

QUARTZ 66
QUARTZ 80

02 2020



Use and maintenance



Warning! Please read the instructions before use.

INTRODUCTORY COMMENT

Thank you for having chosen our machine. This floor cleaning machine is intended for **commercial use** and it is used for the industrial and civil cleaning and is able to clean any type of floor. During its advance movement, the combined action of the brushes and the detergent solution removes the dirt which is aspirated through the rear suction assembly, giving a perfectly dry surface.

The machine must be used only for such purpose. It gives the best performance if it is used correctly and maintained in perfect efficiency. We therefore ask you to read this instruction booklet carefully whenever difficulties arise in the course of the machine's use. In case of need, we ask you to contact our service department for all advice and servicing as may prove necessary.

CAUTION This machine is for indoor use only

CAUTION This machine shall be stored indoors only.

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GENERAL RULES OF SAFETY

The rules below have to be followed carefully in order to avoid injury to the operator and damage to the machine.

- Read the labels carefully on the machine. Do not cover them for any reason and replace them immediately if damaged.
- **WARNING:** The machine must be used exclusively by authorized staff that have been instructed on its correct and proper use.
- **WARNING:** Do not use the machine on areas having a higher gradient than the one stated on the number plate.
- **ATTENTION:** The machine is not to be used by persons, children included, with reduced physical, sensorial or mental capabilities, or with lack of experience or knowledge.
- During the operation of the machine, pay attention to other people and especially to the children.
- Children should be supervised to ensure that they do not play with the appliance.
- Children cannot carry out cleaning and maintenance of the machine.

TRANSFER

- **WARNING:** Do not use the machine in areas where it is likely that the operator is hit by falling objects since the appliance is not provided with a falling object protective structure (FOPS).
- In order to prevent unauthorized use of the machine in parking position, take off the key. Machines left unattended shall be secured against unintentional movement.
- Do not use the machine as a means of transport.
- Adapt the working speed to the adhesion conditions: particularly, slow down before narrow curves have to be faced.

STORAGE AND DISPOSAL

- Storage temperature: between 0°C and +55°C (32°F and 131°F).
- Perfect operating temperature: between 0°C and +40°C (32°F and 104°F).
- The humidity should not exceed 95%.
- Provide for the scrapping of the material of normal wear following strictly the respective rules.
- The batteries need to be removed from the machine before its scrapping.
- When your machine has to stop activity, provide for the appropriate waste disposal of its materials, especially oils, batteries and electronic components, and considering that the machine itself has been, where possible, constructed using recyclable materials.

CORRECT USE

- Do not use the machine on surfaces covered with inflammable liquids or dusts (for example hydrocarbons, ashes or soot).
- In case of fire, use a powder-based fire-extinguisher. Do not use water.
- Do not use the machine in explosive atmosphere.
- The machine has to carry out simultaneously the operations of washing and drying. Different operations must be carried out in restricted areas prohibited to non-authorized personnel and the operator has to wear suitable shoes.
- Signal the areas of moist floors with suitable signs.
- Do not mix different detergents, avoiding harmful odours.
- Avoid brushes operation when the machine is standing still in order to prevent floor damages.

MAINTENANCE

- If the machine does not work properly, check by conducting simple maintenance procedures. Otherwise, as for technical advice from an authorized assistance centre.
- For any cleaning and/or maintenance operation take off the power supply from the machine removing the battery connector.
- Where parts are required, ask for ORIGINAL spare parts from the distributor and/or from an authorized dealer.
- Use only ORIGINAL brushes.
- Do not take off the protections which require the use of tools for their removal.
- Do not wash the machine with direct water jets or with high water pressure nor with corrosive material.

- Every 200 working hours have a machine check by an authorized service department.
- Before using the machine, check that all panels and coverings are in their position as indicated in this use and maintenance catalogue.
- Restore all electrical connections after any maintenance operation.

TRANSPORTING THE MACHINE

WARNING: Before transporting the machine on an open truck or trailer, make sure that:

- All tanks are empty.
- Recovery tank cover is latched securely.
- The machine is tied down securely.
- The machine's electromagnetic brake is engaged (not manually overridden).

GENERAL RULES OF THE BATTERIES

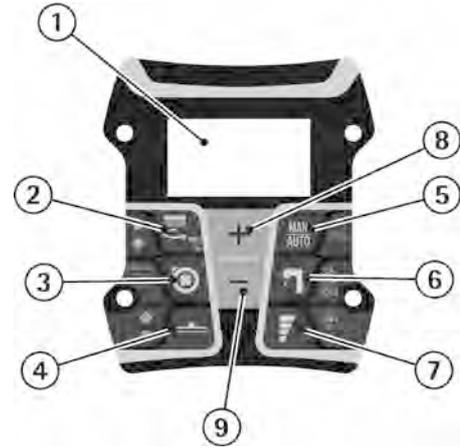


- At any intervention on the batteries, use suitable acid-proof gloves and glasses.
- Do not smoke near the batteries and do not approach them with free flames.
- Check that a fire-extinguisher is available on site.
- Be very careful in case of leakages or liquid outlets because corrosive.
- Do not place any metallic tools onto the batteries. Risk of short circuit!
- It is compulsory to hand over exhaust batteries, classified as dangerous waste, to an authorized institution according to the current laws.

TECHNICAL DESCRIPTION		<i>QUARTZ 66</i>	<i>QUARTZ 80</i>
Cleaning width	mm	685	785
	in	27	31
Squeegee width	mm	860	990
	in	34	39
Working capacity, up to	m ² /h	4110	4710
	sqft/h	44239	50868
Brushes diameter	mm	2x 355	2x 405
	in	2x 14	2x 16
Brushes rpm	rpm	160	160
Pressure on the brushes	kg	57	57
	lbs.	126	126
Brushes motor	W	2x 350	2x 350
	A	2x 15	2x 15
Suction motor	W	570	570
	A	23.75	23.75
Suction vacuum	mbar	160	160
	water lift	64	64
Traction motor	W	500	500
	A	21	21
Type of drive		automatic	automatic
Movement speed	km/h	5	5
	mph	3.7	3.7
Maximum gradient	%	10	10
Solution tank	l	98	98
	gal	26.5	26.5
Detergent tank (3SD optional)	l	7	7
	gal	1,85	1,85
Recovery tank	l	106	106
	gal	28	28
Machine length	mm	1540	1540
	in	60,6	60,6
Machine height	mm	1388	1388
	in	55	55
Machine width (without squeegee)	mm	765	860
	in	30	34
Weight of the machine (empty and without batteries)	kg	213	218
	lbs.	470	481
Weight of the machine (empty and with batteries for transport)	kg	348	353
	lbs.	768	779
Gross weight of the machine (IEC/EN 60335-2-72 clause 3.114)	kg	521	526
	lbs.	1149	1160
Voltage of the batteries	V	24	24
Capacity of the batteries	Ah ₅	210	210
Weight of the batteries	kg	135	135
	lbs.	298	298
Compartment of the batteries right (LxDxH)	mm	532x187x325	532x187x325
	in	21x7.4x12.8	21x7.4x12.8
Compartment of the batteries left (LxDxH)	mm	532x187x325	532x187x325
	in	21x7.4x12.8	21x7.4x12.8
Acoustic pressure level (in conformity with EN 60704-1) Lpa	dB (A)	<70	<70
Hand-transmitted vibration	m/s ²	<2.5	<2.5
Whole body vibration	m/s ²	<0.5	<0.5
Class		I	I
Protection level	IP	23	23
Weight packed machine	kg	223	228
	lbs.	492	492
Packing dimensions (LxDxH)	cm	161x93x152	161x93x152
	in	6.3x3.7x6	6.3x3.7x6

STEERING WHEEL PANEL

- 1. DISPLAY
- 2. UP/DOWN BRUSHES BUTTON
- 3. ON/OFF SUCTION MOTOR BUTTON
- 4. UP/DOWN SQUEEGEE BUTTON
- 5. MODE SELECTOR BUTTON
 - AUTOMATIC
 - MANUAL
 - BREAK WASHING
- 6. OPEN/CLOSE SOLENOID VALVE
- 7. SOLUTION LEVEL BUTTON (ONLY FOR 3S/3SD)
- 8. MAXIMUM SPEED INCREASE BUTTON
- 9. MAXIMUM SPEED DECREASE BUTTON



CONTROLS BOARD LEGEND

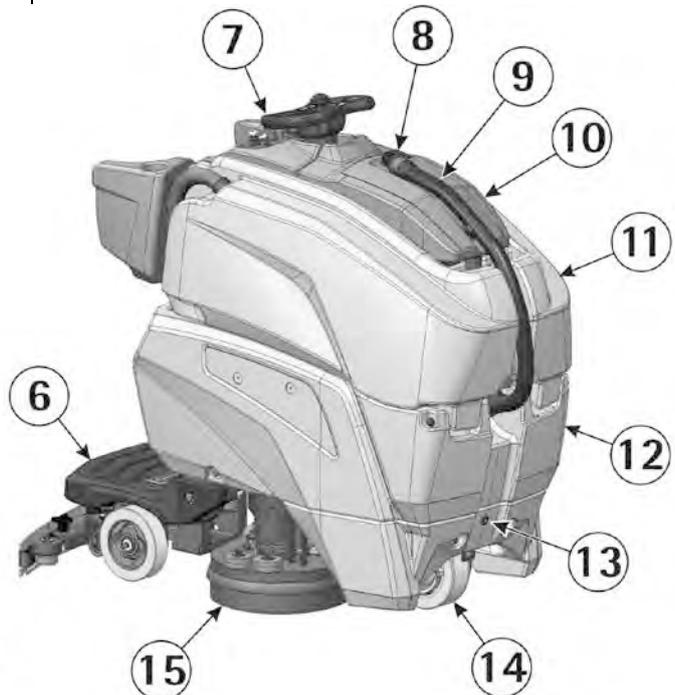
- 1. SPEED ADJUSTMENT KNOB
- 2. WATER VALVE
- 3. HORN
- 4. DIRECTION LEVER (FORWARD/BACKWARD)
- 5. EMERGENCY BUTTON
- 6. KEY SWITCH



MACHINE LEGEND

- 1. STEERING WHEEL PANEL
- 2. CONTROLS BOARD
- 3. SQUEEGEE HOSE
- 4. SOLUTION LEVEL HOSE
- 5. SPEED PEDAL
- 6. FOOTBOARD
- 7. STEERING WHEEL
- 8. DRAINING HOSE CAP
- 9. DRAINING HOSE
- 10. RECOVERY TANK COVER

- 11. RECOVERY TANK
- 12. SOLUTION TANK
- 13. HEADLIGHT
- 14. TRACTION WHEEL
- 15. BRUSHES BASE ASSEMBLY
- 16. SQUEEGEE ASSEMBLY
- 17. REAR WHEELS
- 18. SOLUTION EXHAUST
- 19. DETERGENT SOLUTION FILTER
- 20. SOLUTION FILLING HOLE CAP



DISPLAY READING

DISPLAY WHILE SWITCHING ON

When the machine is switched on, the display shows the following screen.

