



ING. O. FIORENTINI S.R.L.
INDUSTRIAL CLEANING MACHINES

**SCRUBBER MACHINE
MOD. I32NEW-I26NEW-
I21NEW**



USER MANUAL

Congratulations for your choice!

***FIorentini S.r.l.** thanking you for the preference to our product, would like to remind you that **FIorentini's S.r.l** 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.

INDEX

1. GENERAL INFORMATION

1.1. Symbols.....	page
1.2. Notes.....	
1.3. Manual consulting.....	
1.4. Warranty.....	
1.5. Conformity declaration.....	

2. MACHINE FEATURES AND TECHNICAL DATA

2.1. Identifying the machine.....	
2.2. Description and components.....	
2.3. Technical data.....	

3. SAFETY

3.1. Right use of the machine.....	
3.2. Wrong use of the machine	
3.3. Suggested equipment.....	
3.4. Operator qualify.....	
3.5. Safety and warning devices	
3.6. Safety systems.....	
3.7. Safety diagnostic signaling	
3.8. Other dangers.....	
3.9. Security signals.....	

4. INSTRUCTIONS FOR STARTING AND USE

4.1. Trasport and handling.....	
4.2. Storage.....	
4.3. How to unpack the machine.....	
4.4. How to handle the unpacked machine.....	
4.5. Installation.....	
4.5.1. Batteries installation.....	
4.5.2. Battery charger installation.....	
4.6. Control devices.....	
4.6.1. Dashboard.....	
4.7. Functioning.....	
4.7.1. Preparing and starting the machine.....	
4.7.2. Choosing the right detergent.....	
4.7.3. Driving handlebar regulation.....	
4.7.4. Rudder bar functioning.....	
4.7.5. Detergent control.....	
4.7.6. Squeegee adjustment.....	
4.5.7. Water discharge.....	
4.5.9. Brushes replacement.....	
4.5.10. Squeegee blades replacement.....	

5. MAINTENANCE



- 5.1. Periodic maintenance.....
- 5.2. Batteries maintenance.....
 - 5.2.1. Hydrometry
 - 5.2.2. Water filling up
 - 5.2.3. Charge limits.....
 - 5.2.4. Off duty or inactive batteries
 - 5.2.5. Battery charger technical features.....
 - 5.2.6. Batteries disposal.....
- 5.3. Suction motor maintenance.....
- 5.4. Electric equipment control.....
- 5.5. Tests to be carried out.....
- 5.6. Maintenance register.....

6. SERVICE


- 6.1. Service adresses.....
- 6.2. Claim report.....

1. GENERAL INFORMATION

1.1. SYMBOLS

	<p><i>This symbol is used to get the operator's attention on procedures or precautions to be followed in order to avoid damages to users or to the support</i></p>
	<p><i>This symbol is used to get the operator's attention on general information.</i></p>

1.2. PREMISE

	<p>FIorentini S. r. l. is the only owner of this manual. <i>The reproduction of all or part of the manual or the transmission to third parties with mechanic or electronic devices are forbidden without a written manufacturer's authorization. This manual is supplied to the customers in one original copy when differently specified during the order.</i></p> <p><i>This manual is supplied to the customer with the machine and it must be kept with it even when the machine has to be transferred.</i> <i>Please, keep the manual in a safe place and for all the machine lifetime. Purchaser is responsible for showing the manual to qualified people. In case of loss ask for a duplicate to FIORENTINI Co..</i></p> <p><i>FIORENTINI S.r.l. is not responsible for any kind of damages caused by people or things due to the non-observance of the instructions of this manual.</i></p> <p><i>FIORENTINI reserves the right to add at any time and without notice all the technical and commercial changes considered useful for the customer. Therefore data and information in this manual can be updated.</i></p>
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1.3. MANUAL CONSULTING

This manual deals exhaustively with all arguments that are necessary for an easy and safe use of the machine as it is recommended by European Directives on product safety.

Therefore we suggest to all authorized operators to read carefully this manual contacting FIORENTINI S.r.l. for any explanation. The manual has to be used every time the operator forgets a procedure or when new operators have to be trained.

For publishing reasons, pictures and drawings can look different from the reality but without arising doubts.

Special symbols and **bold type** and/or *slipping* get the attention of the reader on remarkable information in particular for safety.

The revision index is written on the left at the bottom of every page. The list of those pages that have been updated has to be found at the end of the manual.

1.4. WARRANTY

Warranty conditions are stated as below when not differently specified in the order confirmation.

WARRANTY OBJECT

The machine has been designed and built for a long-lasting use without relevant problems. Anyway, if problems arise during the warranty period, FIORENTINI S.r.l. is engaged to repair or substitute for free those parts that are broken or damaged by defective materials, working defects or imperfect assembly.

Warranty is not given for parts whose early breaking or wear and tear are due to:

Non-respect of instructions included in this manual;
?? Breaking and/or changes made up without FIORENTINI's approval;
?? Not-use of genuine spare parts;
?? Interventions made up by unauthorised personnel;
?? Missing maintenance;
?? Natural calamities.

FIORENTINI S.r.l., its purchasers and its suppliers have the same warranty for the electric and expendable materials that are sold by external suppliers.

WARRANTY CONDITIONS

The warranty is granted for 24 months since the machine delivery date. This is a single warranty term and it cannot be extended.

EXCEPTIONS

Expandable materials like brushes, squeegee blades and materials whose lifetime cannot be predetermined are not under warranty.

APPLICATION MODALITY

Defective components must be sent back to FIORENTINI S.r.l. in order to establish the anomalies causes and apply therefore the warranty. Repair and replacement under warranty will be done in FIORENTINI's workshop, by third parties or in loco. In case of repair or replacement in loco, energy sources and the use of particular equipment have to be paid by the customer himself.

