



fiorentini
WWW.FIORENTINISPA.COM

Organizzazione con
Sistema di Gestione Certificato
ISO 9001 : 2008



ING. O. FIORENTINI S.p.A.
INDUSTRIAL CLEANING MACHINES

AUTOSCRUBBER MACHINE

MOD. I 16/18 NEW



OPERATING INSTRUCTIONS

AND MAINTENANCE

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 industry 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	pag.	4
1.1. Used symbols.....		4
1.2. Notes.....		4
1.3. Manual references.....		4
1.4. Warranty.....		4
1.5. Conformity declaration.....		6
2. SUPPORT FEATURES AND SPECIFICATIONS		8
2.1. Identification.....		8
2.2. Description and components.....		8
2.3. Specifications.....		10
3. SECURITY		12
3.1. Correct use.....		12
3.2. Misuse.....		12
3.3. Recommended equipment.....		12
3.4. Operators status.....		13
3.5. Protection and alarm systems		13
3.6. Safety devices.....		14
3.7. Residual dangers.....		14
3.8. Diagnostic signaling of safety.....		15
4. ISTRUCTIONS FOR STARTING AND USE		17
4.1. Transport and handling.....		17
4.2. Storage.....		18
4.3. Instructions to un pack the machine.....		18
4.4. Handle the unpacked machine.....		18
4.5. Installation.....		19
4.5.1. Batteries installation.....		19
4.5.2. Charger installation		19
4.6. Control devices.....		21
4.6.1. Control bridge.....		21
4.7. Fonctionning.....		22
4.7.1. Starting and machine preparation.....		22
4.7.2. Choise of detergent.....		23
4.7.3. Regulation of driving position.....		23
4.7.4. Rudder pedal functions		24
4.7.5. Regulation of detergent solution.....		25
4.7.6. Squeegee ajustement.....		25
4.7.7. Water discharge.....		26
4.7.8. Brushes replacement.....		26


4.7.9. Squeegee blades replacement.....	27
4.7.10 Brush pressure regulation.....	27
5. MAINTENANCE	28
5.1. Maintenance tabel.....	28
5.2. Battery maintenance.....	28
5.2.1. Hydrometry.....	29
5.2.2. Water filling up.....	29
5.2.3. Charging limits.....	29
5.2.4. Off duty or inactive batteries.....	29
5.2.5. Batteries disposal.....	29
5.3. Maintenance of suction motor.....	30
5.4. Electrical equipment checking.....	31
5.5. Table about test sto be carried out.....	31
5.6. Maintenance register.....	32
6. TECHNICAL ASSISTENCE	33
6.1. Servicing addresses.....	33
6.2. Verbal claim.....	33

1. GENERAL INFORMATION

1.1. USED SYMBOLS

	<p><i>This symbol is used to quote the attention of the operator on procedures or precautions to be followed to avoid damages to users or to the support</i></p>
	<p><i>This symbol is used to quote the attention of the operator on general informations</i></p>

1.2. NOTES

	<p><i>This manual is property of FIorentini S. p. A. All rights reserved to copy, totally or in part, and transmission to third parties with mechanic, electronic or whatever means, without permission of manufacturer. It's been made in one original copy unless differently specified in order place.</i></p> <p><i>Manual is delivered with relative machine, of whom it constitutes integral part, and it has to be given in case of transfer of the machine too. We remind to put it in a safe place and keep it for all the machine lifetime. Purchaser is responsible to show it to qualified people. In case of loss ask for a duplicate to FIORENTINI Co..</i></p> <p><i>FIORENTINI decline every responsibility for any kind of possible damages caused by persons and/or things due to non-observance of instructions in this manual.</i></p> <p><i>FIORENTINI reserves the right to introduce in every moment and without notice all the technical and commercial changes useful considered. Therefore data and information reported could have changes and/or updating notes.</i></p>
---	---

1.3. MANUAL REFERENCES

This manual deals exhaustively with all necessary arguments for easy and safe use of the machine, as recommended by European Directives about product security.

Consequently we recommend to all authorized operators to use it of reading attentively this manual in every part and carefully applying everything indicated, asking for explanations to FIORENTINI in case of doubt. The manual must also be used as referring documentation each time it needs to remind a procedure or operation or to train new operators.

For publishing reasons, pictures and drawings can look different from reality however without showing meaning doubts.

Special symbols and **bold type** and/or *sloping* remind the attention of the reader on remarkable information, particularly for safety.

Index of review is reported, each single page, at the bottom. List of revised pages can be found to the end of the manual.

1.4. WARRANTY

Terms and conditions of warranty are stated to the following points if not differently specified in the order confirmation.

OBJECT OF WARRANTY

The autoscrubber has been conceived and built for a long-term use without relevant problems; anyway, in case of anomalies during the warranty period, FIORENTINI Co. is engaged to repair and/or substitute for free parts which have shown early breakage or wear and tear caused by defective materials, working defects or imperfect assembly.

Warranty is not given for parts which early breakage 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 wear parts;
- Interventions made up by unauthorized personnel;
- Maintenance missing;
- Natural calamities.

WARRANTY TERMS

The Ing.O.Fiorentini S.p.A. general terms conditions also apply to the warranty.

The manufacturer cannot be held responsible in any way for damages resulting from unauthorised modifications made to the appliance, from the use of unsuitable brushes and accessories and after use of the device other than that intended.

GOODS TO BE RETURNED

In case of goods to be returned for warranty replacement, it is necessary to have a written acceptance from FIORENTINI technical department before sending them.

All defective parts must be carefully packed in order to avoid further damages during transport.

Goods must be shipped ex-warehouse and followed by :

- **serial number of the equipment where they were installed on;**
- **item code of the defective part;**
- **detailed description of the defect and of the conditions where it happened.**

In case of defective electric or electronic goods, please return them separately from other materials, in order to help us in dividing dangerous waste goods and recycle the (RAEE) as DER 2002/96/CEE LOW.



EXCLUSIONS

Warranty does not cover normal wear parts and materials (brushes, squeegee blades, etc...), and those parts of whom is impossible to define lifetime in advance.

APPLICATION MODES

In order to establish anomalies causes, so that warranty could be applied, is necessary that defective components must be sent to FIORENTINI. Repairing or substituting works under warranty will be, by FIORENTINI's opinion, made in its own workshop, or by third party on place. Works on place, are supplied with customer's energy sources and exceptional equipment to repairing if necessary.

