



Organizzazione con
Sistema di Gestione Certificato
ISO 9001 : 2008



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

WALK-BEHIND SWEEPER MOD. SP500 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.

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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 information</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>
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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 *slipping* 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 sweeper 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

Warranty is granted for a 12 months period since delivery date; this is a single warranty term, and extensions cannot be given following to substitutions or reparations made in this period.

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.

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

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



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-KONFORMITÄT SERKLÄRUNG-
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 electromagnética 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

Ing. O. Fiorentini S.p.a.

Il Legale Rappresentante/president/gerant/ representante

Angelica Maria Cerutti

Piancaldoli

Luogo e data

Firma

Cerutti Angelica Maria

2. SUPPORT FEATURES AND SPECIFICATIONS

2.1. IDENTIFICATION

The sweeper SP500NEW is 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	SP 500 NEW	S.N		2 0 0 9
V		Hz		
Kg		A		
		W		



IMAGE 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 sweeper machine cannot be commercialized without the label.

2.2. DESCRIPTION AND COMPONENTS

The sweeper machine SP500 NEW has been designed for treatment of flat areas by a sweeping process that put the dust in a recovery tank in the back of the machine. The power is supplied by a battery accumulator or by a petrol engine, which feed all motors and electric controls.

The machine is equipped with a front rotating brush that moves the dust to the center of the machine and the main /central brush convey the dust in the tank, vacuumed by a fan motor. This machine must be utilized on dry surfaces.

The dashboard controls some of the machine functions.

With the dashboard it is possible to activate the following functions:

- switch on and off the machine;
- start the machine traction;
- start the filter shaker motor;

The main components of the machine are:

- galvanized steel or stainless steel chassis;
- right side nylon brush ;
- central main roller brush;
- vacuum and recovery system
- 2 driving wheels
- 1 castor wheel

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 SPECIFICATIONS:

	SP500 NEW Battery version	SP500 NEW Petrol version
MAIN SPECIFICATIONS		
SWEEPING WIDTH	650 mm	
WORKING CAPACITY UP TO.	3200 m ² /h	
AUTONOMY	3.5 h	/
DUST TANK CAPACITY	35 l	
FILTER	Cartridge	
FILTERING SURFACE	2 m ²	
GENERAL SPECIFICATIONS		
TRACTION (front/rear)	With rear belt	
FORWARDING SPEED	0-5 km/h	
MAXIMUM SLOPE	8 %	
NOISE LEVEL (for operator)	60 dB	75dB
VACUUM	Free flow turbine	
ELECTRIC SYSTEM		
TENSION	12V 500W 2600rpm 10A/h	/
BRUSH TRACTION	With belt	
MOTOR	/	Honda motor 3 hp
BATTERY	2x 6V 240A/h	/
WEIGHT AND DIMENSIONS		
LENGTH	1200 mm	
WIDTH	620 mm	
HEIGHT	910 mm	
CENTRAL BRUSH	Ø260x500 mm	
SIDE BRUSH	Ø200 mm	
WEIGHT (empty machine)	50 kg	
BATTERY WEIGHT	13.4 kg	/



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 (7.1.).

MEASUREMENT UNITS CONVERSION

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

3. SAFETY

3.1. CORRECT USE



The machine is a sweeper machine and has been studied and manufactured to be used to clean flat floors or with maximum slope of 8%.

3.2. UNPROPER USE



- *Not authorized operator uses;*
- *Not regular floors cleaning*
- *Cleaning of surfaces with more than 8% 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 stuck 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. RECOMMENDED EQUIPMENT

In order to use in a better way the machine characteristics it is 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

We recommend to teach the personnel the correct use of the machine, especially for what 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 tamper these devices, keep them out or disconnect during the functioning of the machine.*
- We recommend to verify periodically their efficiency*

Brush cover	<p>The sweeper SP500NEW is equipped a central nylon brush, which rotates when the machine works. Plastic covers prevent the accessibility to the dangerous areas. Only specialized technicians can remove these parts.</p>
	

3.6 SAFETY DEVICES

This machine is provided of the following safety systems (battery version).

- **Electric plug** (image 3.6), the same used for the battery charger. In case of emergency, this socket can be immediately removed from the plug in order to immediately stop every machine operation. Before using the machine, the operator must learn how to use this safety system. Do not restore the safety system if the problem is not solved. If necessary call a specialized technician. To disconnect the plug it is necessary to lift the battery protection cover and pull the plug handle.