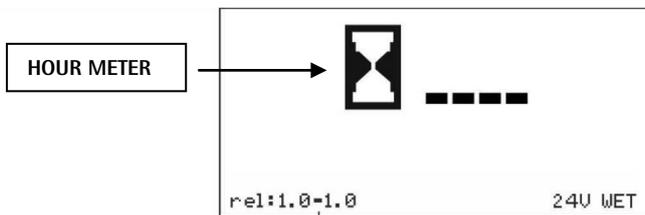


Next screen will be displayed as follows:

SOFTWARE RELEASE

Display card software release

Chopper card software release



BATTERY SETTINGS

24V GEL

Gel batteries settings

24V AGM

AGM batteries settings

24V WET

Lead/acid batteries settings

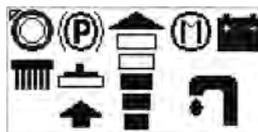
24V XFC

XFC batteries settings

This screen can be displayed any time by pressing simultaneously the ▲▼ buttons

CONTROLS DISPLAY

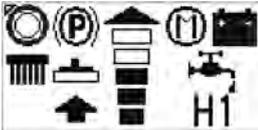
Standard Mode



Parking brake on	Suction motor off	Brush base up	Squeegee up	Maximum speed level set	Standard mode selection
Automatic mode	Suction motor on	Brush base down	Squeegee down		Solenoid valve on
Manual mode	Suction motor quiet mode	Brushes on			Solenoid valve off
Battery charge level		Brush base pressure level			3S mode selection 3S
					3SD mode selection 3SD
					Ozone mode selection O₃
					Ozone + 3S mode selection O₃3S
					Ozone + 3SD mode selection O₃3SD

After selecting the 3S or the 3SD mode (see the 3S/3SD mode paragraph), the display will show the following controls:

3S mode



Solenoid valve on 
Solenoid valve off 
Water flow level H1

3SD mode



Solenoid valve on 	Detergent percentage  0.2%
Solenoid valve off 	
Water flow level H1	

After selecting the Ozone mode (see Ozone mode selection chapter), the display will show the following inputs:

Ozone mode



Solenoid valve open 
Solenoid valve closed 

If the machine is equipped with the Ozone system and an optional hydraulic circuit (3S or 3SD) and is chosen to combine the Ozone with one of these two systems, the display will show the following inputs:

Ozone mode + 3S or 3SD

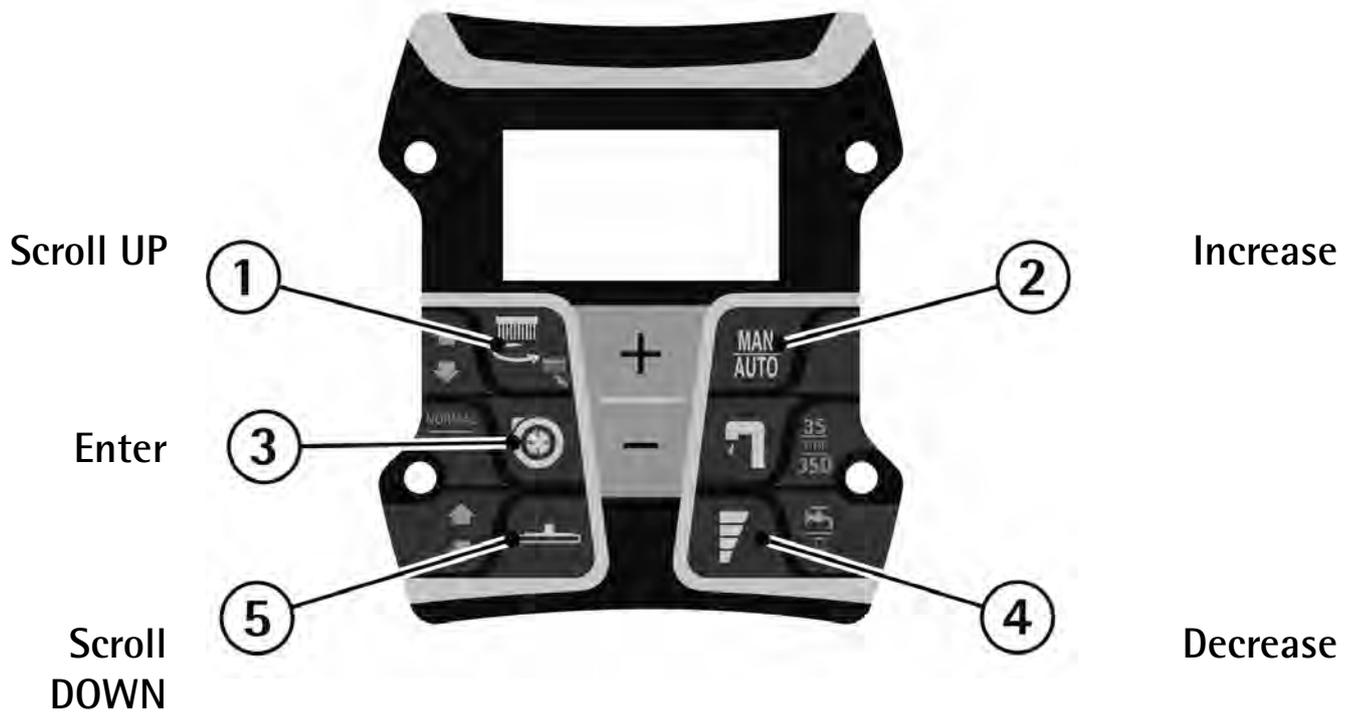


Solenoid valve open 
Solenoid valve closed 
Water flow level H1

After selecting the break washing mode (see Break Washing mode selection chapter), the display will show the following input:

MODE BREAK WASHING

**BREAK
WASHING**



GENERAL SETTINGS

To enter the general settings menu use the controls panel as follows:

1. Keep the buttons (1) and (4) pressed simultaneously.
2. Turn the key on.
3. When "INSERT PASSWORD:0" is displayed, press the ENTER button (3).

Once entered the GENERAL SETTINGS it will be possible to change the following settings by simply scrolling the controls menu using buttons (1) and (5).

DISPLAY LANGUAGE SELECTION

English is the default language that can be switched to Italian. To select the language first display "Language", then select it using buttons (2) and (4). Use button (3) to confirm.

CHANGING THE BATTERY SETTING

Once entered the general setting it is possible to set the machine depending on the batteries installed (AGM / GEL / LEAD-ACID). To select the proper setting first display "BATTERY", then select it scrolling with buttons (2) and (4). Use button (3) to confirm.

DISPLAY TUNE (DISPLAY CONTRAST)

Once entered the general setting it is possible to improve the display contrast using button (2) to increase it and button (4) to decrease it. Use button (3) to confirm.

DISPLAY BRIGHTNESS

Once entered the general setting it is possible to increase or decrease the display brightness using button (2) to increase it and button (4) to decrease it. Use button (3) to confirm.



A wrong setting may result in an irreversible damage of the battery. ALWAYS check to have set the proper parameter. You can the battery setting when the machine is switched on (see "BATTERY SETTINGS or DISPLAY READING").

MANUAL SYMBOLOGY



Icon denoting the open book.
Indicates that the operator has to read the manual before the use of the machine.



Icon denoting the open book.
For the good functioning of the incorporated battery recharger (optional), read the manual of the constructor.



Warning icon.
Read carefully the sections marked with this symbol, for the security of both the operator and the machine.



Warning icon.
Risk of acid leakage from the batteries.



This icon points that it is imperative to disconnect the wiring from the batteries acting upon the connector before any operation on the machine.



Icon indicating the part of the manual related to the machine use.



Obligation symbol requiring the wear of protection glasses.



Obligation symbol requiring the wear of protection gloves.



Symbol preceding an information about the correct use of the machine.



Symbol indicating operations to be carried out only by qualified personnel.



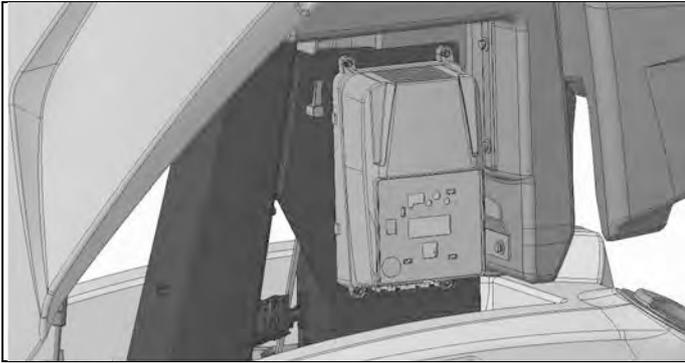
Icon indicating the part of the manual related to the unboxing, preparation and start of the machine.



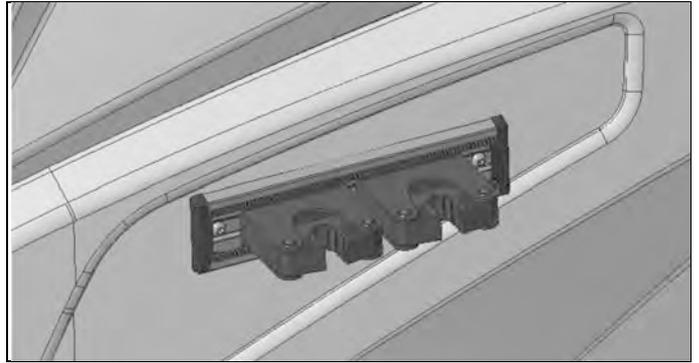
Icon indicating the part of the manual related to the maintenance of the machine.

