



Clemas & Co Ltd

Industrial Cleaning Equipment
Sales - Hire - Service

C110 55B SCRUBBER DRYER OPERATOR MANUAL



Clemas & Co. Unit 5 Ashchurch Business Centre, Alexandra Way, Tewkesbury,
Gloucestershire, GL20 8NB.

Tel: 01684 850777

Fax: 01684 850707

Email: info@clemas.co.uk

Web: www.clemas.co.uk

Congratulations for your choice!

FIorentini S.p.A. thanking you for the preference to our product would like to remind you that **FIorentini's S.p.A.** production covers manufacture and marketing of industrial cleaning machines and is currently a leading company in this sector.

Our tradition and competence guarantee technical quality of your choice; actually all our products are being built first quality materials through criteria that can give reliability, solidity and functionality satisfying every kind of customers. **FIorentini** has recently obtained the quality system certificate conforming to the requirements of **UNI EN ISO 9001:2000**.

We wish therefore inviting you to contact us, unhesitatingly, for every kind of request, as technical or commercial; we'll be pleased to be at your disposal for any information you may need.

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DICHIARAZIONE-DECLARATION-DECLARATION-ERKLÄRUNG- DECLARACION

DICHIARAZIONE CE DI CONFORMITA'
DECLARATION OF CONFORMITE'
DECLARATION DE CONFORMITE'
ÜBEREINSTIMMUNGSERKLÄRUNG
DECLARACION DE CONFORMIDAD

ING. O. FIORENTINI SpA
Loc. Rombola
50033 PIANCALDOLI (FI) ITALIA

Dichiara sotto la propria esclusiva responsabilità che la macchina:
Declares under its own responsibility that the machine :
Declares sous sa responsabilité exclusivement que la machine :
erklärt unter ausschließlich eigener Verantwortung, daß die Maschine :
declara bajo su propia y exclusiva responsabilidad que la maquina :

FIORENTINI

Modello/model/modele/modell/modelo
Matricola/serial number/numero
matricule/seriennummer/numero matricula
Anno/year/annee/jahr/ano



2012

Fabbricata nel rispetto delle direttive e decreti :
and moreover is built according to the directives and decrees :
et est fabriquées i, en outre, conformément aux directives et ou décrets :
und daß sie unter Einhaltung folgender Verordnungen und/oder Dekrete hergestellt worden (sind) :
y que además ha sido fabricada en conformidad con las directivas y/o decretos :

2006/42/CE/EC/EG-

Direttiva macchina: Machines Directive: Maschinen Richtlinie: Directive machines:Directiva máquina

2004/108/CE/EC/EG-

Compatibilità elettromagnetica: Electro Magnetic Compatibility: Elektromagnetische Vertraglichkeit: Compatibilité électromagnétique: Compatibilidad electromagnética

2002/95/CE/EC/EG-

Restrizione sostanze pericolose: Restrictions of Dangerous Substances :Beschränkung der gefährlichen Mitteln :Restriction des substances dangereuses :Restriccion sustancias peligrosas

2003/10/CE/EC/EG

Protezione da rumore: Exposure of Workers to Noise: Gefährdung der Arbeitnehmer durch Geräusch: Exposition des travailleurs aux Bruits:Proteccion de ruidos:

È conforme alle seguenti norme :
conform to the following laws :
est conforme aux norms :
mit den folgenden Normen übereinstimmen :
está conforme a lassiguientes normas :

EN 12100-1- EN 12100-2

Norme applicate: Harmonized Standard Applied: Angewandte harmonisierte Normen: Normes Harmonisées Appliquées :Normas aplicadas

Piancaldoli

Luogo e data

Ing. O. Fiorentini S.p.a.
Il titolare/chairmen/gérant

Ing. O. Fiorentini

Firma

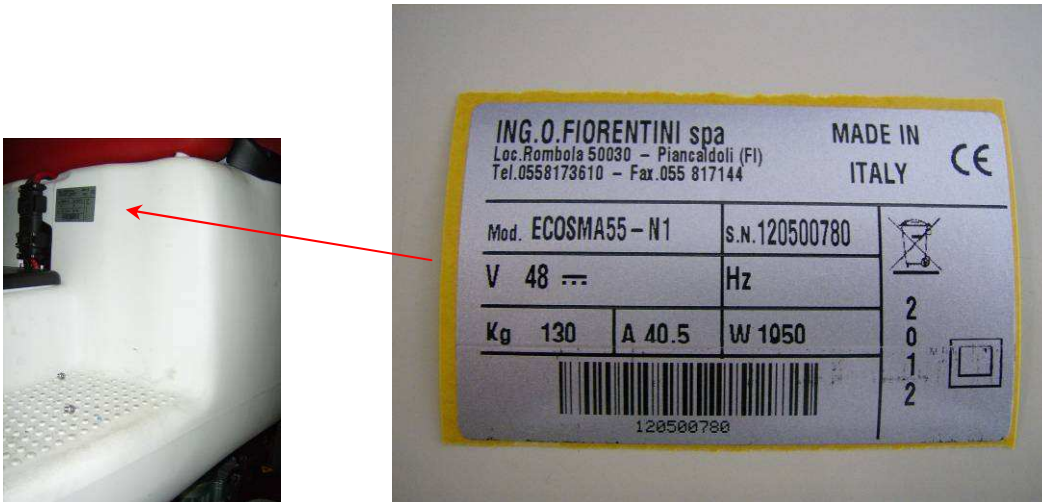
O. Fiorentini

In caso di modifiche apportate alla macchina questa dichiarazione non è più valida

2. MACHINE FEATURES AND TECHNICAL DATA

2.1. IDENTIFYING THE MACHINE

A silver label is stuck on the protection case of the steering column and clearly shows the data referring to the "CE" marking.



PICTURE N°2.1



The label has never to be removed and should always be kept readable. In case of damage it is necessary to ask for a duplicate. The autoscrubber machine cannot be sold without the label.

2.2. DESCRIPTION AND COMPONENTS

The scrubber machine Ecosmart has been designed for the cleaning of all flat surfaces by means of washing and suction of the washing water.

The electric traction system is supplied by a series of batteries which supply energy to the brushes motors, to the squeegee motor and to the suction motor..

The machine is equipped with two brushes or one brush which wash the surface by means of water and detergent. Whilst the machine is running forward, the back brush (squeegee) picks the water up that is directly sucked into the recovery tank.

By means of the ignition key (see part.8 Fig.4.6), the machine is prepared for the washing and drying of the floor and with the forward preset; if ripreme returns to the initial situation..

The control panel controls all functions of the machine and provides a means of indicating to the operator, through the use of LEDs and a display, provides a comprehensive overview of the activities' functioning during washing. Through the control panel you can implement all the main functions of the machine. In particular, you can:

- start the washing machine in operation;
- adjust the speed of advancement;
- adjust the suction power;
- determine the forward or backward;
- display the battery charge;
- lower the plate brushes and boot brushes;
- start the vacuum;
- turn on and off the machine;

The structure of the machine consists of an iron frame with cataphoresis treatment and painting, so as to avoid oxidation which could compromise the reliability of the machine itself.

The main components of the machine are:

- Iron frame with cataphoresis and painting;
- charging tank washing liquid plastic PPL;
- recovery tank effluent washing plastic PPL with flexible suction piping system and drainage;
- series of batteries placed in the solution tank room;
- right rotating brush;
- left rotating brush;
- monobrush;
- squeegee (suction system);
- a motorized front wheel traction;
- two idle wheels;
- steering wheel;
- driving seat .

FIorentini Co., taking the new CE safety rules into consideration, manufactures the machine following the CE directives about safety and health. The materials high quality, the high technology and FIORENTINI's experience guarantee the performance and the reliability of this machine.

Each machine is tested during the manufacturing process and the final check is done before the machine is shipped out.