Disconnect in case of emergency

IMAGE 3.6



3.7 RESIDUAL DANGERS

La FIORENTINI ha analizzato tutti i pericoli correlati all'uso della macchina allo scopo di eliminare, o perlomeno ridurre, il rischio di infortunio per gli operatori, fin dalla fase progettuale. Per ridurre il rischio associato ai pericoli residui si è provveduto informando gli operatori mediante segnaletica e indicando i mezzi e le procedure antinfortunistiche da adottare.

CRUSHING DANGER

Crushing danger may happen:

- **When setting the brushes**
- **During maintenance of motor/batteries**

All the maintenance operations must be do with the machine turned off.

The danger is indicated by proper signals on the machine in order the remember the operator.

OVERTURNING DANGER

Overturning danger may happen:

- **During the normal use when the machine overpass the gradient limit specified in this manual or when the machine is used on not regular surface with holes.**



- **Don't use the machine to clean up areas exceeding 8% slope or presenting holes and depressions, which might compromise the stability of the machine.**



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.

3.8. SAFETY SIGNALS

Safety signals include :

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

	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.

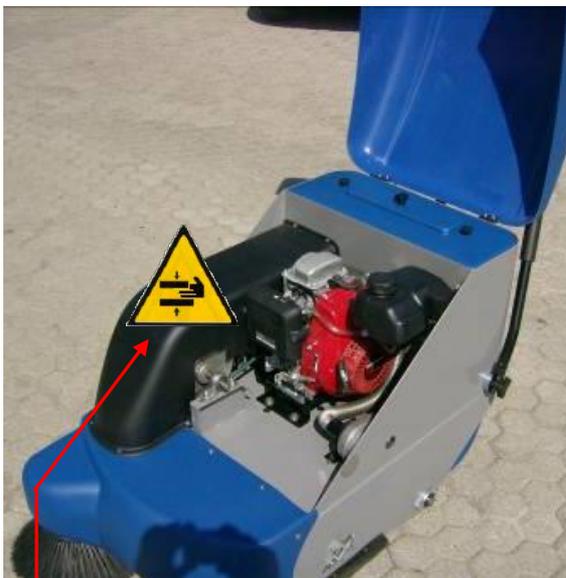


	What is it ?	This signal shows crushing dangers due to moving parts of the machine.
	What to do?	In phase of installation/maintenance we recommend to keep away the ignition key from the control board.



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.

	What is it ?	This signal indicate the risk of explosion due to hydrogenous exhaled during the battery charge (battery version).
	What to do ?	During the batteries charge make sure that the machine is under a vacuum chimney or in a ventilated area. Keep clear from the heat and corrosive environment.



	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 and not introduce any part of body inside the machine.



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.

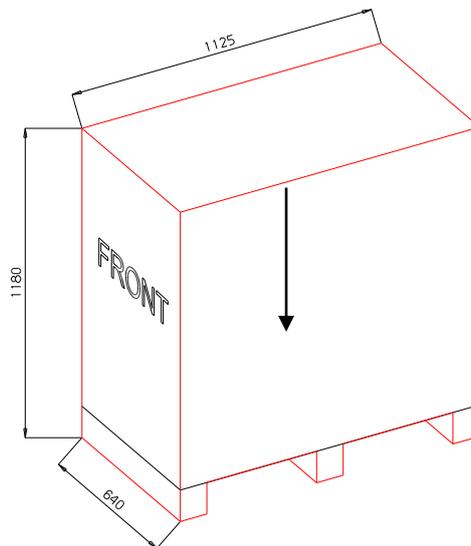
4. INSTRUCTIONS FOR STARTING AND USE

4.1. TRANSPORT AND HANDLING

This sweeper 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.*



PIC. 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° 4.1



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

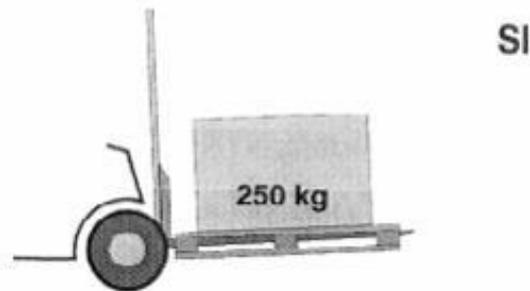


FIGURA N° 4.2

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 cartoon 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 round 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 BATTERY INSTALLATION

Follow the below instructions to install the batteries:

- the battery box is under the protection cover (detail 1 image 4.5.1);
- Lift the cover by mean of the proper handles (detail 2 image 4.4);
- Install the batteries in their specific place and make sure that all battery cells are intact
- Do never add distilled water after having charged the batteries
- Clean the connecting surfaces
- use the battery handles to move them more easily



IMAGE N° 4.5.1

4.5.2 MOTOR INSTALLATION

Follow the below instructions to prepare the petrol engine ready for use.

