

ruby 48bh 3SD

01 2019



Use and maintenance



Warning! Please read the instructions before use.

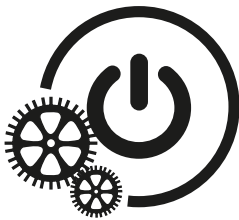
TECHNICAL DESCRIPTION		ruby 48bh 3SD
Cleaning width	mm	508
	in	20
Squeegee width	mm	770
	in	30
Working capacity, up to	m ² /h	2030
	sqft/h	21.851
Brushes diameter	mm	1 x 508
	in	1 x 20
Brushes rpm	rpm	155
Pressure on the brushes	kg	30
	lbs.	66
Brushes motor	W	450
	A	18.5
Suction motor	W	450
	A	18.8
Suction vacuum	mbar	120
	water lift	48
Traction motor	W	120
	A	48
Type of drive		automatic
Movement speed	km/h	4
	mph	2.5
Maximum gradient	%	2
Water/Solution tank	l	40
	gal	10.6
Detergent solution tank (3SD)	l	3
	gal	0,8
Recovery tank	l	42
	gal	11.1
Machine length	mm	1207
	in	47,5
Machine height	mm	1068
	in	42
Machine width (without squeegee)	mm	560
	in	22
Weight of the machine (empty and without batteries)	kg	91
	lbs.	200.6
Gross weight of the machine (in conformity with EN 60335-2-72 art. 5.z102)	kg	205
	lbs.	452
Tension of the batteries	V	24
Capacity of the batteries	Ah ₅	110
Weight of the batteries	kg	74
	lbs.	163
Compartment of the batteries	mm	350x342x310
	in	13,8x13,5x12
Acoustic pressure level (in conformity with EN 60704-1) Lpa	dB (A)	<70
Class		III
Protection level	IP	23
Weight packed machine	kg	105
	lbs.	231,5
Packing dimensions (LxDxH)	cm	118x67x119
	in	46.5x26.4x47

INTRODUCTION

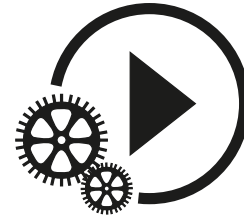
Thank you for having chosen our machine. This floor cleaning machine is used for the industrial and civil cleaning and is able to clean any type of floor. During its advance movement, the combined action of the brush and the detergent solution removes the dirt which is aspirated through the rear suction 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.

SUMMARY

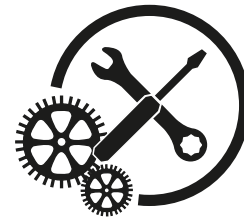
INTRODUCTION	3
GENERAL RULES OF SAFETY	4
Transfer	4
Storage and disposal	4
Correct use	4
Maintenance	4
GENERAL RULES OF THE BATTERIES	4
LEGEND CONTROL PANEL	5
LEGEND MACHINE	5
DISPLAY READING	6
Visualization while switching on	6
Battery setting	6
Software release	6
Hourmeter	6
Visualization controls	6
NAVIGATION CONTROLS	7
General setting	7
Display language selection	7
Display tune (display contrast)	7
To change the battery setting	7
Display brightness	7
SYMBOLGY ON THE MACHINE	8
SYMBOLGY ON THE MANUAL	8



BEFORE USE	9
Handling the packed machine	9
Unpacking of the machine	9
Battery installation	9
On-board battery charger	9
Battery charge level indicator	9
Charging the batteries	9
Squeegee assembly	10
Adjustment of the squeegee height	10
Adjustment of the squeegee inclination	10
Splash guard assembly	10
Brush assembly	10
Recovery tank	11
Clean water tank	11
Detergent solution tank	11
PRE-CLEANING OPERATIONS	12
Connection of the batteries to the machine	12
Water carriage adjustment	12
Detergent solution carriage adjustment	12
Selecting the manual adjustment of the detergent solution	12



STARTING THE MACHINE	12
Working with the manual detergent solution adjustment	13
Suction motor silent mode	13
Working brake	13
Detergent solution reserve signal (H2O on the display)	13
Overflow device	13
Draining the water (3SD)	13
Draining the detergent solution	14
STOPPING THE MACHINE BY THE END OF THE WORK	14



DAILY MAINTENANCE	15
Recovery tank cleaning	15
Suction filter cleaning	15
Manual disassembly of the brush	15
Automatic unlocking the brush	15
Brush cleaning	15
Squeegee cleaning	15
WEEKLY MAINTENANCE	16
Rear squeegee rubber replacement	16
Squeegee hose cleaning	16
Cleaning of water tank and filter	16
TWO-MONTHLY MAINTENANCE	16
Front squeegee rubber replacement	16
SIX-MONTHLY MAINTENANCE	17
Splash guard replacement	17
TROUBLESHOOTING GUIDE	17
The suction motor does not work	17
The brush motor does not work	18
The machine does not clean properly	18
The squeegee does not dry perfectly	18
Excessive foam production	18
PROGRAMMED MAINTENANCE	18
Periodic ordinary maintenance chart	18



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.
- **ATTENTION:** The machine must be used exclusively by authorized staff that have been instructed on its correct and proper use.
- **ATTENTION:** 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, unless they could benefit, through the intermediation of a responsible person for their safety, by a supervision or instructions concerning to its use.
- During the operation of the machine, pay attention to other people and especially to the children.
- Children shall not play with the machine.
- Children cannot carry out cleaning and maintenance of the machine.

TRANSFER

- Do not strike shelvings or scaffoldings where there is danger of falling objects.
- 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.

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 brush operation when the machine is standing still in order to prevent floor damages.
- Before lifting the recovery tank, make sure that it is empty.

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.
- Where parts are required, ask for ORIGINAL spare parts from the distributor and/or from an authorized dealer.
- 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.



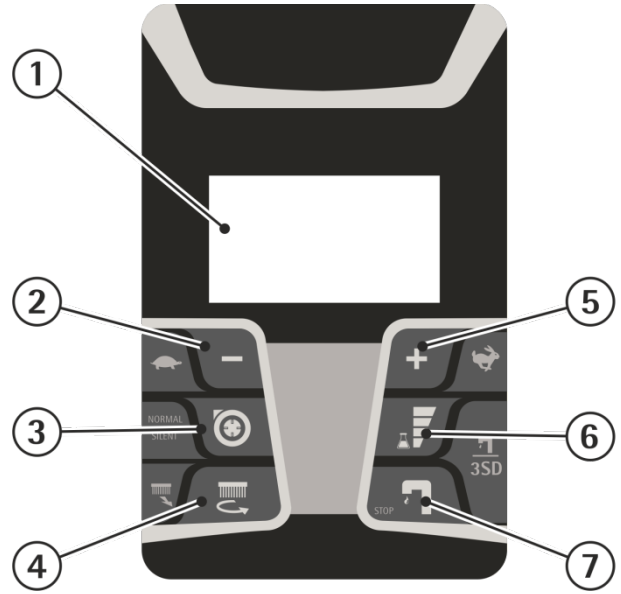
GENERAL RULES OF THE BATTERIES



- 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.

LEGEND CONTROL PANEL

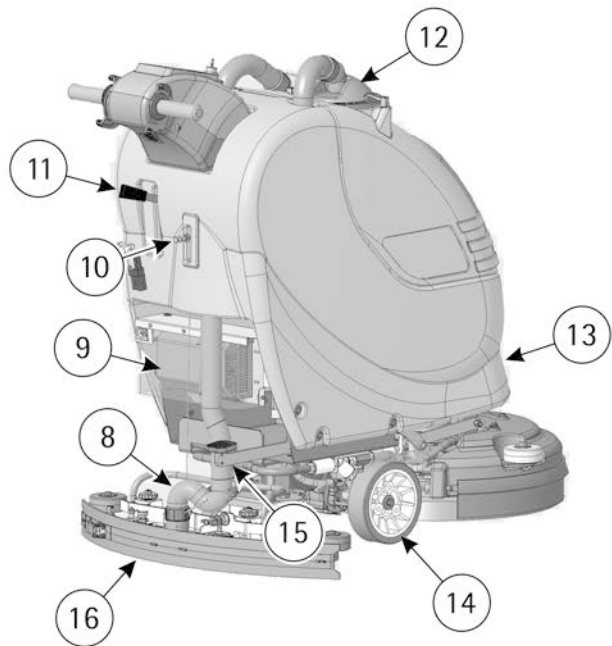
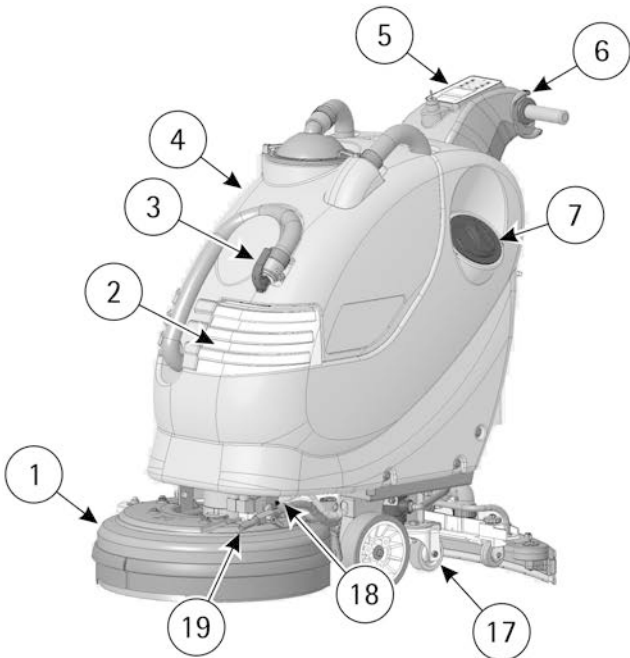
- 1. DISPLAY
- 2. BUTTON MAXIMUM SPEED REDUCTION
- 3. BUTTON SUCTION MOTOR
- 4. BUTTON SUCTION MOTOR SILENT MODE
- 5. BUTTON BRUSHES-ON
- 6. BUTTON AUTOMATIC BRUSHES UNLOCK
- 7. BUTTON MAXIMUM SPEED INCREASE
- 8. BUTTON DETERGENT SOLUTION ON/OFF
- 9. BUTTON SOLENOID VALVE ON/OFF