2.3. TECHNICAL DATA

SPECIFICATIONS

	ECOSMART - 55	ECOSMART - 65
Alimentation	48 V (4 x 12 V – 85 Amp/h) (C5)	
Drive system	Motor 48V 1x400W + Gear 1:25	
Scrubbing width	540 mm	680 mm
Squeegee width	775 mm	870 mm
No. brushes	N°1 Ø 540 mm	N°2 Ø 350 mm
Pressure brushes	31 kg	31 kg
Working capacity up to	3200 mq/h	4000 mq/h
Autonomy of work for normal use	3,5 h	
Autonomy silent working	4 h	
Autonomy work hard floors	3 h	
Solution tank	105 liters	
Recovery tank	115 liters	
Water lift	170 mBar	
Forward speed	3 - 4 - 5 - 6 Km/h	

CARATTERISTICHE TECNICHE MOTORI

Traction motor	48 V - 400 W	
Suction motor	48 V 300 – 500 - 750 W	
Brush motor	N°1 400 W - 8.3 A - 48 V - 130 rpm	N°2 400 W - 8.3 A - 48 V - 130 rpm

DIMENSIONI

Length	1186 mm
Width	580 mm
Height	1220 mm
Weight without batteries	130 kg
Drive	Man on board
Corridor minimum U-turn	1520 mm
Max. gradient at full load	10 %
Noise level	58 dB(A)



The above mentioned characteristics are not binding for the manufacturer; they can be changed without any notice. ING.O.FIORENTINI Co. is always at disposal for any information.

MEASUREMENT UNITS CONVERSION

Lenght	1 inch = 1" = 25,4 mm	Power	1 kW = 1,36 CV = 1,34 BHP
Temperature	T (K) = t (°C) + 273 / t (°F) = 1,8 t (°C) + 32	Pressure	1 bar = 100 kPa = 14,5 psi

3. SAFETY

3.1. RIGHT USE OF THE MACHINE



This machine is a scrubbing machine and it has been designed and built to clean in an industrial place. It can work on flat surfaces or on sloping surfaces not higher than 10% and with a speed not higher than 3 km/h while the machine is reversing. It may not make a U on any slope gradient.

3.2. WRONG USE OF THE MACHINE



- *The machine cannot be driven by non-authorized personnel;*
- *The machine cannot wash sloping surfaces whose gradient is higher than 10% or surfaces with holes;*
- *The machine cannot be used in places with dangerous substances and in particular with explosive atmospheres or with a bad microclimate;*
- *The machine cannot clean surfaces with inflammable products;*
- *The machine cannot be used as a means of transport for people or other means of transport;*
- *The protection devices of the machine cannot be modified or tampered;*
- *Batteries must be recharged in a fanned room;*
- *The operator have always to respect safety rules;*
- *The operator cannot use equipments or devices that can create problems to the machine working;*
- *The machine components cannot be modified without FIORENTINI's authorization;*
- *The operator cannot use acids that can damage the machine;*
- *The operator has always to respect the rules written in the user manual.*



Please read carefully and do not cover the labels sticked on the machine. FIORENTINI S.p.A. is not responsible for a wrong use of the machine.

3.3. SUGGESTED EQUIPMENT

In order to use the machine in a proper way, we suggest to use the FIORENTINI's equipment and original spare parts.

FIORENTINI S.p.A. Technical Dept. is always at your disposal to design components or parts for a particular use of machine as requested by the customer.

3.4. OPERATOR'S QUALIFICATIONS

The scheme below summarizes the operator's qualifications requested for each kind of operation.

OPERATION	OPERATOR'S QUALIFICATIONS
Driving/control of the machine	Trained operator
Installation/ disinstallation	Fiorentini technician
Mechanical parts maintenance	Fiorentini technician
Electric parts maintenance	Fiorentini technician
Cleaning maintenance	Trained operator
Dismantling and demolition	Fiorentini technician

FIorentINI S.p.A. suggests to train the operator before using the machine. The operator also must be trained about safety rules and carefully read this manual.



FIorentINI S.p.A. is not responsible for any possible damage to people and/or things caused by the non-observance of the instructions dealt within this manual.

3.5. SAFETY AND WARNING DEVICES



- ***It is absolutely forbidden to tamper or disconnect safety and warning devices while the machine is working;***
- ***It is important to check periodically safety and warning devices (see § 5.1.).***

Emergency seat switch	This machine is equipped with an emergency switch under the driving seat. It avoids that the machine starts when the operator is not on board.
Floating timer	The machine is equipped with a timer for the float that avoids the switching on and off of the vacuum motor
Filter	The machine is equipped with a foam filter
Solenoid valve	The machine is equipped with a solenoid valve which prevents the escape of the water does not take place until the ignition of the brushes. (Optional)
Warning devices	<p>Ecosmart is equipped with several warning devices:</p> <ul style="list-style-type: none"> ➤ One acoustic warning device like a claxon. It has to warn people who are near the machine while its operating; ➤ One intermittent bleeper to warn people while the machine is reversing; ➤ A signal light with a yellow flashing light to signal the machine in operation.(Optional)

3.6 SAFETY SYSTEMS

The machine is equipped with the following safety systems:

- **Socket** (picture 4.5), the same socket used for the battery charger. In case of emergency, this socket must be taken away from the plug by means of its handle.
The operator must be trained about safety rules. Do never restore this safety system before the problem has been sorted out. If it is necessary ask for the technician help.
- **Emergency seat switch:** The machine is equipped with presence sensor inserted in the seat. No operator on board, the car will not start, also if the operator falls from the cleaning machine without having turned to position 0, the key switch, the machine shuts down. To turn it back up on the seat, turn the key switch in the OFF position, wait a few seconds then return the key switch in the ON position.
- **Float:** The recovery tank is equipped with a float which blocks the suction in the case of overfilling warning the operator through a sound effect; in this case to restart the machine must first empty the tank.
- **Solenoid valve (optional):** The machine is equipped with a solenoid valve which makes the water to pass only at power of the brushes so avoiding the accidental leakage.
- **Floating timer:** The machine is equipped with a timer on the float of dirty water that causes the oscillation of the water prevents the switching on and off of the engine intake.

3.7 SAFETY DIAGNOSTIC SIGNALING

The cleaning machine is equipped with a system for which all the errors detected by the electronic board that controls the functions of the machine appear on the display which is located on the dashboard of the machine. For every comment 'associated with a description of the error received by the board.

<p>01 SUCTION BLOCK</p>	<p>Intervenes to protect from short-circuiting. The value of absorbed current is too high. The machine is blocked. Reset on start-up. Once restarted the electronics display all the default values: all the utilities are off, the speed adjustments are set to the value chosen by parameter, the jacks are lifted, no consent for operation. The error is re-proposed only if suction is started and absorption is anomalous. Therefore until suction starts the rest of the machine functions normally.</p>
<p>02 BRUSHES BLOCK</p>	<p>Intervenes to protect from short-circuiting. The value of absorbed current is too high. The machine is blocked. Reset on start-up. Once restarted the electronics display all the default values: all the utilities are off, the speed adjustments are set to the value chosen by parameter, the jacks are lifted, no consent for operation. The error is re-proposed only if the brushes are started and absorption is anomalous. Therefore until the brushes start the rest of the machine functions normally.</p>
<p>03 TRACTION BLOCK</p>	<p>Intervenes to protect from short-circuiting. The value of absorbed current is too high. The machine is blocked. Reset on start-up. Once restarted the electronics display all the default values: all the utilities are off, the speed adjustments are set to the value chosen by parameter, the jacks are lifted, no consent for operation. The error is re-proposed only if traction is started and absorption is anomalous. Therefore until the traction starts the rest of the machine functions normally.</p>
<p>04 MAX. ELECTRONIC TEMP.</p>	<p>The temp. of the card reaches the max. value set by parameter. The entire machine does not work. If the temp. goes below a certain value set by the parameter (hysteresis) the error disappears and the machine starts working normally again.</p>