OPTIONALS

On-board battery charger



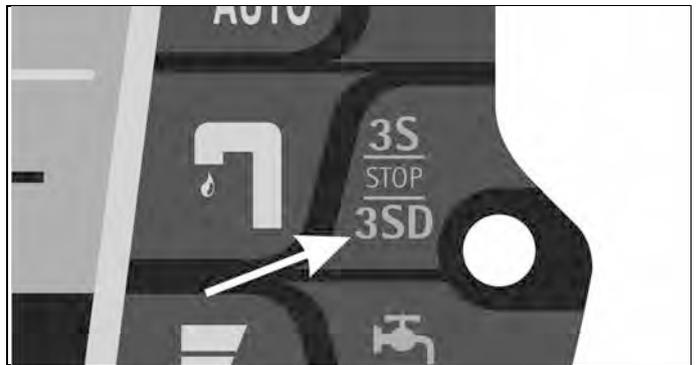
Optionals support



3S System (Solution Saving System)



3SD System (Solution Saving System Dispenser)



Ozone system O3



BEFORE USE

HANDLING OF THE PACKED MACHINE

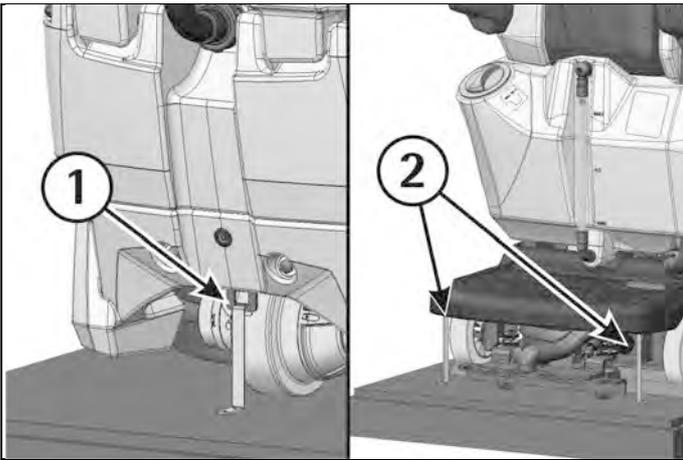
The machine is supplied with suitable packing foreseen for fork lift truck handling. For the package dimensions please look at the "TECHNICAL DESCRIPTION" table.



Do not place more than 2 packages on top of each other.

UNPACKING THE MACHINE

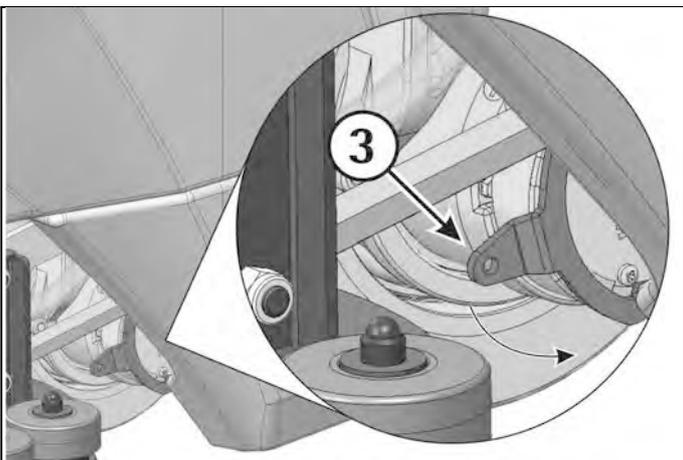
1. Remove the external packing.
2. Unscrew the brackets (1+2) that secure the machine to the pallet.



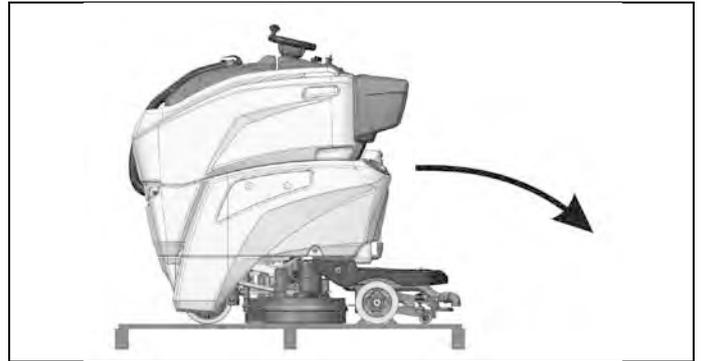
3. Before moving the machine from the pallet, it is necessary to unblock the parking brake that blocks the traction motor wheel. To do this, keep the lever (3) lifted. With the delivery of the machine we also supply a cord that permits the lever operation (3). After having moved the machine, take off the cord and keep it for eventual re-use.



When the parking brake is released manually, for example when the machine has to be moved without batteries, avoid covering slopes and do not park on them either.



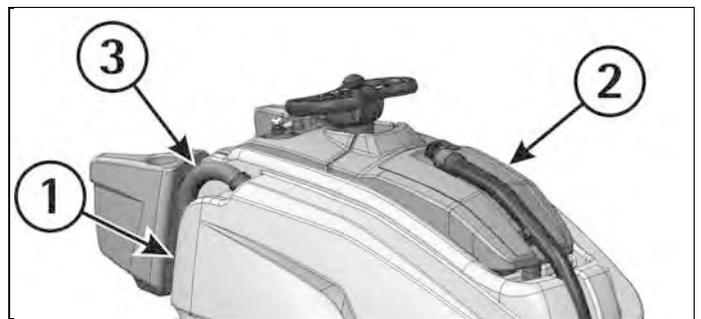
4. Move the machine backwards, as indicated in the figure, avoiding heavy contacts to mechanical parts.



Keep the pallet and the brackets for an eventual transport. The portable slope is not included in the packaging.

ACCESS TO THE BATTERY COMPARTMENT

To reach the battery compartment, first of all make sure that the recovery tank (1) is empty by opening the cover (2). If the tank is full, proceed as indicated under "RECOVERY TANK CLEANING", otherwise take off the squeegee hose (3) and lift the tank.



Thanks to a blocking system of 2 levels, the machine allows the battery charging with a partial tank opening.



INSTALLING THE BATTERIES

The standard machine is provided with the batteries set on lead/acid. For different settings see chapter "BATTERY SETTINGS". The machine requires the use of serial connected batteries placed in their dedicated vans. Batteries must be handled using suitable lifting equipment (due to weight, considering the type of batteries chosen, and coupling system). The batteries must be in accordance with CEI 21-5 Norms.



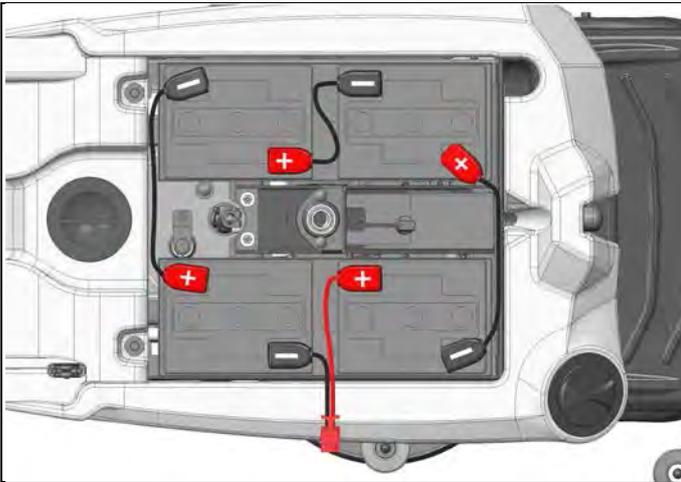
Strictly follow manufacturer/distributor indications for the maintenance and recharge of the batteries. All installation and maintenance operations must be executed by specialized staff, using suitable protection accessories.

For batteries installation it is necessary to reach the battery compartment as indicated under paragraph "ACCESS TO THE BATTERY COMPARTMENT".

1. Place the batteries in its compartment.



2. Connect the terminals, respecting the polarities, avoiding contact with other parts that could create short circuit, covering the battery poles with terminal protections.



BATTERY CHARGER

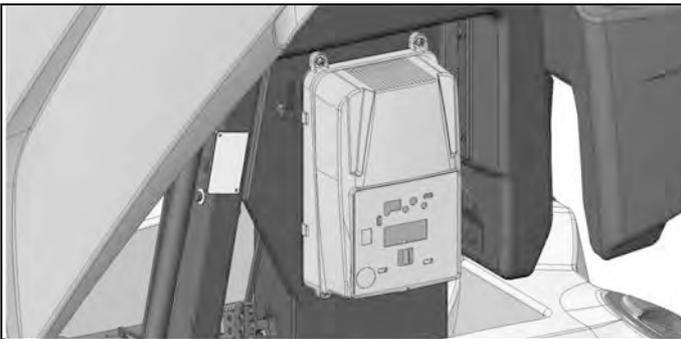


Make sure that the battery recharger is suitable for the installed batteries both for their capacities and type (lead/acid or GEL and equivalent). In the plastic bag containing the use and maintenance you will find the coupling connector for the recharger. It must be assembled onto the cables of your recharger, following the instructions given by the manufacturer.

ON-BOARD BATTERY RECHARGER (OPTIONAL)

If the machine is equipped with the incorporated battery recharger (see under "OPTIONAL ACCESSORIES") please refer to the instructions of the constructor of this accessory what the recharging operations concern.

The battery recharger is connected directly to the battery poles. During the charge a system is activated that do not allow the machine functioning. The battery charger cable have a maximum length of 2 meters and must be connected to a single phase plug CEE 7/7 type.

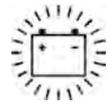


BATTERIES CHARGE LEVEL INDICATOR

The battery charge level is visualized on the display with its respective symbol (see "CONTROLS DISPLAY").



When the last segment of charge starts blinking, the battery is almost low and the suction and brushes functions are disabled.



When even the last segment of charge turns off, the battery is completely low and the machine stops.

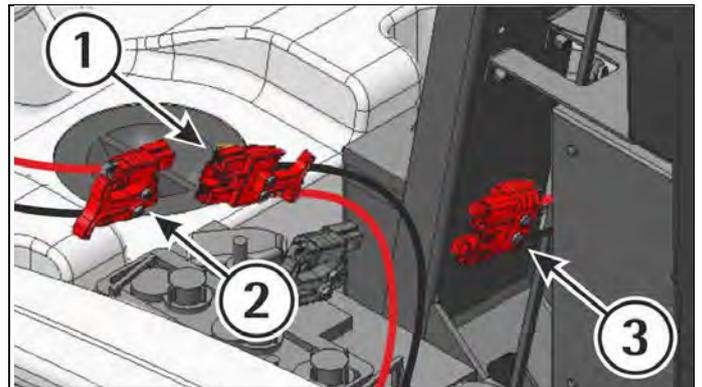
BATTERIES RECHARGING



1. Plug the connector (2) of the battery recharger into the battery connector (1).
2. Proceed for the recharging.

Once that the battery recharging is completed:

3. Disconnect the connector of the battery recharger from the battery connector (1).
4. Connect instead the machine connector (3).