INTERVENTION DEMANDS

Intervention demands must be sent to FIORENTINI Service Dpt. only after a careful analysis of the problem and its causes. Following information have to be given to FIORENTINI's agent:

- ?? Serial number you get it from the silver label stucked on the machine (§ 2.1.);
- ?? Code and position of the component taken from the spare parts list (§ 7.2.);
- ?? A detailed description of the problem and its causes.

The components considered under warranty are delivered ex works; those ones being substituted belong to FIORENTINI Co..



The machine warranty is no more available in case of the loss of the silver label.

1.5. CONFORMITY DECLARATION

The conformity declaration is released with the machine and the user manual.

DICHIARAZIONE CE DI CONFORMITA'

ING. O. FIORENTINI s.r.l.

Loc. Rombola

50030 PIANCALDOLI (FI) ITALIA



DICHIARIAMO SOTTO LA NOSTRA RESPONSABILITA' CHE LA MACCHINA

Marca FIORENTINI

Tipo

N° serie

Anno di costruzione 2005



RISULTA IN CONFORMITA'

con quanto previsto dalle seguenti direttive e normative armonizzate comunitarie:

DIRETTIVA COMUNITARIA

DIRETTIVA MACCHINE

98/37/CEE

DIRETTIVA BASSA TENSIONE

73/23/CEE

DIRETTIVA COMPATIBILITA' ELETTROMAGNETICA

89/336/CEE

Piancaldoli

***Luogo e
data***

Ing. O. Fiorentini S.r.l.

Il titolare

Ing. O. Fiorentini

Firma

2. MACHINES 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 Nr. 2.1

Ing. O.Fiorentini S.r.l.		MADE		CE
50030 Piancaldoli (FI)		IN ITALY		
Mod	I26P-13139	S.N.	124	2004
V	24	Hz		
Kg	280	A	W	
			1670	



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 autoscrubber machine – I32NEW 13139 - 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 rotating brushes 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.

The accelerator pedal starts both the washing brushes and the suction motor which stop automatically after a few seconds when you leave the pedal. When the washing brushes standstill, they are non more in contact with the ground. In this way the bristles will not be damaged while the brushes are not working.

Thanks to the dashboard the operator can control all the machine functions and a series of LEDs shows to the operator the battery status or the errors detected by the electronic card.

The operator can control all the main machine functions and in particular:

- ~~⚡~~ Start the washing brushes (ELECTRIC JACK);
- ~~⚡~~ Start the suction motor;
- ~~⚡~~ Start or stop the machine.

The machine frame is made of zinc-plated or stainless steel in order to avoid oxidation which could compromise the machine reliability.

The main parts of the machine are:

- ~~⚡~~ Zinc-plated steel or stainless steel frame;

- ✂ PE-HD plastic solution tank;
- ✂ PE-HD plastic recovery tank supplied with flexible suction piping system and drainage;
- ✂ Series of batteries placed in the recovery tank room;
- ✂ Rotating brushes;
- ✂ Squeegee (suction system);
- ✂ one driving wheel;
- ✂ two traction wheels with differential gears;
- ✂ adjustable handle.

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
CARATTERISTICHE DIMENSIONALI—DIMENSIONS

	I 21 NEW	I 26 NEW	I 32 NEW
LUNGHEZZA / LENGHT	1480 mm	1510 mm	1550 mm
LARGHEZZA CARTER SPAZZOLE / BRUSH CASE WIDTH	555 mm	690 mm	850 mm
ALTEZZA / HEIGHT	1050 mm	1050 mm	1050 mm
N° SPAZZOLE LAVAGGIO / BRUSHES NUMBER	2	2	2
DIMENSIONE SPAZZOLE LAVAGGIO / BRUSHES DIMENSIONS	Ø 265 mm	Ø 330 mm	Ø 410 mm
LARGHEZZA LAVORO / SCRUBBING WIDTH	570 mm	650 mm	840 mm
LARGHEZZA SQUEEGEE / SQUEEGEE WIDTH	740 mm	830 mm	945 mm
SERBATOIO SOLUZIONE IN POLIETILENE / SOLUTION TANK	100 lt	100 lt	100 lt
SERBATOIO RECUPERO IN POLIETILENE / RECOVERY TANK	85 lt	85 lt	85 lt
DIAMETRO RUOTA ANTERIORE / FRONT WHEEL DIAMETER	200 mm	200 mm	200 mm
DIAMETRO RUOTA POSTERIORE / REAR WHEELS DIAMETER	100 mm	100 mm	100 mm
TRAZIONE / TRACTION	electric	electric	electric
PESO IN ORDINE DI MARCIA / WEIGHT OPERATION CONDITIONS	280 kg	285 kg	290 kg
PESO SENZA BATTERIE / WEIGHT WITHOUT BATTERIES	140 kg	145 kg	150 kg
DIMENSIONE VANO BATTERIE (LxLxH) / BATTERIES ROOM SIZE (WxLxH)	390x520x290	390x520x290	390x520x290

CARATTERISTICHE ELETTRICHE—ELECTRIC CHARACTERISTICS

FONTI ENERGETICA / ENERGY SOURCE	battery	battery	battery
VOLTAGGIO / VOLTAGE	24 V	24 V	24 V
MOTORIDUT. SPAZZ. LAVANTI A MAGNETI PERMA. / BRUSH GEAR MOTOR	2x500w	2x500w	2x500w
MOTORIDUT. TRAZIONE A MAGNETI PERMANENTI / DRIVE MOTOR	370w 19A 320rpm	370w 19A 320rpm	370w 19A 320rpm
MOTORI ASPIRAZIONE / SUCTION MOTOR	500w 20A 16000rpm	500w 20A 16000rpm	500w 20A 16000rpm

