 Introduction

The purpose of this manual is to give all personnel, the necessary information to use the "UNLOADER MODULE Mod. 650/06".

All information contained must make sure that all personnel using the equipment, can work in conditions of utmost safety, assuring a perfect efficiency of the module for all his period of life.

All subjects: installation and maintenance of the module are treated with particular care to the safety devices.

This manual must be kept together with all technical documentation, of whom is an integral part, in a place accessible to the personnel who must work on the module.

NOTE:

Before working on the equipment, it is necessary that all personnel, (conductors, workers, maintenance engineers, personnel assigned to the use of the line) has read with attention all instructions contained in the following manual.

1.2 How to use this manual

The manual is divided in 6 chapters:

Chapter 0 – General Index

It contains the general index of the manual and his subdivision.

Chapter 1 – General Information

It contains all information on the structure of the manual, the subjects treated, the definitions, the symbology used and the formalities for the requiring of technical service.

Chapter 2 Description of the module

It contains all technical information on the structure of the module and on his parts.

Chapter 3 – Safety and protections

It contains the description of all safety devices used and of all necessary instructions to work in safety conditions.

**Chapter 4 – Transport and installation**

It contains the instructions for the packing of the module and his transport.

Chapter 5 – Maintenance

It contains the disposals for maintenance for the setting-up of the module.

1.3 Conventions used in the manual

Some symbols are used in the manual in order to attract the attention of the reader.

**WARNING**

These instructions must be performed with attention in order to avoid accidents.

**CAUTION**

These instructions must be performed with attention in order to avoid damages to the module and/or his parts.

NOTE:

It contains important information and useful suggestions for the working of the module.



1.4 Safety rules

Before operating on the module, all factory personnel, workers and maintenance technicians, must read this manual and must know all safety rules.

Definitions used

Some terms are specified, in order to better understand the manual.

• Machine Directive

Machine Directive is the DIRECTIVE OF THE COUNCIL OF THE EUROPEAN COMMUNITIES 98/37 of 22 June 1988 which concerns the reapproaching of the legislations of the States members concerning the equipment.

• Low-tension Directive

Low-tension Directive is the DIRECTIVE OF THE COUNCIL OF THE EUROPEAN COMMUNITIES 73/23 of 19 February 1973, and the following directives which modify his content respectively 93/68 CEE of 22 July 1993, which concerns the reapproaching of the legislations of the states members concerning all electrical material destined to be used within certain limits of tension.

• EMC Directive

EMC Directive is the DIRECTIVE OF THE COUNCIL OF THE EUROPEAN COMMUNITIES 89/336 of 3 May 1989, and the following directives which modify his content respectively 91/263 CEE of 29 April 1991 – 92/31 CEE of 28 April 1992 e 93/68 CEE of 22 July 1993, for the reapproaching of the legislations of the states members concerning the electro-magnetic compatibility.

• TECHNICAL NORMS

The technical norms are the harmonized norms EN UNI for the application of the definitions contained in the community directives:

EN 292-1

EN 292-2

EN 292-2/A2

EN 954-1

EN 60204-1

EN 60439-1

• Working zone

The working zone is the protected area, delimited by accident prevention protections and intended to the working of the line.

• Dangerous zone

The dangerous zone is any zone inside and/or in proximity of the machine where the presence of an exposed person represents a risk for the safety and the health of the same person (Attachment 1 – Paragraph 1.1.1 Directive 98/37 CEE).

• Exposed person

It is called exposed person, every person who finds completely or in part in a dangerous zone (Attachment 1 – Paragraph 1.1.1. Directive 98/37 CEE).



- **Operator**

It is called operator the person or the persons appointed to put in function, regulate, make the maintenance, clean, repair and transport an equipment. (Attachment 1 – Paragraph 1.1.1 Directive 98/37 CEE).

- **Authorized personnel**

It is called authorized personnel all persons opportunely trained and delegated to make the different activities and operations listed in the manual.

- **Qualified technician**

It is called qualified technician a skilled, trained person who makes whether operations of setting-up and starting of the equipment or operations of extraordinary maintenance and repairs which need a good knowledge of the equipment, his working and all safety rules.

1.5 Warranty and responsibility of the manufacturer

OCCLEPPO S.R.L. assures that the "UNLOADER MODULE Mod. 650/06" is covered by the Occleppo warranty **for twelve months after the starting of the module.**

During that period OCCLEPPO S.R.L. engages to guarantee all service operations, in order to eliminate evident defects noticed by the Customer, on condition that the "UNLOADER MODULE Mod. 650/06" is only used for the agreed use and that all rules contained in the manual are respected.

OCCLEPPO S.R.L. declines all responsibility coming from an improper use of the "UNLOADER MODULE Mod. 650/06".

It is a responsibility of the Customer, to make sure that all technicians assigned to the use and maintenance of the module, is qualified to make the required activity, knows and observes all prescriptions contained in this manual and all safety rules referring to accident prevention.

**CAUTION**

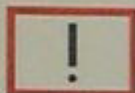
The non-observing of all safety laws can cause incidents, arousing damages to people and/or to the equipment.



1.6 Responsibility of the user

It is responsibility of the user of the "UNLOADER MODULE Mod. 650/06" to train all personnel assigned to the management and maintenance so to work in safety conditions, respecting all laws on the matter.

It is also a responsibility of the user, to make periodical and scheduled tests of the good working of all security systems.



CAUTION

The improper use of the equipment, and/or the eventual damaging of the safety systems can cause serious accidents to the personnel who works on the equipment.

1.7 Spare parts

In order to guarantee the efficient working of the "UNLOADER MODULE Mod. 650/06", the Customer must always buy original spare parts.