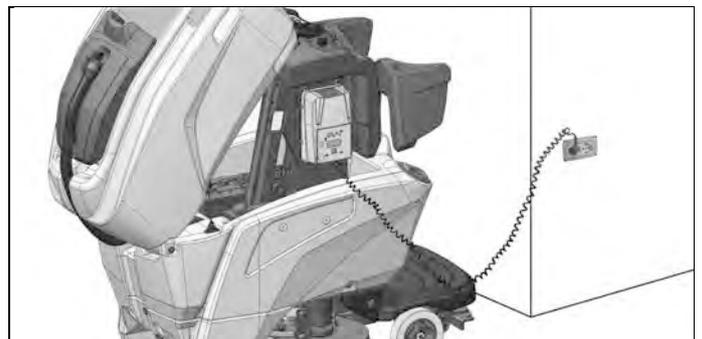
BATTERY CHARGING USING THE ON-BOARD CHARGER (OPTIONAL)



Take the machine to a plain surface near a power plug.

1. Turn off the machine using the key switch.
2. Insert the plug into the mains socket.
3. Proceed to the recharging keeping the recovery tank lifted (see paragraph "ACCESS TO THE BATTERY COMPARTMENT" in "BEFORE USE").
4. Do not take off the plug from the mains socket until the indication of the end of charge is not visualized.

At the end of the recharging, take off the plug from the mains socket.



Never charge a GEL battery with a non suitable recharger. Strictly follow the instructions supplied by the batteries and recharger manufacturer
NOTE: Never leave the batteries completely discharged for long periods even if the machine is not used. In case of traditional batteries, please check the electrolyte level every 20 recharging cycles and eventually fill them up with distilled water. Never leave the batteries discharged for more than two weeks.

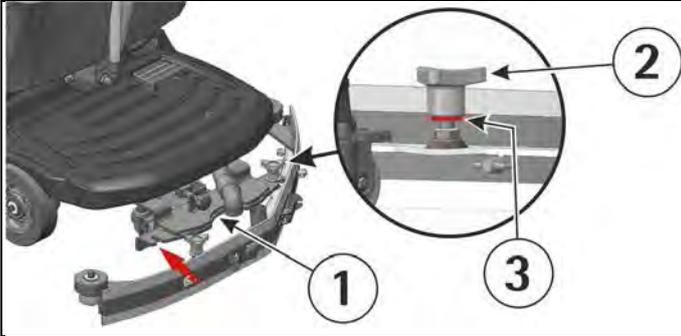


If lead/acid batteries are installed there could be the risk of gas exhalations and emission of corrosive liquids. Fire danger: do not approach with free flames.

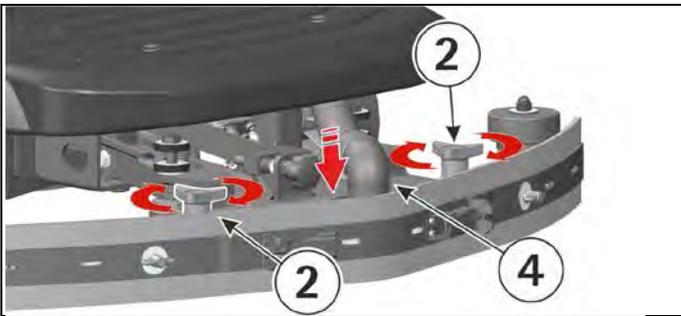


SQUEEGEE ASSEMBLY

1. Maintain the squeegee support (1) slightly lifted from the floor.
2. Insert the threaded parts of the two knobs (2) making them slide inside the two slots present on the support. Pay attention to put the washers (3) into position, they are two for each knob, so that they are assembled one under and the other on top of the two slots present on the support.

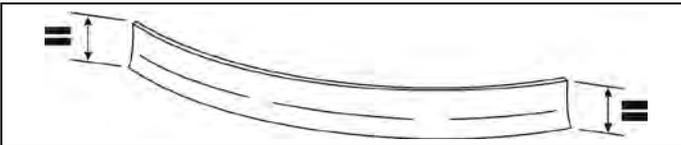


3. Block the squeegee by rotating the two knobs (2) clockwise.
4. Insert the squeegee hose (4) into its coupling, respecting its position as indicated in the figure.



ADJUSTING THE SQUEEGEE

In order to have a perfect drying result through the squeegee, the rear rubber must have the lower bending uniformly adjusted in all its length. For the adjustment, it is necessary to put oneself in working condition and therefore the suction motor has to be switched on and the brushes have to function together with the detergent solution.



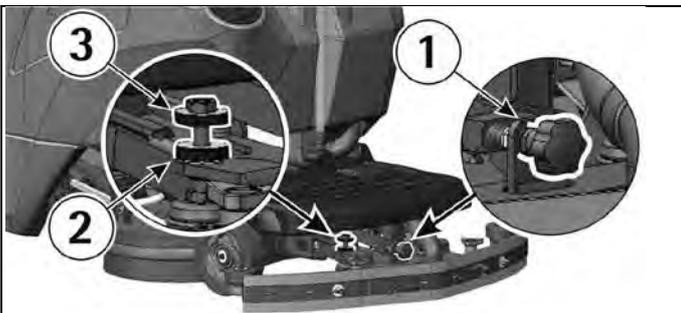
The bending is not uniform

Adjust the squeegee inclination rotating counterclockwise the knob (1) to increase the bending in the central part, or clockwise to increase the bending on the extremities.

Height adjustment

Once that the squeegee inclination has been adjusted, it is necessary to fix this optimum condition making touch slightly the wheels onto the floor. Release the wheels rotating counterclockwise the register (2), rotate the register (3) to raise or to lower the wheels until the desired bending is reached.

At the end block again the wheels through the register (2).



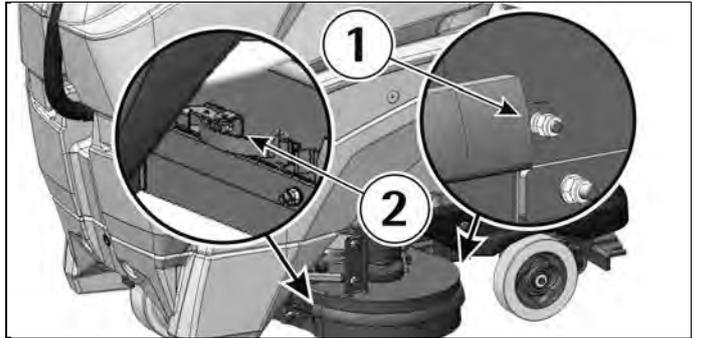
ASSEMBLING AND DISASSEMBLING THE SPLASH GUARDS



The two splash guards have to be assembled onto the brushes base group as indicated in the following figures. Insert the metal strips inside the suitable slots present on the rubber.

Fix the ends of the strip to the screw (1). Lock the lever (2) to the ring placed at the free end of the metal strip. These operations have to be done for both the splash guards. With the brushes assembled, the splash guards must slightly touch the floor.

To disassemble the splash guards do the same operations contrariwise.



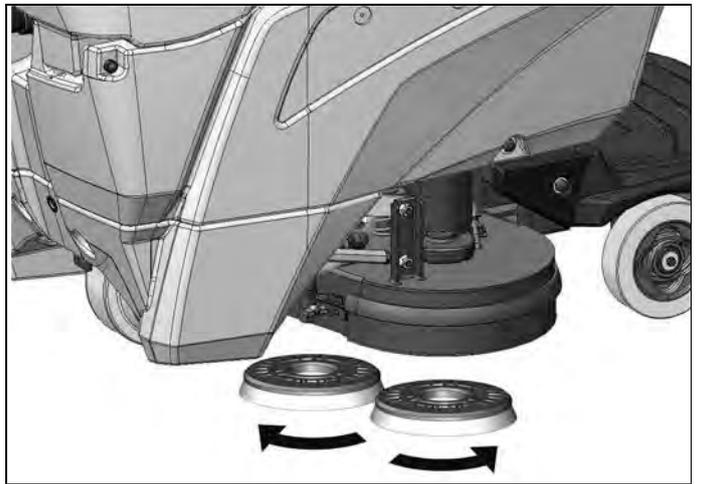
ASSEMBLING THE BRUSHES



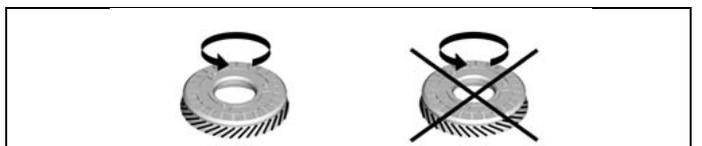
To assemble the brushes it is necessary that the brushes base is in the lifted position. If it is not lifted, proceed as follows:

Without the operator seated, turning the key switch clockwise, the display comes on and after 3 seconds all working groups come off automatically and are lifted from the floor.

Switch off the machine turning the key counterclockwise. With the brushes base group in lifted position lock the brushes rotating them as in the picture below.



For a longer life of the brushes we suggest to invert daily their position. Whenever brushes result to be deformed we suggest reassembling them in the same position, in order to avoid that the different inclination of the bristles causes excessive motor overload or troublesome vibrations.



Use only brushes supplied with the machine or the ones indicated in the manual "RECOMMENDED BRUSHES". The use of other brushes can compromise the good washing result.

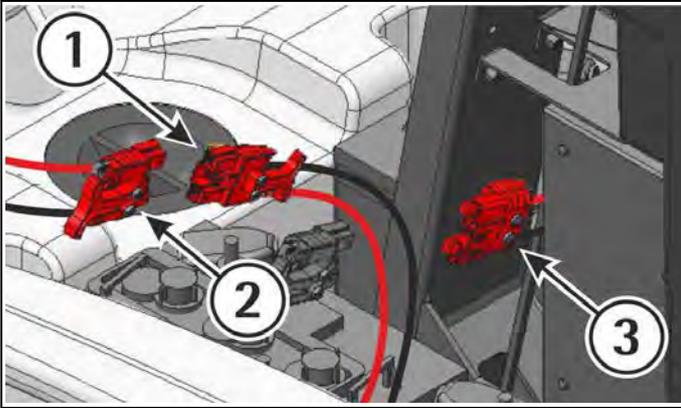


FLOOR CLEANING

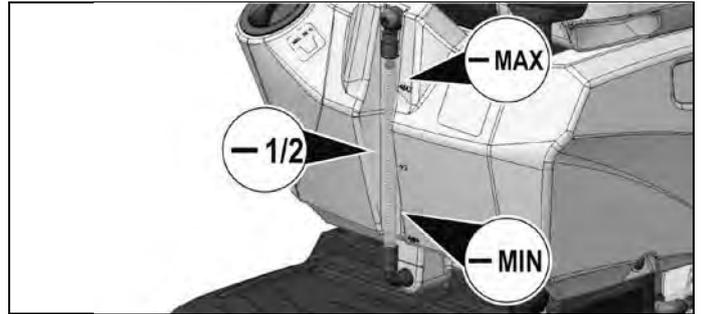
CONNECTING THE BATTERY CONNECTOR AND SWITCHING ON THE MACHINE

Once that the battery recharging has been completed:

1. Disconnect the connector (2) of the battery recharger from the battery connector (1).
2. Connect then the battery connector (1) to the machine connector (3).



