

**ruby 48blt**


07 2017



**Use and maintenance**



**Attention! Please read the instructions before use.**

TECHNICAL DESCRIPTION	U/M	ruby 48bl
Cleaning width	mm	485
	in	19
Squeegee width	mm	770
	in	30
Working capacity, up to	m <sup>2</sup> /h	1700
	sqft/h	18300
Brush diameter	mm	1 x 485
	in	1 x 19
Brush rpm	giri/min (rpm)	155
Pressure on the brush	kg	30
	lbs.	66
Brush motor	W	450
	A	18.5
Suction motor	W	450
	A	18.8
Traction motor	W	120
	A	5
Suction vacuum	mbar	120
	water lift	48
Type of drive		Aut.
Maximum gradient	%	2
Solution tank	l	40
	gal	10.6
Recovery tank	l	45
	gal	12
Machine length	mm	1195
	in	47
Machine height	mm	1053
	in	41.5
Machine width (without squeegee)	mm	530
	in	21
Weight of the machine (empty and without batteries )	kg	76
	lbs.	167.6
Gross weight of the machine (in conformity with EN 60335-2-72 art. 5.z102)	kg	190
	lbs.	419
Tension of the batteries	V	24
Capacity of the batteries	Ah <sub>5</sub>	110
Weight of the batteries	kg	74
	lbs.	163
Compartment of the batteries (WxDxH)	mm	342x340x295
	in	13.5x13.4x11.6
Acoustic pressure level (in conformity with EN 60704-1) Lpa	dB (A)	<70
Class		
Protection level	IP	23

## INTRODUCTORY COMMENT

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.

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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.
- **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.

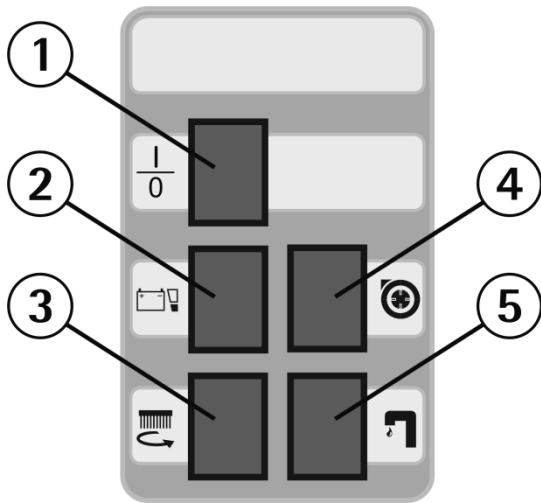
## MAINTENANCE

- 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.
- Use only ORIGINAL brushes indicated in the paragraph "RECOMMENDED 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.

**LEGEND INSTRUMENT BOARD AND CONTROLS**

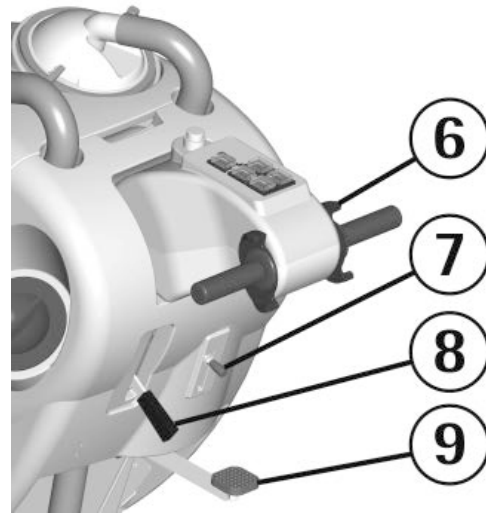
1. SWITCH IGNITION
2. SIGNAL LAMP CHARGE LEVEL BATTERIES
3. SWITCH BRUSH MOTOR
4. SWITCH SUCTION MOTOR
5. SWITCH SOLENOID VALVE