LEGEND MACHINE

- 1. BRUSH BASE GROUP
- 2. DETERGENT SOLUTION TANK
- 3. RECOVERY TANK DRAIN HOSE CAP
- 4. RECOVERY TANK
- 5. DASHBOARD
- 6. DRIVE CONTROL LEVERS
- 7. DETERGENT SOLUTION DRAIN HOSE CAP
- 8. SQUEEGEE HOSE
- 9. ON BOARD BATTERY CHARGER
- 10. VALVE LEVER

- 11. SQUEEGEE LEVER
- 12. SUCTION COVER
- 13. SOLUTION WATER TANK
- 14. WHEELS
- 15. BRUSH BASE PEDAL
- 16. SQUEEGEE ASSEMBLY
- 17. CASTOR WHEELS
- 18. SOLUTION WATER DRAIN HOSE
- 19. SOLUTION TANK DRAIN HOSE



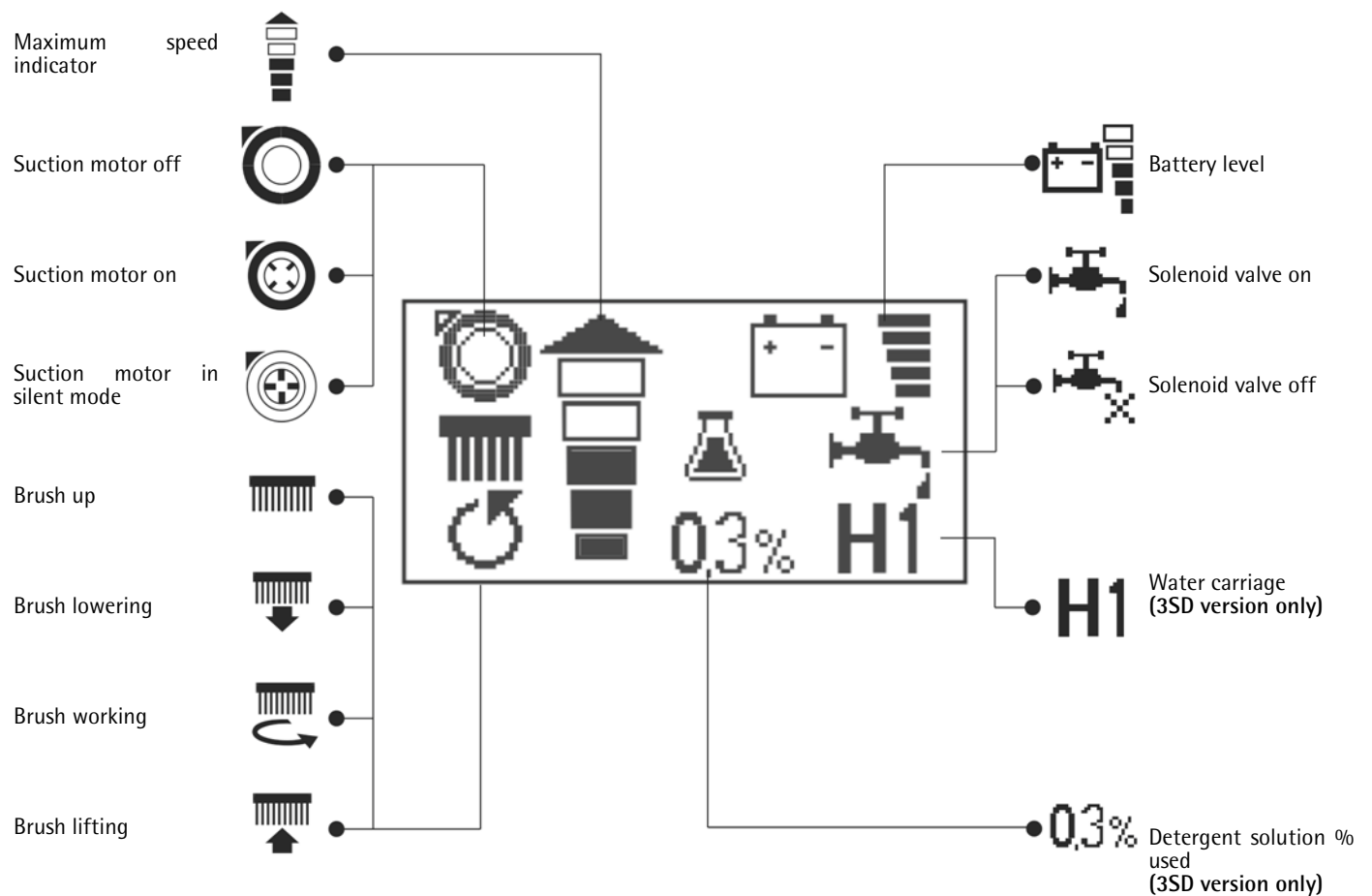
DISPLAY READING

VISUALIZATION WHILE SWITCHING ON

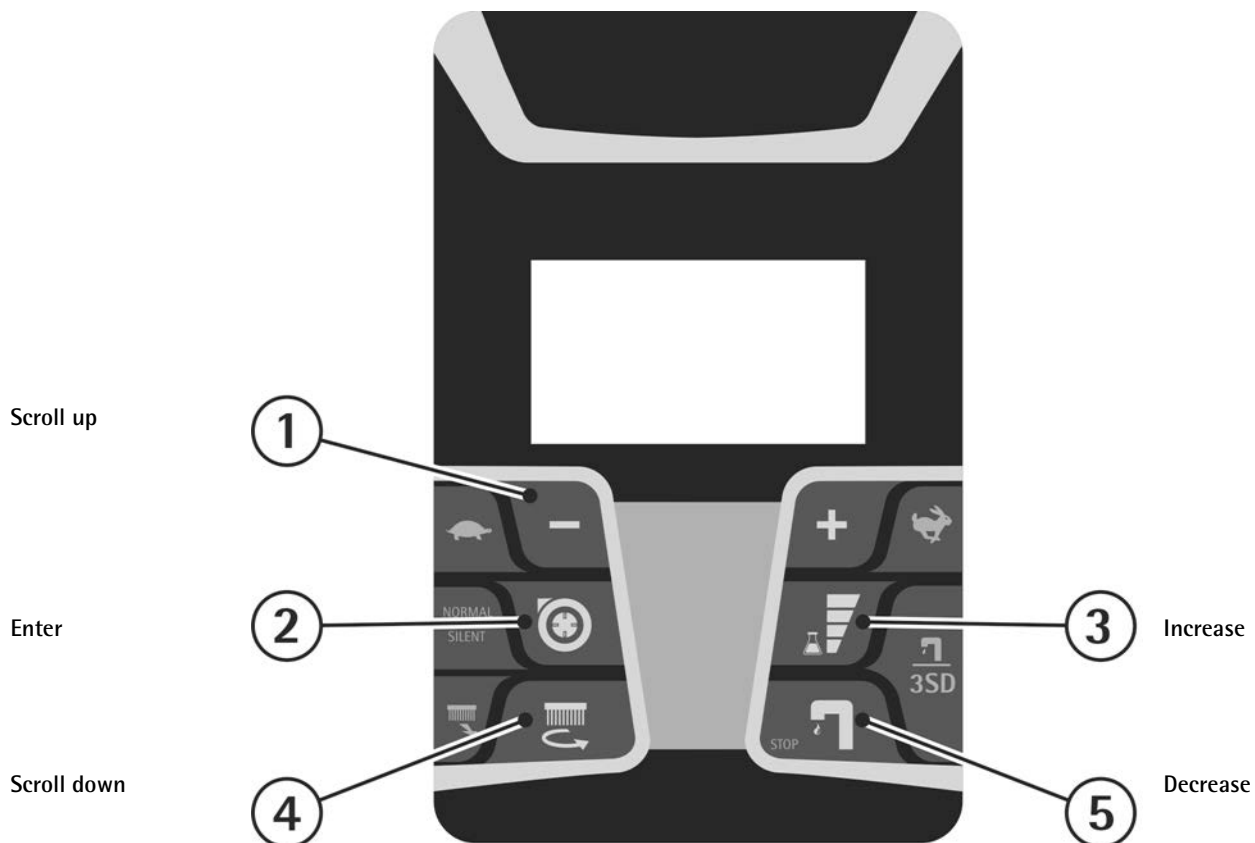
When the machine is switched on, the display shows the following screen which indicates the software release and the battery setting.

				BATTERY SETTING	
		relD: 0.0 relF: 0.0		24V GEL	Setting for gel batteries
		24V GEL		24V AGM	Setting for AGM batteries
SOFTWARE RELEASE		Chopper: 0.0		24V WET	Setting for lead/acid batteries
<p>HOURLMETER In the second screen the hourmeter is visualized. To display this screen in any other moment press simultaneously buttons 2 and 5 (see under "LEGEND CONTROL PANEL").</p>					

VISUALIZATION CONTROLS



NAVIGATION CONTROLS

**GENERAL SETTING**

To enter the menu for the setting, use the keyboard of the instrument board and proceed as follows:

Keep the buttons (1) and (5) pressed simultaneously.

Turn the key to switch on the machine.

When "ID CHECK" is shown on the display, press the enter button (2).

Once entered in GENERAL SETTING it will be possible to change the following default settings by simply scrolling through the menu using buttons (1) and (4).

DISPLAY LANGUAGE SELECTION

English is the default language; it is possible to change it into Italian.