CARATTERISTICHE FUNZIONALI—FUNCTIONAL CHARACTERISTICS

GUIDA / DRIVE	Ground operator	Ground operator	Ground operator
AZIONAMEN. SOLLEVAME. SQUEEGEE E SPAZZOLE / SQUEEGEE AND BRUSHES CONTROL	Lever / switch	Lever / switch	Lever / switch
FRENO DI STAZIONAMENTO / PARKING BRAKE	Mechanical by lever	Mechanical by lever	Mechanical by lever

PRESTAZIONI—PERFORMANCES

VELOCITA' DI MARCIA AVANTI / FORWARD SPEED	0 ÷4 Km/h	0 ÷4 Km/h	0 ÷4 Km/h
VELOCITA' DI MARCIA INDIETRO / REVERSE SPEED	0 ÷2 Km/h	0 ÷2 Km/h	0 ÷2 Km/h
PENDENZA MASSIMA SUPERABILE / HIGHEST SLOPE	10 %	10 %	10 %
PULIZIA ORARIA m²/h / CLEANED AREA m²/h	2100m² /h	2500 m² /h	3350m² /h

CARATTERISTICHE ECOLOGICHE—ECOLOGIC CHARACTERISTICS

RUMORE ALL'ORECCHIO DEL GUIDATORE / NOISE AT DRIVER'S EAR	73 dB(A)	73 dB(A)	73 dB(A)
VIBRAZIONI NELLA POSTAZIONE DELL'OPERATORE / VIBRATION ON OPERATOR'S SEAT	< 2.5 m/s²	< 2.5 m/s²	< 2.5 m/s²



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 (par.7.1.).

TABELLA DI CONVERSIONE DELLE UNITA' DI MISURA

	1 inch = 1" = 25,4 mm		1 kW = 1,36 CV = 1,34 BHP
	T (K) = t (°C) + 273 / t (°F) = 1,8 t (°C) + 32		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 surfaces with a slope not higher than 10% and with a speed not higher than 1 km/h for U-turn.

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 reverse with a speed higher than 1 km/h;*
- ⚠ 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 machine protection devices 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.r.l. is not responsible for a wrong use of the machine (see § 3.2.)

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.r.l. 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 QUALIFY

The scheme below summarizes the operator qualify requested for each kind of operation.

OPERATION	OPERATOR'S QUALIFY
Driving/control of the machine	Trained operator
Mechanical parts maintenance	Fiorentini technician
Cleaning maintenance	Trained operator

FIorentINI S.r.l. suggest to train the operator before using the machine. The operator also must be trained about safety rules and carefully read this manual.



FIorentINI S.r.l. 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



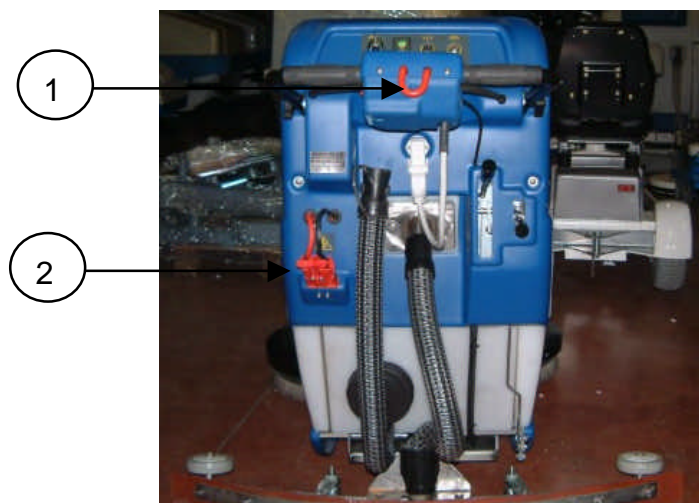
?? It is absolutely forbidden to tamper or disconnect safety and warning devices while the machine is working;
?? It is important to check periodically safety and warning devices (see § 5.1.).

Brushes Cases	I32NEW-I26NEW-I21NEW is equipped with two washing brushes that rotate while the machine is on duty. The machine cannot reach dangerous areas thanks to two fixed protections – one is made of stainless steel and one of plastic - set up on each brush. The operator can remove the brush case only with special tools.
Side Brushes Cases	I32NEW-I26NEW-I21NEW is equipped with two side rubbers which avoid to hit dangerous parts while the machine is working. The two side rubbers can be removed by means of specific tools only.
Suction engine protection	I32NEW-I26NEW-I21NEW is equipped with two plastic bulkheads inside the batteries bonnet. They have to cover and protect the suction motor from acid or water sprays.
Water tank protection	I32NEW-I26NEW-I21NEW is equipped with a stainless steel protection inside the batteries bonnet, above the filter tank for water charge. It has to protect batteries from water sprays during the water recharge. The operator can remove this protection by means of proper tools only.

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.
- ✂✂ **Safety before working** (see detail 1 in picture nr. 3.2), the operator has to reset the control card before every start of the machine. The operator has to press the anti-squashing switch choosing reverse gear firstly and forward gear after.
- ✂✂ **Anti-squashing system:** this machine is equipped with a safety system that avoids the operator's squashing (see detail 1 in picture 3.2). It is based on an emergency leverism that stops the machine and changes the its direction for a couple of metres when the machine gets in contact with the operator's stomach.



Picture 3.2

3.7 SAFETY DIAGNOSTIC SIGNALING

The electronic card is equipped with a particular system which shows the machine errors through quick flashings on the battery charger display placed on the dashboard.
The number of switched on LEDs represents one of the errors listed below:

1 FLASH	Running microswitches fault. One flash shows that one of the running microswitches is already on
2 FLASHES	The battery is down or under tension
3 FLASHES	Off duty code
4 FLASHES	Engine circuit open
5 FLASHES	Fault inside the regulator or the engine
6 FLASHES	Potentiometer fault. This diagnostic signaling is off duty for the 2-cable potentiometer
7 FLASHES	MOSFET (Metal Oxide Semiconductor Field Effect Transistor) high temperature. This alarm is activated when the temperature reaches $75^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and it has to decrease the engine max. current.
8 FLASHES	The engine is already rotating, i.e. the operator switches the regulator on while the machine is descending a slope
9 FLASHES	Software fault

3.8. OTHER DANGERS

FIORENTINI S.r.l. 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 low the operator’s accidents. Thanks to a series of signals on the machine the operator can avoid many risks that can occur.