INTERVENTION DEMANDS

Possible intervention demands have to be addressed to the technical assistance service of FIORENTINI Co. in writing or by phone, just after a attentive analysis of fault and of causes, so that it would be necessary to report to the agent the following data:

- Machine model, get from the relative label (point 2.1.);

- number, get from the relative label (point 2.1.);
- detailed description of defect and the way it happened;
- controls and/or regulations made;
- code number and position of possible defective component, deduced from spare parts list;

Components recognized under warranty are delivered ex works; those ones being substituted are property of FIORENTINI Co..



The relative label missing will involve the loss of any kind of warranty.

1.5. CONFORMITY DECLARATION

Conformity declaration is consigned with the support and the manual of operating and maintenance instructions.

**DICHIARAZIONE CE DI CONFORMITA'-DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE-EG-KONFORMITÄTSEKTLÄRUNG-
DECLARACION DE CONFORMIDAD**

(ai sensi dell'allegato II 1.A della Direttiva Macchine 2006/42/CE)

La ING.O.FIORENTINI SPA

con sede in Via Piancaldoli 1896 Firenzuola, 50033, (FI)

DICHIARA/DECLARES/DECLARE/ERKLÄRT/ DECLARA

in qualità di costruttore sotto la propria responsabilità che la macchina
As manufacturer under its own responsibility that the machine
En tant que fabricant sous sa propre responsabilité que la machine
Als Hersteller, erklären, in alleiniger Verantwortung, dass das Produkt
Como fabricante, bajo su responsabilidad que la máquina



Modello/model/modèle/Typ/modelo

Matricola/serial number/numero de série/

Fabriknummer/ Número matricula

Anno di costruzione /

Year of production/ Année de production/

Baujahr/ Año de producción

a cui la presente dichiarazione si riferisce è conforme alle prescrizioni
which this declaration refers to, is in conformity with the requirements
à laquelle se réfère cette déclaration, est en conformité avec les prescriptions
Auf das sich diese Erklärung bezieht, mit der normativen übereinstimmt.
que esta declaración se refiere, está en conformidad con los requisitos

*della direttiva macchine 2006/42/CE/ Directive 2006/42/CE / de la Directive 2006/42/CE / der EG-Richtlinie 2006/42/EG über
Maschinen / De la directiva máquinas 2006/42/CE*

*della direttiva compatibilità elettromagnetica 2014/30/EU/ the Electromagnetic Compatibility Directive 2014/30 / EU / de la Directive
Compatibilité Electromagnétique 2014/30 / EU / elektromagnetische Verträglichkeit (EMV) 2014/30/EU / la directiva de
compatibilidad electromagnetica 2014/30/EU*

*della direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE) 2012/19/UE/ Directive on Waste of Electrical and
Electronic Equipment (WEEE) 2012/19 / EU/ de la directive relative aux déchets d'équipements électriques et électroniques (DEEE)
2012/19 / UE / Elektrische und elektronische Geräte Abfälle (DEEE)2012/19/UE Directiva sobre residuos de aparatos eléctricos y
electrónicos (RAEE) 2012/19/UE/
(ISCRIZIONE AL REGISTRO PRODUTTORI A.E.E.: N° IT1201000007391)*

In particolare alle disposizioni normative
In particular, the regulatory rules
En particulier, les dispositions réglementaires
Gemäß den Bestimmungen der Richtlinie
En particular, las normas reguladoras

**EN ISO 12100, EN ISO 13857, EN ISO 13850, EN 60204-1, EN 349,
EN 953, EN ISO 4413, EN 60335, EN 60335-1, EN 60335-2-69, EN 60335-2-72, EN 55014-1, EN 55014-2,
EN 62233, EN 61000-6-2, EN 61000-6-4**

Il fascicolo tecnico è costituito da Ing.O.Fiorentini S.p.a. in qualità di persona giuridica- via Piancaldoli 1896 Firenzuola 50033 Fraz. Piancaldoli (FI) - Italia
The technical dossier consists of Ing.O.Fiorentini Spa as a legal person - via Piancaldoli 1896 Firenzuola 50033 Fraz. Piancaldoli (FI) - Italy
Le dossier technique est constitué de Ing.O.Fiorentini Spa comme personne juridique - via Piancaldoli 1896 Firenzuola 50033 Fraz. Piancaldoli (FI) - Italie
Die technische Dokumentation besteht aus Ing.O.Fiorentini Spa as a legal person - via Piancaldoli 1896 Firenzuola 50033 Fraz. Piancaldoli (FI) - Italy
El expediente técnico se compone de Ing.O.Fiorentini Spa como una persona jurídica - via Piancaldoli 1896 Firenzuola 50033 Fraz. Piancaldoli (FI) - Italia

Piancaldoli

Luogo e data

Ing. O. Fiorentini S.p.a.

Il Legale Rappresentante/president/gérant/ representante
Angelica Maria Cerutti

Firma

Cerutti Angelica Maria

2. SUPPORT FEATURES AND SPECIFICATIONS

2.1. IDENTIFICATION

The autoscrubber machine can be identified with an adhesive label put on the protection carter in the backside of the machine which will clearly report the data referring to “CE” marking.

Ing. O.Fiorentini S.p.A.		MADE		CE
50030 Piancaldoli (FI)		IN ITALY		
Mod	I 16 B NEW	S.N.		2 0 0 8
V		Hz		
Kg		A	W	



PICTURE N° 2.1



The label has never to be removed and should be always kept legible. In case of damaging it's necessary to ask for a duplicate. The autoscrubber machine cannot be commercialized without the label.

2.2. DESCRIPTION AND COMPONENTS

The autoscrubber machine I 16/18 NEW has been designed for treatment of flat areas through washing and following process of water drying. The power supply is furnished of a series of accumulator batteries, that charge all the engines and the electrical controls.

The machine, depending on the model, can be supplied with one or two rotating brushes having in charge, assisted by water and detergent action, to wash the areas. As the machine advances the brush in the back (squeegee), touching the floor take the water that, at the same time, is aspired and piped in the recovery tank.

The dashboard controls some of the functions of the machine and put at the operator's disposal a signaling system, through lighting leds, of the remaining charge of the battery. With the dashboard is possible to carry out the following functions:

- to start the washing brushes;
- to start the suction motor;
- to switch on and off the machine;

The bearing structure of the machine is made of a steel zinc-plated chassis or in stainless steel, so that to avoid oxidation problems which could compromise the reliability of the machine.

The main components of the machine are:

- steel zinc-plated chassis or stainless steel;
- solution tank in plastic PE-HD;
- recovery tank in plastic PE-HD complete with piping flexible system of suction and drainage;
- a set of batteries placed in the recovery tank space;
- rotating brushes;
- suction system (squeegee);
- one free caster-wheel;
- two traction wheels;
- driving unit;

FIORENTINI Co., taking care of new safety rules in CE community , has manufactured the machine following safety and health rules of the CE normative. High quality material used, high technology and Fiorentini experience allowed to have performing machine .