To select the language just visualize first "Language", then select it scrolling with the buttons (3) and (5).

Once the language is chosen, confirm using button (2).

TO CHANGE THE BATTERY SETTING

Once entered "General Setting", it is possible to set the machine depending on the batteries installed (AGM / GEL / LEAD-ACID).

To select the proper setting, just visualize first "BATTERY", then select it by scrolling with the buttons (3) and (5).

Once the setting is chosen, confirm using button (2).



An incorrect setting may damage irreparably the battery.

ALWAYS verify to have set the correct parameter.

The defined battery setting is visible when the machine is turned on (see "BATTERY SETTING or DISPLAY READING").

DISPLAY TUNE (DISPLAY CONTRAST)

Once entered in General Setting, it is possible to improve the display contrast using the button (3) to increase it and the button (5) to decrease it.

Once selected the contrast, confirm using button (2).

DISPLAY BRIGHTNESS

Once entered in General Setting, it is possible to increase or decrease the display brightness using buttons (3) and (5).

Once selected the brightness, confirm using button (2).

SYMBOLY ON THE MACHINE



Symbol denoting the solution valve.
Indicates the solution valve lever.



Symbol denoting the lifting of the squeegee.



Symbol denoting the lowering of the squeegee.



Indication of the maximum temperature of the solution detergent.
It is placed near the charging hole of the solution tank.



Symbol denoting the crossed bin.
Indicates that at the end of its activity, the machine has to be disposed conforming to the laws in force.

SYMBOLY ON THE MANUAL



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



Symbol denoting the open book.
For the good functioning of the battery charger, read the manual of the constructor.



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



Symbol that indicates the obligations of disconnecting the system from the batteries by disconnecting the connector before operating on the machine.



Símbolo que indica la parte del manual para el desembalaje, la preparación y el encendido de la máquina.



Símbolo que indica la parte del manual para el mantenimiento de la máquina.



Symbol that indicates the obligation of wearing safety glasses.



Symbol that indicates the obligation of wearing safety gloves.



Symbol that precedes an important information about the proper use of the machine.



Symbol that indicates operations that have to be carried out only by qualified personnel.



Símbolo que indica la parte del manual para la utilización de la máquina.



BEFORE USE

HANDLING THE PACKED MACHINE

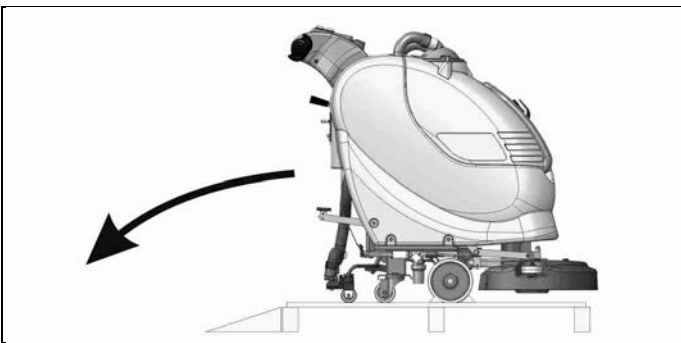
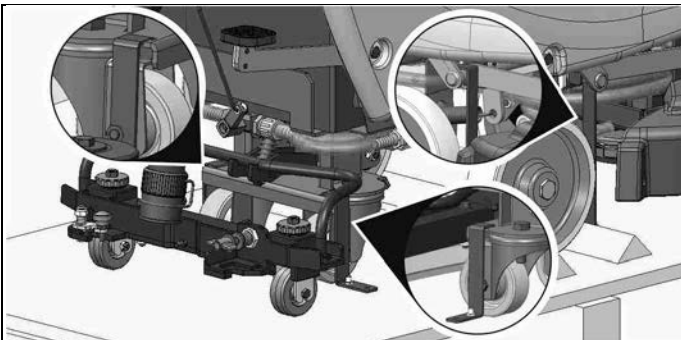
The machine is supplied with suitable packing foreseen for fork lift truck handling. For the packing dimensions see the "TECHNICAL DESCRIPTION" chart



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

UNPACKING OF THE MACHINE

1. Remove the external packing.
2. Unscrew the brackets that secure the machine to the pallet.
3. Move the machine backwards, as indicated in figure, avoiding heavy contacts to mechanical parts.
4. Keep the pallet for eventual transport.



The portable slope is not included in the packaging.

BATTERY INSTALLATION

The machine is equipped either with batteries in serial connection or elements of DIN-type assembled together and connected in series, placed in its appropriate compartment under the recovery tank and 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.



The machine foresees the standard use of traditional lead/acid batteries. CHECK SETTING ON THE INDICATOR (see under paragraph "BATTERY CHARGE LEVEL INDICATOR"). In case of GEL or AGM batteries installation, it is necessary to modify the setting (see under "TO CHANGE THE BATTERY SETTINGS").



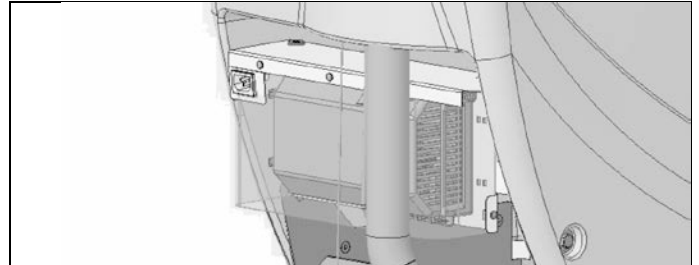
Strictly follow manufacturer/distributor indications for the maintenance and charge of the batteries. All installation and maintenance operations must be executed by specialized staff, using suitable protection accessories.

ON-BOARD BATTERY CHARGER

The machine is equipped with the on-board battery charger, please refer to the instructions of the constructor of this accessory what the charging operations concern.

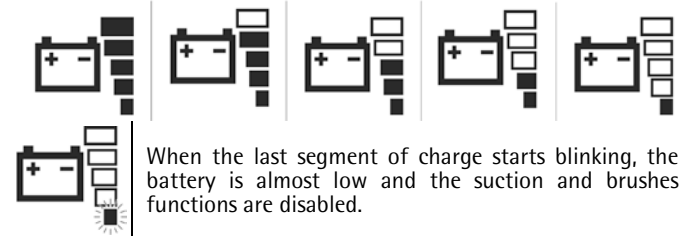
The battery charger is connected directly to the battery poles. During the charging operations a device is activated which does not permit the machine's functioning.

The main cable of the battery charger has a maximum length of two meters and must be connected to a single-phase socket.

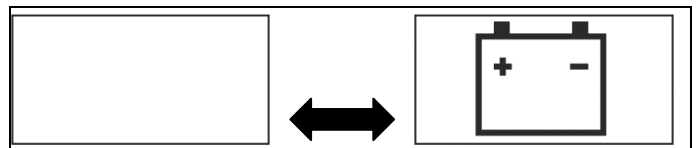


BATTERY CHARGE LEVEL INDICATOR

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

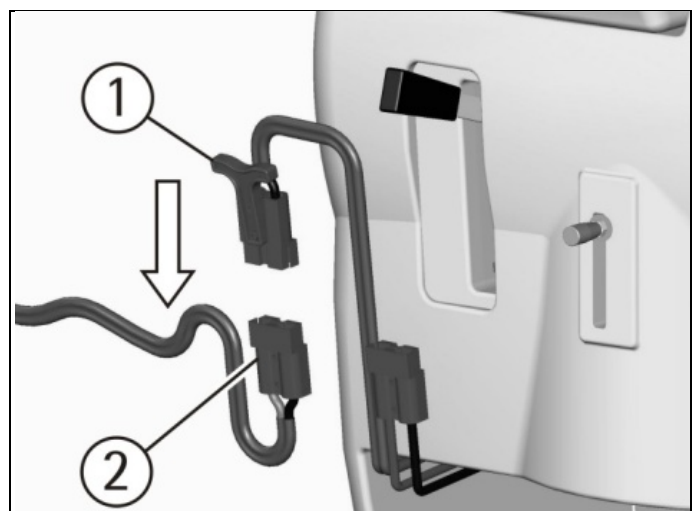


The battery signal blinks on the whole display: also the traction stops.



CHARGING THE BATTERIES

Take the machine to a plain surface. Plug in batteries connector (1) placed in the rear part of the machine, to connector (2) of the battery charger.



Never charge a GEL battery with a non-suitable recharger. Strictly follow the instructions supplied by the batteries and recharger manufacturer.

In order not to cause permanent damages to the batteries, it is necessary to avoid their complete discharge, providing for the recharging within a few minutes after batteries discharge signal starts blinking.



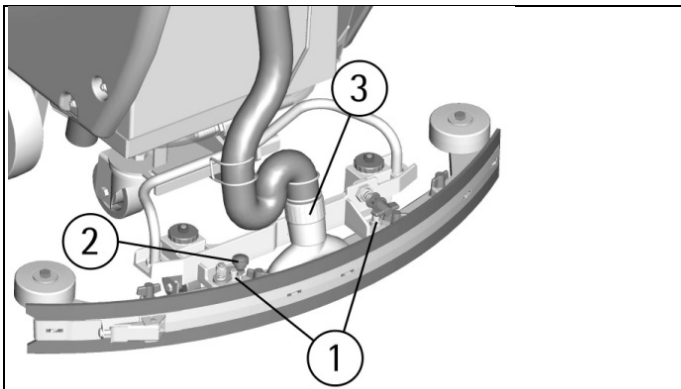
Never leave batteries completely discharged even if the machine is not used. In case of traditional batteries, please check the electrolyte level every 20 recharging cycles and eventually fill them up with distilled water after having carried out a complete recharge.



Danger of gas exhalations and emission of corrosive liquids. Fire danger: do not approach with free flames.