SQUASHING DANGER

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 cartes of the brushes or on the recovery tank prevent dangers to the operator (see § 4.7.).

TURNOVER

This kind of ranger 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 (photo 3.2)**



?? Do not use the machine to wash sloping surfaces higher than 10% or surfaces with holes or depressions which might compromise the stability of the machine.



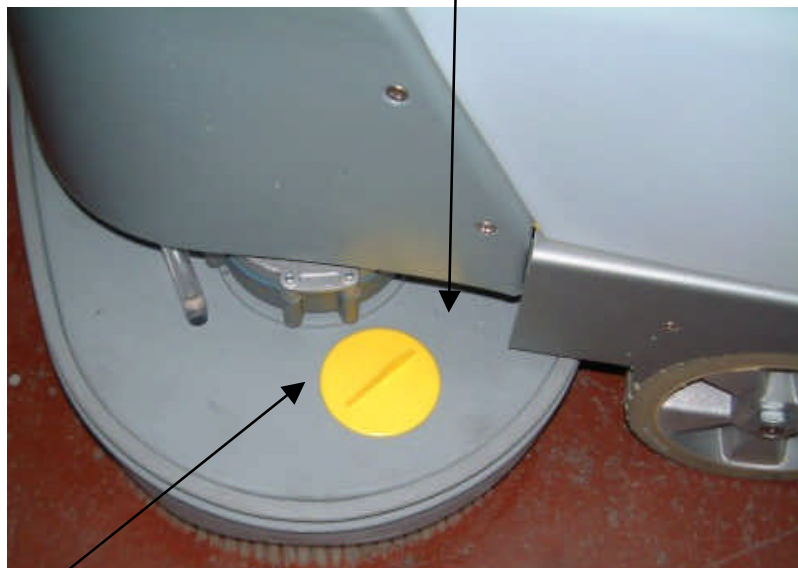
*FIORENTINI is not responsible for accidents occurred to people or things provoked by a wrong use of the machine, i.e. using the machine on surfaces which can compromise its stability.
The purchaser must stick proper labels on the machine to show the operator the right use of the scrubber.*

3.9. SAFETY SIGNALS


La segnaletica di sicurezza comprende cartelli di:


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.

 ***The purchaser must replace danger signals on the machine if they are deteriorated. It is absolutely forbidden to remove or temper danger signals.***

	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 the batteries water filling, pay attention to the recovery tank casual fall.


The purchaser must replace danger signals on the machine if they are damaged. It is absolutely forbidden to remove or temper danger signals.

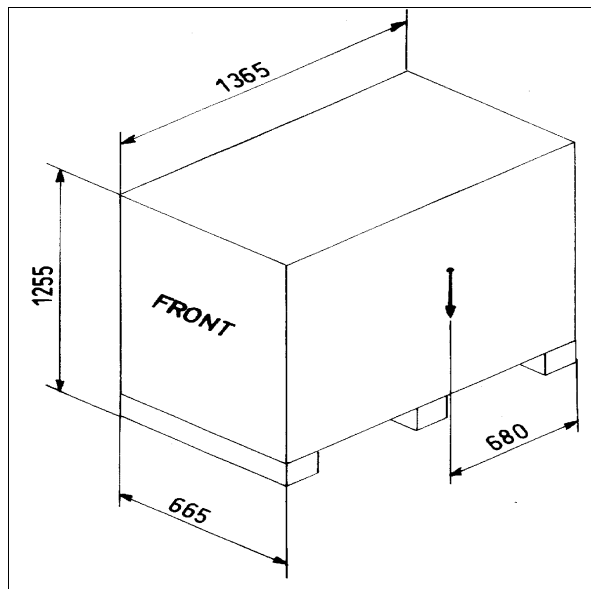
4. STARTING AND USE INSTRUCTIONS

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 machine must be handled with proper devices as stated in the scheme below. Please, make sure that the black arrow on the package are always in the middle of the elevator forks or the sling bands.

PACKAGE	HANDLING EQUIPMENT	PICTURE
Paperboard or plywood box on a pallet	Fork elevator	Nr. 4.2.

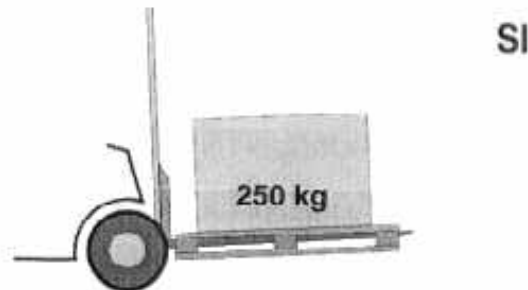


The bands used for lifting the machine up must have the same loading capacity as the machine load. Handling operations must be done without causing a loss of stability of the machine. Otherwise, the machine can be damaged or the operator can be in danger.



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

LOADING SYSTEM



Picture 4.2

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°C ? t ? + 45 °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

- ⚡ Lift the recovery tank up in order to reach the batteries room (picture 4.3.);
- ⚡ Install the batteries in their room (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;
- ⚡ Connect the cables.



Picture 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.

Control the battery outlet polarity.