1.8 Technical service

The requests for technical assistance should be sent by mezzo fax, e-mail or telephone to the following address:

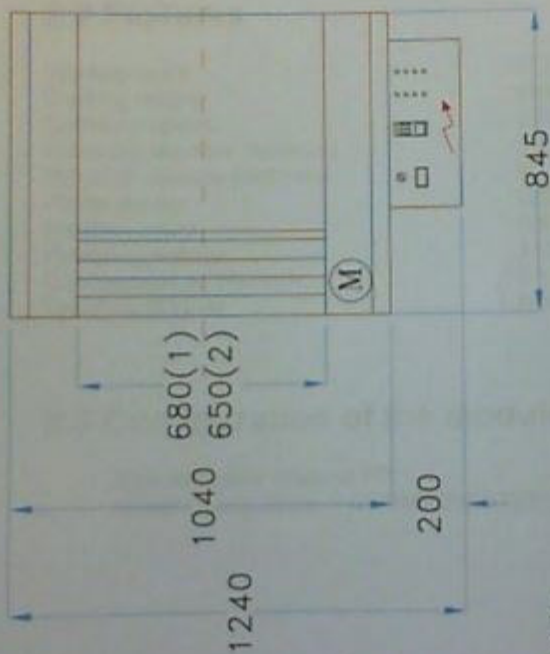


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⇨ TRAVEL DIRECTION ⇨

- M -> Conveyor Motor
- AX1 -> Worktable
- (1) -> Conveyor Width
- (2) -> Useful Width



OCCLEPPO S.R.L.
Machinery and systems for PCB's

TOP VIEW	3	PP	
POG. DESCRIZIONE	Q.TAC.	MAXIMALE	TR. S.C.
	OCCLEPPO S.R.L. - Via S. Felice 10 - 41013 Castelfranco P.A. (MO) - Italy A brand of high-precision machinery for PCB's, developed in Italy, designed and produced in Italy. Dimensioni in mm: spessore 1 - rifilato - 12 - max. di ogni elemento in g. di montaggio - rispetto al zero		
COMPRESA N°	DESTINATO DA: <u>SCALE</u> A.P.		
P004 - 06	REV N°	REV	LP-ELETRONIK (HITLAP)
	28-04-06	28-04-06	DESCRIZIONE
DESCRIZIONE	UNLOADER Module Mod.650/06		
SAF003-01_FIBER_FCK	APPROVATO DA	O.F.	
FILE	DATA EMISSIONE	NOTE	CODICE
P004-06_LAYOUT	12-04-06	LAYOUT	



2. MODULE DESCRIPTION

2.1 General description

This manual contains the instructions for the use of the "UNLOADER MODULE Mod. 650/06"

Module is designed and built for a working process both highly productive and qualitatively reliable.

2.2 Features

Working width	650 mm.
Working height	960 ± 20 mm.
Conveyor speed	0,25 - 1,0 mt./min.
Maximum useable thickness	5 mm
Minimum useable thickness	0,1 mm
Power supply	220/400 V, 50 Hz, 3F + N + T
Installed power	0,5 kW
Operating voltage	110 VAC
Compressed air pressure	6 + 8 bar
Direction of travel	from left to right

2.3 Configuration of the module

- Module mainly made of PP.
- Metallic parts made of STAINLESS STEEL.



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3. SAFETY and PROTECTIONS

3.1 Generalities

The personnel which will operate on the module, should be preventively instructed on risks of accidents, on safety devices and on general rules about accident prevention, following the community directives.

The user has to provide about the above mentioned one.

NOTE:

The user must know line details, safety devices, position and working of all commands.

He must have read this manual in full.

The operations of maintenance should be made just by qualified and well trained engineers about the use of the line on safety.

**WARNING**

Any opening of one or more parts of the equipment, the use of not right tools or the use of accessories different from the ones defined during project phase, can be cause of labour accident.

The company OCCLEPPO S.R.L. declines all responsibility for damages to persons or things, deriving from inobservance of the above mentioned and/or from not-respect of safety rules.



3.2 Dangerous zone and working zone

Herewith we are writing some definitions from machine directive:

- **Dangerous zone**

Dangerous area is any area inside and/or by an equipment where the presence of an exposed person is a risk for the safety and the health of the same person (Attachment 1 – Paragraph 1.1.1 Directive 98/37 CEE).

- **Exposed person**

It is called exposed person, every person who finds completely or in part in a dangerous zone (Attachment 1 – Paragraph 1.1.1. Directive 98/37 CEE).

- **Operator**

It is called operator the person or the persons appointed to put in function, regulate, make the maintenance, clean, repair and transport an equipment. (Attachment 1 – Paragraph 1.1.1 Directive 98/37 CEE).

A second operator has to consider as dangerous zone, all the area around the equipment.



3.3 Protection of operator

Service

The repairing or handling into system is allowed, in conformity with data given inside maintenance and repairing informations, only to qualified, particularly trained for the relative special sector workers, and in observance of all valid safety regulations.

Please make sure that during maintenance or repairing works, the general switch is on "0", in addition push emergency button.

Engagement

The user undertakes to use the equipment only if its condition is perfect. He must check the condition before its using and provide to eliminate defects before starting it.

- Modifications and arbitrary changes that may compromise the safety of the equipment, are not allowed.
- The removal of protection devices is allowed only after assuring the equipment.
- Before starting after maintenance and repairing works, you have to make sure that every safety device has been reassembled or every safety measure has been reactivated.

To use the equipment takes in consideration also the safety rules and local prevention of accidents.

Use original OCCLEPPO spare parts only.

In case of purchase of extraneous spare parts, our responsibility loses immediately!

Provide adequate ventilation!

- Make sure that the fume extraction system is in function before starting production.

Protections against electrical shocks.



WARNING

- Always switch off the main switch before starting work on electrical components.
- Do not touch earthed parts.
- Use insulated tools only.

Order at your work space = Safety

- Cluttered work space increases accident danger.

Wear suitable work clothing

- Do not wear wide clothing or jewelry. They can get caught in the line moving parts.
- Wear anti-skid shoes.
- When working with chemicals, always wear protective clothing like glasses and gloves.
- Damaged protective equipment have to be repaired or replaced.


WARNING

**NEVER OPEN THE EQUIPMENTS DURING WORKING
DO NOT TOUCH THE MOVING PARTS**

Safety regulations display.

- Make sure that the safety regulations are displayed in a visible and accessible place.
- Make sure that your worker is familiar with the safety rules.
- Take care to make maintenance to your **OCCLEPPO** equipment at the regular intervals.
- Make sure that your worker knows what to do in case of accident.
- Every component feeded by electricity and metallic structures is arranged for the earthing.



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4. LINE INSTALLATION

4.1 Warranty conditions

This Occleppo module is covered by the Occleppo warranty for **twelve months after installation**.

The equipment underwent the most rigorous quality controls, testing its materials, workmanship and functioning and has left the factory in the perfect condition.