SQUEEGEE ASSEMBLY

With the squeegee support lowered, slide the two stud bolts (1) placed on the upper part of the squeegee inside the slots on the support. Block the squeegee by rotating the lever (2) clockwise. Insert the squeegee hose (3) into its coupling, respecting its position as indicated in the figure.



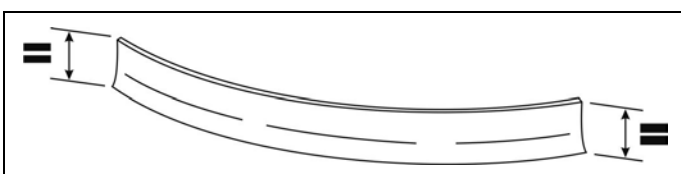
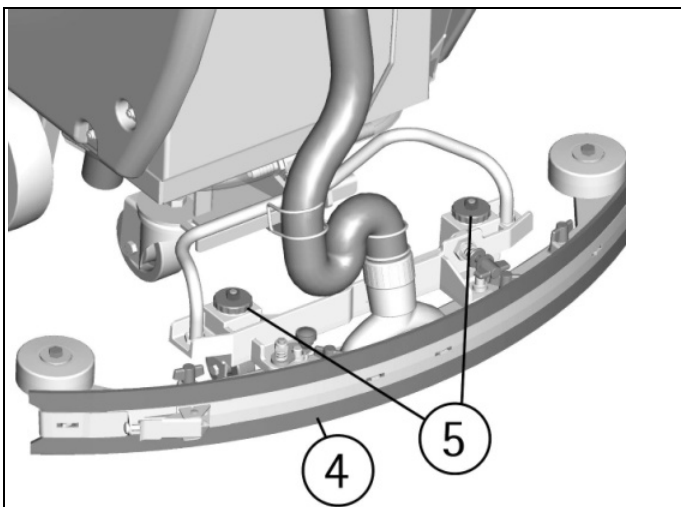
ADJUSTMENT OF THE SQUEEGEE HEIGHT

The squeegee must be adjusted in height depending on the rubber wear. In order to guarantee a perfect drying during the operation, the lower blade of the rear squeegee rubber (4) must work slightly bent backwards (operator side) in uniformed way in all its length.

Acting clockwise upon the two registers (5) it is possible to increase the bending of the rubber. Acting counterclockwise it is possible to decrease the rubber bending.

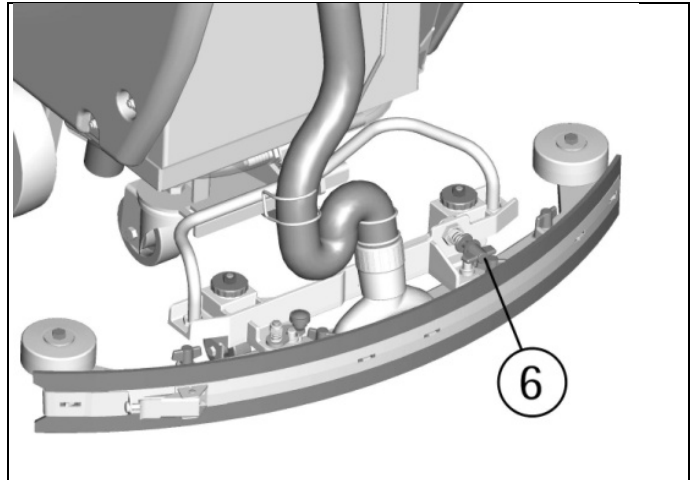
A label placed near the two registers (5) indicates rotation sense to increase or reduce the height.

Note: The wheels of the squeegee support must be adjusted through the registers (5) at the same height so that the squeegee works parallel to the floor.



ADJUSTMENT OF THE SQUEEGEE INCLINATION

In case of need, to increase the rubber bending in the central part, it is necessary to tilt the squeegee rotating counterclockwise the register (6). To increase the rubber bending on the squeegee extremities, rotate the register clockwise.

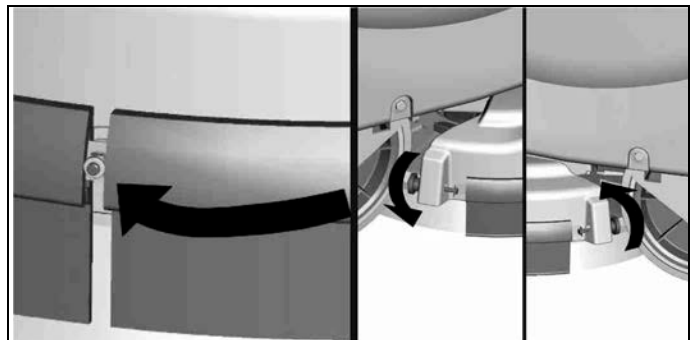


SPLASH GUARD ASSEMBLY

The two splash guards have to be assembled onto the brush base group. Insert the metal strips inside the suitable slots present on the rubber. Place the round hole at the flat extremity of the strip onto the screw placed in the front part of the brush base group. Secure the strips through the nut blocking it.

Screw down the knobs in the rear part of the cover in the free extremity of the metal strips. The operation has to be carried out for both splash guards.

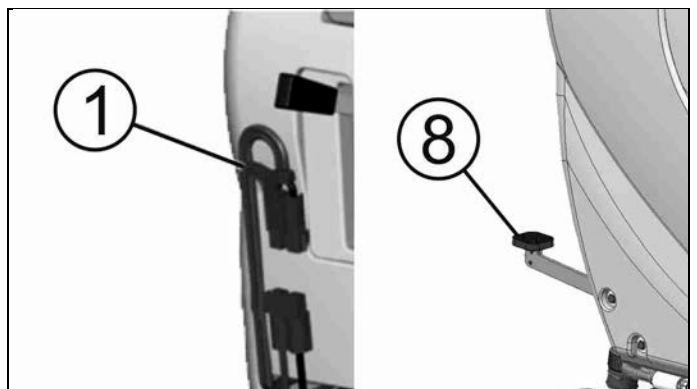
With the brush assembled, the splash guard must slightly touch the floor.



BRUSH ASSEMBLY



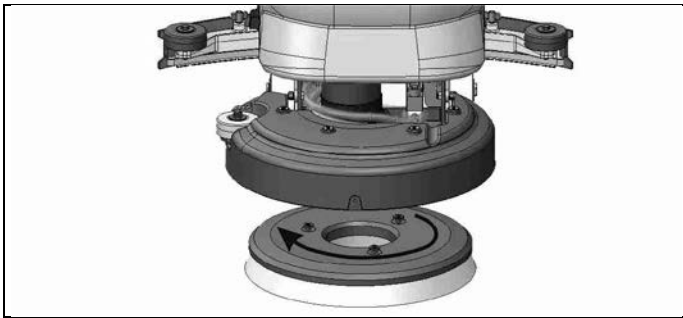
1. Take off the electric supply to the brush motor unplugging the batteries connector (1).
2. Acting upon the pedal (8) lift the brush base group.



3. With the brush base group in lifted position, insert the brush into its plate seat underneath the brush base turning it until the three metal buttons are properly seated in their slots; rotate



energetically the brush to push the button towards the coupling spring until it gets blocked.
The figure shows the rotating sense for the brush coupling.

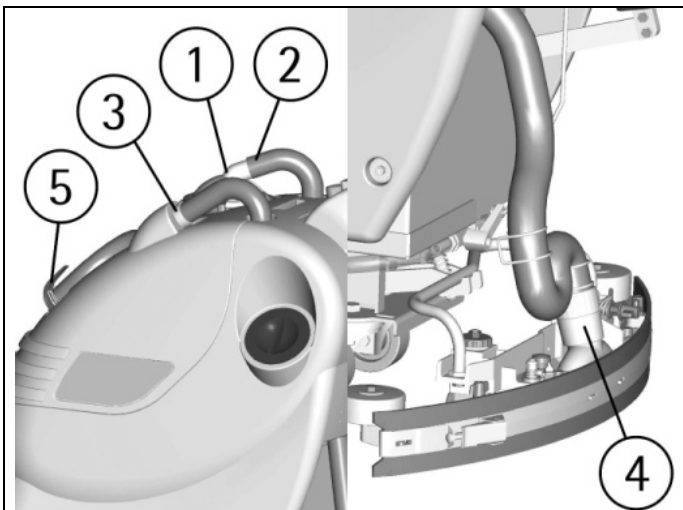


RECOVERY TANK



Check that the cover of the suction filter (1) is correctly secured, after rotating the levers and that the suction motor hose (2) is correctly connected.

Verify also that the squeegee hose is correctly inserted into the seats (3 and 4) and that the exhaust hose plug (5) placed in the front part of the machine, is closed.



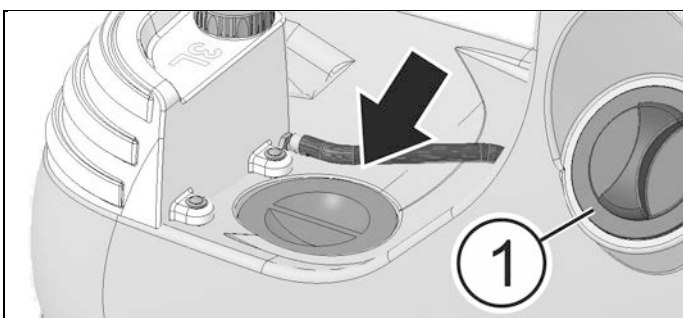
CLEAN WATER TANK

The clean water tank is provided with an inspection opening. This permits to clean the exit point of the water.
Be sure that the cap is well tightened after the cleaning.



The capacity of the clean water tank is indicated in the technical data.