Connect the battery charger to the machine socket

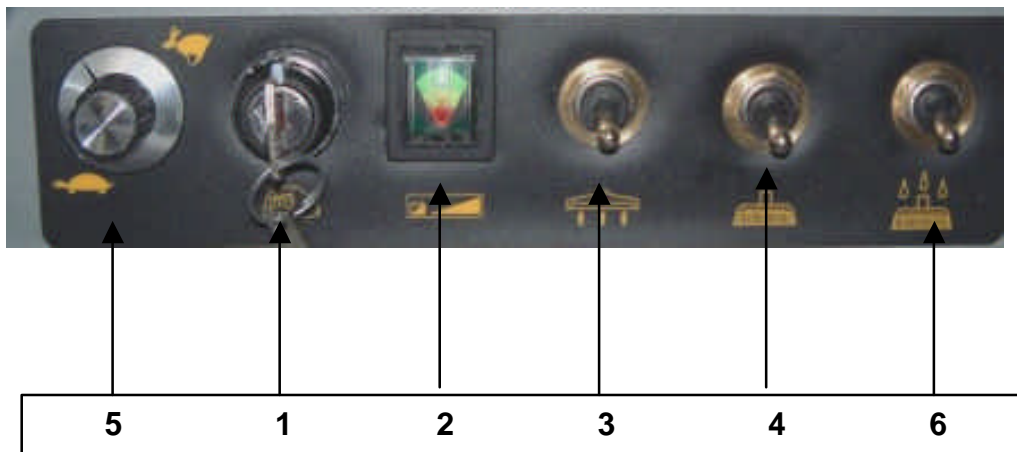
Picture 4.5



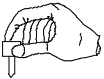

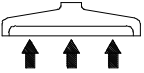
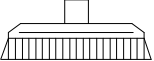


4.6. CONTROL DEVICES

4.6.1. DASHBOARD

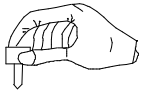
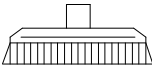
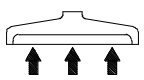
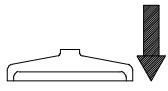
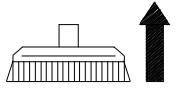
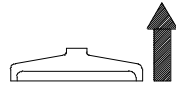
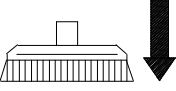
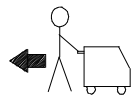

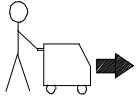

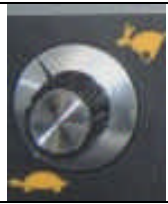

The dashboard is made of a series of switches that activate or deactivate all the machine functions. The function of each switch is shown by a picture. Picture 4.6. shows the dashboard of the machine and the switches function is explained in the scheme in the following page.



Picture 4.6

N r.	BUTTON	FUNCTION
1		<p><u>KEY SWITCH</u></p>
2		<p><u>BATTERY CHARGER INDICATOR</u></p>
3		<p><u>SUCTION ON</u></p>
4		<p><u>BRUSHES ON/OFF</u></p>
4		<p><u>POTENTIOMETER</u></p>
4		<p><u>SOLENOID VALVE SWITCH (OPTIONAL)</u></p>

SYMBOLS STICKED ON THE MACHINE

0	off	1	on
	Main switch		Washing brush
	Squeegee suction		Squeegee down
	Washing brush up		Squeegee up
	Washing brush down		Reverse gear
	Gradual increase by means of the control translation		Forward gear
	Solenoid valve		Potentiometer
	Emergency switch		

4.7. 4.7. FUNCTIONING

The operator, thanks to his/her experience, has to choose the right kind of brush and detergent for the surfaces that has to be washed and to decide if the floor needs a second washing.

Follow these instructions for a correct washing:

1. press the brushes motor switch;
2. press the solution solenoid valve switch;
3. press the suction switch.

By means of the accelerator pedal the washing brushes and the suction motor are activated. On the contrary, both the washing brushes and the suction motor are deactivated after a few seconds if the operator leaves this pedal. Before the surface is completely dry, the operator must switch the solution solenoid valve off because this is not activated/disactivated by the accelerator pedal.

The operator has to do a second washing if the surface is particularly dirty:

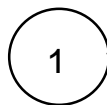
1. wash the surface with the squeegee up and the brushes down;
2. activate the brushes;
3. press the solution solenoid valve switch;
4. leave the solution on the surface to dissolve the dirt;
5. do a second washing with brushes and squeegee down, the suction activated and the solution solenoid valve open.



Before any operation, make sure that all protections are well fixed.

4.7.1 PREPARING AND STARTING THE MACHINE

If the machine is connected with the battery charger, the operator must firstly disconnect the battery charger plug from the batteries one and connect the batteries plug with the power supply plug (see picture 4.5.). Secondly, the operator must fill water lifting the recovery tank up and turning the cap (see detail nr. 1 in picture nr. 4.7.). Now the operator can seat on the machine, start it and wash the surface.



Picture 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. Alternatively, the operator can add an antifoaming additive or 50 cc of wine vinaigre in the recovery tank in order to avoid the suction motor damage.