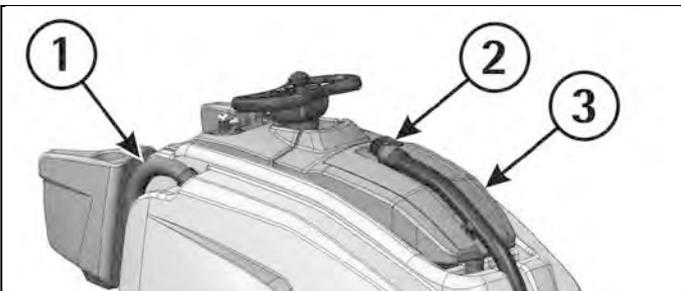
On the rear part of the machine is placed a level hose that permits to see easily the solution quantity inside the tank both during the filling of the solution and during the working.



RECOVERY TANK

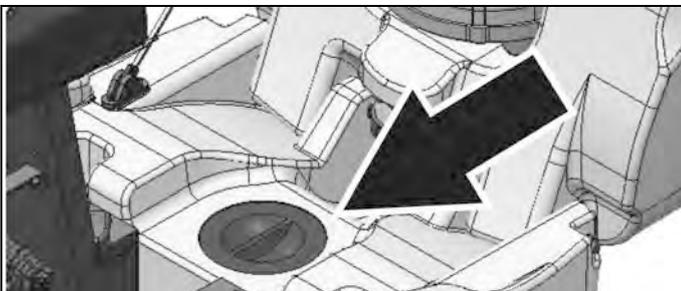


Verify that the squeegee hose coupling (1) is correctly inserted into its seat and that the exhaust hose plug (2) is well closed. The recovery tank is provided with a cover (3) that blocks itself thanks to the vacuum created by the suction motor during the use.



DETERGENT SOLUTION TANK

The solution tank is provided with an inspection hole. This hole allows to clean the exit area of the detergent solution. Be sure that the cap is closed tight.



The capacity of the detergent solution tank is indicated in the technical data.

Unscrew the cap placed on the left part of the machine and fill the detergent solution tank with clean water at a maximum temperature of 50°C. Add the liquid detergent in the percentage and conditions foreseen by the manufacturer. To avoid excessive foam presence, which could cause problems to the suction motor, use the minimum percentage of detergent.

Screw the solution tank cap.

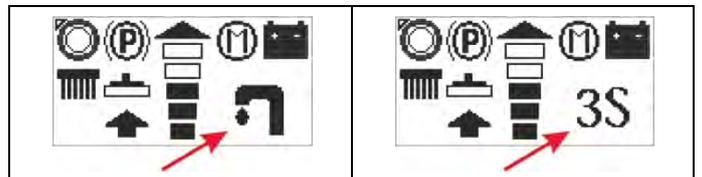
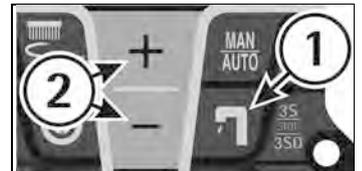


Use always low foam detergent. Protect yourself from accidental contact or splashes with the protection devices provided by the detergent manufacturer. To avoid foam presence, before starting working operation, introduce into the recovery tank a minimum quantity of anti-foam product. Never use pure acid.

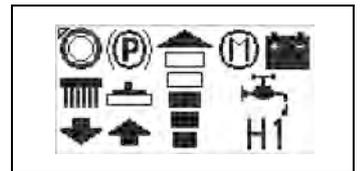
3S SOLUTION SAVING SYSTEM (OPTIONAL)

It is a system that allows the controlled use of the detergent solution during work.

To turn it on press button (1) two times, then on the display the water symbol will blink. Select the 3S system using buttons (2).



When the 3S stops blinking the system is being selected

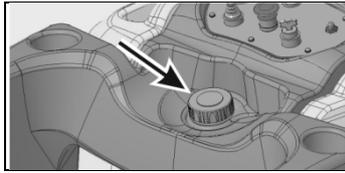


3SD SOLUTION SAVING SYSTEM DISPENSER (OPTIONAL)

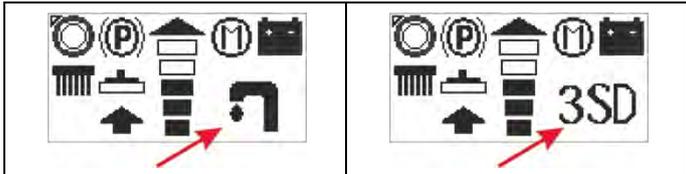
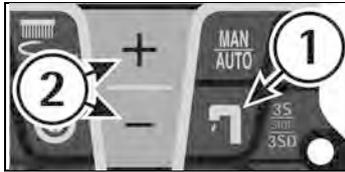
The system allows the predetermined dosing of the detergent solution percentage which will be mixed with the water coming from the solution tank.



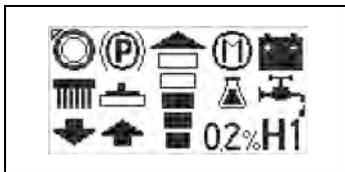
The detergent is contained in a 7 liters tank, placed in the front part of the machine. To load the detergent, use the cap shown in the figure.



To turn it on press button (1) twice, then on the display the water icon will blink. Select the 3SD system using buttons (2).

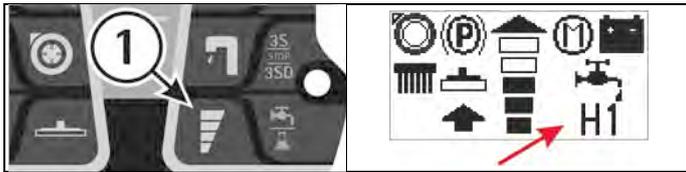


When the 3SD icon stops blinking the system is being selected.

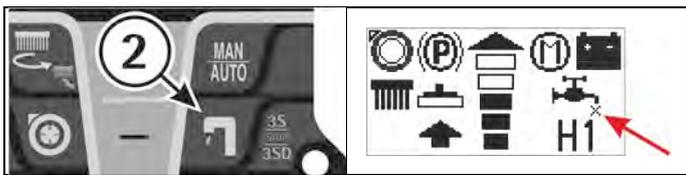


SELECTING THE FLOW RATE - 3S AND 3SD SYSTEM

Using the flow rate button (1) the H value can be adjusted from H1 to H7.

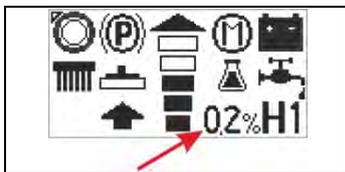


Even in the 3S mode to enable the emission of detergent solution the solenoid valve button (2) has to be pressed. If the detergent solution is disabled the display will show the disabled solenoid valve symbol.



DETERGENT SOLUTION PERCENTAGE SELECTION - 3SD SYSTEM

A pump defines 6 fixed detergent solution percentages: 0.0%, 0.3%, 0.6%, 1.2%, 2.4%, 4.5%. Using 0,0% the machine cleans using only the water.



The different detergent solution percentages are selectable by pressing for a few seconds the level button (1), until the value on the display starts to blink.



Then the navigation buttons have to be pressed (2) in order to select the wanted value. After a few seconds the value stops blinking.

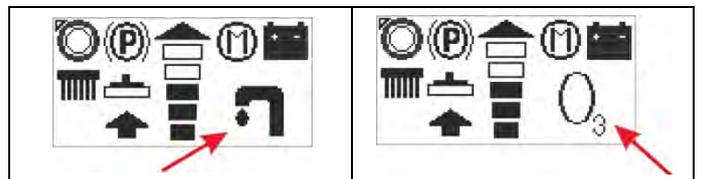
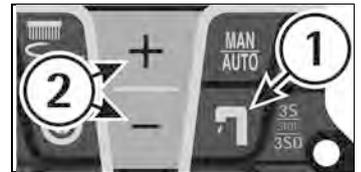


Now the selection is done and pressing eventually the button will modify the water carriage.

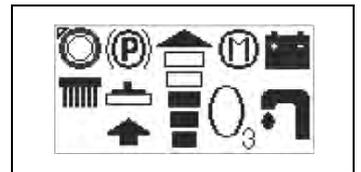
OZONE SYSTEM (OPTIONAL)

The machine can produce water with an ozone level high enough to disinfect the surfaces cleaned.

To turn it on press button (1) twice, then on the display the water icon will blink. Select the O3 system using buttons (2).



When the O3 icon stops blinking the system is being selected.



In order to operate the ozone system the best way, proceed as follows:

1. Make sure that the inside of the solution tank is clean, eventually rinse it making at least a couple of fillings and depletions.
2. Fill the solution tank with tap water (do not add any detergent).



Ozone is a very penetrating gas and it can be irritating.

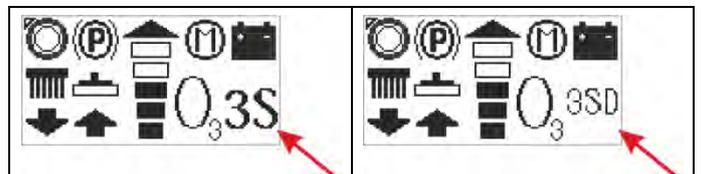
The ozonated water is strongly oxidizing, therefore in order to protect from oxidization (rust) the metal parts of the machine, it is better to rinse with water all the lower parts of the machine at least once a week.

At the end of the work, it is not necessary to empty the solution tank.

COMBINING THE O3 SYSTEM WITH THE 3S AND 3SD SYSTEMS

If the machine, in addition to the Ozone system, is equipped also with one of the two 3S or 3SD optional circuits, it is possible to combine the two systems together.

To enable it press button (1) twice, the water icon will start blinking on the display. Select the available combined system using the buttons (2).





WORK

A safety device avoids the machine's movement if the operator is not properly placed on the footboard.