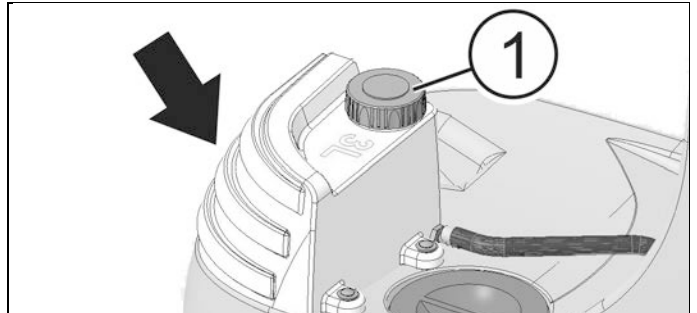
Open the screw plug (1) placed in the rear left part of the machine and fill the clean water tank with clean water at a maximum temperature of 50°C.



DETERGENT SOLUTION TANK



The machine is equipped with a tank for the detergent solution.
To load the detergent solution, take off the recovery tank and unscrew the cap (1).



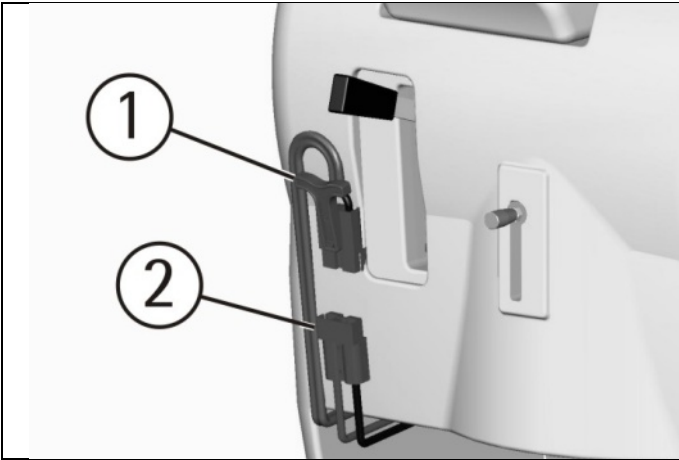
To drain the detergent solution at the end of the operations, see chapter "DRAINING THE DETERGENT SOLUTION".



PRE-CLEANING OPERATIONS

CONNECTION OF THE BATTERIES TO THE MACHINE

Plug in the batteries connector (1) to the machine connector (2), placed in the rear part of the machine

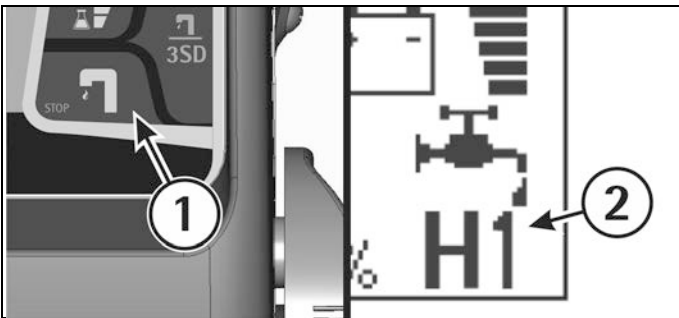


WATER CARRIAGE ADJUSTMENT

The machine comes out of the factory in 3SD mode, this makes possible to adjust the water carriage on 7 levels depending on the machine speed.

To adjust the carriage from H1 to H7 keep pressed button (1) and the symbol (2) will start blinking.

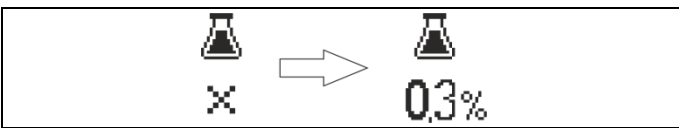
By pressing again button (1) the carriage level will be selected, the carriage will be confirmed once the symbol (2) will stop blinking.



DETERGENT SOLUTION CARRIAGE ADJUSTMENT

The machine comes out of the factory with the 3SD configuration, this makes possible to adjust the detergent solution on 5 levels.

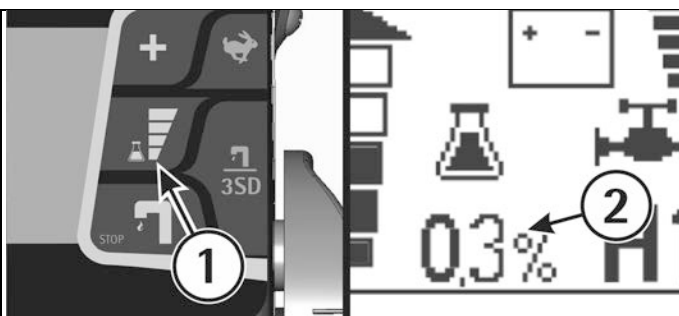
Turn on or off the pump press once the button (1). The detergent symbol will switch from deactivated to activated.



To adjust the detergent solution carriage keep button (1) pressed so the symbol (2) will start blinking.

It will be possible to choose between 5 levels of detergent solution %, depending on the water carriage (0.3%-0.6%-1.2%-2.4%-4.5%) by pressing button (1) once.

When the symbol (2) stops blinking the % is selected.



A long usage of the machine with the empty detergent solution tank might compromise the good operativity of the machine.

SELECTING THE MANUAL ADJUSTMENT OF THE DETERGENT SOLUTION

The system is made of a parallel circuit which allows the manual adjustment of the detergent solution flow, for a standard operation.

To switch from a mode to another press for a few seconds buttons (1) and (2) simultaneously.



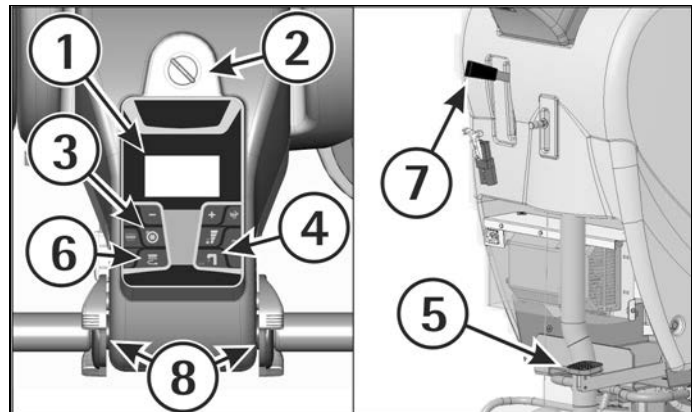
On the display will be shown the symbol related to the mode which has being selected Press once button (2) to change mode.



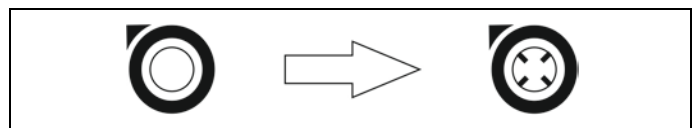
When the symbol stops blinking the mode is selected.

STARTING THE MACHINE

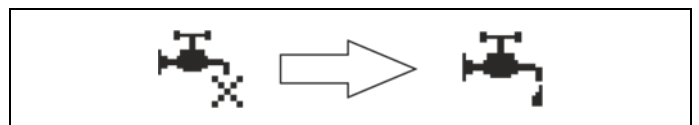
Every control is visualized on the display (1).



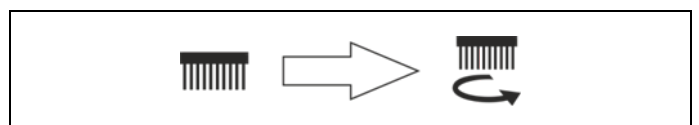
1. Turn the key (2) clockwise.
2. Check the battery type and the charge level on the display (1).
3. Press the suction motor push button (3); the suction suck up symbol changes from off to on and the motor starts suck up.



4. Press the solenoid valve push button (4); the solenoid valve symbol changes from closed to open.



5. Lower the brush base onto the floor by pressing the pedal (5).
6. Turn on the brush by pressing button (6), on the display is visualized first the down symbol and then the one of the brushes motor activation.



7. Acting upon the squeegee lifting lever (7) lower the squeegee.



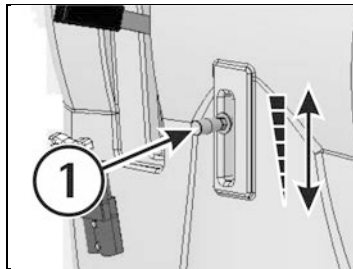
- Acting upon the levers drive control (8) the machine starts to move, the brush starts to rotate and the water begins to flow automatically.
Releasing the drive control levers will stop the flow.
- During the first metres check that the squeegee adjustment guarantees a perfect drying action and that 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.



Moving the machine backwards, make sure that the squeegee is lifted.

WORKING WITH THE MANUAL DETERGENT SOLUTION ADJUSTMENT

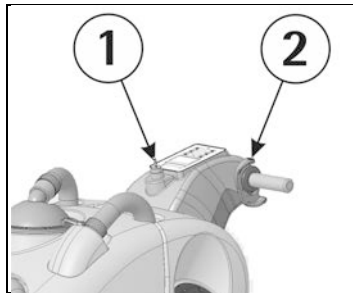
If the manual adjustment mode is selected (see chapter (MANUAL ADJUSTMENT OF THE DETERGENT SOLUTION CARRIAGE)) the detergent solution carriage is being adjusted using the valve lever (1).



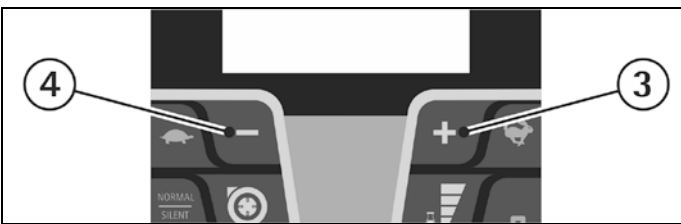
MOVEMENT AND SPEED ADJUSTMENT

The traction of the machine is given through an electronically controlled motor.