05 ACCELERATOR PEDAL FAULT	The accelerator potentiometer is not working. The machine is blocked. Reset to re-start. After restarting, until the pedal of the accelerator is pushed again and the fault condition persists, the rest of the machine starts working again.
06 START BLOCK	Intervenes when on start-up the advancement pedal is pushed and the panel switches on. It is signalled to prevent an uncontrolled start. The error persists only if at least one of the three conditions occurs: pedal pressed, consent to move forward active, consent to move back active. When the error disappears (with re-start) the machine returns to working normally. In the error condition, the rest of the machine works and only traction is blocked.
07 MAXIMUM TRACTION TEMP.	Traction thermal protection intervenes. The machine is blocked. Reset on start-up. Once restarted the electronics display all the default values: all the utilities are off, the speed adjustments are set to the value chosen by parameter, the jacks are lifted, no consent for operation. The error is re-proposed only if traction is started and absorption is anomalous. Therefore until the traction starts the rest of the machine functions normally.
08 MAXIMUM BRUSHES TEMP.	Thermal protection intervenes on the brush motors. The value of absorbed current is too high. The machine is blocked. Reset on start-up. Once restarted the electronics display all the default values: all the utilities are off, the speed adjustments are set to the value chosen by parameter, the jacks are lifted, no consent for operation. The error is re-proposed only if the brushes are started and absorption is anomalous. Therefore until the brushes start the rest of the machine functions normally.
09 MAXIMUM SUCTION TEMP.	Thermal protection intervenes on the suction. The value of absorbed current is too high. The machine is blocked. Reset on start-up. Once restarted the electronics display all the default values: all the utilities are off, the speed adjustments are set to the value chosen by parameter, the jacks are lifted, no consent for operation. The error is re-proposed only if suction is started and absorption is anomalous. Therefore until suction starts the rest of the machine functions normally.
10 BATTER LEVEL LOW	The charging level is critical. Use of the brushes is prohibited. Plate up. The rest of the machine is working. The message stays on. Buzzer cycle: a beep for 5 seconds followed by a two minute break. Reset on start-up, if the voltage returns to being superior the error disappears.
11 BATTERY LEVEL VERY LOW	The charging level is very critical. Use of the brushes is forbidden as well as use of the suction device. Squeegee and brushes plate up. Only traction works. The message stays on. Buzzer cycle: a beep for 5 seconds followed by a one minute break. Reset on start-up, if the voltage returns to being superior the error disappears.
12 BATTERY FLAT	Blocks the machine. The charging level is such that further operation of the machine would prejudice the integrity of the batteries. The error persists until the charging level returns to normal.
13 RECOVERY TANK FULL	Tank is full. Suction is forbidden and squeegee up. The rest of the machine works. Reset on start-up. Once emptied the error disappears.
14 BRUSHES JACK BLOCK	The short-circuit protection intervenes on the brush actuator. The value of absorbed current is too high. It is only forbidden to activate the jack and the brushes motor. The rest of the machine is working. Reset on start-up.
15 SQUEEGEE JACK BLOCK	The short-circuit protection intervenes on the squeegee actuator. The value of absorbed current is too high. It is only forbidden to activate the jack and the suction motor. The rest of the machine is working. Reset on start-up.

<p>16 BRAKE INSERTED</p>	<p>The stationary brake or emergency brake is inserted. Traction is forbidden. The rest of the machine is working. When the brake is released the message disappears.</p>
<p>17 REVERSE CRASH</p>	<p>Only on the retracting squeegee version. If the squeegee crashes the “belly button” function activates. The machine stops and traction activates for a short time. The error communicates the event and blocks the machine. Reset on start-up.</p>
<p>18 SQUEEGEE STUCK</p>	<p>Only on the retracting squeegee version. Intervenes if the squeegee stays closed. No machine function is blocked. The message disappears as soon as the squeegee is unblocked. If the machine is stopped and consent is given for reverse the machine will not start, but if you press the advancement pedal a belly cycle starts.</p>
<p>19 SQUEEGEE LOWERED</p>	<p>Only on ECOSMART. Prevents reverse if the squeegee is lowered. The rest of the machine is working. If the squeegee is raised or moved forward the message disappears.</p>
<p>20 COMMUNICATION ERROR</p>	<p>Communication error between activation and the dashboard. The machine is blocked. The error persists until correct communication is re-established.</p>
<p>21 EXCESS BATT. LEVEL</p>	<p>The battery charging level is too high. Use of the machine is forbidden. Reset on start-up, if the voltage returns as inferior to the maximum value, the machine starts working again normally.</p>
<p>ALIGNMENT ERROR</p>	<p>ONLY FOR PRODUCTION. The firmware versions between the board and activation are not compatible. The machine will not work.</p>

3.8 OTHER DANGERS

FIorentINI S.p.A. analyzes starting from the design of the machine - all the dangers that can occur while the machine is operating in order to prevent or at least lower the operator's accidents. Thanks to a series of signals on the machine the operator can avoid many risks that can occur.

CRUSHING

This kind of danger can occur:

- During the side brushes regulation;
- during the batteries recharge because of the fall of the recovery tank.

Whilst regulating the side brushes, the ignition key must be kept away from the dashboard in order to avoid the casual starting of the machine.

Whilst the batteries recharge, the operator must pay attention that any parts of his/her body enter the batteries room.



Special labels sticked on the carters of the brushes or on the recovery tank prevent dangers to the operator.

SQUASHING AND SHEARING

This kind of danger can occur:

- while the operator is regulating the steering wheel by means of the pedal.

The operator must only use his/her legs during the regulation of the steering column.

Squashing and shearing danger is highlighted by special labels sticked on the case of the steering column.

TURNOVER

This kind of danger can occur:

- during the normal operating of the machine when you exceed sloping limits as specified in the manual and you use the machine to clean disconnected surfaces or with holes and high depressions.



- **Do not use the machine to wash surfaces with a slope greater than 10% at rate exceeding 3 km / h or surfaces with holes, bumps and bumps in general likely to jeopardize the stability of the machine.**




Fiorentini disclaims any liability for accidents to persons or property resulting from the machine on surfaces that can affect the stability of the machine. The buyer must arrange for suitable signage to inform the user about the status and condition of surfaces on which it must operate.


3.9. SAFETY SIGNALS


The safety signs including signs of:

DANGERS		Dangers' signals are triangular with black pictures on a yellow background
PROHIBITIONS		Prohibitions' signals are round with black pictures and a red stripe


	What is it?	This signal forbids to remove the protection of pieces in movement.
	What to do	During the installation or the maintenance make sure that the ignition key is not in the dashboard before removing the mobile protections. While the machine is operating make sure that all covers are well fixed.




	What is it?	Squashing danger: it can be due to parts in movement of the machine.
	What to do	During the installation or the maintenance make sure that the ignition key is not in the dashboard before removing the mobile protections.

	What is it?	Explosion danger: it may occur while recharging the batteries because of hydrogen spread.
	What to do	During the batteries recharge, please place the machine under a suction chimney or in a ventilated area and keep it away from heat and corrosive substances.



	What is it?	Squashing danger: it can be provoked by the recovery tank overturn.
	What to do	During charging of the battery or during the filling of the reservoir charging take care that 'can not be accidental impacts.


In case of deterioration, the buyer has the obligation to restore the signs with signs identical. It 's absolutely forbidden to remove or tamper with these signs.

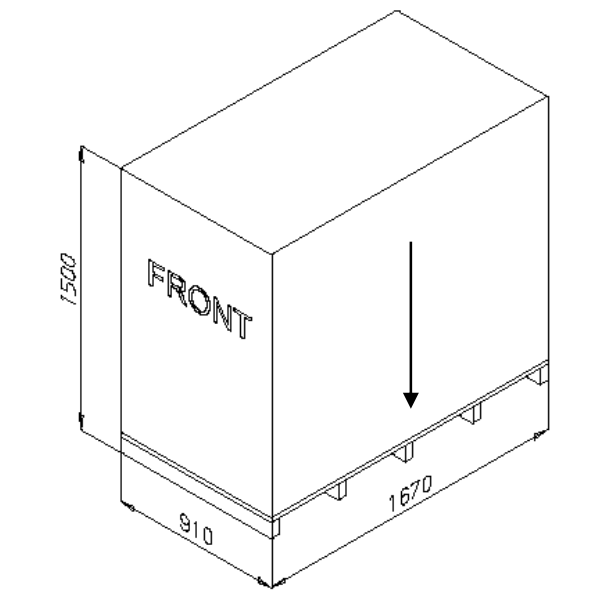
4. STARTING AND USE INSTRUCTIONS

4.1. TRANSPORT AND HANDLING

The machine is delivered to the purchaser in a proper package (see picture 4.1 below). A black arrow on the package indicates the barycentre. This arrow must be in the middle of the elevator or transpallet forks. The package must be carefully handled. Do not place one package on another one. If agreed with the purchaser, the machine can be delivered without package, placed on a pallet and fixed by means of straps.



*The purchaser must make sure that the machine has not been damaged during the transport and that all papers are on the machine. Otherwise, the purchaser must immediately contact FIORENTINI in order to sort out the problem.
The purchaser is responsible for the transport of the machine if not differently agreed with FIORENTINI..*



PICTURE 4.1

The handling and must be carried out with apparatus and means of lifting gear, as reported in the following table. Always ensure that the forks of the elevator, or bands of the harness, are always positioned so that the black arrow, drawn on the packaging, is always placed in the center of the lifting system prepared. The anchorage points and / or harness are arranged in such a way that during lifting the machine remains stably in position of equilibrium.