In order to find possible damages due to transport as soon as possible it is strongly recommended to inspect the modules on arrival. When damages due to transport can be seen please report them immediately to our office.

After module inspection, it is advisable that specially trained **Occleppo** technicians assemble and prepare the line for use because, after these operations, it will begin the warranty period of twelve months.

Therefore, the warranty only covers the module in the original delivery condition.

Occleppo will not be liable for any direct, indirect, special, incidental or consequential damages based on contract and/or structural wrong interpretations.

All Occleppo original components are resistant to the wide range of different chemicals.

The choice and use of chemicals is the users sole responsibility and at his own risk: therefore the manufacturer will not be liable for the direct or indirect damages that are caused by the chemical solutions used.

Moreover any unauthorised and not agreed modification or repair work, shall release Occleppo from any and all liability for the consequences thereof.

Damages due to unsuitable or improper installation, operation, repair and maintenance are excluded from the present warranty. The same applies to damages caused by non application as well as modification of original structural components.

Therefore, please make sure that you obtain the full benefit of your Occleppo warranty. Use only original spare parts and follow the operating instructions as described in this manual.

The warranty doesn't include the expenses for the spare parts delivery.

Do not forget to observe the safety and accident prevention regulations!

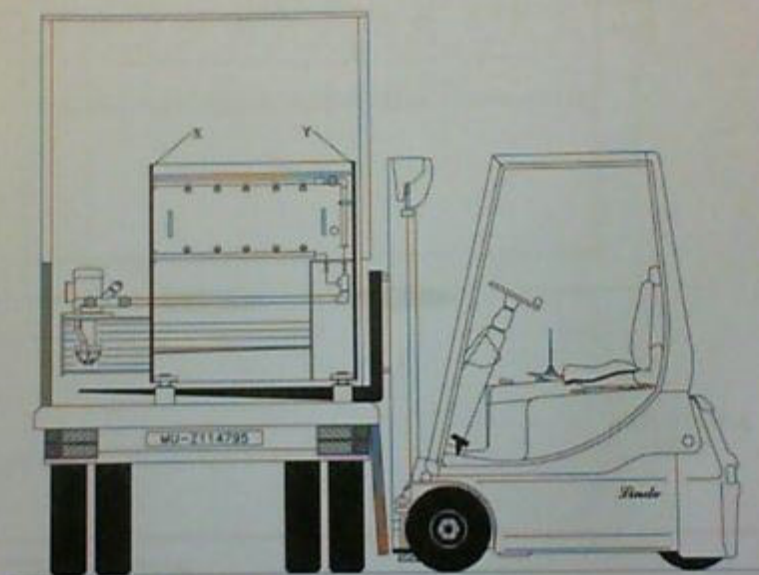
Before installation, please make sure that:

- when "parking" the module, the chosen environment is suitable in order to avoid damages caused by the state of the atmosphere (solar radiation, storms, etc.);
 - the chosen floor site is level, firm and stable under load in order to avoid damages due to unsuitable site (distortions and breakages caused by floor elasticity or sinking);
- because the above mentioned problems are not included in the Occleppo warranty.



4.2 Instructions for module discharge from the truck

The best discharge area is the side of the truck where it is placed the front panel of the modules (opposite side to the pumps) as it allows the best manoeuvrability of the conveyance with the lifted module.

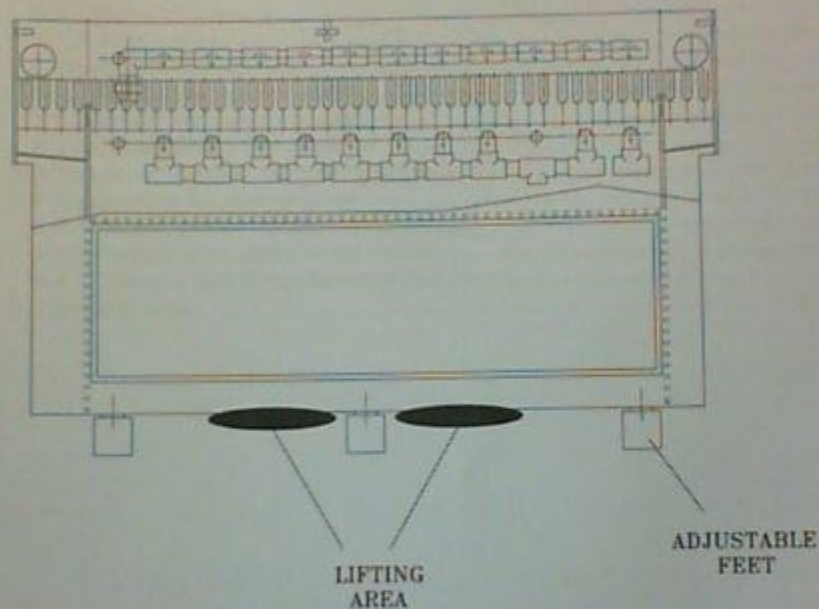


The conveyance (the forklift) must be proportionated to support an overhanging **weight of 10 q**, and it must also have some fit forks either in length or in solidity.

- fit **length** to exceed the two main vertical walls **X - Y** (front and rear) of module, to obtain a right balancing on forks, as the rear tank of module is normally more lifted than the above mentioned walls
- fit **solidity** to support the weight of module.



Furthermore it is necessary that module is hoisted in a central position in order to avoid unbalancing of conveyance, obviously without beating against adjustable feet placed under modules.

**CAUTION**

As the module is made of plastic, it is absolutely necessary to make the utmost attention to avoid to damage them (being the structures more breakable than metal).

After having lifted the module from the box of the truck, it is necessary to move backwards the conveyance till to obtain the necessary free area in order to drop it close to the earth as much as possible and avoid that possible fallings may cause irreparable damages.

Furthermore, it allows a much more clear sight to the driver.

The driver of the forklift should be an expert and capable person, as he will be responsible for the carrying out of the above mentioned operations, till placing of the module in the established area.



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5. MAINTENANCE

5.1 Contrivances for maintenance

All personnel qualified to make operations of preventive maintenance and/or repairs on the line, in order to work in conditions of utmost safety, should have read and understood all indications contained in this manual and must know all main preventive ACCIDENT LAWS.