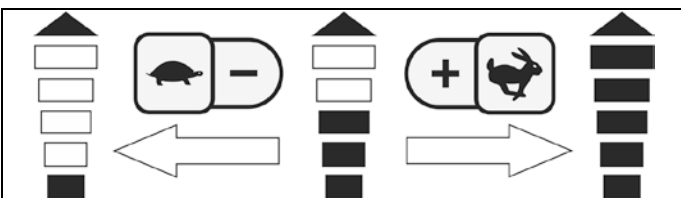
To move the machine, act upon the key (1) and then rotate the levers drive control (2) placed on the handle bar, in forward for the forward drive, in reverse for the backward drive. The control acts in a progressive way, therefore it is possible to graduate the speed depending on each requirement rotating the levers whatever it is necessary.



Furthermore it is possible to adjust the maximum speed acting upon the push button (3) to increase it and on the button (4) to decrease it.



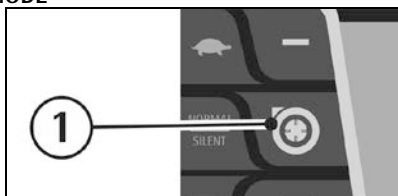
Every change will be visualized through its symbol on the display.



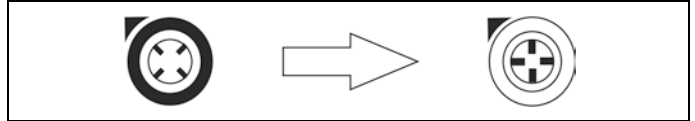
During reverse motion the speed is reduced.

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.

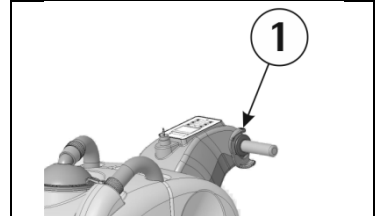


When the silent mode is on, the symbol on the display changes.



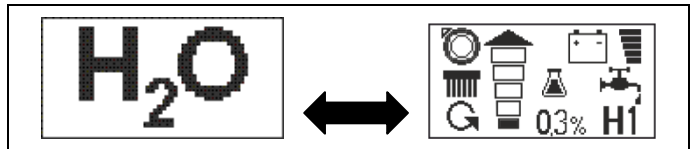
WORKING BRAKE

To stop the machine during normal working situation, it is sufficient to release the levers drive control (1), as the machine is equipped with an electronic braking system. The brush and the detergent solution stop automatically.



DETERGENT SOLUTION RESERVE SIGNAL (H2O ON THE DISPLAY)

When the indication H2O on the display appears, this means that the detergent is getting low corresponding to 10% of the maximum capacity of the solution tank.



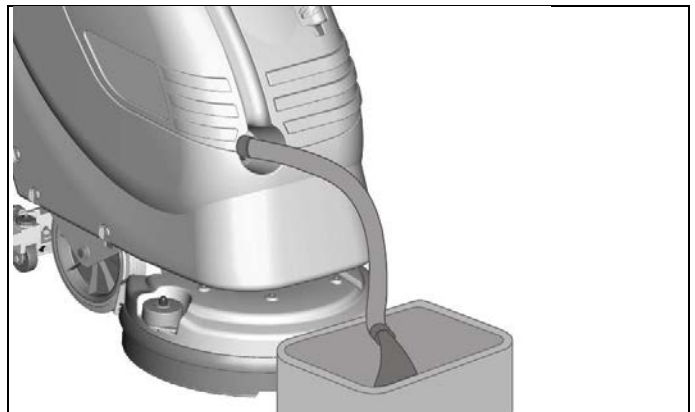
OVERFLOW DEVICE



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, closing the suction hose and stopping the suction.

When this happens, it is necessary to empty the recovery tank.

- Hold the exhaust hose placed in the front part of the machine.
- Take off the exhaust plug acting upon its lever and empty the recovery tank into appropriate containers, according to the standard norms for the liquid disposal.

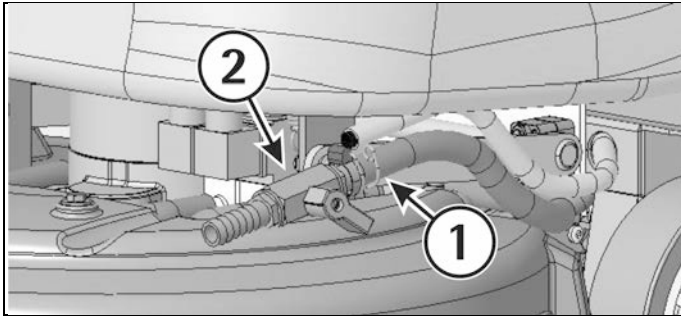


DRAINING THE WATER (3SD)



To drain the water left in the tank:

- Bring the machine to an appropriate place for tanks draining.
- Take off the drain hose (1) from its support.
- Turn the valve (2) the drain the water.

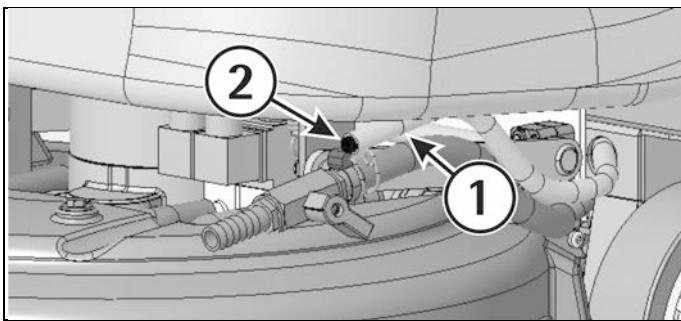


DRAINING THE DETERGENT SOLUTION



To drain the detergent left in the detergent tank:

1. Take off the drain hose (1) from its support.
2. Take off the cap (2).
3. Collect the detergent solution on its proper bin.

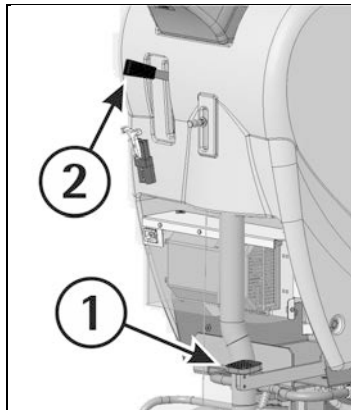


Do not mix different chemical detergent solutions.

STOPPING THE MACHINE BY THE END OF THE WORK

Before performing any maintenance:

1. Turn off the brush motor, the suction motor and the solenoid valve
2. Lift the brush base by pressing the pedal (1).
1. Lift the squeegee through the lever (2).
2. Take the machine to the place where it has to be drained.



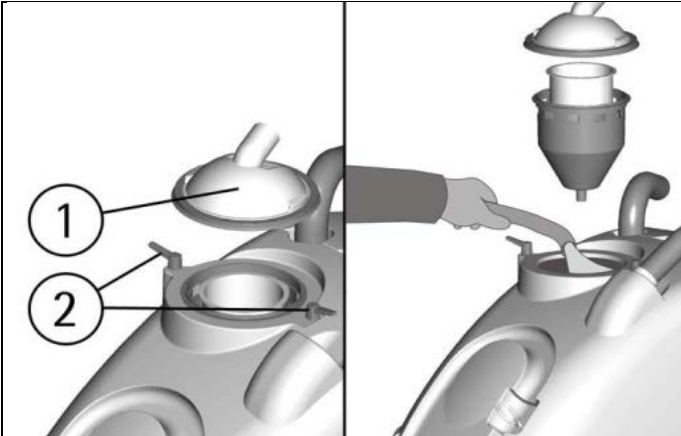
The machine is not provided with brake so do not leave it on inclined surfaces.

DAILY MAINTENANCE

RECOVERY TANK CLEANING



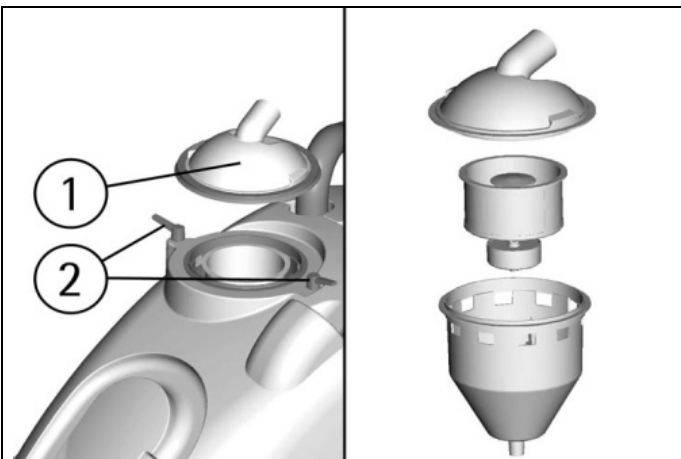
1. Hold the exhaust hose placed in the front part of the machine.
2. Take off the exhaust plug acting upon its lever and empty the recovery tank into appropriate containers (see under "OVERFLOW DEVICE").
3. Take off the suction cover (1) after rotating the blocking levers (2).
4. Take off the filter and filter protection.
5. Rinse the tank with a water jet.



SUCTION FILTER CLEANING



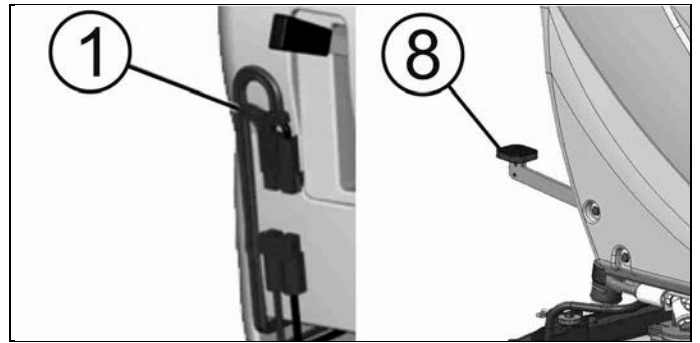
1. Take off suction cover (1) after rotating the blocking levers (2).
2. Take off the filter and filter protection.
3. Clean all parts with a water jet especially inside surfaces and filter bottom.
4. Carry out carefully the cleaning operations.
5. Reassemble all parts.