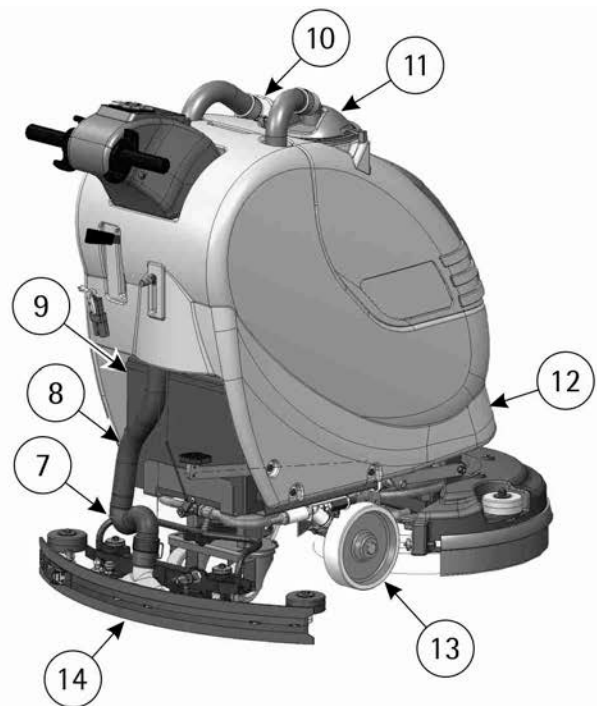
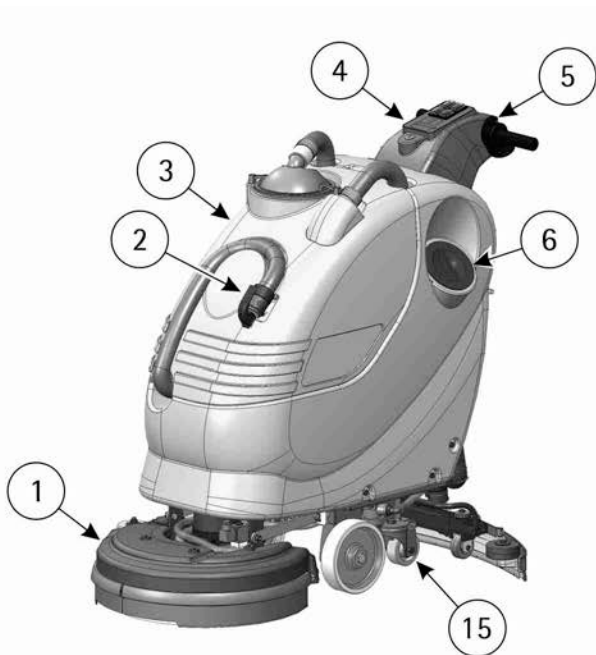
**LEGEND MACHINE**

1. BRUSH BASE GROUP
2. PLUG EXHAUST HOSE RECOVERY TANK
3. RECOVERY TANK
4. INSTRUMENT BOARD
5. LEVERS DRIVE CONTROL
6. SCREW CAP FOR INLET DETERGENT SOLUTION
7. GUIDE SPRING SQUEEGEE HOSE SQUEEGEE HOSE
8. SQUEEGEE HOSE

6. LEVERS DRIVE CONTROL
7. LEVER SOLUTION VALVE
8. LEVER SQUEEGEE LIFTING
9. PEDAL BRUSH BASE GROUP LIFTING



9. BATTERIES
10. INLET OPENING SQUEEGEE HOSE
11. SUCTION COVER
12. SOLUTION TANK
13. WHEELS
14. SQUEEGEE ASSEMBLY
15. CASTOR WHEELS



**SYMBOLGY ON THE MACHINE**



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



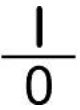
Symbol denoting the lifting of the squeegee.



Symbol denoting the lowering of the squeegee.



Symbol denoting the suction motor.  
Indicates the switch of the suction motor.



Symbol denoting switching on.  
Indicates the general switch of the machine.



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



Symbol denoting the charge level of the batteries.



Symbol denoting the brush.  
Indicates the switch of the brush motor.



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.

**SYMBOLGY 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.



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.

**BEFORE USE**

**HANDLING OF THE PACKED MACHINE**

The machine is supplied with suitable packing foreseen for fork lift truck handling.

The total weight is 105 kg.