Each machine is inspected during the manufacturing time and the final check is done before shipping out the machine.

2.3. TECHNICAL DESCRIPTION

BATTERY VERSION:

DIMENSIONAL CHARACTERISTICS	I 16B NEW	I 18B NEW
LENGHT	800 mm	
WIDTH	430 mm	460 mm
HIGHT	900 mm	
No. BRUSHES	N° 1 x Ø 410 mm	N° 1 x Ø 450 mm
SCRUBBING WIDTH	410 mm	450 mm
SQUEEGEE WIDTH	670 mm	
DRIVE	WALK-BEHIND	
SOLUTION TANK CAPACITY	30 liters	
RECOVERY TANK CAPACITY	30 liters	
TRACTION (front/rear)	rear	
WEIGHT WITHOUT BATTERIES	60 Kg	60 Kg
BATTERY COMPARTMENT (L.x W x H)	310 x 215 x 250 mm	
ELECTRIC CHARACTERISTICS		
VOLTAGE	24 V (2x12V -110 A/h)	
BRUSH GEARMOTOR	N°1 x 24V 500W	
SUCTION MOTOR	24 V - 500 W	
FUNCTIONAL CHARACTERISTICS		
SQUEEGEE LIFT CONTROL	LEVER	
VACUUM CONTROL	SWITCH	
BRUSH LIFT CONTROL	SWITCH	
PERFORMANCES		
FORWARD RUNNING SPEED	0 / 4 km/h	
HOUR SCRUBBING	1640 m ² /h	1800 m ² /h
AUTONOMY	3 h	
ECOLOGIC CHARACTERISTICS		
NOISE AT DRIVER'S EAR	72 dB	



The above characteristics are not a must for the manufacturer so they can be changed without any notice .In any case ING.O.FIORENTINI Co. Is always at disposal for any information (6.1.).

MEASUREMENT UNIT 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

ELECTRIC VERSION:

DIMENSIONAL CHARACTERISTICS	I 16E NEW	I 18E NEW
LENGHT	800 mm	
WIDTH	430 mm	460 mm
HIGHT	900 mm	
No. BRUSHES	N° 1 x Ø 410 mm	N° 1 x Ø 450 mm
SCRUBBING WIDTH	410 mm	450 mm
SQUEEGEE WIDTH	670 mm	
DRIVE	WALK-BEHIND	
SOLUTION TANK CAPACITY	30 liters	
RECOVERY TANK CAPACITY	30 liters	
TRACTION (front/rear)	rear	
WEIGHT	60 Kg	60 Kg
ELECTRIC CHARACTERISTICS		
VOLTAGE	220 V	
BRUSH GEARMOTOR	0.75 hp – 550 W	
SUCTION MOTOR	220 V – 1000 W	
FUNCTIONAL CHARACTERISTICS		
SQUEEGEE LIFT CONTROL	LEVER	
VACUUM CONTROL	SWITCH	
BRUSH LIFT CONTROL	SWITCH	
PERFORMANCES		
FORWARD RUNNING SPEED	0 / 4 km/h	
HOUR SCRUBBING	1640 m ² /h	1800 m ² /h
ECOLOGIC CHARACTERISTICS		
NOISE AT DRIVER'S EAR	72 dB	



The above characteristics are not a must for the manufacturer so they can be changed without any notice .In any case ING.O.FIORENTINI Co. Is always at disposal for any information (6.1.).

MEASUREMENT UNIT 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. CORRECT USE



The machine is a scrubbing machine and has been studied and manufactured to be used to clean flat floors or with maximum slope of 5%..

3.2. INCORRECT USE



- *Not authorized operator uses;*
- *Not regular floors cleaning;*
- *Cleaning of surfaces with more than 5% slope;*
- *To use the machine in place with dangerous products;*
- *Floor cleaning with inflammable products;*
- *To use the machine as transport vehicle of person or goods;*
- *Modify or removing protection device;*
- *Charging the batteries in places with no suction or with good ventilation;*
- *No respect of safety rules from the operators;*
- *Any modification that can modify the correct machine function;*
- *Any modification not authorized by Fiorentini Co.;*
- *Use of acid products that can damage the machine;*
- *Not respect of what mentioned in the operator's manual.*



Read carefully the information labels placed on the machine , don't cover them for any reason.

FIorentINI is not responsible for the machine use not in a correct way .

3.3. SUGGESTED EQUIPMENT

In order to use in a better way the machine characteristics we suggested to use the original parts and spare parts studied by Fiorentini Co.. In any case the Technical department is at customers disposal in order to satisfy any needs .

3.4. OPERATOR QUALIFICATION

Follow the request operator qualification for different uses.

OPERATION TYPE	OPERATOR QUALIFICATION
Use /Inspection	Taught operator
Installation / disinstallation	Specialized technician
Mechanical parts maintenance	Specialized technician
Electrical parts maintenance	Specialized technician
Ordinary maintenance	Taught operator
Dismantling and demolition	Specialized technician
Use /Inspection	Taught operator

We recommend to teach the personnel to the use of the machine, above all for that it concerns safety aspects ; particularly operators must read and understand this manual.



FIorentINI decline every responsibility for accidents to persons or things from using the machine by non-authorized or unqualified operators.

3.5. PROTECTION AND ALARM SYSTEMS



- It is absolutely forbidden to camper with these dispositives, keep them out or disconnect during the functioning of the machine.*
- We recommend to verify periodically their efficiency.*

Brushes covers	The autoscrubber I 16/18 NEW can be equipped with one or two scrubbing brushes, rotating during the normal use. The accessibility to dangerous areas has been avoided through fixed plastic protections. The removal of these ones can just be done voluntary provoking the separation from the machine.
	

3.6 SAFETY DEVICES

This machine is provided of the following safety systems.

Electric plug (picture 3.1), used similarly for the battery charger. In case of emergency, it can be kept away from the plug acting on the handle. Before using the machine, the operator must know the safety system use, in such a way as in case of necessity it can act automatically. Never re-establish the system before the problem has been resolved, if necessary helped by a technician.

In case of emergency, kept away



PICTURE 3.1

3.7. RESIDUAL DANGERS

FIORENTINI has analyzed any kind of danger in using the machine to eliminate, or at least to reduce, accidents to operators, since the projecting phase. To reduce these risks we provided to inform the operators through signals and showing means and procedures to be adopted.

CRUSHING DANGERS

Crushing risks may come from :

- regulation of scrubbing brushes;
- regulation of the squeegee;

When regulating the brushes and the squeegee we recommend to be sure that the ignition key is kept away from the control board to avoid casual switching.