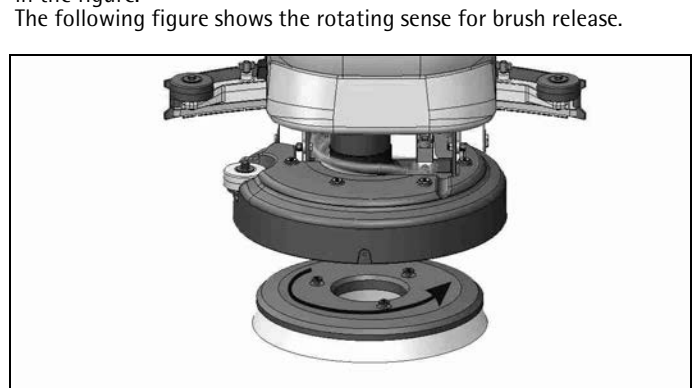
MANUAL DISASSEMBLY OF THE BRUSH



1. Lift the brush base lowering the pedal (8).
2. Take off the electric supply to the brush motor unplugging the battery connector (1).

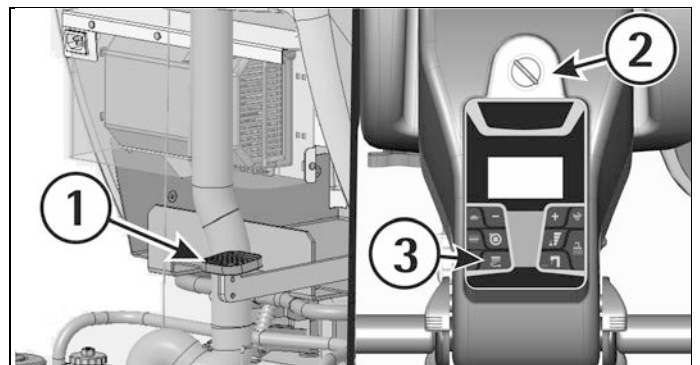


3. With the brush base in lifted position, turn the brush in its rotating sense, until it is released from the brush holder plate seat as indicated in the figure.



AUTOMATIC UNLOCKING THE BRUSH

1. Lift the brush base by pressing pedal (1).
2. Turn on the machine by turning the key (2) clockwise.
3. With the brush base lifted keep the button (3) pressed for a few seconds.



Before collecting the brush, to avoid hands injuries, move the machine.

BRUSH CLEANING

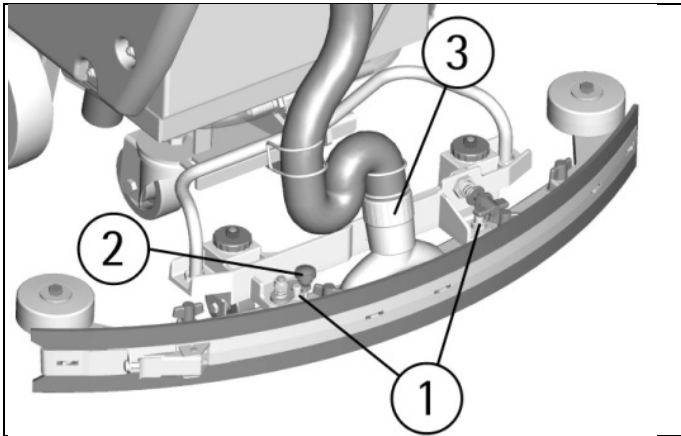
Disassemble the brush and clean it with a water jet (for the disassembly see under "BRUSH DISASSEMBLY").

SQUEEGEE CLEANING



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

1. Take off the squeegee hose (3) from its coupling.
2. Disassemble the squeegee from its support by rotating the lever (2) counterclockwise and making slide the stud bolts (1) in 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.



WEEKLY MAINTENANCE

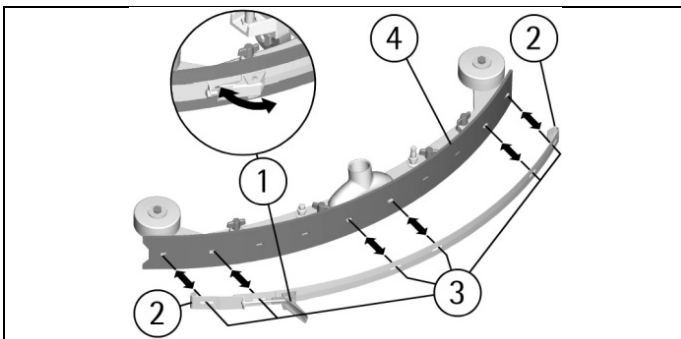
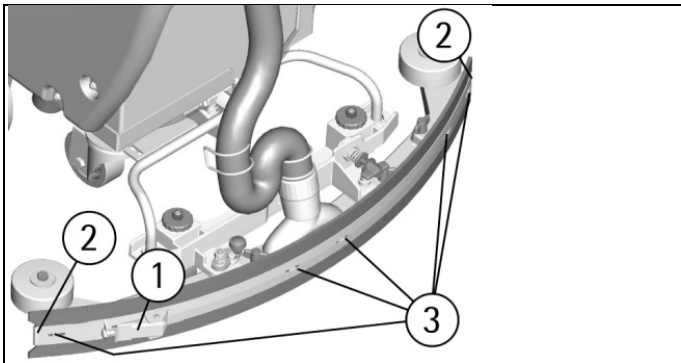
REAR SQUEEGEE RUBBER REPLACEMENT



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

1. Lift the squeegee acting upon the lever.
2. Uncouple the hook (1) of the rubber holder blade, release the extremities (2) from the squeegee body and take off the rubber (4).
3. Turn the rubber (4) to a new side or replace it.

To reassemble the squeegee repeat reverse the operations above-mentioned, inserting the rubber (4) on the guides (3), couple the extremities (2) of the rubber holder blade onto the squeegee body and finally block the hook (1).



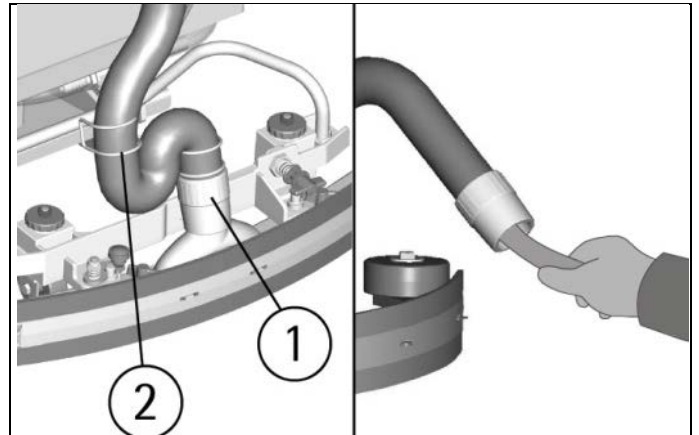
SQUEEGEE HOSE CLEANING



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 from the squeegee coupling (1) and release the guide spring of the suction hose (2).

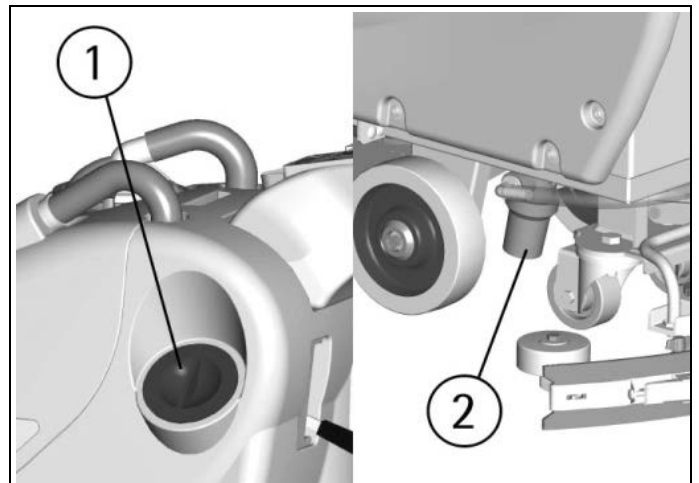
2. Wash the inside of the hose with a water jet, from the squeegee hose side.
3. To reassemble the hose repeat reverse the operations above-mentioned.



CLEANING OF WATER TANK AND FILTER



1. Bring the machine to an appropriate place for tanks draining.
2. Unscrew the solution tank cap (1).
3. Unscrew the exhaust plug (2) being careful not to lose or to damage the gasket.
4. Rinse with a water jet the tank.
5. Rinse the solution tank filter placed inside the exhaust plug, under the machine.