Packing dimensions:

**Base:** 118 cm x 67 cm

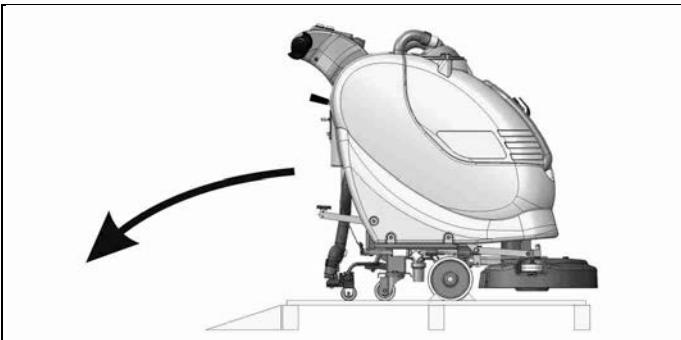
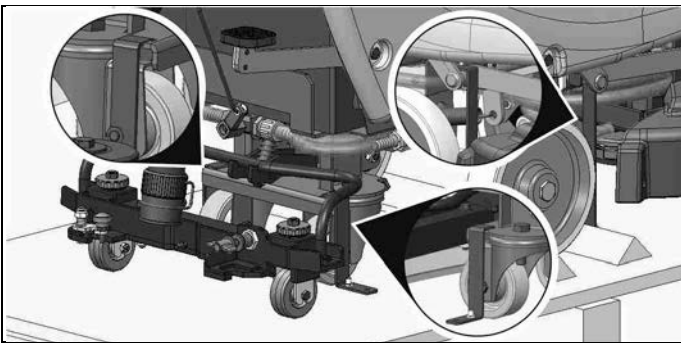
**Height:** 119 cm



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.



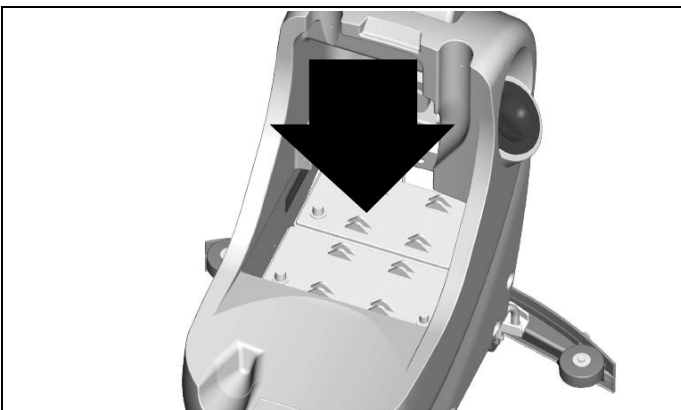
**BATTERY INSTALLATION AND SETTING OF THE BATTERY TYPE**

This machine is equipped with two batteries at 12V in serial connection, placed in its appropriate compartment under the recovery tank and must be handled using suitable lifting equipment (due to weight and coupling system).

The batteries must be in accordance with CEI 21-5 Norms.

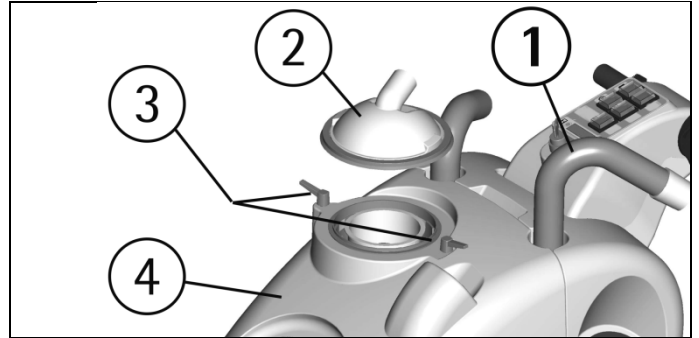
The connection of the batteries' cables has to be carried out by specialized staff, because the inversion of polarity causes the damage of the electrical components.

Before the machine is supplied with power, check that the red cable is connected to the + pole of the battery.



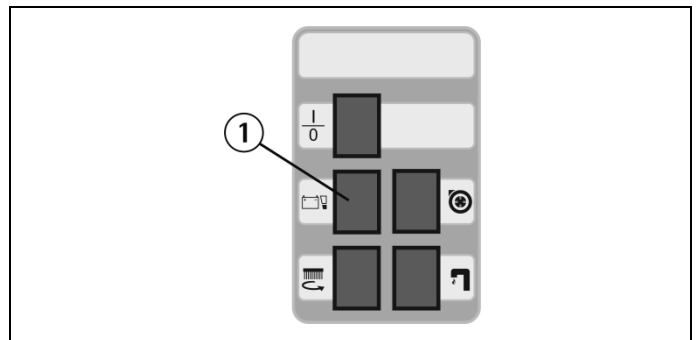
For batteries installation proceed as follows:

1. Take off the squeegee hose (1).
2. Take off the suction cover (2) after turning the blocking levers (3).
3. Take off the recovery tank (4).
4. Place the batteries in its compartment.
5. **Connect the terminals, respecting the polarities, avoiding contact with tools that could create short circuit.**
6. Reassemble all parts.