PACKAGE	HANDLING EQUIPMENT	PICTURE
Paperboard or plywood box on a pallet	Fork elevator	Nr. 4.2.
None	Fork elevator or crane truck with a two-band-sling and equalizer	Nr. 4.3.

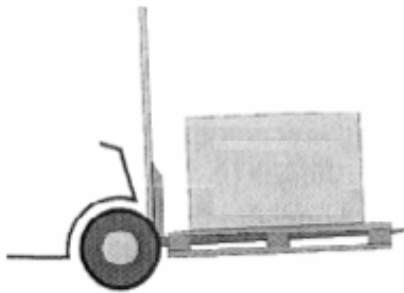


The bands used for lifting the machine up must have the same loading capacity as the machine load. Handling operations must be done without causing a loss of stability of the machine. Otherwise, the machine can be damaged or the operator can do in danger.



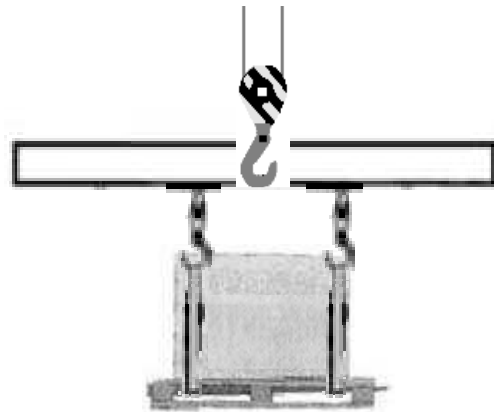
FIORENTINI suggest to use authorized personnel (see § 2.3.) to handle the machine.

LOADING SYSTEM



PICTURE N° 4.2

SI



PICTURE N° 4.3

4.2. STORAGE

The machine must be stored in a closed and dry place if not immediately installed in order to keep every part safe.

Relative humidity must be lower than 80% and the storage temperature must be between $3^{\circ}\text{C} \leq t \leq +45^{\circ}\text{C}$.

4.3. HOW TO UNPACK THE MACHINE

- Cut the straps paying attention to the back spring;
- Remove the staples that join the paperboard and the pallet;
- If the package is mad of plywood, please remove the staples from each side;
- Cut the straps that fix the machine;
- Lay the machine on the floor.

4.4 HOW TO HANDLE THE UNPACKED MACHINE

- Check the machine and install the batteries if not already installed;
- For a brief transport of the machine, please disconnect the batteries cables and remove brushes and squeegee; for a longer transport, please use the original package of the machine.

4.5. INSTALLATION

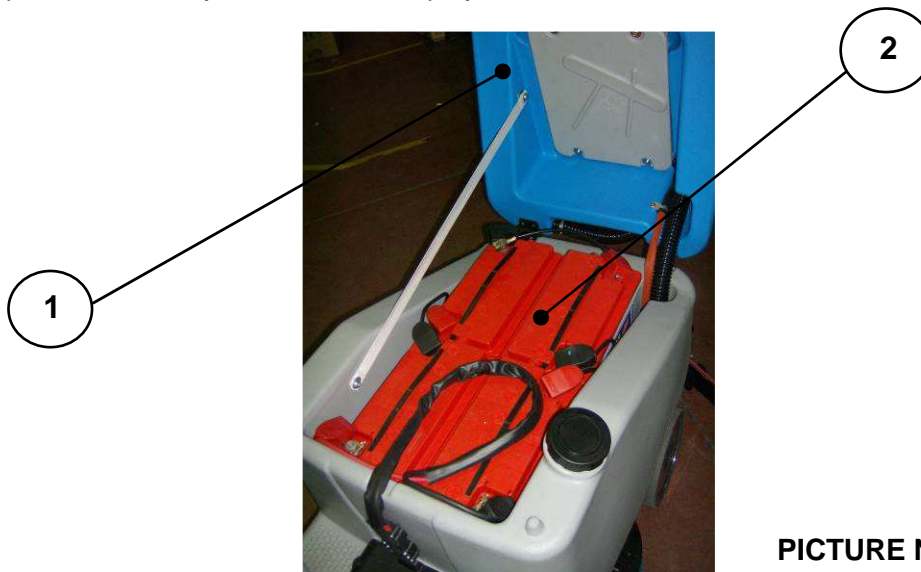


Installation must be carried out by authorized personnel after reading this manual.

4.5.1 BATTERIES INSTALLATION

To install the batteries apply the following instructions:

- Lift the recovery tank up in order to reach the batteries room (see detail 1 in picture 4.4);
- Install the batteries in their room (see detail 2 picture 4.4.) and make sure that the cases of the batteries are not broken;
- Never fill distilled water after having recharged the batteries.
- Clean the surfaces for the connections;
- The operator can easily lift the batteries up by means of handles.



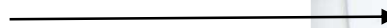
PICTURE N° 4.4

4.5.2 BATTERY CHARGER INSTALLATION

Batteries must be recharged in a place equipped with a proper suction system of gases spread during this operation. Otherwise, batteries must be charged in a ventilated and dry place far from heat sources and corrosive substances.

Protect the electric network with a delayed switch or with a fuse whose capacity is higher than the battery charger maximum input.

Connect the charger to the socket on the machine.
Observe the polarity of the battery socket.