Special pictograms are placed on brushes covers and on the back side of the tank.

OVERTURNING DANGERS

Overturning dangers may happen:



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


	Don't use the machine to clean up areas exceeding 5% of sloping or presenting holes, and depressions which might compromise the stability of the machine.
---	--

	<i>FIORENTINI decline every responsibility for accidents to persons or things using the machine on surfaces that can compromise the stability of the same one. The operator has to follow recommendations about areas conditions on which he has to work.</i>
---	---


3.8. SAFETY SIGNALS


Safety signals include :


DANGERS		Signals are triangular shaped with black colored in yellow field pictograms
PROHIBITIONS		Signals are circular shaped with black colored in white field red-crossed pictograms

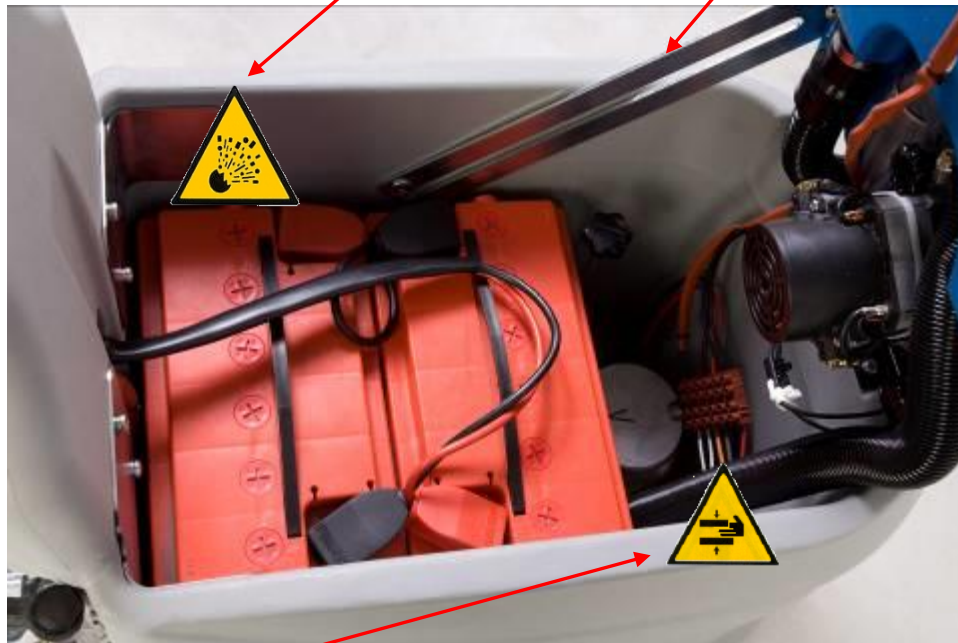
	What is it ?	This signal shows the prohibition to remove covers in which members are still moving.
	What to do?	In phase of installation/maintenance we recommend, to remove mobile protections, to disconnect the ignition key from the control board. When the machine is in action not enter with body's parts and make sure that all covers are well fixed.





	What is it ?	This signal shows crushing dangers due to moving parts of the machine.
	What to do?	In phase of installation/maintenance we recommend to keep away the ignition key from the control board.

	<i>In case of wear and tear, the purchaser must re-establish similar signals of danger. It's absolutely forbidden to keep out or to temper with these signals.</i>
---	---

	What is it ?	This signal shows explosion dangers due to the hydrogen released in charging the accumulators.
	What to do ?	During the battery charging we recommend to place the machine in a suction chimney or in an airy zone, far from heat sources and corrosive environments.



	What is it ?	This signal shows crushing danger due to a casual overturning of the battery protection
	What to do ?	During the battery charging, please check that the locking lever of the recovery tank is duly hooked.


In case of wear and tear, the purchaser must re-establish similar signals of danger. It's absolutely forbidden to keep out or to temper with these signals.

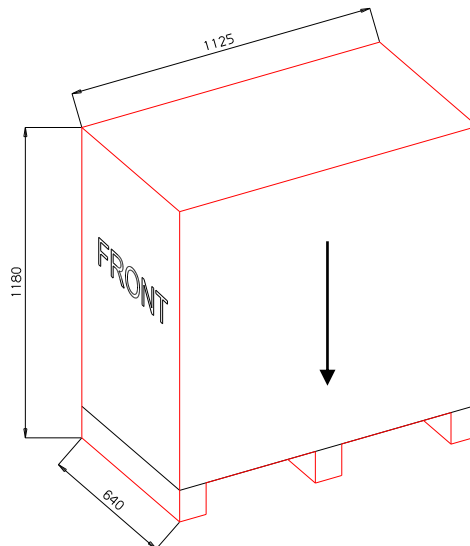
4. INSTRUCTIONS FOR STARTING AND USE

4.1. TRANSPORT AND HANDLING

This autoscrubber is delivered to the purchaser in a special package, which features are well showed in picture 4.1, completely assembled. The package shows the barycentre position indicated with a black arrow. The forks of the truck or transpallet must be placed in such a way as the black arrow is at the center of them. The package has to be moved carefully. We recommend not to place packages one on the top of the other. As agreed with purchaser, the machine can be delivered without package, placed on a bed and blocked with bands.



*At the moment of delivery we suggest to check the machine about accidental damages while transported and about have received all material indicated in coverings ; in case of damages or missing parts, please inform the forwarder and the manufacturer that will soon as possible provide to the mishap.
Missing particular agreements, the goods travel at the purchaser's risk.*



PICTURE 4.1

Handling of the machine has to be carried out with suitable lifting apparatus, as showed below. Take always care about the elevator forks, or the sling bands, that have to be placed with the black arrow, as drawn on the package, has to be put at the center of the lifting system. Anchorage or slinging points are prepared for having a good balanced position when lifting up the machine.

PACKAGE TYPE	LIFTING APPARATUS	PIC.
Cartoon or plywood with bed	Elevator with forks	N° 4.2

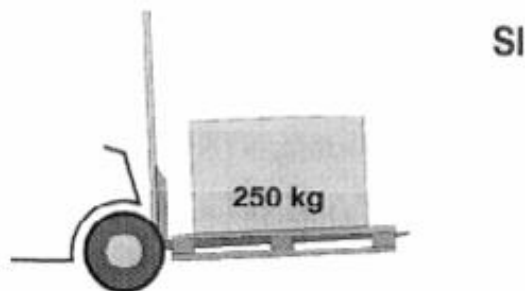


Bands to be used must be suitable for the effective loading. Operations must be executed slowly avoiding oscillations or upsetting. The incorrect way of operating can damage the support or expose to dangers.