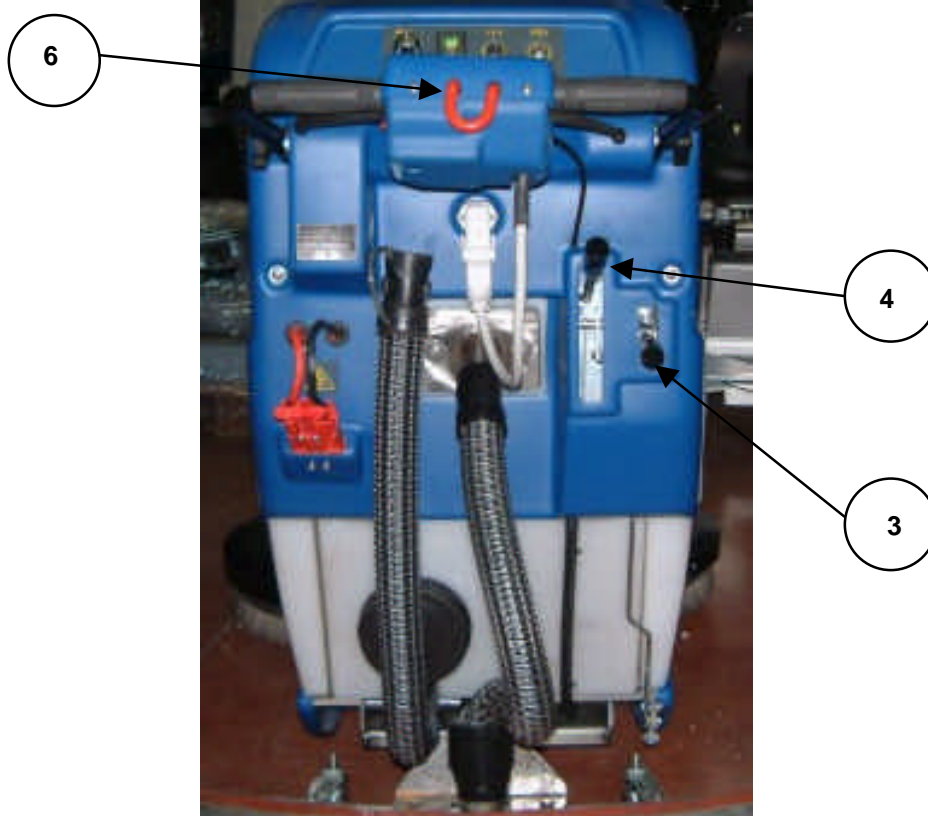
Make sure that the detergent is suitable for the dirty surface. FIORENTINI S.r.l. is not responsible for damages provoked by too aggressive detergents.

4.7.3 DRIVING HANDLEBAR REGULATION

By means of a knob (see detail 1 in picture 4.8), the operator can regulate the driving handlebar inclination in order to have a driving position which fits his/her body.



Picture 4.8



Picture 4.9

4.7.4 LEVERS FUNCTIONING

This machine is equipped with several levers and pedals::

- ✂ Accelerator lever (see detail 2 in picture 4.8). Forward gear: the operator has to press the 'u' switch (see detail 6 in picture 4.9) towards the machine and pull the accelerator lever. Reverse gear: the operator has to pull the 'u' switch and lever nr. 3. This lever also works as an anti-squashing device.



The accelerator pedal activates all the machine moving parts. This is why the brushes and the suction motor are activated pressing the accelerator pedal and their switches on the dashboard. On the contrary, the accelerator pedal can't activate the solution solenoid valve, which has to be opened and closed by the operator.

- ✂ Service/parking brake (see detail 5 in picture 4.8): it has to slow and stop the machine. The operator has to pull the brake lever until it is completely blocked. Then, the operator has to release the brake lever and the red device.
- ✂ Squeegee up lever (see detail 4 in picture nr. 4.9): the operator has to pull this lever up or down if he/she needs to lift the squeegee up or down.
- ✂ Water regulation lever (see detail 3 in picture 4.9): the operator has to lift the lever up or down in order to regulate the water flow.

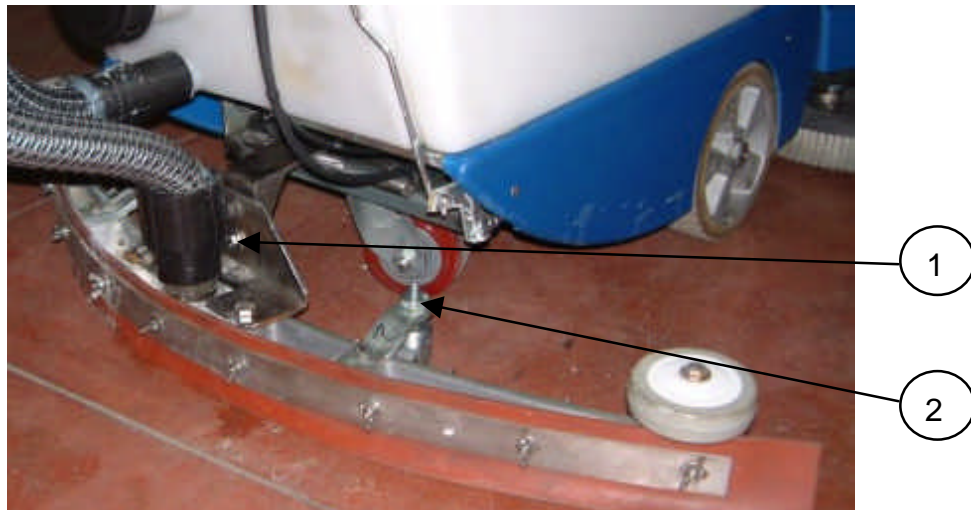
4.7.5 DETERGENT CONTROL

During the washing the operator can control the detergent quantity by means of a cock, which is at the bottom of the machine on the left inside the protection rubber (see detail nr. 7 in picture 4.9.).

4.7.6 SQUEEGEE ADJUSTMENT

The squeegee has to be well regulated in order to have a perfect dry system. This kind of squeegee can perfectly suck water, which flows into the suction pipe, but it must be parallel to the surface.

- ⚠️ Remove the ignition key from the dashboard in order to avoid the casual starting of the machine.
- ⚠️ By means of the bolts (see detail nr. 1 in picture nr. 4.11.) regulate the squeegee. The best squeegee pressure is reached when the corner of its blade is in contact with the floor and their inclination is between 45° and 60°.
- ⚠️ Squeegee pressure regulation: the operator has to work on the squeegee driving wheels cam pins (see detail nr. 1 in picture nr. 4.11.). The operator has to unloose the screw at the bottom of the pin by means of the spanner delivered with the machine (picture 4.11.). Afterwards the operator has to tighten this screw again.