CAUTION

All maintenance operations must be done only by qualified and authorized personnel, and must occur with the equipment not in function in safety conditions and with the greatest care.

Security precautions will be mentioned in this manual every time it will be required a procedure which implies risks, through notes of CAUTION or WARNING.

Notes of CAUTION precede operations, which if not done correctly, can cause damages to the equipment.

Notes of WARNING precede operations, which if not done correctly, can cause accidents.

NOTE:

Personnel not authorized should have to stay outside the risk zone of the equipment.

5.1.1 Notes of warning

1. Never touch points with tension.
2. Shut off the power main switch, before making any maintenance operation. Put a signboard near the main switch: LINE IN MAINTENANCE – DO NOT PLUG. (see Figure 5.1).
3. Never shut off the security devices and/or module protections.
4. Avoid as much as possible the use of inflammable materials, and their contact, if it will be necessary, be sure that the environment is well aired, and use individual protection systems (gloves, masks, etc.).

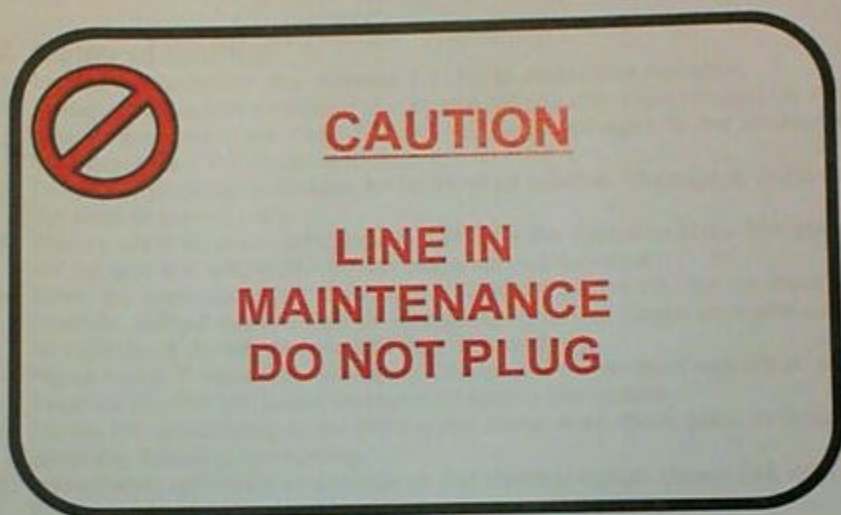


Fig. 5.1 Signboard for maintenance operations

5. Before starting the module after a stop, be sure that all qualified personnel is at a distance of security and that any tool is left on the module.
6. All qualified personnel to the maintenance operations should always wear gloves, glasses, and all other necessary protections to the kind of intervention.
7. Never use water jets in case of fire of tools; section all inputs and use CO2 extinguishers.
8. After a repair intervention on the line, before inserting pressure be sure of the correct assembling of all removed parts.
9. Never wear clothes or objects which could get entangled in the line moving parts, or which could act as conductors. (chains, bracelets, etc.).
- 12 Be sure that all used tools are in perfect conditions, and are provided with insulated handle, if necessary.



5.1.2. Notes of caution

1. Inspect all equipment after a repair, in order to avoid other damages.
2. During wire insulation controls (ex. search for possible short circuits) be sure that all equipment are dead in order to avoid damages to the measuring instruments and the equipment.
3. During the cleaning operations, be sure that all possible shavings do not touch the module moving parts.
4. Always use tools in perfect condition and fit for the operation to do. The use of not suitable and efficient tools, can cause serious damages.
5. Make the eventual repair operations in cleaned places and for as much as possible, without dust. Protect all connecting lights with plastic caps and cover all surfaces of demounted parts till their reassembling.
6. Never make, if not strictly necessary, changes to the sensors regulation; their incorrect position can cause serious damages to the module.
7. During the demounting of the mechanical items, mark these parts in order to allow the following remounting.
8. Immediately substitute all sealings at first wearing signal; always use original spare parts.

5.2 Meaning of maintenance

With the word maintenance we mean the wholeness of those operations done in order to maintain the equipment in efficiency; maintenance divides in:

- Preventive maintenance
- Check and control operations
- Extraordinary maintenance

5.2.1 Preventive maintenance

With the word preventive maintenance we mean the wholeness of those operations done at programmed intervals, in order to preserve the utmost efficiency of the module. Preventive maintenance includes the following operations:

1. Adjustment and setting of the equipment nominal values such as:
 - Adjustment and setting of the speed values;



2. Cleaning of a mechanical or electrical group such as:
 - Cleaning of a sensor surface
 - Cleaning of the conveyor rolls,
 - Etc...
3. Substitution of all worn out parts which could compromise the good module working, such as:
 - Substitution of the sliding bearings;
 - Substitution of the sealings;
 - Etc...

5.2.2 Check and control operations

They are made of the wholeness of those operations fit to determine and value the good working of the module or of one of his group. The operations are described as follows:

1. Working check of a mechanical group, such as:
 - Working check of the sensors;
 - Etc...
- 2 Control of a mechanical group condition, such as:
 - Control of the bearings wearing;
 - Control of the abnormal noises;
 - Etc...

5.2.3 Extraordinary maintenance

With the word extraordinary maintenance we mean the wholeness of the operations fit to restore the correct working conditions after a stop for damage.

The repairing includes interventions such as:

- Substitution of a damaged mechanical/electrical component (motor, sensor, etc..)

NOTE:

The necessity of a repairing intervention, can rise from an immediate need, such as a damage, or as consequence of checking of the line working condition.



5.3 Personnel qualified for maintenance

In order to guarantee a good maintenance for the automatic cycle systems, personnel qualified for maintenance must have the following qualifications:

1. He must know the directives in force regarding the accidents.
2. He must have read and understood the chapter 3 of this operating manual, regarding the security laws.
3. He must be able to consult the drawings and the documentation of the equipment.
4. He must pay attention to the efficient equipment working.
5. He must pay attention to the possible irregularities of the productive process, and, when required, take the necessary corrective measures.

CAUTION

All maintenance operations must be done only by qualified and authorized personnel, and must occur with the equipment not in function in safety conditions and with the greatest care. The eventual operations on the equipment with all protection excluded, requires a good competence and the utmost attention of the user.