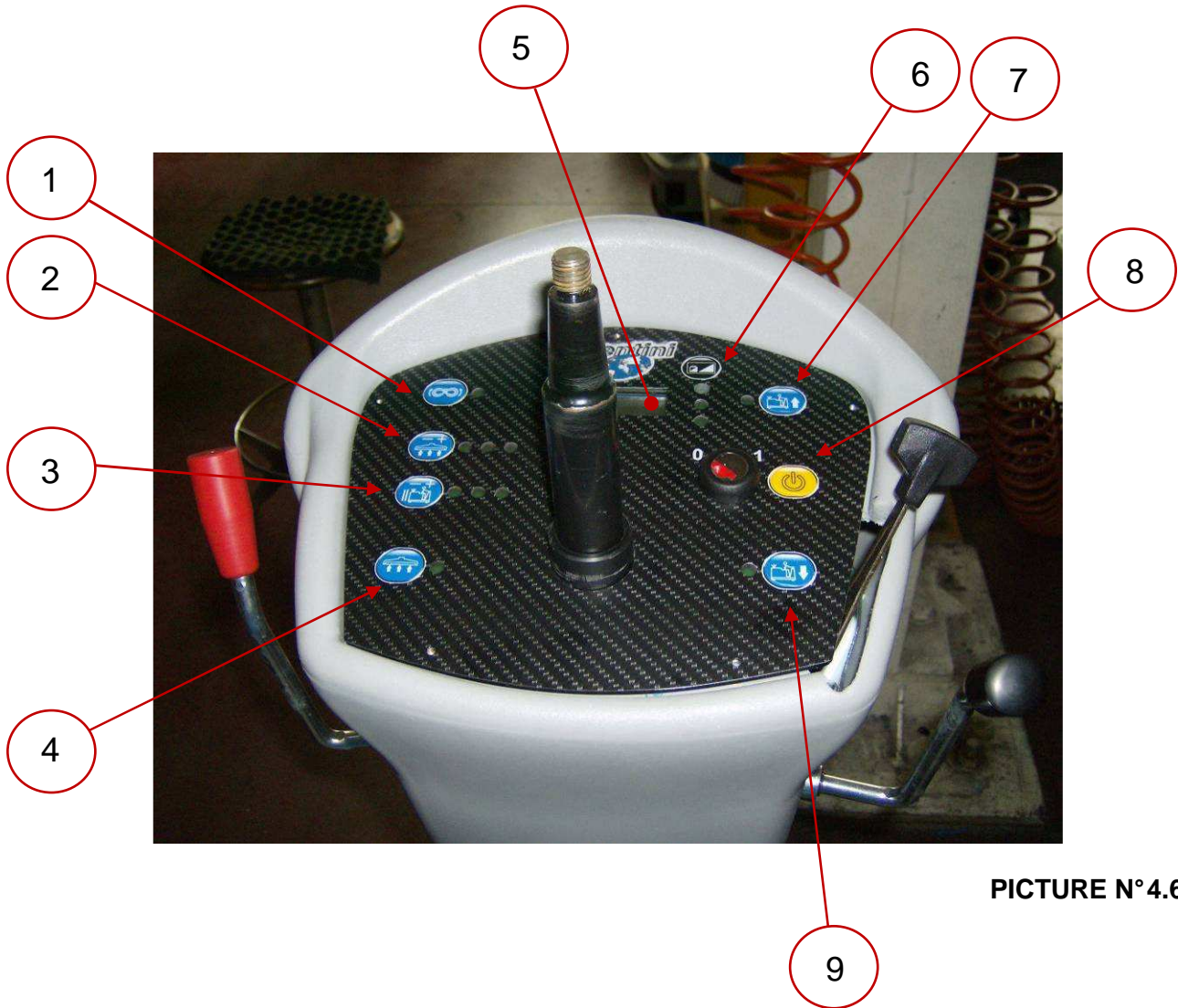


PICTURE N° 4.5

4.6. CONTROL DEVICE

4.6.1. DASHBOARD

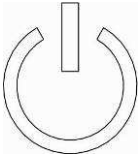
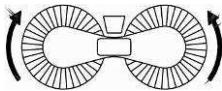
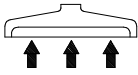
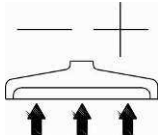
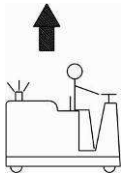
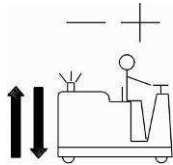
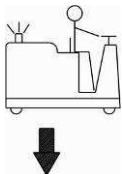
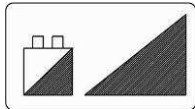
The dashboard is made of a series of switches that active or disactive all the machine functions. The function of each switch is shown by a picture .



PICTURE N° 4.6

N°	Descrizione
1	BRUSH UP DOWN ACTIVATION
2	VACUUM MOTOR POWER ADJUSTMENT
3	SPEED ADJUSTMENT
4	VACUUM MOTOR ON OFF
5	DISPLAY
6	BATTERY CHARGER INDICATOR
7	FORWARD
8	SCRUBBER ON OFF
9	REVERSE

Below are the symbols of the dashboard with a small description next to on the applicable function:

0	OFF	1	ON
	<p>MAIN SWITCH</p>		<p>UP/ DOWN BRUSH SWITCH</p>
	<p>VACUUM ON OFF</p>		<p>VACUUM ADJUSTMENT</p>
	<p>FORWARD</p>		<p>SPEED ADJUSTMENT</p>
	<p>REVERSE</p>		<p>BATTERY INDICATOR</p>

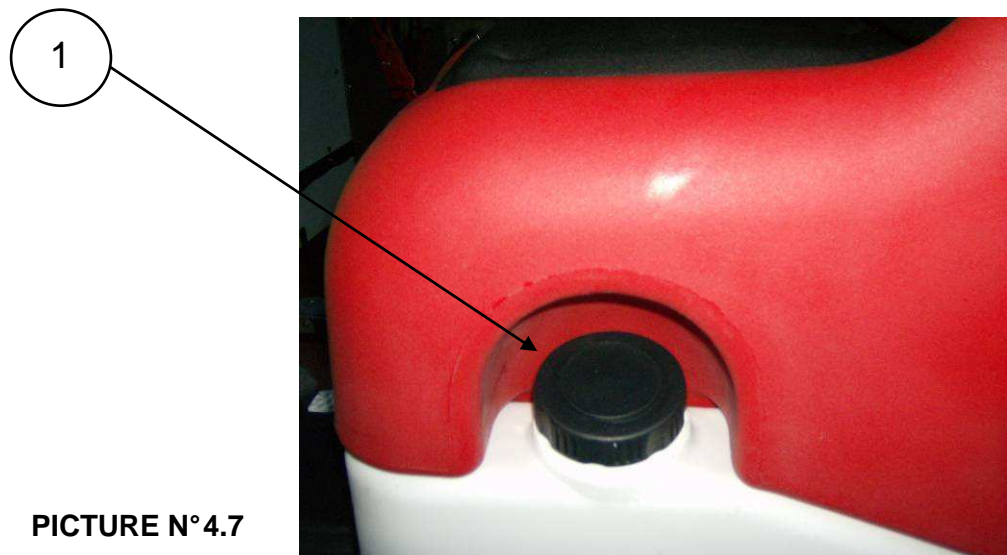
4.7. FUNCTIONING

The washing operation is very delicate as it is needed, based on experience, to judge correctly the type of brush to use, good choice of detergent and whether or not a double cleaning action. To perform the washing operation, you must click on the symbol of the power machine (see Fig.4.6 part.8): automatically light up the brushes (the solenoid is activated and if 'any', will subside' brushes through the plate jack and will also turn on the vacuum. This will allow 'the user to already be' ready to use the washer-dryer without calling any other function. To return to the home position you simply press the switch. Completed the washing operation, before finishing drying, you should close the tap water because it is independent of the start button. If the floor is very dirty, it is advisable to a double action for cleaning: it will have to perform a first phase with the squeegee in the raised position and the brushes in the working position; initiated the brushes and the lever open water, will carry out a first passed, on a surface of some tens of square meters. The cleaning solution must be left on the floor to loosen the dirt, with completion of its function as a solvent, until it will be collected with the second pass. Of course, the second cleaning action to be carried out with the brushes lowered, the lever open water and the squeegee in contact with the floor (switch suction activated).

4.7.1 PREPARING AND STARTING THE MACHINE

If the cleaning machine is connected to the charger, you must unplug the charger from the plug coming from the car battery and connect the plug of the battery with the power plug from the machine (see picture 4.5); to load water by unscrewing the filler cap. (part.1 picture 4.7).

The machine can now be activated by turning the main switch key with operator sitting at the edge. At this point it can be flushed.



PICTURE N° 4.7

4.7.2 CHOOSING THE RIGHT DETERGENT

Choosing the right detergent is very important for a perfect cleaning. A too strong detergent could damage the surface. A good quality detergent has to produce little foam. Alternately, the operator can add an antifoaming additive or 50 cc of wine vinegar in the recovery tank in order to avoid the suction motor damage.



Make sure that the detergent is suitable for the dirty surface. FIORENTINI S.p.A. is not responsible for damages provoked by too aggressive detergents.

4.7.3 FUNCTIONS LEVER

- Advancement lever (detail 1 fig.4.9). By pressing the pedal you obtain forward or back operation of the machine according to the setting chosen on the commands dashboard.
- Stationary brake lever (detail 2 fig.4.9). When the machine is stopped, the brake must be activated: to unblock it bring the lever forward.
- Solution adjustment lever (detail 3 fig.4.9). To adjust the water flow, put the lever in the desired position: the machine is equipped with three adjustment levels.
- Lever to lift and lower the squeegee (detail 4 fig.4.9). To lower the squeegee you have to move the lever forward, vice versa, to lift it, pull it towards yourself, returning to the start position.



PICTURE N° 4.9



PICTURE N° 4.9

4.7.4 SQUEEGEE ADJUSTMENT

To guarantee perfect drying, it is essential for the squeegee to be perfectly adjusted. This type of squeegee has the characteristics of gathering water well towards the suction tube, but is very sensitive to parallelism with the ground. To adjust the squeegee, you have to:

- Remove the commands dashboard key to avoid accidental switch on.
- To adjust inclination of the squeegee, turn the adjustment knob (detail 1 figure 4.13). The right pressure is achieved when the edge of the blade touches the floor with an inclination of 45° - 60° to the ground.



PICTURE N° 4.13

- To adjust the height of the blades turn the knobs on the two guide wheels by screwing or unscrewing them.



It is very important that the two wheels are adjusted to ensure the blades on the squeegee are parallel and well-positioned on the ground.