The machine and the signal lamp of the battery charge level foresee the use of traditional lead batteries.

In case of GEL batteries installation, it is necessary to carry out a specific adjustment. Please contact the authorized technical assistance.



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

**BATTERY RECHARGER**



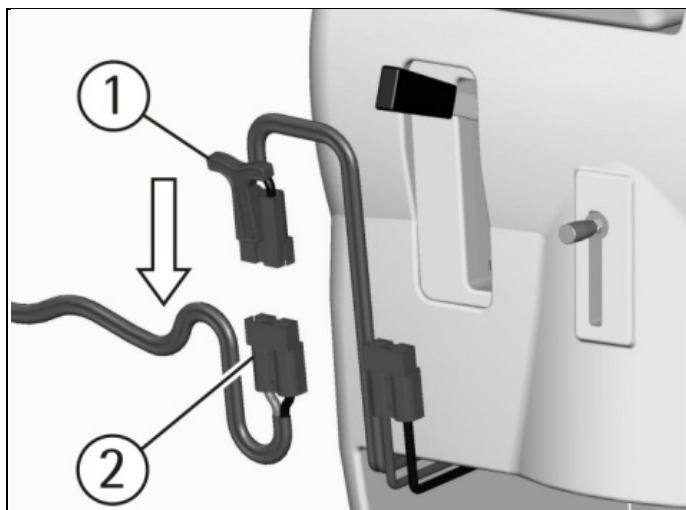
Be sure that the battery recharger is suitable for the installed batteries both for their capacities and type (lead/acid or GEL and equivalent).

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.

**BATTERIES RECHARGING**

Bring the machine on a levelled surface. Plug in batteries connector (1) placed in the rear part of the machine, to connector (2) of the battery recharger.





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.

**BATTERIES DISPOSAL**

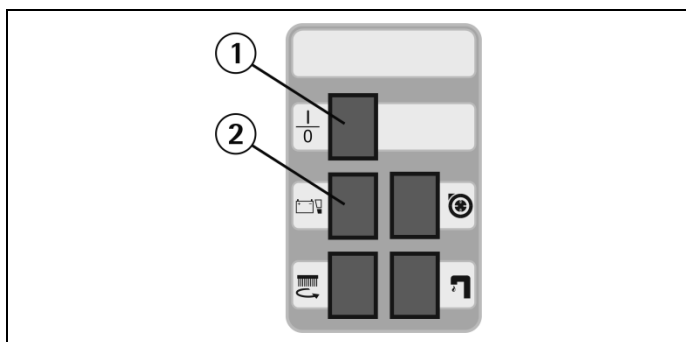
It is compulsory to hand over exhaust batteries, classified as dangerous waste, to an authorized institution according to the current laws.

**BATTERIES CHARGE LEVEL INDICATOR**

Activating the push button of the brush (2) the signal lamp of the battery charge level (1) will come on.

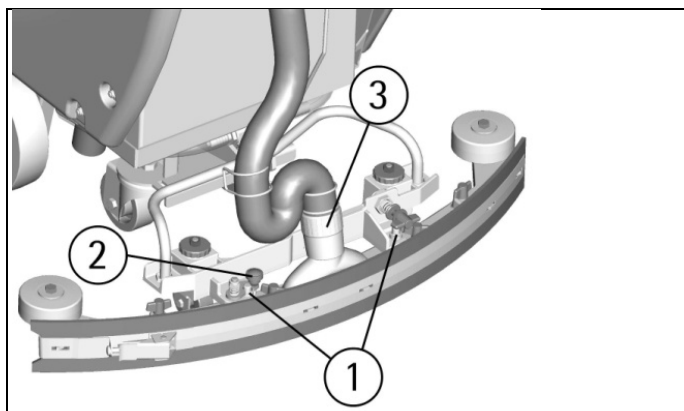
When the signal lamp is in **green colour** it means that the battery charge level is **sufficient** for the functioning of the machine.

If the signal lamp is in **red colour** it means that the battery charge level is **insufficient** for the functioning of the machine and it is necessary to recharge immediately the batteries (see under "BATTERIES RECHARGING").