For all warranty interventions and for each operation for which it is necessary the technical service of the manufacturer, send the request by fax, e-mail, or telephone to the following address:



VIA LAGO N° 39
ALICE CASTELLO (VC) ITALIA
Tel: 0161/90234 Fax: 0161/90795
e-mail: foccleppo@occleppo.com
www.occleppo.com



5.4 Suggestions for maintenance

5.4.1 Cleaning of the module

The cleaning of the module must be done regularly, following the periodicity showed in the maintenance schedules.

**CAUTION**

Do not clean the module with inflammable or corrosive liquids. Their use causes damage to the line and workers.

5.4.2 Periods of inactivity of the module

In case of module stop, for a long period of time, make as follows:

1. Clean the equipment, and dry the internal surfaces with rags or suitable material;
2. Clean all mechanical organs of the conveyor bar;
3. Etc...

5.4.3 Controls during maintenance operations

During the maintenance works, it is necessary to pay the utmost attention to those forewarning signals of possible damages, and in particular:

1. Presence of corrosion traces;
2. Presence of wearing traces;
3. Presence of loosened fittings or connections;
4. Presence of oxidized contacts;
5. Presence of liquids in the hydraulic circuits.



5.5 General notes

For all maintenance operations it is absolutely necessary to follow these notes:

1. Make periodical and accurate cleanings, eliminating, through suction, eventual foreign bodies which could cause serious damages.
2. For specific needs of technical character contact OCCLEPPO S.R.L., the skilled technical staff, endowed with experience, is available each day and able to operate on the equipment with the utmost opportuneness.
3. For cleaning the equipment, use dry and soft clothes which do not leave grindings. Never use inflammable or corrosive liquids.

NOTE:

All maintenance and/or cleaning interventions must be done by the technical staff equipped with suitable protective clothes necessary for the work to do.

**WARNING**

The maintenance operations must be done after having divided into sections the power sources of the equipment, and after having put blockings on the sectioning devices.

During the intervention period, put the signboard, "LINE IN MAINTENANCETE – DO NOT PLUG" near the main switch.

Once the maintenance intervention is over, before starting the line, be sure no one is in the dangerous area.

THE INOBSERVANCE OF THESE PRECAUTIONS CAN CAUSE SERIOUS ACCIDENTS.

**WARNING**

It is absolutely forbidden to the personnel assigned to do the cleaning to remove the security devices.

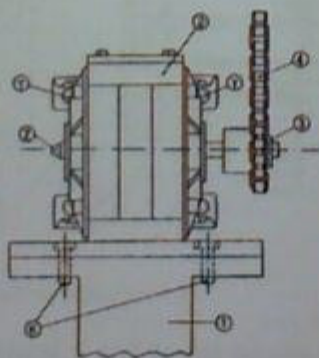


MAINTENANCE SCHEDULE N°

1

MODULE	UNLOADER	GROUP COMPONENT	GEARMOTOR		
WORKING STATE	LINE NOT IN FUNCTION				
OPERATION	Substitution for breakage				
KIND OF INTERVENTION	<input type="checkbox"/> Adjustment	<input type="checkbox"/> Cleaning	<input checked="" type="checkbox"/> Substitution	<input type="checkbox"/> Check	<input type="checkbox"/> Control
NATURE OF THE INTERVENTION	<input checked="" type="checkbox"/> Mechanic	<input type="checkbox"/> Electric	<input type="checkbox"/> Hydraulic		
PERIODICITY	<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Quarterly	
	<input type="checkbox"/> Yearly	<input checked="" type="checkbox"/> Breakage			

NO°	POSSIBLE ANOMALY	DESCRIPTION OF THE INTERVENTION
		See the following pages





GEARMOTOR

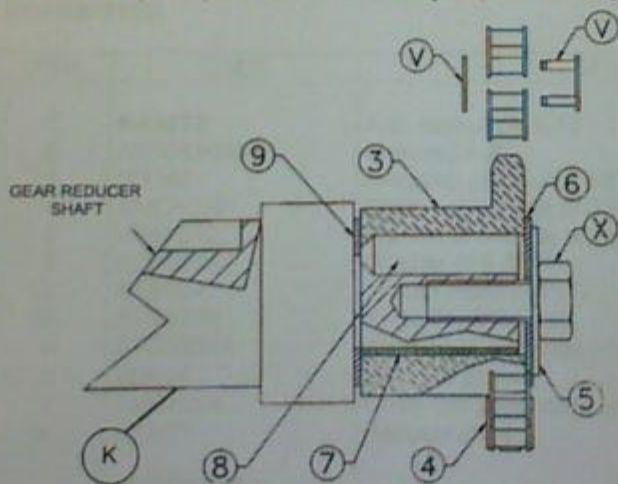
It is the element that transmits motion to conveyor system. Gearmotor, schematized in next figure, is composed by an A.C. motor 1, a gear reducer 2 with legs, a shaft on which is fixed the dragging pinion 3 which, by a chain, put in rotation the conducted pinion, installed on transport bar.

In order to demount motor 1 it is necessary to:

- Disconnect electrical supply cables from terminal block.
- Unscrew 4 nuts **K** that lock motor to gear reducer.

To reassemble motor it is necessary to pay attention to restore the coupling between gear reducer housing and the spline on motor hub; screw again 4 nuts **K** and connect electrical supply cables following pertinent wiring diagrams.

In order to replace pinion 3 it is necessary to (see following figure):



- Disconnect chain 4 unthreading joint **V**.
- Unscrew bolt **X**.
- Unthread metallic washer 5 and the plastic one 6, then unthread pinion from gear reducer outletting shaft.

To reassemble pinion it is necessary to:

- Thread on gear reducer the plastic washer 9 and the ferrule 7.
- Locate pinion 3 on ferrule 7 and thread pin 8.
- Locate plastic ferrule 6 and the metallic one 5 following this sequence.
- Fix all elements by bolt **X**.
- Re-connect chain 4.

**CAUTION**

It is very important not to reverse washers 5 and 6 order and make sure about presence of washer 4, in order to ensure a correct insulation between pinion and gear reducer.

In order to demount gear reducer it is necessary to (see previous figures):

- Remove motor and pinion as above mentioned.
- Unscrew bolt Z allowing the unthreading of the outletting shaft.
- Unscrew 4 blocking nuts Y

To reassemble gear reducer it is necessary to reverse above mentioned operations.