Picture 4.11



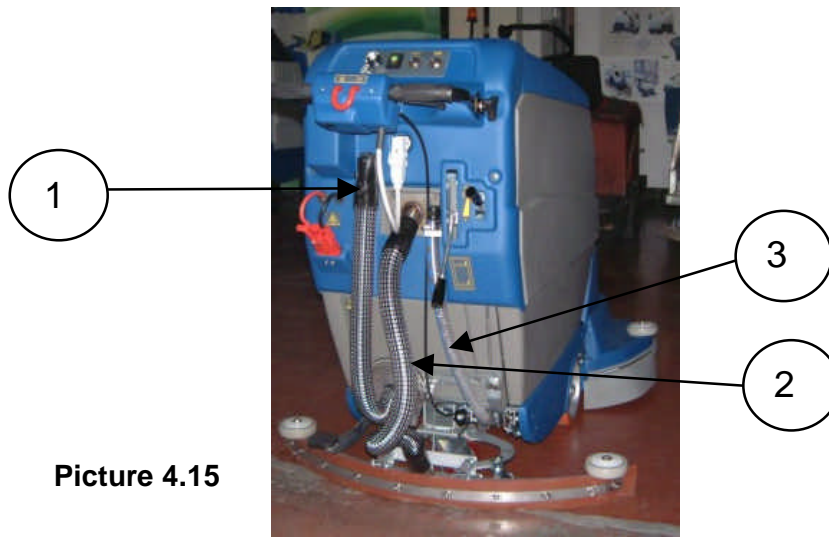
Make sure that the two wheels of the squeegee are well regulated in order to keeps both its blades parallel to the floor.

4.7.7 WATER DISCHARGE

This scrubber machine is equipped with two pipes for water discharge (picture 4.15.):

- ☞ A pipe for the recovery tank discharge (see detail nr. 1 in picture nr. 4.15.);
- ☞ A suction pipe (see detail nr. 1 in picture nr. 4.15.);
- ☞ Check and clean the filter on the left side of the machine inside the rubber protection every week (see detail nr. 4 in picture nr. 4.15.);
- ☞ Recovery tank cap (see detail nr. 3 in picture nr. 4.15.).

If you need to discharge water from the tanks, you have to place the machine on a dump well, release the pipe of the tank and open the rubber cap at the end of the pipe itself.

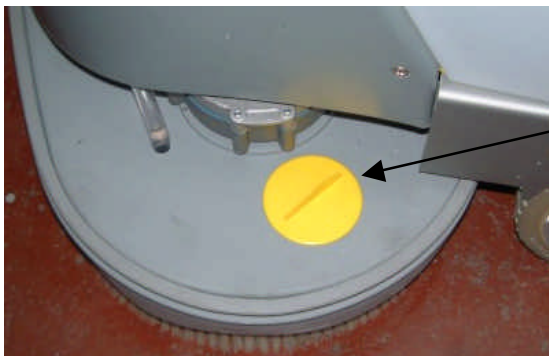


Picture 4.15

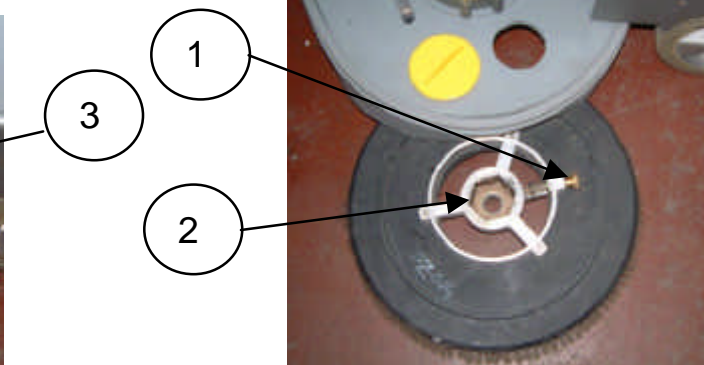
4.7.9 BRUSHES REPLACEMENT

The operator has to follow the instructions below to replace the brushes:

- ⚠ Take the ignition key away from the dashboard in order to avoid a casual starting of the machine;
- ⚠ Remove the yellow cap (see detail 3 in picture 4.12);
- ⚠ Turn the brush until the pin (see detail 1 in picture 4.13) in the hole is visible. Pull the pin and then unloose and remove the brushes by means of a slight pressure downwards.
- ⚠ Setting a new brush up: the brushes hexagon has to be concentric to the attachment flange (see detail 2 in picture nr. 4.13). By means of a slight pressure upwards set the new brush up.



Picture 4.12



Picture 4.13

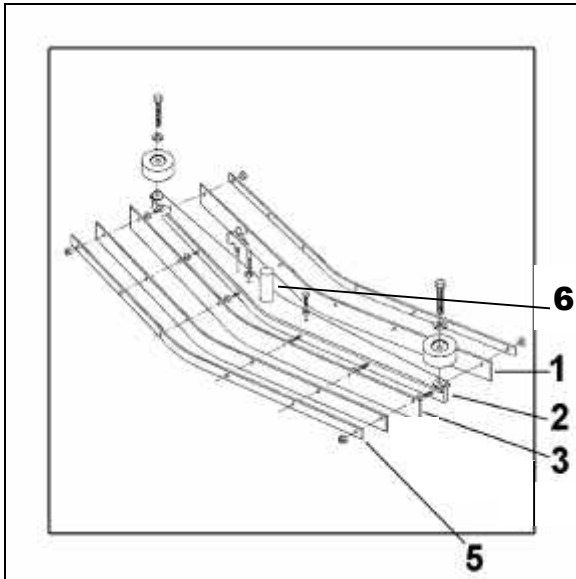
4.7.10 SQUEEGEE BLADES REPLACEMENT

SQUEEGEE BLADES REPLACEMENT

Squeegee blades must be replaced when their hedges are worn. A perfect hedge allows a perfect dry (picture 4.19).

Follow these instructions to replace the squeegee blades:

- ⚠ Remove the squeegee from the machine and lay it on a table;
- ⚠ Remove the internal and external knobs, the steel strips and the worn blades;
- ⚠ Set the new blades up, tighten the knobs and regulate the squeegee.