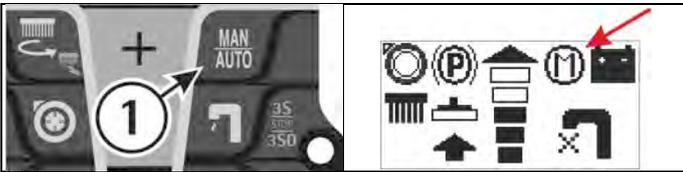
To turn on the machine:

1. Step on the footboard.
2. Turn the key (1) clockwise to turn on the machine.
3. Check the battery level on the display.
The machine will go automatically in manual mode (MAN).
4. Select the driving direction using the lever (2).

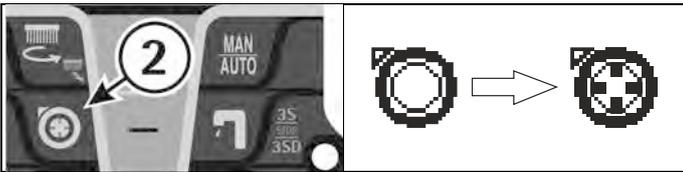


MANUAL MODE WORK

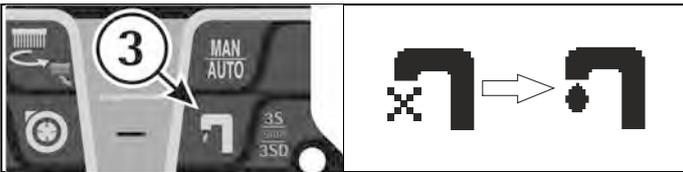
1. Check that the machine is set in manual mode, if not press button (1) and the display will show the corresponding symbol.



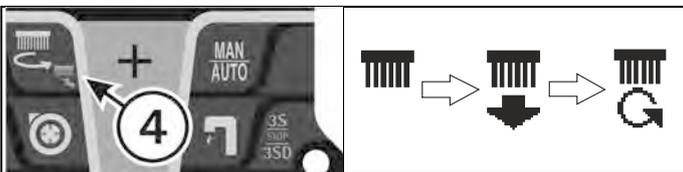
2. Press the suction motor button (2); the suction motor symbol changes depending if the motor is turned on or off, the motor will then start to work.



3. Press the solenoid valve button (3); the solenoid valve symbol changes depending if the valve is closed or open.



4. Lower the brushes base on the floor pressing button (4); the display will show first the lifting down symbol and then the brushes on symbol.



5. Lower the squeegee pressing the button (5).



6. While running the first meters check that the squeegee adjustment guarantees a perfect drying action and that the detergent solution flow is appropriate. It has to be sufficient to wet the floor uniformly avoiding the leakage of detergent from

the splash guards. Always consider that the correct quantity of solution detergent depends on the type of floor, dirtiness and machine speed.



Manual mode:

- Lowering the squeegee with the suction motor off will automatically turn on the suction motor;
- Turning off the suction motor with the squeegee lowered down will automatically lift up the squeegee and turn off the suction motor.

BRUSHES PRESSURE ADJUSTMENT

The brushes pressure can be adjusted only in manual mode, if not in that mode press the button (1). To adjust the pressure press twice button (2).

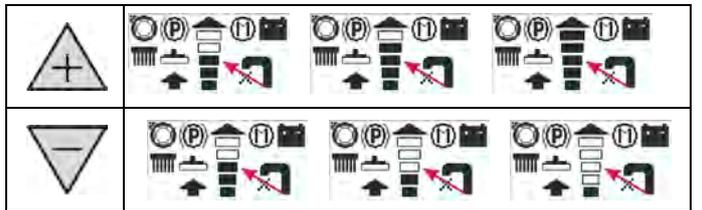


On the display value P1, P2 or P3 will blink. Press the buttons (+) and (-) to select the pressure, the value will set once it will stop blinking on the display.



SPEED ADJUSTMENT, FORWARD AND BACKWARD

Before running the machine select the maximum speed level during work. Press buttons (+) and (-) to see the speed level on the display.



If the machine has any function enabled, in order to keep the cleaning and drying quality standard, the speed will be reduced to three lines.



To move the machine select the direction using the lever (1) placed on the dashboard.



Press the pedal (2) placed on the footboard to enable the speed.





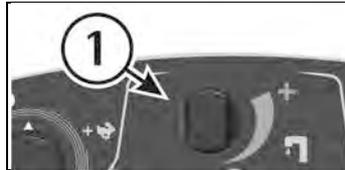
Use the knob (3) to adjust the speed during work. The speed will change from the minimum to the maximum previously set and visible on the display.



If backward movement is selected the brush base will stay down, the squeegee will lift up and the suction motor will shut itself. When the forward movement will be selected again the squeegee will go down and the suction motor will turn back on.

DETERGENT SOLUTION FLOW RATE ADJUSTMENT

1. Turn the valve knob (1) to adjust the detergent solution flow rate.



2. On the 3S equipped models (optional) it will be necessary to press the dedicated button to activate the detergent solution supplying selecting between the tradition mode using the valve or the optimal fixed supply system (see chapter "3S Solution Saving System").
In automatic mode (AUTO) the detergent solution flow is proportional to the speed of the machine.

AUTOMATIC MODE WORK

Automatic mode is helpful to simplify the operator work.
1. Check that the machine is set in automatic mode, if not press button (1) and the display will show the corresponding symbol.



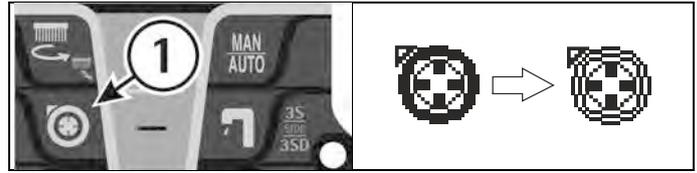
2. Press the pedal placed on the footboard. Once the pedal is pressed the machine runs forward, the brush base goes down and simultaneously the squeegee goes down, then the solenoid valve opens itself and brushes and suction motor start working. Before running the machine it is possible to set the brushes pressure and the water and/or detergent solution flow rate (3S and 3SD versions). The values set will show immediately on the display. To adjust the detergent flow see under "DETERGENT SOLUTION FLOW RATE ADJUSTMENT". After releasing the pedal: the brush base goes up, the brushes motors stop, the solenoid valve closes itself and the suction motor shuts off. To lift the squeegee at the end of the work press the button (2).



If during working in automatic mode the brush base or squeegee button is pressed, the machine switches to manual mode.

SUCTION MOTOR SILENT MODE

It is possible to start the silent mode of the suction motor by pressing for a few seconds the switch-on button (1) of the suction motor. When the silent mode is on the symbol on the display changes.



STANDBY MODE

After 10 minutes of inactivity, if the machine is on, it goes in standby mode and the display turns off. To start again press any button on the instrument board, the display will turn on again and after a few seconds the machine returns operative.

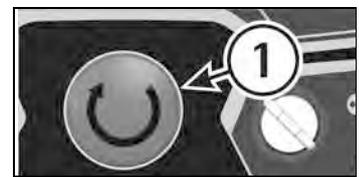
HORN

The machine is provided with a horn that can be activated pressing button (1).



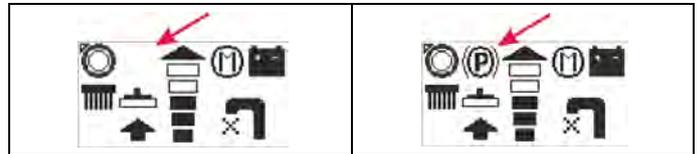
EMERGENCY BUTTON

In case of emergency press button (1) placed on the dashboard. All the functions and the movement will be immediately disabled. To reactivate them turn the button clockwise.



PARKING BRAKE

The machine is equipped with a parking brake on the traction motor wheel that operates at the complete release of the pedal or when the machine is without batteries. In case of an emergency or simply to stop the machine, it is sufficient to release the pedal. The brake remains inserted up to when the pedal is pressed again. When the batteries are connected and when the key switch is positioned on 1, on the display the brake signal comes on.

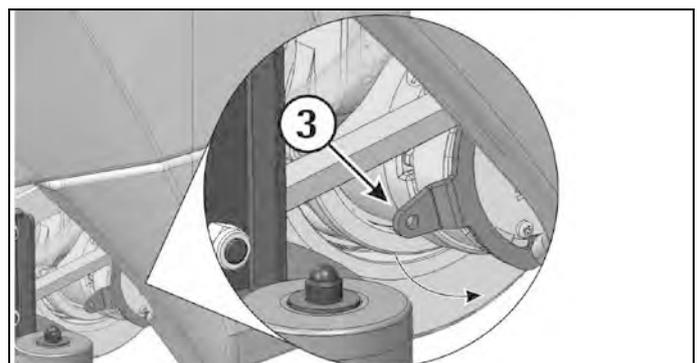


MANUAL MOVEMENT OF THE MACHINE

To move the machine manually, it is necessary to unblock the parking brake that blocks the traction motor wheel. To do this, keep the lever (3) lifted. With the delivery of the machine we also supply a cord that allows the lever operation (3). After having moved the machine, take off the cord and keep it for eventual re-use.



When the parking brake is released manually, for example when the machine has to be moved without batteries, avoid covering slopes and do not park on them either.



BRUSHES MOTOR OVERLOAD PROTECTION SYSTEM

The machine is equipped with a protection device of the brushes motor. This device blocks the motor functioning in order to protect it and indicates the overload on the display with the message "ALLARME 1".

When this happens, try to reduce the brushes pressure (see under "ADJUSTMENT OF THE BRUSHES PRESSURE").

If the problem persists, contact the authorized technical assistance.



OVERFLOW SYSTEM



In order to avoid serious damages to the suction motor, the machine is equipped with a float that intervenes when the recovery tank is full. When this happens, it is necessary to empty the recovery tank. Hold the exhaust hose of the machine. Take off the plug and empty the recovery tank into appropriate containers, according to the standard norms.



STOP OF THE MACHINE AFTER CLEANING OPERATION

BREAK WASHING MODE

IN AUTOMATIC OR MANUAL WORKING MODE:

- At the end of the washing cycle, keeping the button (1) pressed, the functioning of BREAK WASHING is chosen. When the signal lamp (2) is on, then the machine is in BREAK WASHING mode.
- When the mode is on, the display will show BREAK WASHING.



This way automatically the brushes lift, the solenoid valve shuts down and it is possible to finish the drying operation for a total time of about 15 seconds, afterwards also the squeegee is lifted and the suction stops.

NOTE: all these phases are carried out with the machine operating, so that the squeegee can dry the interested cleaning area from the "drying phase of the brushes" and furthermore can dry the suction hose of its dirty water. At any time it is possible to interrupt the procedure BREAK WASHING by stopping the drive.

During the BREAK WASHING, if the drive pedal is released for more than 3 seconds the machine will automatically switch to manual mode (MAN).