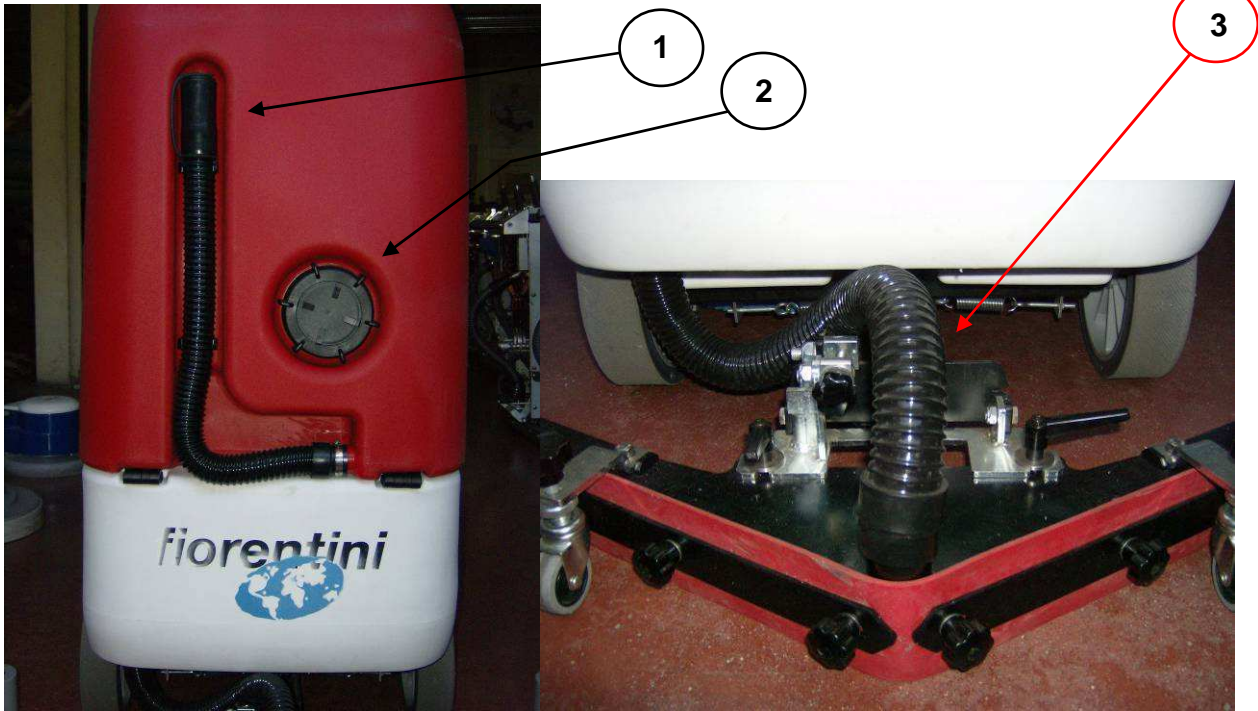
4.7.5 WATER DRAINAGE

The floor washer is equipped with a water drainage tube and a squeegee tube: (figure 4.14):

- Recovery tank drainage tube (detail 1 figure 4.14);
- Plug for inspection porthole and recovery tank cleaning (detail 2 figure 4.14);
- Squeegee tube (detail 3 figure 4.15).

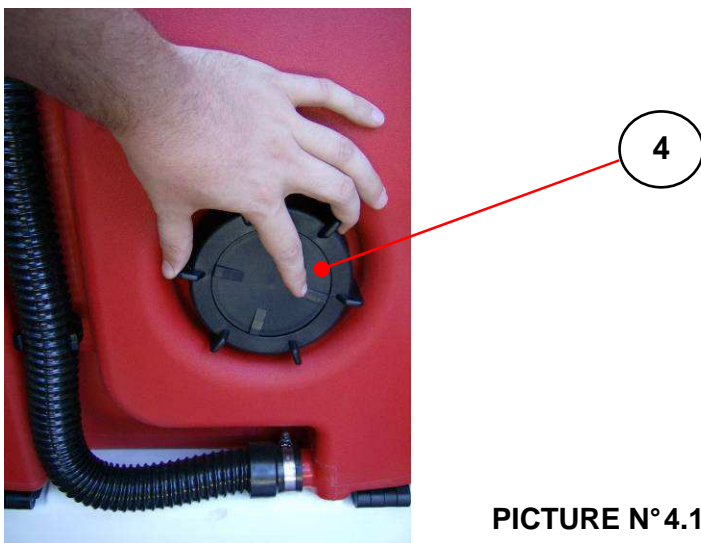
To drain the water from the tanks, position the machine on a drainage well, release the tube of the tank to empty and open the rubber plug at the end of the tube.

To clean the recovery tank, unscrew the plug and clean inside (fig.4.16).



PICTURE N° 4.14

PICTURE N° 4.15

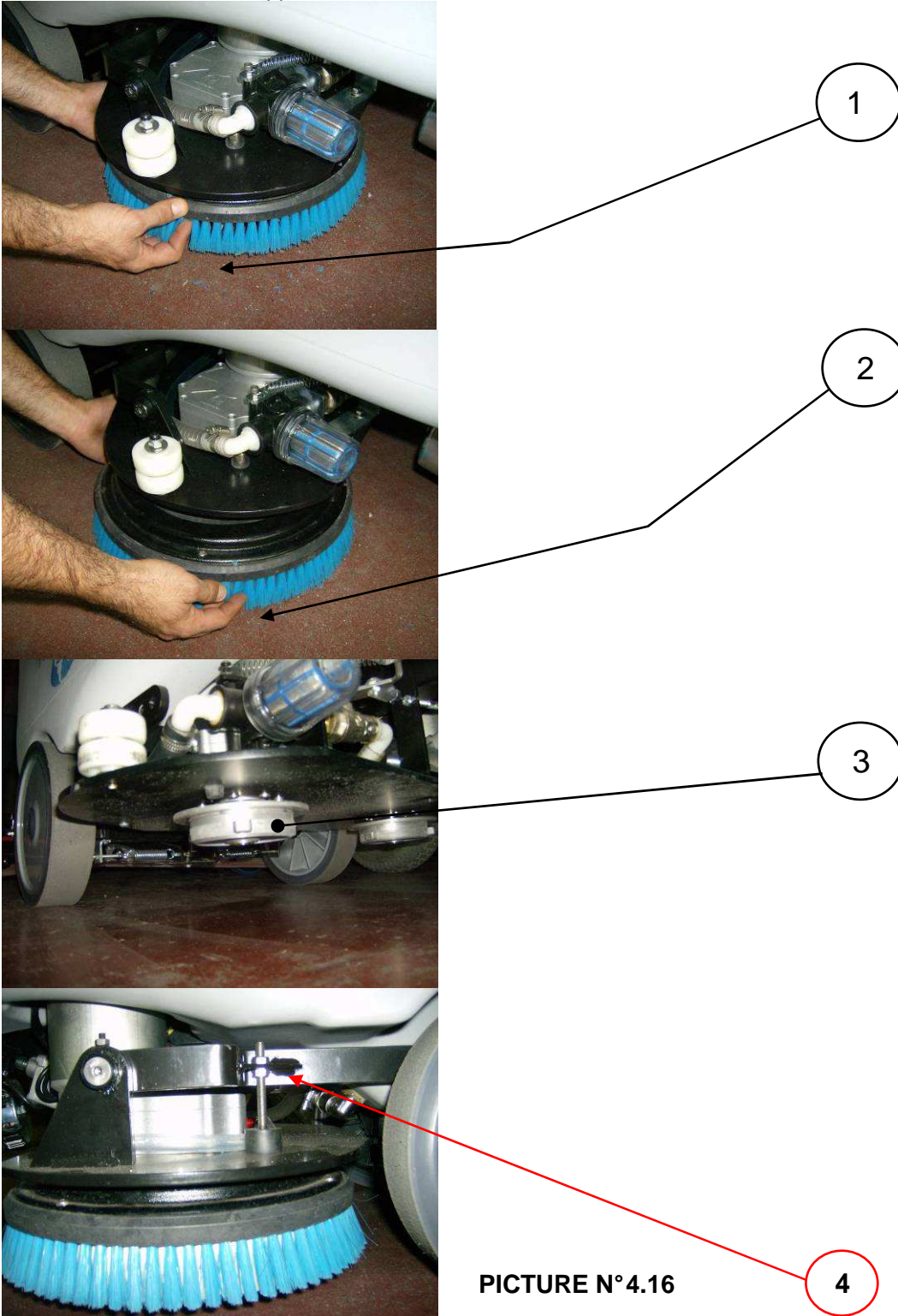


PICTURE N° 4.16

4.7.6 BRUSHES REPLACEMENT

To proceed with replacing the brushes, you must do as follows:

- Remove the key from the commands dashboard to avoid accidental switch on.
- Replace the brush by rotating it (detail 1 fig. 4.15) and then removing it (detail 2 fig. 4.15).
- To insert a new brush, position it under the flange and subsequently lift it until it is inserted in the aforementioned flange (detail 3 fig.4.15); after which rotate it.
- Using this adjustment (detail 4 fig.4.15) you can determine the inclination of the brushes plate while the machine is stopped.