- Open the protection cover;
- Check the oil level (detail 1 image 4.5.2);
- Fill the tank with fuel (detail 2);
- Move the lever (detail 3)
To the right to give air to the motor;
- Switch the motor on by using the handle (detail 4)

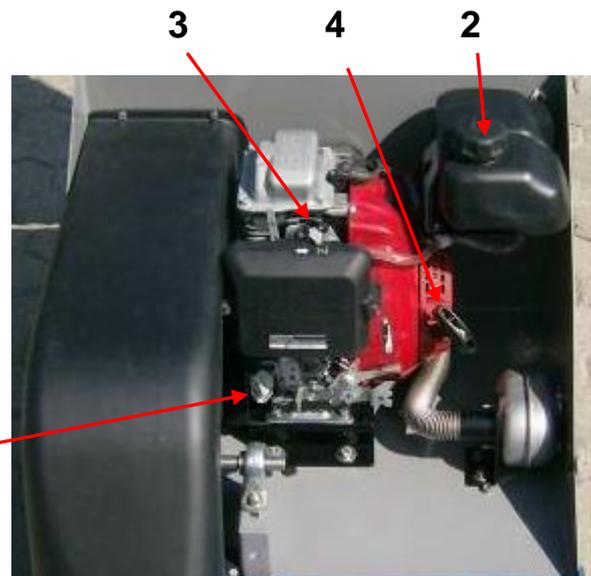


IMAGE N° 4.5.2

4.6 REGULATIONS

4.6.1 REGULATION OF THE HANDLE

Turn the knobs at the base of the handle in order to set it according to the operator's needs. When loosen, it is possible to change the handle height. Strengthen the knobs again to fix the handle position.



IMAGE N° 4.6.1

4.6.2 REGULATION OF CENTRAL ROLLER BRUSH

Turn the pins at both machine sides to set the central brush (see red arrow on image 4.6.2). The brush height can be changed by unscrewing the pin, in order to reach the ideal position for a satisfying sweeping.



IMAGE N° 4.6.2

4.7. CONTROL DEVICES

4.7.1. CONTROL BOARD

The control board is composed by some switches which control the main functions of the machine. Here below there is the scheme that resumes all control board main functions (image. N° 4.7.1).

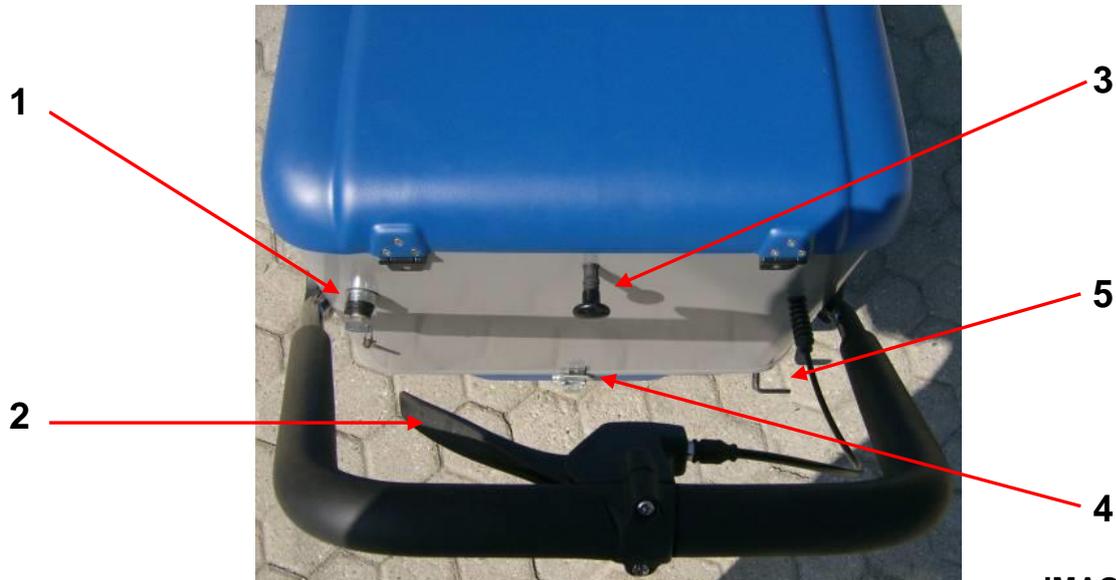


IMAGE N° 4.7.1

POS.	FUNCTION
1	<u>KEY SWITCH</u>
2	<u>TRACTION LEVER</u>
3	<u>FILTER SHAKER LEVER</u>
4	<u>DUST TANK UNHOOKING PIN</u>
5	<u>SIDE BRUSH LOWERING PEDAL</u>