- 1- Squeegee front blade
- 2- Squeegee
- 3- Squeegee suction blade
- 5- Squeegee straps
- 6- Siphon

Picture 4.19


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
	 <p>?? Do not use corrosive substances. a Do not use bolts of water.</p>	
	?? Check the suction pipes and the squeegee	Every week
Check up	☒ 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
	☒ 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 loses 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	230V, 50Hz, 5A
OUT	36V, 30A





See § 2.3 TECHNICAL DATA for the batteries technical features.

5.2.6 BATTERIES DISPOSAL

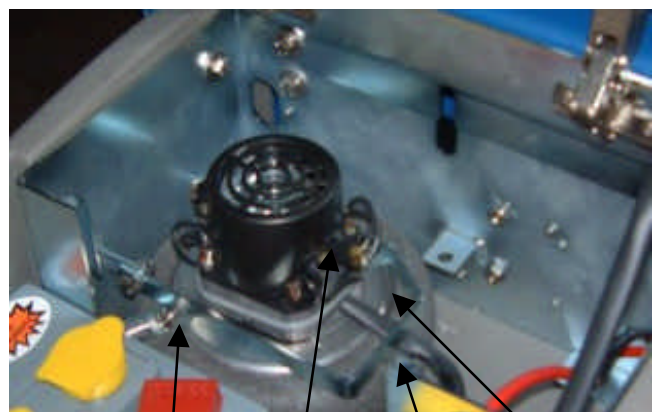
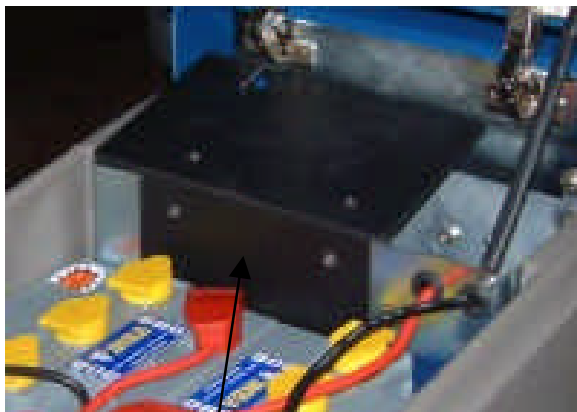
Old batteries are toxic wastes and they have to be thrown in a suitable and authorized place for the batteries disposal. For a short storage, old batteries must be located in an authorized room. Moreover, they must be stored in sealed plastic tanks, whose capacity is not lower than the electrolyte.

SUCTION MOTOR MAINTENANCE

The suction motor has to be checked up and cleaned. Every six months motor brushes have to be checked and replaced if it is necessary.

To maintain the suction motor please follow the instructions below:

- ✂✂ Take the ignition key off the dashboard and remove the plate that covers the suction motor (see detail 4 in picture 5.1);
- ✂✂ Remove the splash guard plate in front of the motor (see detail 4 in picture 5.1);
- ✂✂ Remove the soundproofing plate that surrounds the motor (see detail 5 in picture nr. 5.1);
- ✂✂ by means of the lever (see detail 3 in picture 5.1) remove the motor and disconnect the plug (see detail 2 in picture nr. 5.1);
- ✂✂ Remove the sponge filter under the motor, wash it and put it again in its position;
- ✂✂ Check the motor fan through the hole in the front side of the suction motor;
- ✂✂ Remove the plastic cover, loosen the screws and both the brushes supports and check the motor brushes (see detail 2 in picture 5.1);
- ✂✂ Do now the opposite operations to set everything up again.



Picture 5.1

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.



*Interventions on the electric system must be carried out by a trained technician.
Every kind of intervention not explained in the operator manual must be carried out by FIORENTINI's technicians.*

5.5 Tests to be carried out

	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

5.6. REGISTRO DI MANUTENZIONE

6. SERVICE

6.1. SERVICE ADDRESSES

Do not hesitate to contact FIORENTINI S.r.l. service for any kind of information or request.

ING. O. FIORENTINI s.r.l.

“THE BEST IN FLOOR MACHINES”

FILIALI:

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Via Palmanova 211/a – Tel. 02/27207783 - 2564810

00155 ROMA – Fax. 06/22754075

Via Carlo Carrà 13 – Tel. 06/22754040-2275060

STABILIMENTO:

50030 PIANCALDOLI (FI) – Fax. 055/817144

Loc. Rombola – Tel. 055/8173610

Most of the technical problems can be sorted out with short intervention. This is why FIORENTINI S.r.l. suggest to read carefully this manual before using the machine. On the contrary, if the customer needs a FIORENTINI technician, please inform us about the problem in order to sort it out with the right material.

6.2 CLAIM REPORT

Please, fill in the format below if the machine shows particular problems.

Operator:	
Company:	_____
Operator's name:	_____
Role:	_____
Date:	Signature: _____
Machine description:	
Machine: I32NEW-I26NEW-I21NEW	Type: _____
Purchase date: _____	S.N.: _____
Warranty: <input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Work hours: _____
Where does the machine normally work?	_____
Fault:	
Code of the defected component: _____	Description: _____
Fault:	Fault short description:
<input checked="" type="checkbox"/> Mechanical component	_____
<input checked="" type="checkbox"/> Wrong functioning	_____
<input checked="" type="checkbox"/> Electric system	_____
<input checked="" type="checkbox"/> Engine	_____
<input checked="" type="checkbox"/> Missing component	_____
<input checked="" type="checkbox"/> Extremely noisy	_____
<input checked="" type="checkbox"/> Water leak	_____
<input checked="" type="checkbox"/> Other	_____
Customer's suggestion:	

Mat. n.
Serial no. _____
Nr. de serie

Data di spedizione
Shipment date _____
Date de spedition

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