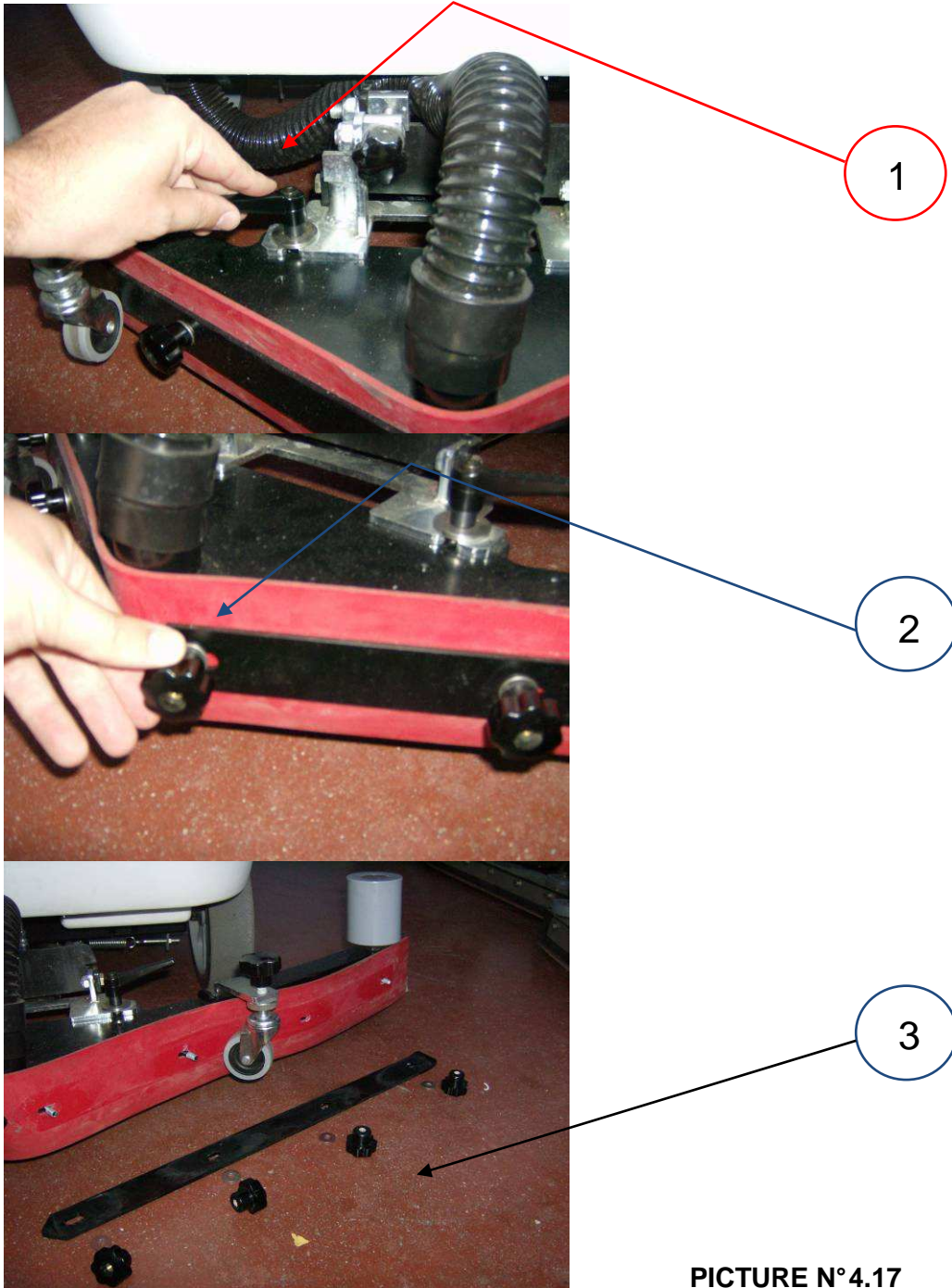
PICTURE N°4.16

4.7.7 SQUEEGEE BLADE REPLACEMENT

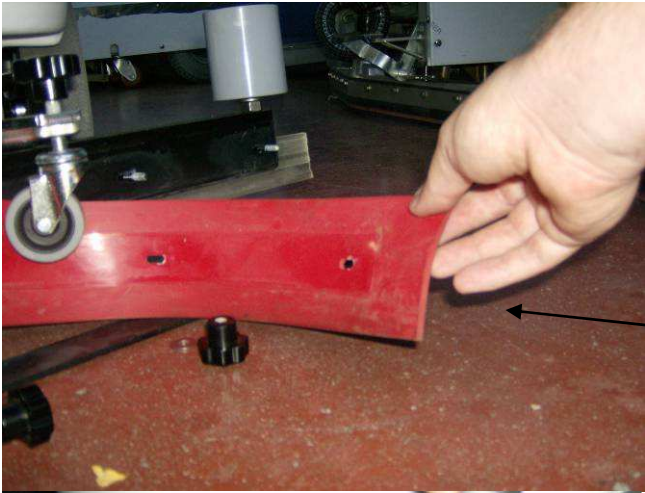
The squeegee blades (figure 4.18) must be replaced when the contact edge is abrasive: in fact, edge perfection is essential for perfect drying.

To replace the blades, do as follows:

- Remove the squeegee from the machine and position it on a bench (fig.4.17 detail 1).
- Remove the knobs on both the front and back part of the squeegee unit (fig.4.17 detail 2), remove the strips (fig.4.17 detail 3) and remove the worn blades (fig.4.17 detail 4)
- Insert the new blades and proceed with the inverse operations.
- If worn, change the bumper wheels by removing the plug (fig.4.17 detail 5) and then unscrewing the hex head screw (fig.4.17 detail 6).



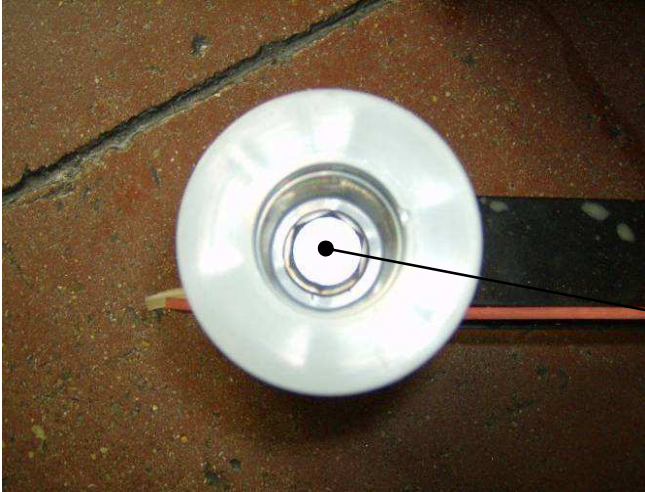
PICTURE N° 4.17



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PICTURE N° 4.17

5. MAINTENANCE


5.1. PERIODICAL MAINTENANCE

A periodical maintenance is very important.

Please write down in the format you find below all the interventions done on the machine.



- *Trained personnel only can service the machine and especially electric and electromechanical parts by means of suitable tools and equipments.*
- *Make reference to FIORENTINI S.r.l. only for service and spare parts (§ 7.1. and § 7.2.).*

OPERATION	INTERVENTION	HOW OFTEN
Cleaning	Clean the recovery tank and the oil filter of the suction motor	Every day
	 <ul style="list-style-type: none"> • <i>Do not use corrosive substances.</i> • <i>Do not use bolts of water.</i> 	
	➤ Check the suction pipes and the squeegee	
Check up	<ul style="list-style-type: none"> ➤ Check the rubber suction blades of the squeegee ➤ Check the water battery level 	Every 15 days
	Check the filter of the clean water tank	Every month
	Check and regulate the breaking system	Every 3 months
	Check the connection of the battery cables	Every 6 months
	Check the brushes of each motor	Every year
	<ul style="list-style-type: none"> ➤ Check the safety devices ➤ Check the electric system 	Every year

5.2 BATTERIES MAINTENANCE

The operator has to check the batteries charge when the machine is on duty by means of the indicator on the dashboard, which shows:

- Green light: charged battery
- Yellow light: slightly charged battery
- Red light: uncharged battery



The operator must keep the battery room open during the batteries recharge. Moreover:

- *It is forbidden to use flames and/or to smoke near the batteries;*
- *Pay attention to the battery acid;*
- *Do not develop sparks near the batteries;*
- *Pay attention to the batteries gazes, which can burst;*
- *Do not invert battery polarities.*

5.2.1 HYDROMETRY

In order to check the batteries hydrometry the operator has to follow the instructions below:

- By means of a hydrometre draw a small quantity of electrolyte so that the floater reaches the surface;
- Make sure that the floater inside the hydrometre is not blocked;
- For a new measurement, after having filled the batteries with distilled water, the operator has to wait until the liquid inside each battery becomes homogeneous.