4.8. FUNCTIONING

Sweeping is made by few and simple operations.

After having switched on the machine, put the two brushes (central and side brush) to their working position.

Then activate the vacuum motor in order to collect all the dust in the proper recovery tank.

The brushes start rotating only when the forwarding lever is activated: proceed at constant speed on the surface to be cleaned.

It is very important that the filter shaker motor always works in the proper way, in order to keep the filter always cleaned and efficient.



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

4.8.1 LEVERAGE FUNCTIOS

The machine is equipped with several levers:

- Brush lever (detail 1, image 4.8.1). Pulling the lever with the left hand, the brush starts moving and makes the machine go forward.
- Side brush lowering pedal (detail 2 image 4.8.1). Pushing the pedal down, the side brush falls down on the floor.
- Motor handle (detail 3 image 4.8.1). The petrol engine starts by mean of this lever. Lift the protection cover to reach it.



1

2



3

FIGURA N° 4.8.1

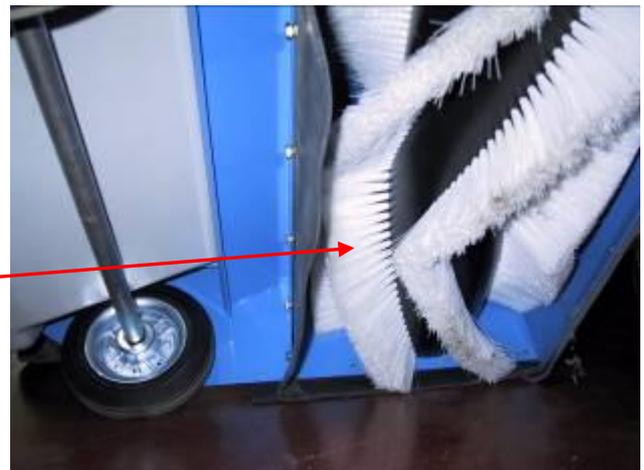
4.8.2 CENTRAL BRUSH REPLACEMENT

To replace the main roller brush follow all below instructions:

- Turn the machine off.
- Remove the screws fixing the main brush (detail 1 image 4.8.2)
- Turn the machine on one side
- Remove the main brush and replace it with a new one (detail 2 image 4.8.2).
- Turn the machine in the right position and fix the screws again.



1



2

4.8.3 SIDE BRUSH REPLACEMENT

To replace the side brush follow the below instructions:

- Turn off the machine.
- Bring the brush to non-working position by mean of the proper pedal
- Remove the screws that fix the brush (detail 1 image 4.8.3)
- Replace the brush
- Fix the screws again

1



IMAGE N° 4.8.3

4.8.4 WASTE TANK EMPTYING

The operator has to follow the below instructions in order to empty the waste tank:

- Remove the key from the control board in order to avoid an accidental starting.
- Remove the hook that holds the dust tank to the machine (detail 1 image. 4.8.4);
- Remove the dust tank and empty it (detail 2);
- Do the opposite operations to restore the machine.