Machine dimensions and mass are explained at point 2.3. We strongly recommend authorized personnel for lifting operations.

LOADING DIAGRAM



PICTURE N° 4.2

4.2. STORAGE

In case the machine is not immediately installed, it has to be preserved in a dry and closed Place to grant a perfect conservation and efficiency of its body parts. Humidity must be lesser than 80 % and storage temperature between $3^{\circ} \text{C} \leq t \leq + 45^{\circ} \text{C}$.

4.3. INSTRUCTIONS TO UNPACK THE MACHINE

- Cut off the bands being careful of the elastic reversion
- Take away on the base of the carton the clips that keep it together with the pallet.
- Where plywood is take away the clips at both sides and at the base of each panel.
- Cut off the clips that stop the machine.
- Put the machine at ground level.

4.4 HANDLE THE UNPACKED MACHINE

- Check the machine and mount the batteries if not installed.
- To displace it, after use, take off the battery cables, the brushes and the squeegee; to displace it through a longer space pack the machine once again in its own package.

4.5. INSTALLATION



The installation must be done by authorized personnel after reading this manual.

4.5.1 BATTERIES INSTALLATION

To install the batteries follow the instructions as below :

- Raise up the battery-cover chain guard (picture 4.4);
- install the batteries in the suitable slot as showed in picture 4.4 being sure that no breakings are in the battery cases;
- never add distilled water after charging the batteries;
- clean up the surfaces needing to be connected ;
- Battery handling is made easier by handles on both sides.



PICTURE N° 4.4

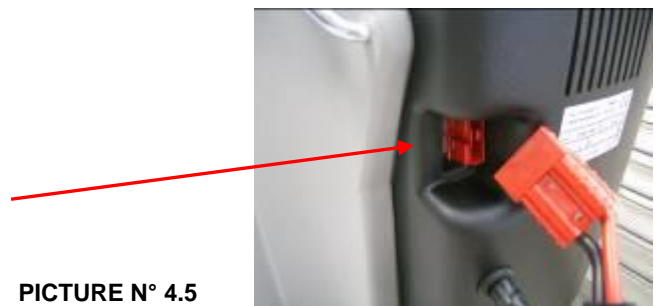
4.5.2 CHARGER INSTALLATION

The battery charging must be done, as previously reminded, predisposing a suitable suction system of gases coming out during charging. Alternatively it must be done in a dry and airy place, far from heat sources and corrosive environments.

Protect the electrical system with a delayed switch or with a more capacity fuse than the charger.

Follow the polarity instructions for the battery inlet.

Verify that the battery plug is connected



PICTURE N° 4.5

This machine is equipped with a charger placed inside the battery cover, therefore to charge the batteries follow the instructions and connect directly the cable to the system.

To install the battery charger:

In the rear part of the machine, there is a room for the battery charger. To reach it, you have to remove the screws which are fixing the cover to the electric system and take it away.

Remove the cover to reach the battery charger



PICTURE N° 4.51



Connect the battery charger to the socket to recharge the batteries.

PICTURE N° 4.52

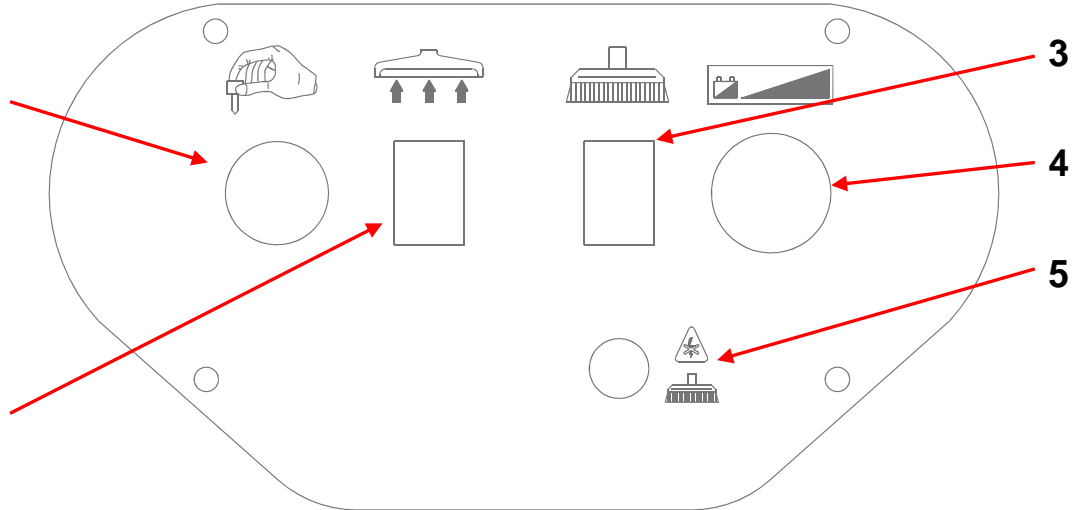
Characteristics of the CHARGER

**CAR 113
24V 12A
HIGH FREQUENCY
GEL - ACID**


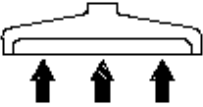
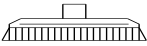


4.6. CONTROL DEVICES

4.6.1. CONTROL BRIDGE

The control bridge is set up with some interrupters that start/stop every function of the machine. Every interrupter has a pictogram showing, without errors, related functions. In picture 4.6 is showed the control bridge, while the schedule shows every switch functioning.



PICTURE N° 4.6

POS.	SWITCH	FUNCTION
1		<u>KEY SWITCH</u>
2		<u>SUCTION ON</u>
3		<u>SWEEPING SYSTEM SWITCH</u>
4		<u>BATTERY CHARGE INDICATOR</u>
5		<u>BRUSHES OVERLOAD CUTOUT</u>

4.7. FUNCTIONING

The scrubbing operation is too delicate being necessary, by experience, to value correctly the kind of brush to be used, the necessity or not for a double scrubbing action, the better choice of the detergent. If floors are too dirty, we recommend a double scrubbing action. During this first step the squeegee is up and brushes are in operating position. Start up the brushes, for a first wiping, in a small area. The solution will be left on the floor to dissolve dirt, performing its solvent function until it's completely collected by the second wiping. Of course this last one has to be done with the brushes down and the squeegee keeping contact with the floor.

Scrubbing operation has to be executed by acting on the starting switch for brushes motor, pulling down the brushes with the pedal, and actionning the lever of water regulation. Water dosage must wet all the surface.