5.2.2 WATER FILLING UP

- Fill distilled water up in each battery cell before the recharge. The liquid inside the batteries has to be of 6 mm. over the plates;
- The operator has to repeat the same operation every time the level decreases (every week).

5.2.3 CHARGE LIMITS

It is not necessary to recharge the batteries if the hydrometry, after a work day, is not under 1,24 (28 Bè). The highest suggested temperature is 45°C. If the electrolyte temperature increases more than 10/12 °C compared to the outside temperature, the batteries can be overcharged.

5.2.4 OFF DUTY OR INACTIVE BATTERIES

Inactive batteries lose their automatically their charge. If batteries do not continually work, the operator has to:

- Charge the batteries once a month with a 'final' stream intensity until gas is spread and the batteries voltage and weight are constant for 3-4 hours. This operation has to be done even if the absolute weight is high;
- Keep the batteries in a dry room.

5.2.5 BATTERY CHARGER TECHNICAL FEATURES

The battery charger has to show the features listed in the scheme below:

IN	V230, Hz50, 5A
OUT	V48, 15A

Instruction:

Electromagnetic compatibility 2004/108/CEE

Low voltage 2006/95/CEE

ATTENTION: the operator must consult the batteries and batteries charger user manual for each problem that occur during the normal maintenance.



For the technical characteristics of the accumulators to use, see paragraph 2.3 BOARD TECHNICAL DATA.

5.2.6 BATTERIES DISPOSAL

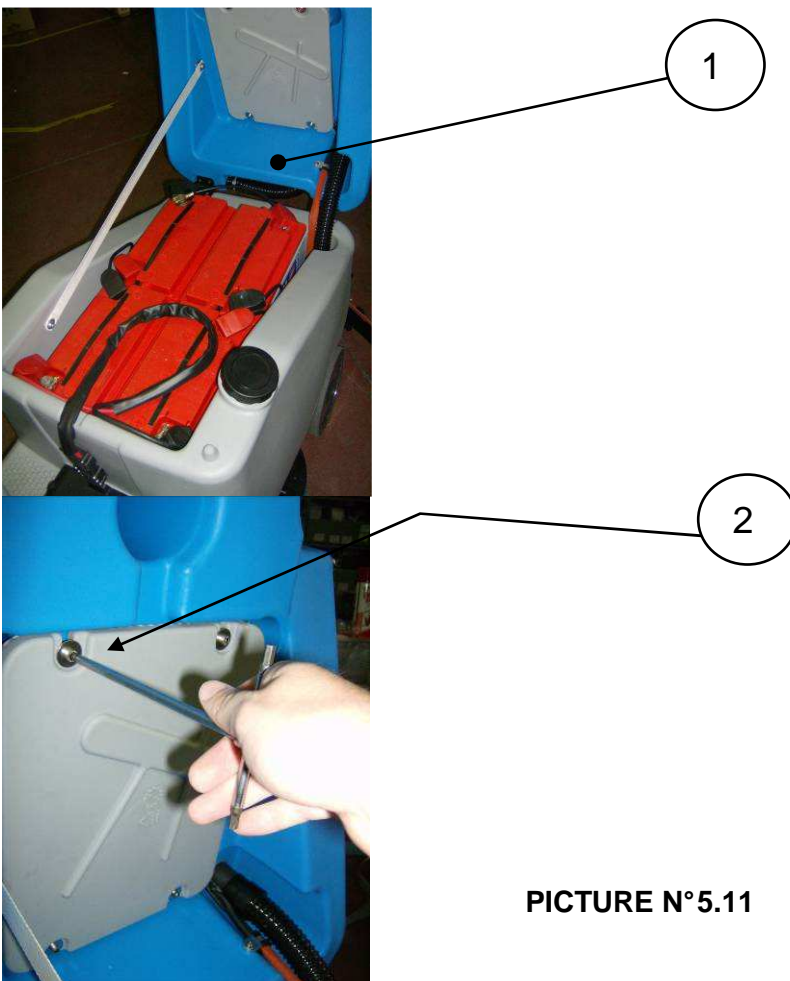
The batteries are hazardous waste "toxic and hazardous." For disposal must be assigned exclusively to collectors possess specific authorization whose existence must be verified by the bestower. If unable to attend, the "temporary storage" must comply with the laws, mainly:

- Be in possession of temporary storage
- Store in sealed plastic containers of a capacity not lower than the volume of the electrolyte contained in the batteries, or in any case in such a way that the container cannot enter the rainwater

5.3 MAINTENANCE OF THE SUCTION MOTOR

The suction motor must be checked and cleaned. Every six months the charcoal must be checked and, if necessary, replaced. For maintenance of the suction motor, do as follows:

- Remove the commands dashboard key to avoid accidental switch on.
- Lift the recovery tank (detail 1 figure 5.11)
- Unscrew the four Allen screws supporting the lid (detail 2 figure 5.11)
- Remove the lid (detail 3 figure 5.11)
- Remove the motor connection cable plug (detail 4 fig.5.11)
- Unscrew the three knobs fastening the suction motor (detail 5 fig.511)
- To check the charcoal (detail 6 figure 5.11) firstly remove the plastic sleeve, then unscrew the screws and remove the two charcoal plastic supports
- To re-assemble everything, do the operations in an inverse manner



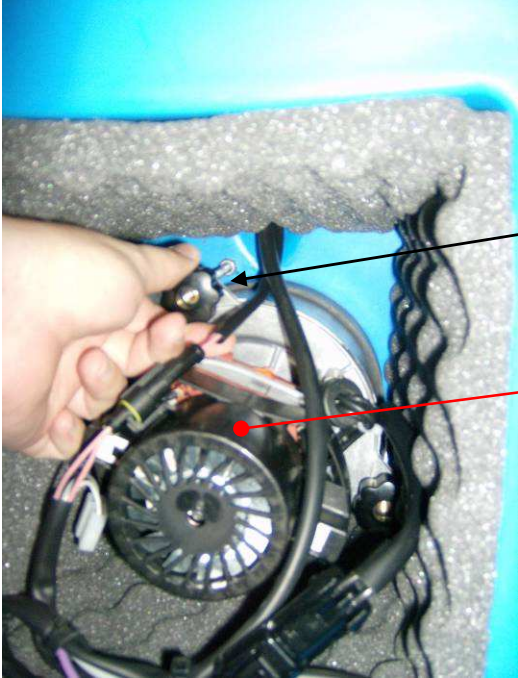
PICTURE N° 5.11



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PICTURE N°5.11

5.4 ELECTRIC EQUIPMENT CONTROL

It is very important to check the electric system up every two years. Disconnected cables or burnt cables must be immediately replaced.



If any intervention is necessary on the electrical system it must be conducted by a professional technician.
 Any maintenance or repair operations not described in ordinary maintenance must be conducted by specialist staff authorised by FIORENTINI.

5.5 MATRIX SUMMARY OF CHECKS TO BE CARRIED

	HOW OFTEN	OPERATOR
INSPECTION		
Safety devices	Every 2 years	Trained technician
Electric system	Every 2 years	FIORENTINI technician
Braking system	Every 3 months	Trained technician
Complete check up	Every 5 years	FIORENTINI technician
MAINTENANCE		
Recovery tank cleaning	Every day	Operator
Clean water tank	Every month	Operator
Suction motor filter	Every day	Operator
Suction pipes cleaning	Every week	Operator
Squeegee cleaning	Every week	Operator
Squeegee blades	Every week	Operator
Battery water level	Every week	Operator
Battery cables fixing	Every 6 months	Trained technician
Brushes in each motor	Every year	Trained technician