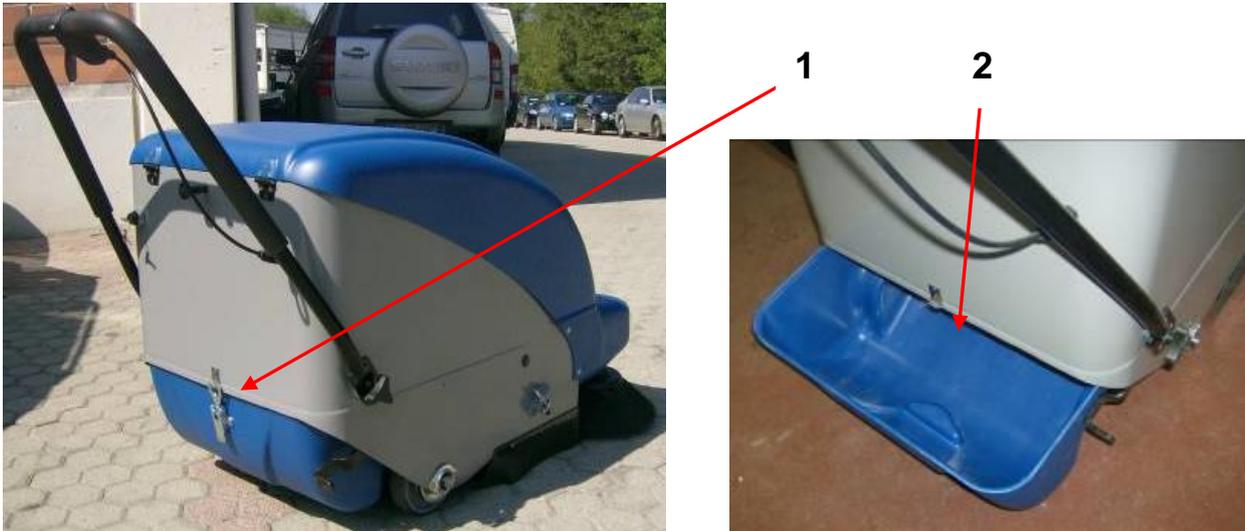


IMAGE N° 4.8.4

4.8.5 MOTOR MAINTENANCE (petrol motor version)

Check the motor regularly in order to avoid damages to the machines.
 The motor must always be perfectly efficient and it is therefore necessary to make regular controls.
 (see list of control sto be done on paragraph 5.4).

Follow the below instructions to reach the motor and make the due maintenance:

- Remove the key from the control board
- Lift the protection cover (detail 1 image 4.8.5) to reach the motor;
- Check the oil level and change it if necessary (take the exhausted oil out through the plug, detail 2)
- Make the necessary maintenance and check all motor components quite often
- Follow the opposite operationS in order to restore the machine



IMAGE NO. 4.8.5

4.8.6 MAINTENANCE OF FILTER SHAKER MOTOR

The filter shaker motor removes the dust from the filter during the working phase, in order to keep the filter always efficient.

The filter shaker motor is activated by the switch on the control board.

The removed dust falls in the proper recovery tank.

Follow the below instructions for the motor maintenance:

- Remove the key from the control board;
- Lift the motor/batteries protection cover (detail 1 image. 4.8.6);
- Remove the protection panel after having unscrewed the 3 knobs (detail 2);
- Reach the filter shaker motor after having removed the nut (detail 3)
- Once the motor has been taken out it is also possible to make the due maintenance of the filters (detail 4);
- Follow the opposite instructions to restore the machine