A single scrubbing action involves to put down the squeegee, then switch on the driving lever. The squeegee is put down by the lever. The suction motor will run by the interrupter. After the scrubbing and drying operation, first turn off the water, then the brush interrupter, raise the brush concluding the drying operation. Finally the suction motor has to be switched off.



Before proceeding with any kind of operation, check out that protections are still firmly fixed.

4.7.1 STARTING AND MACHINE PREPARATION

If the autoscrubber is connected to the system for charging the batteries is necessary to take off the charger plug; make the water loading lifting up the carter (see also particular 1 in picture 4.7)

The machine can be now started up rotating the main ignition key. So let's start the scrubbing operation

1



PICTURE N° 4.7

4.7.2 CHOISE OF DETERGENT

For a good floor cleaning is necessary to use the right detergent, not aggressive and so damaging. It's suitable to use a controlled foam detergent, or an additive antifoam, to avoid damages to the suction motor, whether not possible to get these products, to avoid foam, it's easy to use some normal vinegar, pouring a quantity of 50 cc inside the recovery tank before scrubbing.



Be sure that detergent is suitable for the surface to clean up. Fiorentini S.p.A. is not responsible for damages caused by detergents too aggressive or anyway unsuitable for all kind of surfaces.

4.7.3 REGULATION OF DRIVING POSITION

Regulating systems owned by the machine, allow a good driving position choice based on the operator height. Here they are:

- Unscrew the knobs for the regulation of the inclination of the driving handle (detail 1 picture 4.8)
- Regulate the inclination of the handle as needed.
- Screw again the knobs.



PICTURE N° 4.8

4.7.4 RUDDER PEDALS FUNCTIONS

This machine is equipped with different levers and pedals:

- Forward lever (particular 1 picture 4.9). Pulling by the right hand this lever is possible to get the rotation of the brush, which, for inertness, makes the machine moving forward.



The lifting brush lever activates all the moving parts of the machine. When switched on, with the on board operator, brushes start to move and the suction motor activated by the control bridge.

- Lifting up squeegee lever (particular 2 picture 4.9). Pulling up this one and putting it to its place is possible to control the squeegee.
- Water floating regulation (particular 3 picture 4.9). Pulling up or down the lever to get a good regulation of the water.



PICTURE N° 4.9

4.7.5 REGULATION OF THE DETERGENT SOLUTION

The quantity of detergent solution during the scrubbing operation can be easily regulated by a lever placed in the back-left side of the machine (see picture 4.10 particular 1)



PICTURE N° 4.10



N.B.: if it is necessary to set the regulation of water quantity make sure that the ignition key is disconnected to avoid casual starting.

4.7.6 SQUEEGEE ADJUSTEMENT

To guarantee a perfect drying, is essential that the squeegee is perfectly regulated. This squeegee, is well done to pick up the water to the suction pipe, but is too sensitive face to the ground level. To regulate the squeegee, is necessary :

- Remove the ignition key to avoid casual starting.
- To regulate the parallelism of the squeegee with the ground it needs to act on its own handles (detail1 picture 4.11).
- To regulate the slope of the squeegee it needs to act on the knob (detail 2 picture 4.11) which allows to increase or lower the edge between squeegee and floor.



PICTURE N° 4.11



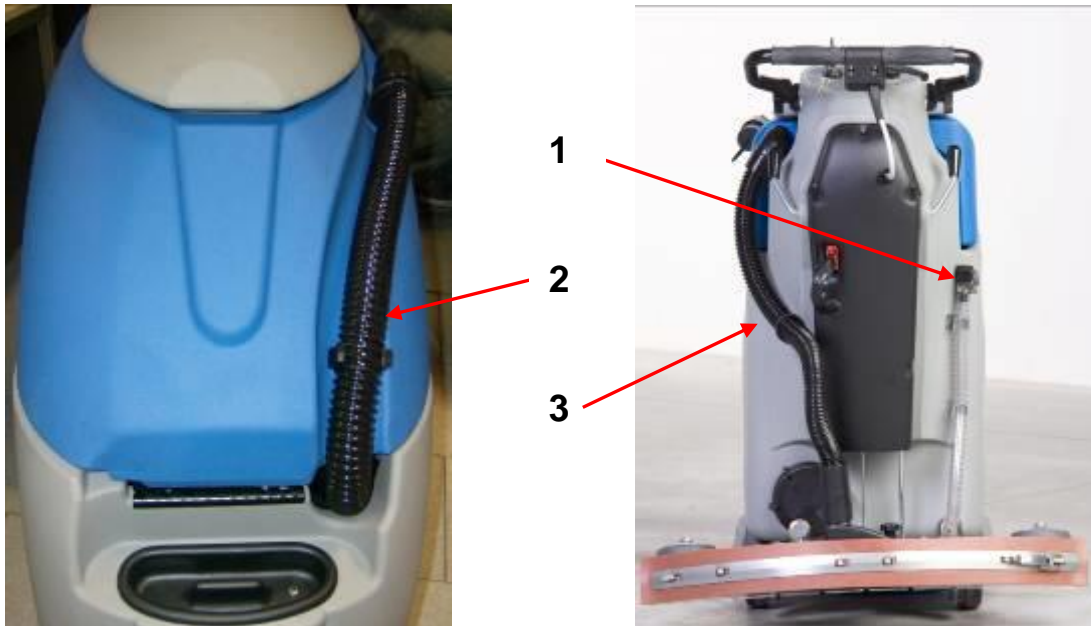
It's very important that the two wheels are well set to keep the blades of the squeegee in parallel and well placed to the ground.

4.7.7 WATER DISCHARGE

This autoscrubber machine is equipped with two water discharge pipes (picture 4.15):

- Recovery tank pipe (particular 1 picture 4.15)
- Suction pipe (particular 2 picture 4.15).

Moreover the machine is complete with a flexible pipe (detail 3 picture 4.15) which sucks the dirty water. To empty the water from the pipes put the machine on a drain well, disconnect the pipe to discharge and open the rubber cap on the top of it.



PICTURE N° 4.15

4.7.8 BRUSH REPLACEMENT

To substitute the brushes do as it follows:

- Remove the ignition key to avoid casual starting.
- Empty both recoveries of the machine.
- Lift up the machine.
- Release the brushes pulling them to the bottom.
- To insert a new brush is necessary to place it underneath the plate, then pushing it on. (detail 1 picture 4.13).