GEARMOTOR

ITEM	CODE	DESCRIPTION
1	NA4012	A.C. motor kW 0,12
2	AR40X100MU	Gear reducer
3	IP13AI	Dragging pinion z13 3/8" made of SS
4	AMCA238	Chain p 3/8 made of SS
5	VR832A2	Washer Ø 6 made of SS
6	STDS256	Washer Øi 6,5
7	STBS24	Ferrule made of PVC
8	STSS246	Pin to fix pinion
9	STDS2514	Washer Øi. 14 made of PVC
X	VD8A4	Nut to fix pinion
V	AMGA238	Chain 3/8" joint made of SS
K	STA40I	Reducer shaft
	SUGGESTED PARTS	
10	STAMV40	Unit part (assembled) including: Dragging pinion z13 3/8" made of SS (item 3) Washer Ø 6 made of SS (item 5) Washer Øi. 6,5 (item 6) Ferrule made of PVC (item 7) Pin to fix pinion (item 8) Washer Øi. 14 (item 9) Pin to fix nuts (item X) Reducer shaft (item K)

**OPERATING AND MAINTENANCE MANUAL**

CHAPTER

5

MAINTENANCE SCHEDULE N°		2			
MODULE	UNLOADER	GROUP COMPONENT	TRANSPORT BAR MADE OF STAINLESS STEEL		
WORKING STATE	LINE NOT IN FUNCTION				
OPERATION	Substitution for breakage				
KIND OF INTERVENTION	<input type="checkbox"/> Adjustment	<input type="checkbox"/> Cleaning	<input checked="" type="checkbox"/> Substitution	<input type="checkbox"/> Check	<input type="checkbox"/> Control
NATURE OF THE INTERVENTION	<input checked="" type="checkbox"/> Mechanic	<input type="checkbox"/> Electric	<input type="checkbox"/> Hydraulic		
PERIODICITY	<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Quarterly	
	<input type="checkbox"/> Yearly	<input checked="" type="checkbox"/> Breakage			
NO°	POSSIBLE ANOMALY	DESCRIPTION OF THE INTERVENTION			
		See the following pages			

**TRANSPORT BAR MADE OF STAINLESS STEEL**

It is the element that transmits motion to roll, causing boards translation.

It is composed by different parts:

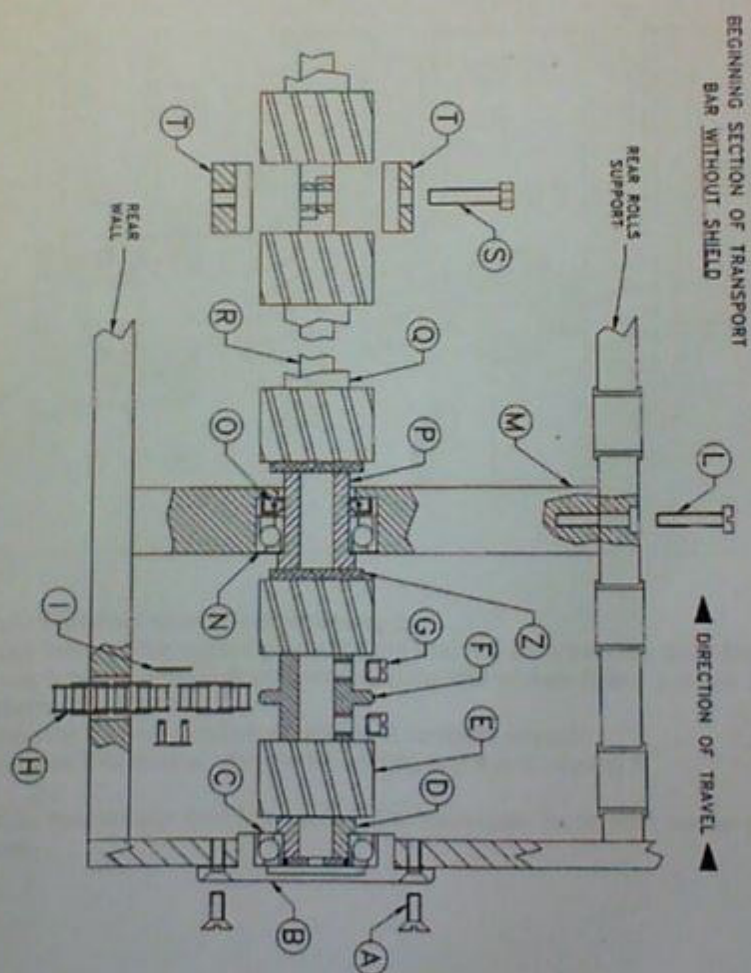
by bearings that sustain and support it near the pinion which receives motion from the gearmotor; by intermediate supports which contain special plastic bearings composed by a fixed ferrule and one integral to bar, in order to sustain it and make its rotation easier; by helicoidal wheels which transmit motion to pertinent rolls wheel, etc.

Beginning section of transport bar is represented in the following figure, where:

- B- External block of initial bearing.
- C- Initial bearing
- D- Initial ferrule
- E- Helicoidal wheel to transmit motion to rolls.
- F- Conducted pinion.
- G- Conducted pinion fixing sprig.
- H- Chain to transmit motion to bar.
- I- Chain joint.
- Q- Helicoidal wheels spacer.
- R- Transport bar.