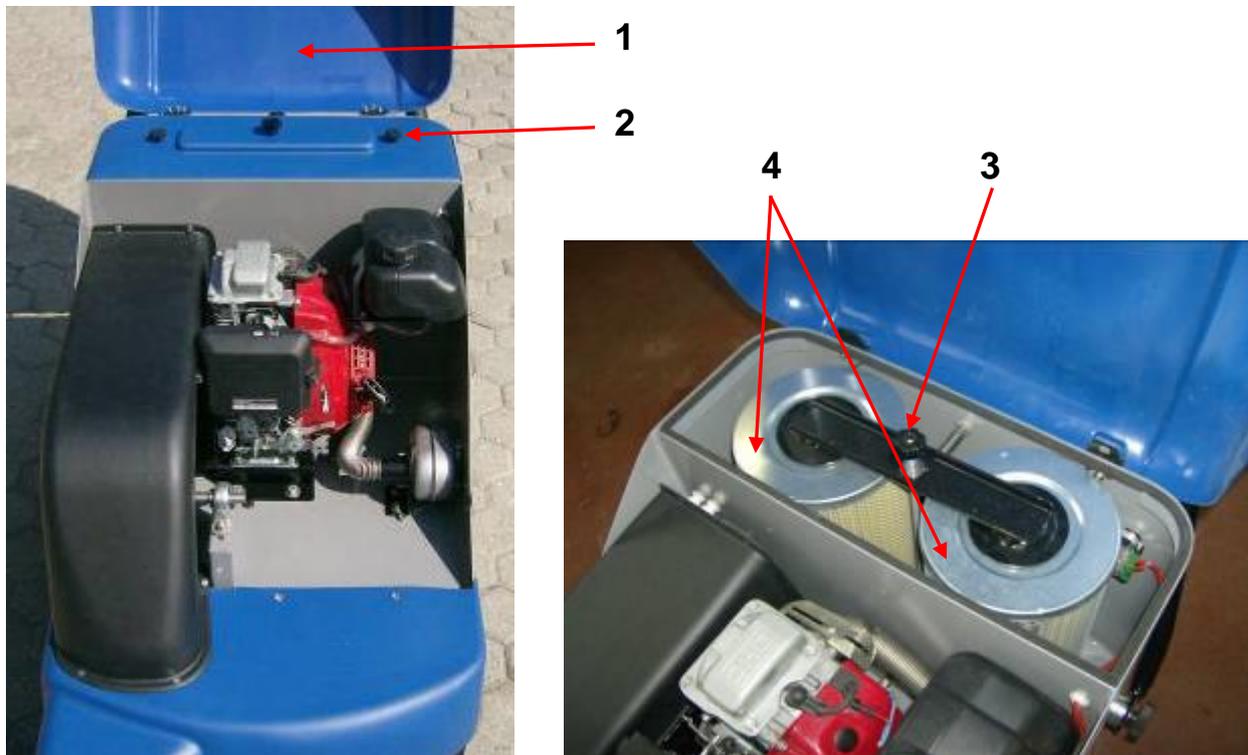


IMAGE N° 4.8.6

5. MAINTENANCE

5.1. MAINTENANCE SCHEDULE

To keep a good efficiency of this sweeper machine and grant a good reliability during the warranty period, it is recommended to make a periodic maintenance using the schedule reported in this manual.



- *Authorized personnel only can service this machine, particularly for electrical and electromechanical parts using suitable tools and equipment for every intervention.*
- *For assistance and spare parts address exclusively to Fiorentini S.r.l. (point 7.1. / 7.2.).*

OPERATION	WHAT TO DO	FREQUENCY
Cleaning up	Clean the dust recovery tank	Every day
	 Do not use corrosive substances	
Controls	<ul style="list-style-type: none"> ➤ Check if vacuum hoses are cleaned ➤ Check the motor oil (petrol engine version) 	Every week
	<ul style="list-style-type: none"> ➤ Check the status of rubber blades close to the roller brush ➤ Check the batteries water lever (battery version) 	Every 15 days
	<ul style="list-style-type: none"> ➤ Check the vacuum filter 	Every month
	<ul style="list-style-type: none"> ➤ Check the battery cables (battery version) 	Every 6 months
	<ul style="list-style-type: none"> ➤ Check the status of all motors carbon brushes ➤ Check the safety devices ➤ Check the electric system 	Every year

5.2 BATTERY MAINTENANCE (battery version)

The status of battery charge can be checked by the operator when the machine is working, thanks to the battery charge indicator situated on the control board

The indicator gives the following information:

- Green led: charged batteries
- Yellow led: slightly charged batteries
- Red led: exhausted batteries



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 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.

5.3 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.

5.4 TESTS TO BE CARRIED OUT

	FREQUENCY	TECHNICIAN
CONTROLS		
Safety device	2 years	Professional technician
Electric system	2 years	FIORENTINI technician
Complete revision	5 years	FIORENTINI technician
MAINTENANCE		
Clean dust tank	Daily	Operator
Vacuum filter	Daily	Operator
Cleaning of vacuum hoses	Weekly	Operator
Check the water level on batteries	Weekly	Operator
Check if the battery cables are well fixed	6 months	Professional technician
Check the motors carbon brushes	Every year	Professional technician
Check the motor oil level	Weekly	Operator

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 needs, 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 sweeper SP500NEW.

Form filled in by:	
Firm: _____	
Name of compiler: _____	
Position in the firm: _____	
Date: _____	Signature: _____

Description of the machine:	
Machine: _____	Model: _____
Purchase date: _____	Chassis number: _____
Machine under warranty: <input type="checkbox"/> YES <input type="checkbox"/> NO	Hours of work : _____
Point out working environment of the machine: _____	

Description of defect:	
Code of detective particular: _____	Name: _____
Typology of defect: <input type="checkbox"/> Detective mechanical component <input type="checkbox"/> Incorrect functioning <input type="checkbox"/> Electrical system failure <input type="checkbox"/> Engine failure <input type="checkbox"/> Missing component <input type="checkbox"/> Excessive noisiness <input type="checkbox"/> Water leakage <input type="checkbox"/> Other	Short description of defect: _____ _____ _____

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.
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