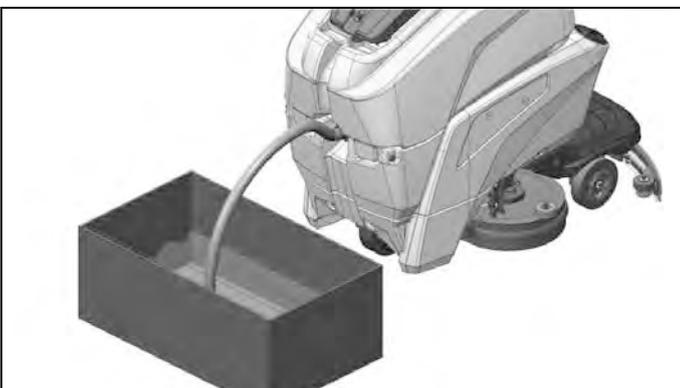
The mode (BREAK WASHING) is specific for the transfer at the end of the cleaning operation.

DAILY MAINTENANCE

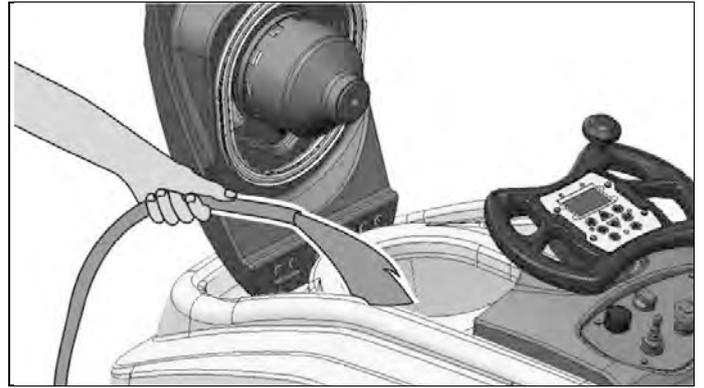
DRAINING AND CLEANING THE RECOVERY TANK



- Hold the exhaust hose placed on the front part of the machine after having taken it off from its fixing support.
- Take off the plug from the exhaust hose acting upon its lever and empty the recovery tank into appropriate containers, in compliance with the respective rules what the liquid disposal concerns.

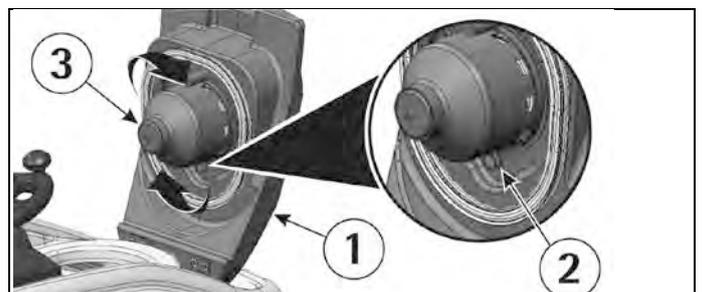


- Clean the inside of the tank using a water jet.



CLEANING THE SUCTION FILTER

- Open the cover (1) and unscrew the knob (2) to release the filter protection (3).
- Rotate the filter protection clockwise to release it.



- Take off the filter and its protection.
- Clean with a water jet especially the bottom part and the sides of the filter.
- Do the cleaning procedure precisely.
- Reassemble the filter.



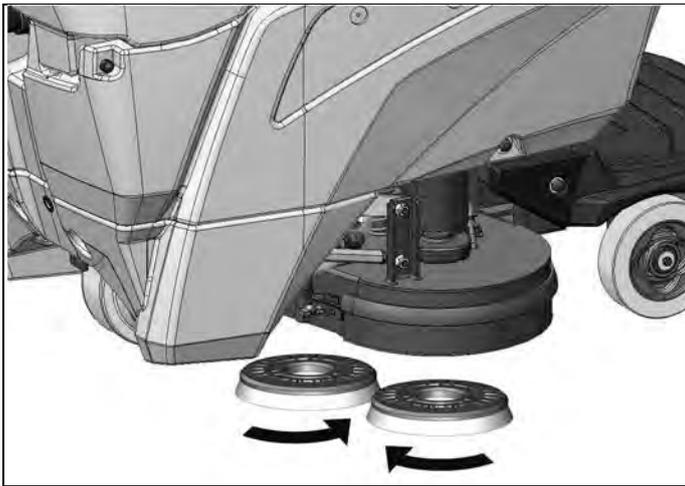
Absolutely do not clean the inside of the recovery tank cover otherwise the suction motor will be damaged irreversibly.



DISASSEMBLING THE BRUSHES



With the brush base lifted up (see chapter "ASSEMBLING THE BRUSHES") rotate energetically the brushes in order to unlock the spring button to take them off and clean them with a water jet. In the picture it shows how to unlock the brushes.



AUTOMATIC DISASSEMBLING OF THE BRUSHES



1. Put the lever in central position.



2. Turn on the machine turning the key clockwise (2).



3. Keep the button pressed for a few seconds (3).



4. Turn off the machine.



CLEANING THE BRUSHES



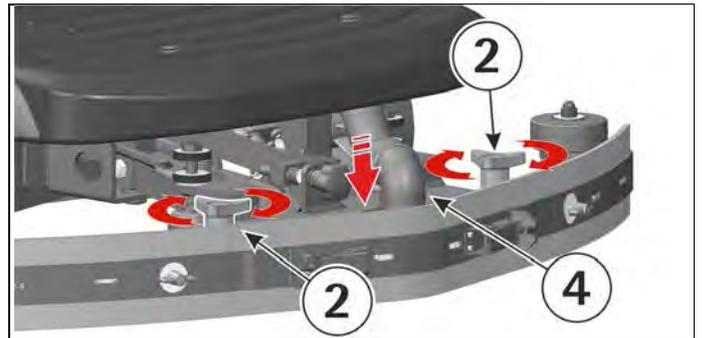
Take off the brushes to clean them with a water jet (to read how to do it see chapter "DISASSEMBLING THE BRUSHES").

CLEANING THE SQUEEGEE

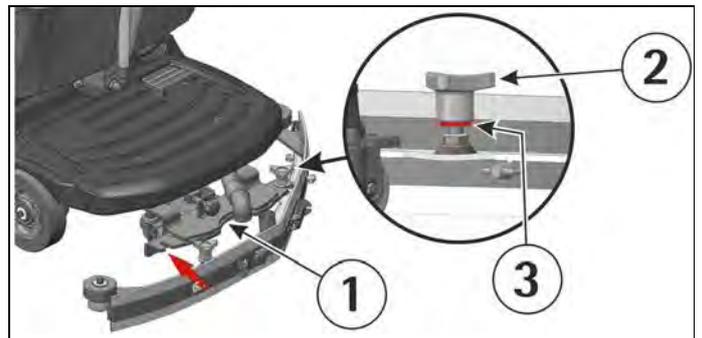


Keeping the squeegee clean guarantees always the best drying result. For its cleaning it is necessary to:

1. Take off the squeegee hose (4) from the coupling.
2. Disassemble the squeegee from its support (1) by loosening the knobs (2) counterclockwise and making slide the threaded parts in the appropriate slots up to their release.



3. Clean with care the internal part of the squeegee inlet eliminating eventual dirt residuals.
4. Clean with care the squeegee rubbers.
5. Reassemble all parts paying attention to put the washers (3) upon the two slots present on the support.



WEEKLY MAINTENANCE

REAR SQUEEGEE RUBBER CHECK

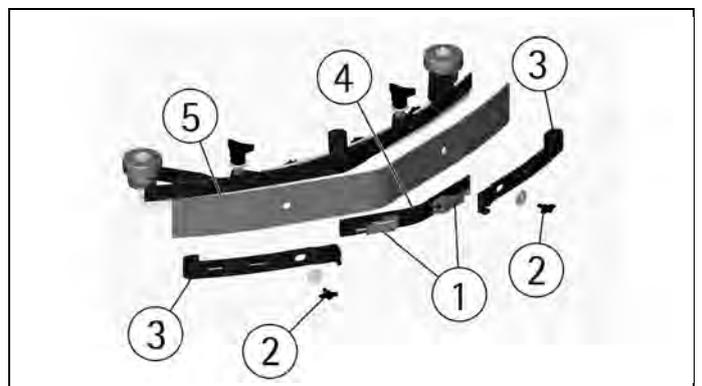


Check the squeegee rubber wearing and eventually turn it or replace it.

To replace the rubber it is necessary to:

1. Lift up the squeegee (see under "STOP OF THE MACHINE AFTER CLEANING OPERATION").
2. Unlock the hooks (1).
3. Unscrew the wing nuts (2) to take off the outer rubber blades (3) and then the central one (4).
4. Take off the rubber (5) to turn it or replace it.

To reassemble the squeegee do these operations backwards.

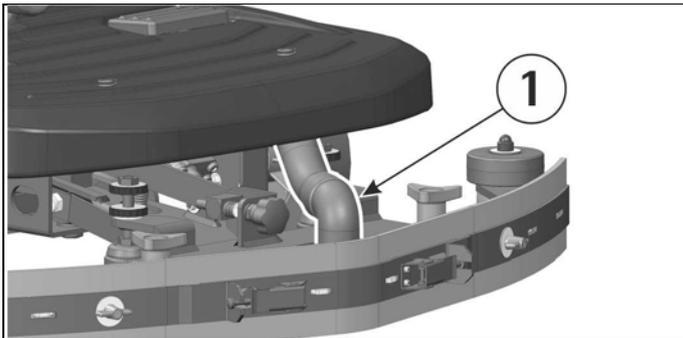


CLEANING THE SQUEEGEE HOSE

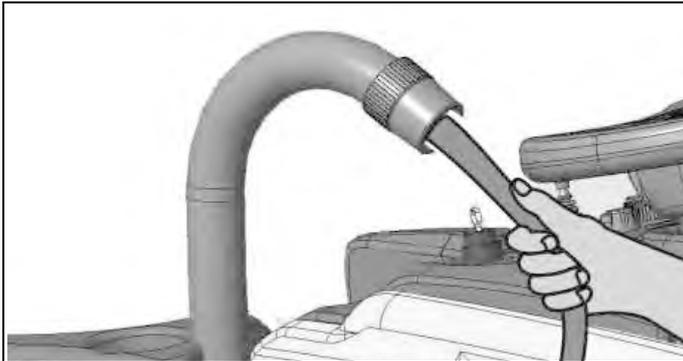


Weekly or in case of insufficient suction, it is necessary to check that the squeegee hose is not obstructed. Eventually, to clean it, proceed as follows:

1. Take off the hose (1) from the squeegee coupling.



2. Wash the inside of the hose with a water jet.



3. To reassemble the hose repeat inversely the above-mentioned operations.



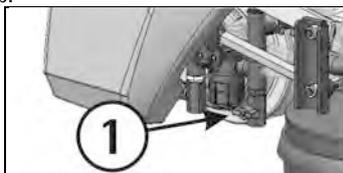
Do not clean the hose that goes from the suction motor to the recovery tank.