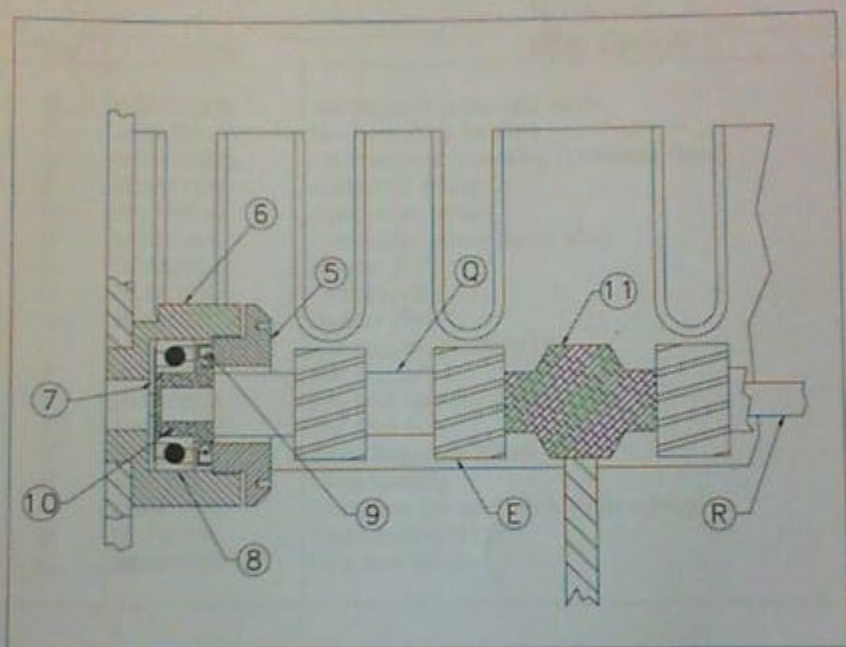
In order to demount transport bar beginning section it is necessary to (see following figure):

- Disconnect driving chain **H**, working on joint **I**.
- unthread external block **B** to reach initial bearing **C** and initial ferrule **D**.
- Unthread from front hole initial ferrule **D** and helicoidal wheel **E** to reach pinion **F**, demountable unscrewing sprigs **G**.





Final transport bar is represented in the following figure:



To demount final bar section it is necessary to:

- Draw out "central" bar section preceding the final one as previously described.
- Draw out final bar section R unthreading helicoidal wheels E and spacers Q as they are positioned.
- Unscrew ring 5 which lock hub 6, utilizing a compass wrench.
- Push on disk 7 to draw out ferrule 10, sealing ring 9 and bearing 8.

In order to reassemble final bar section it is necessary to reverse above mentioned operations.



TRANSPORT BAR MADE OF STAINLESS STEEL

ITEM	CODE	DESCRIPTION
B	BSM6005N	Bar beginning bearing holder
C	AC6005	Bar beginning bearing
D	BBRI6005N	Line beginning bearing (Stainless Steel)
E	IE5E11S4	Helicoidal wheel Sx.
F	IP21AD14	Conducted pinion
G	VG810A4	Conducted pinion fixing sprig
Q	BDM2535	Spacer (PP)
Q	BDM2530	Spacer (PP)
Q	BDI3525	Spacer (INOX)
1	VE625A4	Bar support blocking bolt
2	BSM45	Bar support
5	BGM8023	Bar final hub fixing ring
6	BSM7205F	Bar final hub
7	BDI522	Disk (Stainless Steel)
8	AC7205	Final bearing
—	BSM72FC	Complete bar end block (Hub + Plug)
9	E52307N	Final sealing ring
10	BBRI7205	Line end ferrule

**OPERATING AND MAINTENANCE MANUAL**

CHAPTER

5

MAINTENANCE SCHEDULE N°

3

MODULE	UNLOADER	GROUP COMPONENT	UNLOADING GROUP		
WORKING STATE	LINE NOT IN FUNCTION				
OPERATION	Substitution for breakage				
KIND OF INTERVENTION	<input type="checkbox"/> Adjustment	<input type="checkbox"/> Cleaning	<input checked="" type="checkbox"/> Substitution	<input type="checkbox"/> Check	<input type="checkbox"/> Control
NATURE OF THE INTERVENTION	<input checked="" type="checkbox"/> Mechanic	<input type="checkbox"/> Electric	<input type="checkbox"/> Hydraulic		
PERIODICITY	<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Quarterly	
	<input type="checkbox"/> Yearly	<input checked="" type="checkbox"/> Breakage			

NO°	POSSIBLE ANOMALY	DESCRIPTION OF THE INTERVENTION
		See the following pages



CIRCUITS UNLOADING GROUP of DRYING MODULE

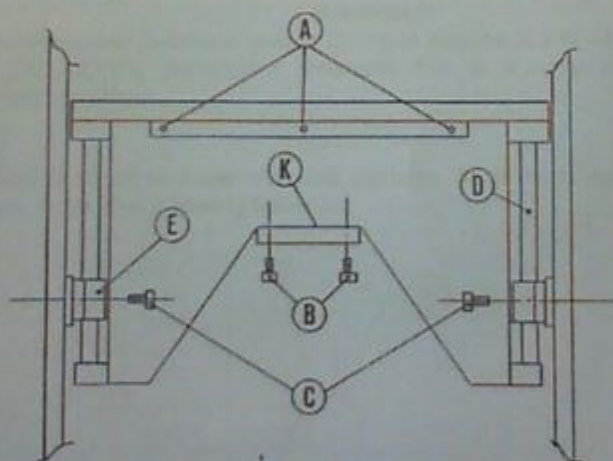
The main function of this group is to collect boards coming out from drying chamber. It is composed of different kind parts, functionally connected: movable platform, on which boards coming out from drying chamber leans, photocells which notes PCB's passage and signal it to an electrovalve that turns electric impulse to pneumatic impulse in order to lift or lower platform.

- Movable platform:

It is composed by a table, on which boards leans and by two guides running inside ball sleeves.

Movable platform disassembly instructions.

Consulting following figure it is necessary to:



- Keep up electrovalve supplied, so as to maintain pneumatic circuit activated.
- Position platform in its maximum lifting, position which platform normally puts on when free from boards.
- Unscrew bolts **A** that fix cover.
- Unscrew bolts **B** that fix movable platform to stirrup **K**.
- Unscrew bolts **C** that fix ball sleeve stirrups to walls.
- Draw out by hand boards leaning table, paying necessary care.

**WARNING!**

This operation has to be performed by at least two people.

In order to re-assemble boards leaning table, it is necessary to reverse above named operations.

In order to maintain stability and precision of movable platform shiftings, it is necessary, **at least every 200 working hours** in case of continue working otherwise every **100+120 hours** in case of occasional working, to **lubricate** cylindrical guides **D**. In order to perform this operation it is necessary to:

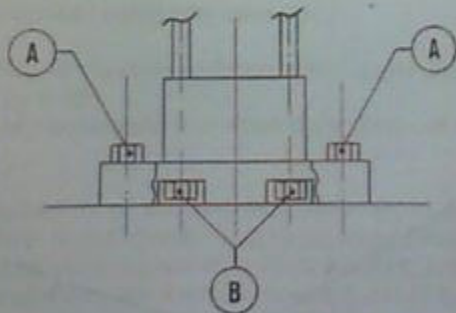
- Keep up electrovalve supplied, so as to maintain pneumatic circuit actived.
- Position platform in its maximum lifting, position which platform normally puts on when free from boards.
- Unscrew bolts **A** that fix cover, in order to lubricate guides **with brand name grease**.