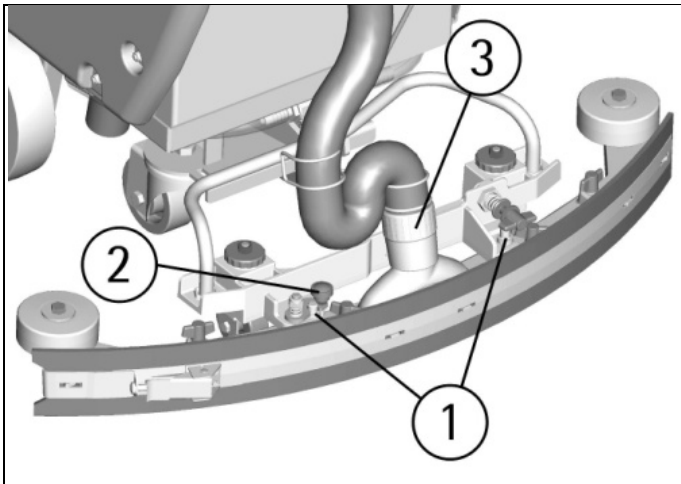
TWO-MONTHLY MAINTENANCE

FRONT SQUEEGEE RUBBER REPLACEMENT

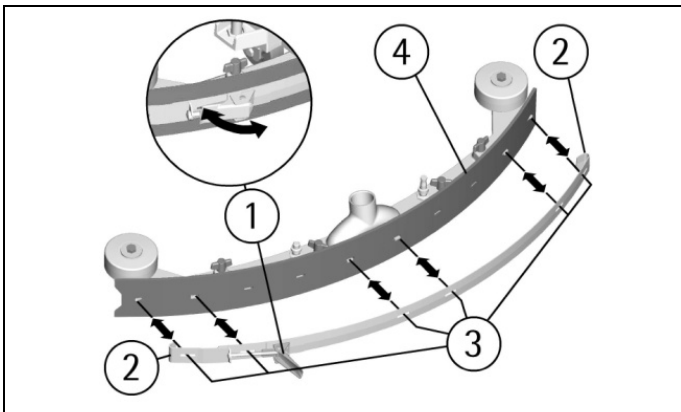


Check the wear of the squeegee rubber and eventually replace it. For the replacement it is necessary to:

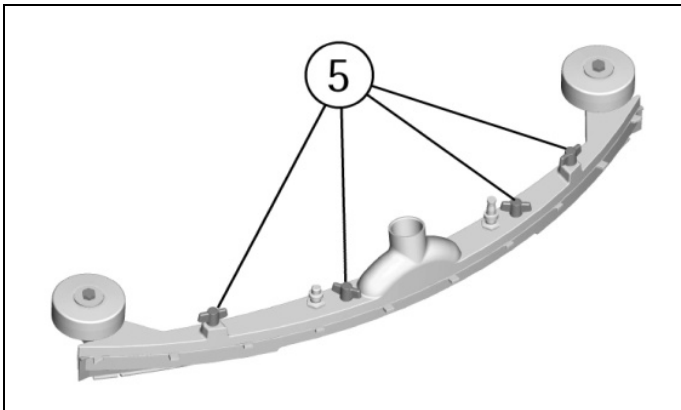
1. Take off the squeegee hose (3) from its coupling.
2. Disassemble the squeegee from the support rotating the lever (2) counterclockwise and sliding the stud bolts (1) in their slots.



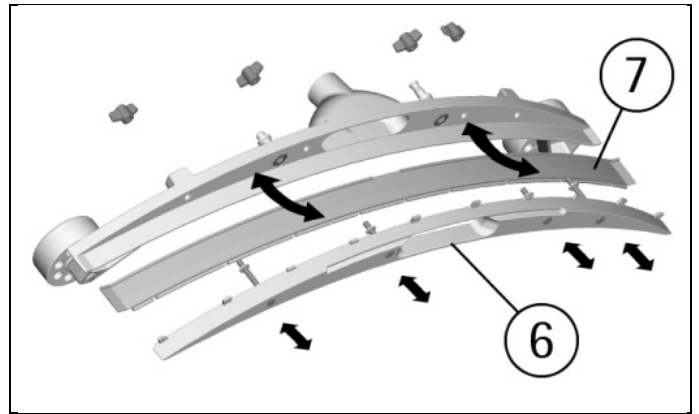
3. Uncouple the hook (1) of the rubber holder blade, release the extremities (2) from the squeegee body and take off the rubber (4).



4. Unscrew the wing nuts (5) in the upper part of the squeegee.



5. Slip off the lower part (6) of the squeegee body, so to take off the front rubber (7).



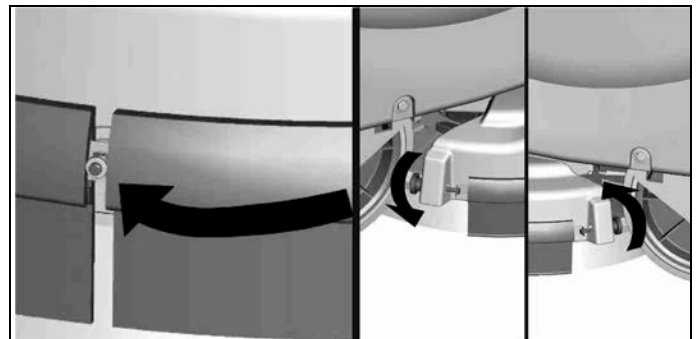
6. Replace the front rubber.
7. To reassemble the squeegee repeat reverse the operations above-mentioned.

SIX-MONTHLY MAINTENANCE

SPLASH GUARD REPLACEMENT



1. Unscrew the knobs in the rear part of the brush base group from the extremity of the metal strips. The operation has to be carried out on both splash guards.
 2. Unscrew the nut on the front part of the brush base group and take off the metal strips.
 3. Replace the splash guard rubbers and follow the assembling instructions at "SPLASH GUARD ASSEMBLY" paragraph.
- With the brush assembled, the splash guard must slightly touch the floor.



TROUBLESHOOTING GUIDE

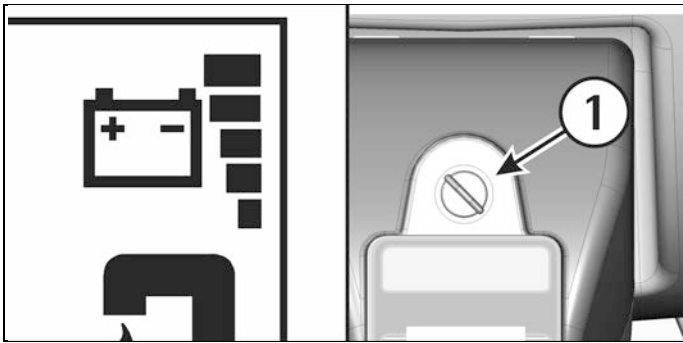


The checking of all the other foreseen machine operations is left to the authorized technical assistance.

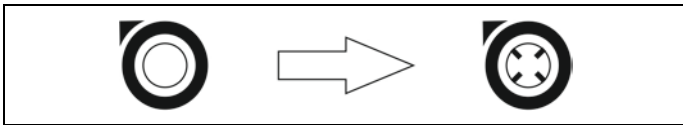
Never leave the batteries completely discharged for a long time. In case of alarm visualizations contact the technical assistance.

THE SUCTION MOTOR DOES NOT WORK

1. Verify that the key switch (1) is in the correct position.
2. Check the charge level of the batteries on the display.



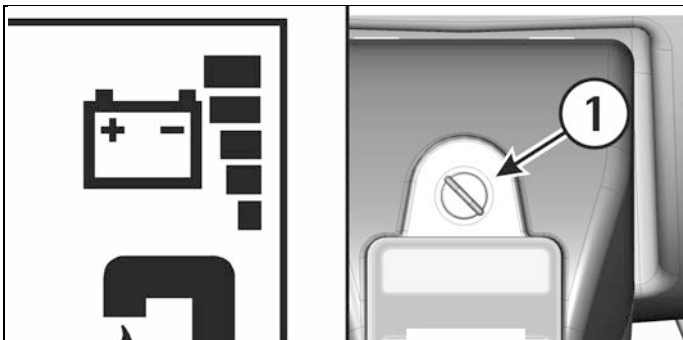
3. Check that the battery connector is correctly plugged in.
4. Check on the display that the starting signal of the suction motor is on.



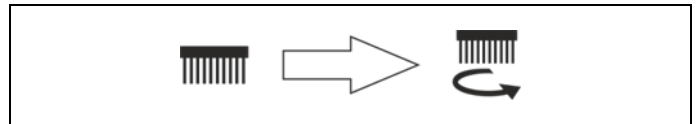
5. Check that the red connector of the suction motor is correctly plugged in.
- If the problem persists, please contact the authorized technical assistance.

THE BRUSH MOTOR DOES NOT WORK

1. Verify that the key switch (1) is in the correct position. Switch off and on again the machine.
2. Check the charge level of the batteries on the display.



3. Check on the display that the activation signal of the brush motor is on.



4. Check that the battery connector is correctly plugged in.
5. Act upon the levers drive control (3).
If the problem persists, please contact the authorized technical assistance.

THE MACHINE DOES NOT CLEAN PROPERLY

1. The brush does not have the suitable bristle dimension: use only original brushes. For advice, contact the authorized technical assistance.
2. The brush has got worn bristles. Check the brush wear condition and eventually replace it (the brush has to be replaced when the bristles have reached a height of about 15mm).
To replace the brush, see instructions at paragraph "BRUSH DISASSEMBLY" and "BRUSH ASSEMBLY".
3. The solution detergent is insufficient: open more the solution valve.
4. Check that the liquid detergent is in the recommended percentage.
Contact the authorized technical assistance for advice.

THE SQUEEGEE DOES NOT DRY PERFECTLY

1. Check that the squeegee rubbers are clean.
2. Check the height and inclination of the squeegee (see under "SQUEEGEE" in "BEFORE USE").
3. Check that the suction hose is correctly inserted in the proper seat on the recovery tank.
4. Clean the suction filter.
5. Replace the rubbers if worn out.
6. Check that the suction motor switch is on.
7. Check that the recovery tank is empty.

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	•	
FILTER CLEANING WATER		•
BRUSH CLEANING	•	
BRUSH DISASSEMBLY AND CLEANING	•	
SQUEEGEE CLEANING	•	
FRONT SQUEEGEE RUBBER CHECK		•
REAR SQUEEGEE RUBBER CHECK		•
SPLASH GUARD RUBBER CHECK		•
CHECK SQUEEGEE ADJUSTMENT		•
SQUEEGEE HOSE CLEANING		•
WATER TANK CLEANING		•
CHECK BATTERIES ELECTROLYTE		•



24 V 	1050 W	 74 kg
 2%	 III	IP23  205 kg
ruby 48bh 3SD	s / N	