CLEANING THE SOLUTION TANK



Take the machine to the place assigned for the detergent solution draining.

1. Unscrew the solution tank cap.



2. Open the detergent solution valve (1)



3. Open the valve (2) for the solution draining.



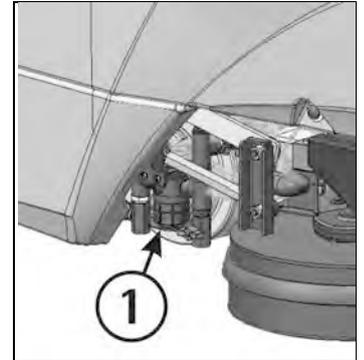
4. Clean the tank with a water jet.

5. Once the cleaning is terminated close the valve and the tank cap.

CLEANING THE OUTER FILTER



1. Unscrew the filter cap (1) and take off the filter.
2. Clean with a water jet the filter parts.
3. Reassemble the parts.



TWO-MONTHLY MAINTENANCE

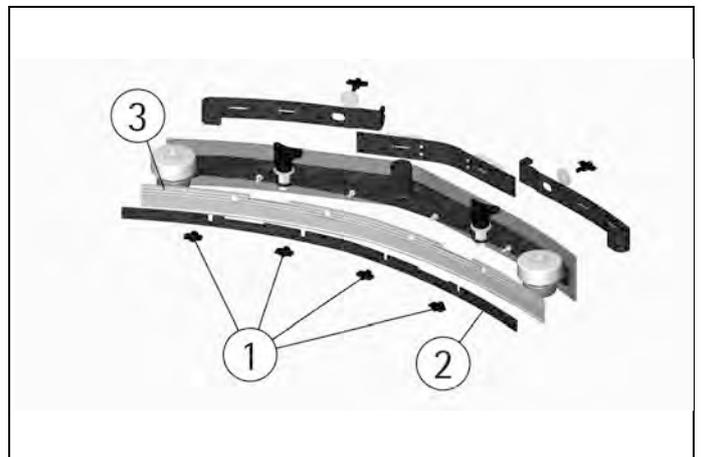
FRONT SQUEEGEE RUBBER CHECK



Check the wear of the squeegee rubber and eventually replace it. For the replacement it is necessary to:

1. Take off the squeegee (see under paragraph "SQUEEGEE CLEANING").
2. Disassemble the rear part of the squeegee (see under paragraph "REAR SQUEEGEE RUBBER CHECK").
3. Unscrew the wing nuts (1) and take off the front rubber holder blade (2).
4. Replace the front rubber (3).

To reassemble the squeegee repeat reverse the operations above mentioned.



SIX-MONTHLY MAINTENANCE

SPLASH GUARD RUBBER CHECK



With the brushes assembled, the splash guards must slightly touch the floor. If they are worn, they have to be replaced. Just release the lever coupler placed in the rear part of the brushes base group from the ring placed at the free extremity of the metal strip to take off the rubbers and to reinsert the new ones (see under paragraph "SPLASH GUARD ASSEMBLY"). This operation has to be carried out for both splash guards".



TROUBLESHOOTING GUIDE



The checking of all the other foreseen machine operations is left to the authorized technical assistance.

Never leave the batteries completely discharged for a long time. In case of alarm visualizations contact the technical assistance.



If with the key switch positioned clockwise to switch on the machine the display and other functions are not activated, it is necessary to check the batteries' connection to the machine (see under paragraph "CONNECTION BATTERIES' CONNECTION AND SWITCHING ON OF THE MACHINE"). If the problem persists, please contact the authorized technical assistance.

THE SUCTION MOTOR DOES NOT WORK

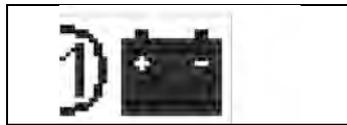
1. Check that the emergency system (1) is not activated.



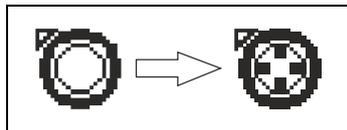
2. Use the key switch to turn off and then on the machine (2).



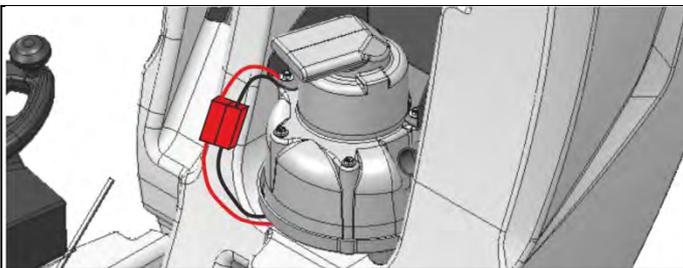
3. Check the battery charge on the display.



4. Check on the display that the starting signal of the suction motor is on.



5. Check the suction motor connections.



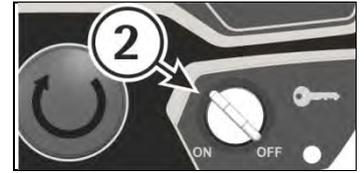
If the problem persists, please contact the authorized technical assistance.

THE BRUSHES MOTOR DOES NOT WORK

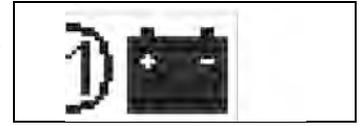
1. Check that the emergency system (1) is not activated.



2. Use the key switch to turn off and then on the machine (2).



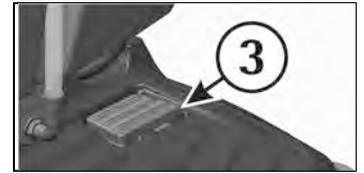
3. Check the battery charge on the display.



4. Check on the display that the starting signal of the brushes motor is on.



5. Press the pedal on the footboard (3) to start the machine.



If the problem persists, please contact the authorized technical assistance.

THE TRACTION MOTOR DOES NOT WORK

1. Step on the footboard.

2. Check that the emergency system (1) is not activated.



3. Use the key switch to turn off and then on the machine (2).

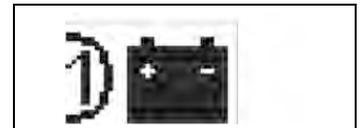


4. Check the lever position (3).



If alarms are showed on the display it is necessary to turn off and the on the machine to restore its functions.

5. Check the battery charge on the display.



6. Press the pedal on the footboard (4) to start the machine.



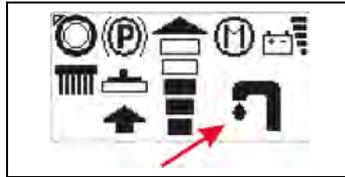
If the problem persists, please contact the authorized technical assistance.

WATER DOES NOT COME DOWN ONTO THE BRUSHES

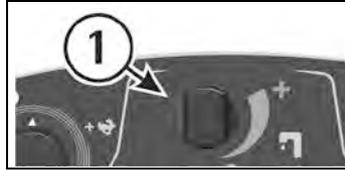
The machine is equipped with a solenoid valve so to let the solution go down onto the brushes it is necessary to make the brushes turn.



1. Check on the display that the solenoid valve is activated.



2. Check that the valve lever is open (1).



3. Check the detergent solution level in the solution tank.



4. Check that the solution filter is clean (see under paragraph "CLEANING THE OUTER SOLUTION FILTER").

If the problem persists, please contact the authorized technical assistance.

THE MACHINE DOES NOT CLEAN PROPERLY

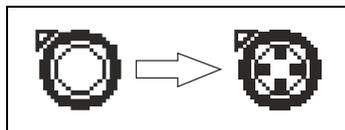
1. The brushes do not have the suitable bristle dimension: contact the authorized technical assistance.
2. The brushes have got worn bristles. Check the brushes wear condition and eventually replace them (the brushes have to be replaced when the bristles have reached a height of about 15mm).
3. To replace the brushes, see instructions under paragraph "BRUSHES DISASSEMBLY" and "BRUSHES ASSEMBLY".
4. The detergent solution is insufficient: open more the solution valve (see under paragraph "FLOW ADJUSTMENT OF THE DETERGENT SOLUTION").
5. Check that the liquid detergent is in the recommended percentage.
6. Increase the brushes base pressure (see under paragraph "ADJUSTMENT OF THE BRUSHES PRESSURE").

Contact the authorized technical assistance for advice.

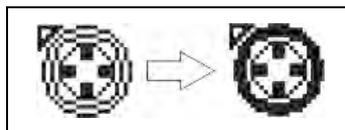
THE SQUEEGEE DOES NOT DRY PERFECTLY

1. Check that the squeegee rubbers are clean.
2. Check the adjustment of the height and the inclination of the squeegee (see section "ADJUSTMENT OF THE SQUEEGEE" in "BEFORE USE").
3. Check that the suction hose is correctly inserted in the proper seat on the recovery tank or that it is not obstructed.
4. Clean the suction filter.
5. Replace the rubbers if worn out.

6. Check on the display that the starting signal of the suction motor is on.



7. Put the motor in standard mode if silenced.



8. Check that the suction motor cap is closed properly.

If the problem persists, please contact the authorized technical assistance.

EXCESSIVE FOAM PRODUCTION

Check that low foam detergent has been used. Eventually add small quantities of anti foam liquid into the recovery tank.

Please be aware that a bigger quantity of foam is produced when the floor is not very dirty. In this case please dilute detergent solution.



PROGRAMMED MAINTENANCE

PERIODIC ORDINARY MAINTENANCE CHART

INTERVENTION	DAILY	PERIODIC
RECOVERY TANK CLEANING	•	
SUCTION FILTER CLEANING	•	
SOLUTION TANK FILTER CLEANING		•
BRUSHES CLEANING	•	
BRUSHES DISASSEMBLY AND CLEANING	•	
SQUEEGEE CLEANING	•	
FRONT SQUEEGEE RUBBER CHECK		•
REAR SQUEEGEE RUBBER CHECK		•
SPLASH GUARD RUBBER CHECK		•
CHECK SQUEEGEE ADJUSTMENT		•
SQUEEGEE HOSE CLEANING		•
SOLUTION TANK CLEANING		•
CHECK BATTERIES ELECTROLYTE		•