WARNING!

Before disassemble cylindrical guides **D** or ball sleeves **E** it is advisable, first of all, to contact OCCLEPPO technicians, because this is a very delicate and precise demounting operation!

Cylinder:

Its function is to lift or lower movable platform. In order to demount cylinder, it is necessary, consulting following figure, to:



- Demount movable platform, as previously described.
- Disconnect pneumatic supplying pipes of cylinder from pertinent pipe fittings.
- Unscrew bolts **A** that fix cylinder supporting plate to the bottom.
- Lift cylinder then unscrew nuts **B** fixing cylinder to the plate.

In order to re-assemble cylinder, it is necessary to reverse above-named operations, consulting pertinent pneumatic diagram in order to connect pipes in their original position.

Electrovalve:

Its function is to turn electric impulses, sent by photocells, in pneumatic orders for the cylinder. Electric impulses reach two solenoids which, in consequence of the photocell sending impulse, activates pneumatic circuit in order to lift or lower cylinder stem. Electrovalve is placed in rear electrical junction box, otherwise in rear drying module carter. In order to demount electrovalve it is necessary to:

- Disconnect pneumatic supplying pipes.
- Disconnect electric supplying cables.
- Unscrew electrovalve fixing bolts.

In order to re-assemble electrovalve, it is necessary to reverse above-named operations, following pertinent wiring diagrams, in order to restore its right working.

Photocells:

They are particulars which defines movable platform position, in consequence of their noting. Photocells are placed on drying module rear wall while on the front one is placed the reflector. Each photocell optics is divided in optic ray emission section and in receiving section of this ray, reflected by the reflector.

Working principles.

During operating phase of unloading group, upper photocell sends an impulse to electrovalve, when the ray emitted by itself is not noted by its receiving section; vice versa lower photocell sends an impulse to electrovalve when the ray emitted by itself is noted by its receiving section. Thus upper and lower photocells send impulses in exactly opposed conditions, causing:

- Lowering of movable platform when upper photocell does not note the optic ray emitted by itself.
- Lifting of movable platform when lower photocell notes the optic ray emitted by itself.

In consequence of above-named reasons, in operating conditions, when a circuit arrives from drying chamber, upper photocell sends an impulse to electrovalve solenoid which turns electric impulse in stem lowering pneumatic order. After circuit leans on movable platform, two events may occur, due to lower photocell:

- 1) If it is covered, then it cannot note, movable platform remains in its position.
- 2) If it receives optic ray emitted by itself, then it note, movable platform is lifted until photocell is not covered, then stopped.



It happens also when boards accumulated on movable platform are removed; in any position of movable platform this operation is performed, lower photocell causes platform lifting until its maximum lifting point. Minimum lifting point, instead, is reached by movable platform when it cannot contains any board. Thus it is necessary to check frequently the number of boards on movable platform, in order to avoid, when minimum lifting point is reached, exceeding boards falling.

NOTE: Upon request it is possible to equip unloading group with a luminous or acoustic signaling, in order to avoid above-named inconvenience.

Photocells disassembly instructions.

- Disconnect supply cables from clamps of electrical junction box, placed on drying module rear.
- Unscrew counternut that fix photocell.
- Unscrew the photocell.

In order to re-assemble photocell it is necessary to reverse above-named operations, following pertinent wiring diagrams in order to re-connect electric supply cables rightly.

CIRCUITS UNLOADING GROUP of DRYING MODULE

ITEM	CODE	DESCRIPTION
K	DPVSP282	PVC made plate for piston stem
E	ACM30	Ball sleeve
D	DTGS30	Cylindrical guide \varnothing 30
	APP8025N	Black piston
	APP8025V	Green piston
	APP8025G	ISO piston
	APFL104C	Air filter + Lubricator
	APES962C	Complete E.V. ISO (Bae + Solenoids)
	APEP424	Complete E.V. PNEUMAX
	SE4003S	Photocell CYR2MAD
	AEC24R	Connector for E.V. ISO
	AEC22Q	Connector for E.V. PNEUMAX
	SE4000S	Adhesive rectangular reflector

MAINTENANCE SCHEDULE N° 4

MODULE	UNLOADER	GROUP COMPONENT	INVERTER SINAMICS G110 SIEMENS
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WORKING STATE	LINE NOT IN FUNCTION
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OPERATION	Control for breakage
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KIND OF INTERVENTION	<input checked="" type="checkbox"/> Adjustment	<input type="checkbox"/> Cleaning	<input checked="" type="checkbox"/> Substitution	<input type="checkbox"/> Check	<input checked="" type="checkbox"/> Control
	<input type="checkbox"/> Mechanic	<input checked="" type="checkbox"/> Electric	<input type="checkbox"/> Hydraulic		
NATURE OF THE INTERVENTION	<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Quarterly	
	<input type="checkbox"/> Yearly	<input checked="" type="checkbox"/> Breakage			

NO°	POSSIBLE ANOMALY	DESCRIPTION OF THE INTERVENTION
		See the following pages





FAULT AND ALARM MESSAGES

Fault	Meaning
F0001	Overcurrent
F0002	Overvoltage
F0003	Undervoltage
F0004	Inverter Over Temperature
F0005	Inverter I _t
F0011	Motor Over Temperature I _t
F0051	Parameter EEPROM Fault
F0052	Power stack Fault
F0080	Asic Timeout
F0072	USS setpoint fault (link COMM*)
F0085	External fault

Alarms	Meaning
A0501	Current limit
A0502	Overvoltage limit
A0503	Undervoltage limit
A0505	Inverter I _t
F0511	Motor Over Temperature I _t
F0910	V _{dc} -max controller deactivated
F0911	V _{dc} -max Controller active
F0920	ADC parameters not set properly
F0923	Both JOG left and JOG right have been requested

If some alarm and fault messages are present these can be deleted pressing the button Fn.