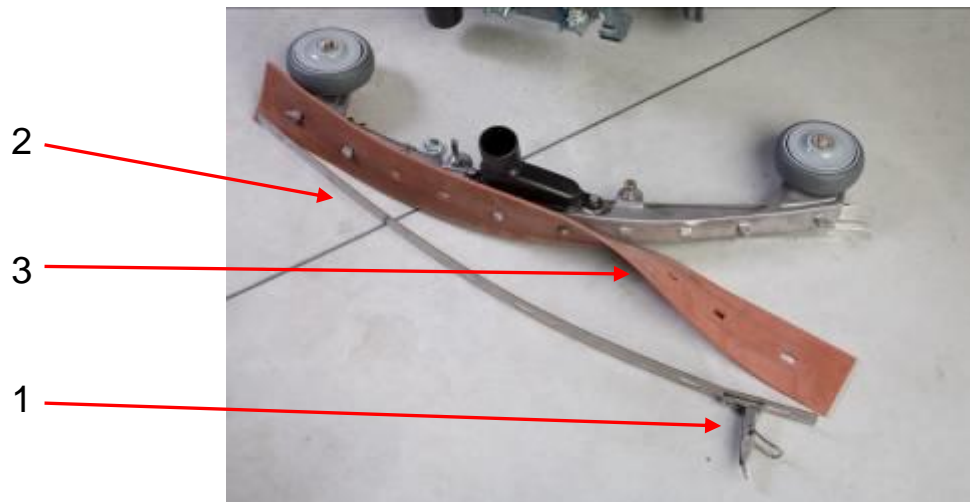
PICTURE N° 4.13

4.7.9 SQUEEGEE BLADES REPLACEMENT

The squeegee blades (picture 4.14) have to be replaced as the touching edge is worn; actually the perfection of the edge is essential for a perfect drying.

To replace the blades do as it follows:

- Take off the squeegee and put it on a bench.
- Take away the inside and outside bolts (detail 1 picture 4.14), the steel strips (detail 2) and remove worn blades (detail 3).
- Insert the new ones and the strips fitting the bolts, then the squeegee.

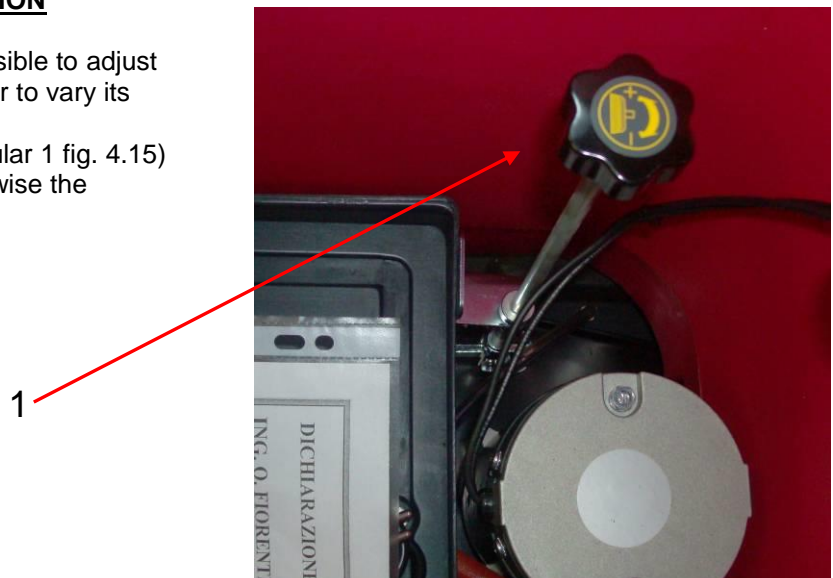


PICTURE N° 4.14

4.7.10 BRUSH PRESSURE REGULATION

When the machine is scrubbing, it is possible to adjust the brush height from the ground, in order to vary its pressure on the floor.

Rotating the knob anti-clockwise (particular 1 fig. 4.15) the pressure increases. Rotating it clockwise the pressure decreases.





PICTURE N° 4.15

5. MAINTENANCE

5.1. MAINTENANCE TABLE

To keep a good efficiency of this autoscrubber machine and grant a good reliability during the warranty period, is essential to keep a periodic maintenance using the table reported in this manual.


	<ul style="list-style-type: none"> • <i>Authorized personnel only can service this machine, particularly for electrical and electromechanical parts using suitable tools and equipment for every intervention</i> • <i>For assistance and spare parts address exclusively to Fiorentini S.r.l.</i>
---	--

OPERATIONS TO BE MADE	INTERVENTION MODALITY	FREQUENCY
Cleaning p	Clean up the recovery tank and suction motor filter	Every day
	 <ul style="list-style-type: none"> • Never use corrosives. • Don't use water jets. 	
	Check suction and squeegee pipes cleaning up	Weekly
Controls	<ul style="list-style-type: none"> ➤ Check the state of the suction blades and of the squeegee rubber 	Every 15 days
	<ul style="list-style-type: none"> ➤ Check battery water level 	Every month
	<ul style="list-style-type: none"> ➤ Check solution tank filter 	
	<ul style="list-style-type: none"> ➤ Check brake system 	Every 3 months
	<ul style="list-style-type: none"> ➤ Check battery cables fixing up 	Every 6 months
	<ul style="list-style-type: none"> ➤ Check the state of each motor brushes 	Every year
<ul style="list-style-type: none"> ➤ Check safety devices ➤ Check electric system 	Every year	

5.2 BATTERY MAINTENANCE

Control of battery charge can be easily made when the operator is working with the machine through the indicator placed on the control bridge. It shows the following information :

- On green : the battery is charged
- On yellow : the battery is half-charged
- On red : the battery is flat

	<p><i>During charging don't let the battery box opened</i></p> <ul style="list-style-type: none"> ➤ <i>Don't use fire and no smoke nearby the batteries</i> ➤ <i>Take care to the liquid because corrosive</i> ➤ <i>Don't sparkle close to the batteries</i> ➤ <i>Battery gas is explosive</i> ➤ <i>Never invert the polarity</i>
---	--

5.2.1 HYDROMETRY

Hydrometry can be made with batteries under charge with a densimeter. Do as it follows :

- Put the gun densimeter and take a quantity of electrolyte sufficient to push up the floating;
- Keep care the top of it doesn't touch the rubber or the glass walls.
- For a measure of density, after filling up with distilled water, density has to be uniform in the box.

5.2.2 WATER FILLING UP

- Put distilled water in each cell of the battery before charging the batteries to take the liquid at 6 mm over the plates.
- This operation has to be made every time the level goes down, but never over a week between two filling up.

5.2.3 CHARGING LIMITS

It's not necessary to charge the battery if density, after a working day, is underneath 1,24 (28 Bè). The best recommended temperature is 45°C. If the electrolyte temperature goes up of 10/12°C inside facing to room temperature, it can be overcharged without depending from the normal use.

5.2.4 OFF DUTY OR INACTIVE BATTERIES

While inactive, the batteries can go flat by themselves. If battery is not frequently used, it may occurs to do the following operations:

- Once in a month place it under charge, to a voltage indicated as "final", until all elements are full of gas and is possible to read tension and specific weight for 3-4 hours about ;
- It's necessary to do it even when measurements of specific weight show high values. If battery stays inactive longer it has to be preserved in a dry place.

5.2.5 BATTERIES DISPOSAL

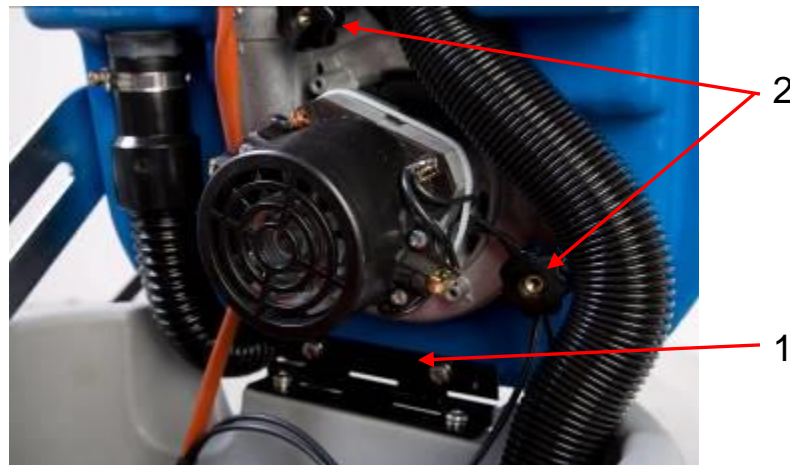
Exhausted batteries are considered toxical waste. They have to be disposed in storages under specific authorization. In case of necessity, a "temporary storage" can be effected, by laws in force, mainly :

- Having a special authorization for it ;
- Placing them in plastic boxes with higher capacity than the volume of the battery electrolyte, or anyhow without possible water infiltrations.

5.3 MAINTENANCE OF SUCTION MOTOR

The suction motor must be efficient and cleaned. Every six months check the brushes and if necessary replace them . Maintenance of suction motor needs the following operations :

- Keeping away the key from the dashboard release the motor hooks and disconnect the plug.
- Empty the recovery tank.
- Lifting up the recovery tank (detail 1 picture 5.1)
- Unscrew the knobs which fix the suction motor to the tank (detail 2 picture 5.1)
- Check the suction rotor from the front opening of the motor.
- To reassemble do the opposite way.



PICTURE N° 5.1

5.4 ELECTRICAL EQUIPMENT CHECKING

The electrical system must be checked every two years. Possible defects, such as connections off and burnt cables, must be suddenly replaced.



All intervention on the electrical system must be done by a technician.
 All maintenance or repair out of the ordinary maintenance must be done with personnel authorized only by FIORENTINI.

5.5 TABLE ABOUT TESTS TO BE CARRIED OUT

	RECURRENCE	OPERATOR
CONTROLS		
SAFETY DISPOSITIVES	2 YEARS	PROFESSIONAL TECHNICIAN
ELECTRICAL SYSTEM	2 YEARS	FIORENTINI TECHNICIAN
BRAKING SYSTEM	3 MONTHS	PROFESSIONAL TECHNICIAN
COMPLETE CHECKUP	5 YEARS	FIORENTINI TECHNICIAN
MAINTENANCE		
RECOVERY TANK CLEANING	DAILY	OPERATOR
SUCTION MOTOR FILTER	DAILY	OPERATOR
SOLUTION TANK FILTER	MONTHLY	OPERATOR
SUCTION PIPES CLEANING	WEEKLY	OPERATOR
SQUEEGEE CLEANING	WEEKLY	OPERATOR
BLADES LEVEL CONTROL	WEEKLY	OPERATOR
WATER BATTERY LEVEL	WEEKLY	OPERATOR
BATTERY CABLES CONTROL	6 MONTHS	PROFESSIONAL TECHNICIAN
MOTOR BRUSHES CONTROL	EVERY YEAR	PROFESSIONAL TECHNICIAN

5.6. MAINTENANCE REGISTER

DATE	MAINTENANCE	KIND OF INTERVENTION/MARKS	SIGNATURE

6. TECHNICAL ASSISTENCE

6.1. SERVICING ADDRESSES

For warranty assistance and/or request of maintenance and repair, or information, customer can apply to the Technical Service of FIORENTINI S.p.A. as follows:

ING. O. FIORENTINI S.p.A.

“THE BEST IN FLOOR MACHINES”

FILIALI:

20132 MILANO – Fax. 02/2592779

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

00012 Guidonia Montecelio (ROMA) – Fax. (0774)353419 - 353314

Via B. Pontecorvo 20 – Tel. (0774)357184 - 353015

STABILIMENTO:

50030 PIANCALDOLI (FI) – Fax. 055/817144

Loc. Rombola – Tel. 055/8173610

Many technical problems can easily find a solution; therefore, before contacting our Customer Service, we advice to read carefully this manual.

Where consulting the Service, it occurs to clearly specify kind and modalities of problem, to provide with the in a suitable way.

6.2 VERBAL CLAIM

Fiorentini S.p.A, has a big consideration of customer needing, that's why we think we can always get precious information to improve our products, placing at customer's disposal a statement to point out possible defects using our autoscrubber I 16/18 NEW.

Form filled by:

Company: _____

Name of compiler: _____

Position in the firm: _____

Date: _____

Signature: _____

Description of the machine:

Machine: _____

Model: _____

Purchase date: _____

Chassis: _____

Machine under warranty:

YES

NO

Hours of work : _____

Point out working environment of the machine : _____

Description of defect:

Code of defective particular: _____

Name: _____

Typology of defect:

Short description of defect:

- Defective mechanical component
- Incorrect functioning
- Electrical system failure
- Engine failure
- Missing component
- Excessive noisness
- Water leakage
- Other

Customer's notes:

Please point out notes and/or suggestions on products / services of Ing. O. Fiorentini S.p.A.

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

Data di spedizione
Date of shipment _____
Date de spedition

Distributed by:

ING. O. FIORENTINI S.p.A.
“THE BEST IN FLOOR MACHINES”

FILIALI:

20132 MILANO – Fax. 02/2592779

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

00012 Guidonia Montecelio (ROMA) – Fax. (0774)353419 - 353314

Via B. Pontecorvo 20 – Tel. (0774)357184 - 353015

STABILIMENTO:

50030 PIANCALDOLI (FI) – Fax. 055/817144

Loc. Rombola – Tel. 055/8173610