**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.



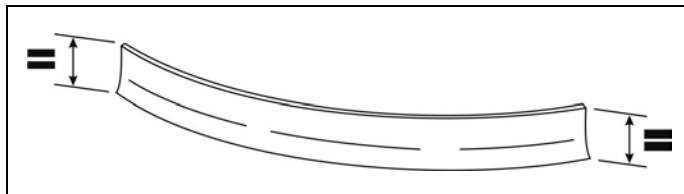
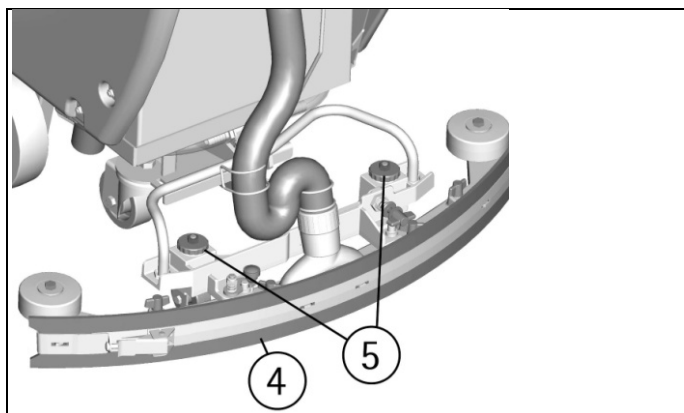
**ADJUSTMENT OF THE SQUEEGEE HEIGHT**

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.

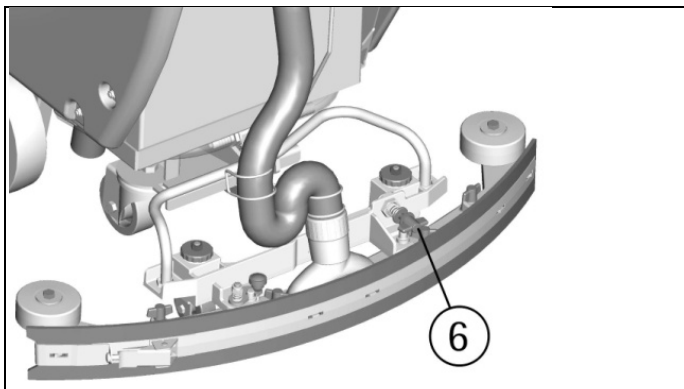
Note: The wheels of the squeegee support must be adjusted through the registers (5) at the same height so that the squeegee works parallel to the floor.



**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.

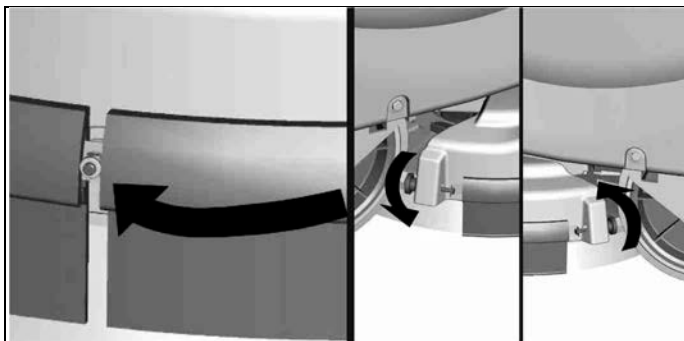


**GB****SPLASH GUARD ASSEMBLY**

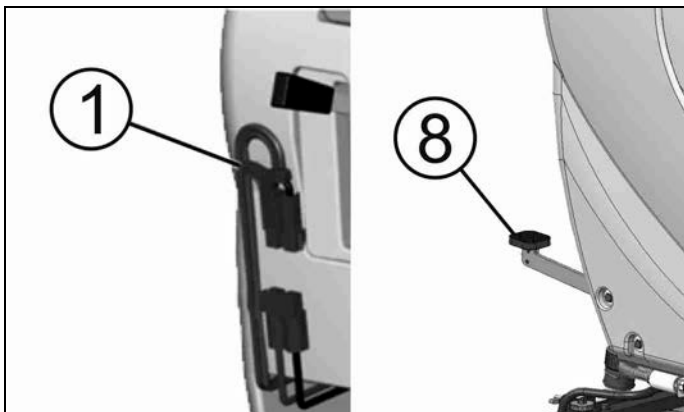
The two splash guards have to be assembled onto the brush base group. Insert the metal strips inside the suitable slots present on the rubber. Place the round hole at the flat extremity of the strip onto the screw placed in the front part of the brush base group. Secure the strips through the nut blocking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

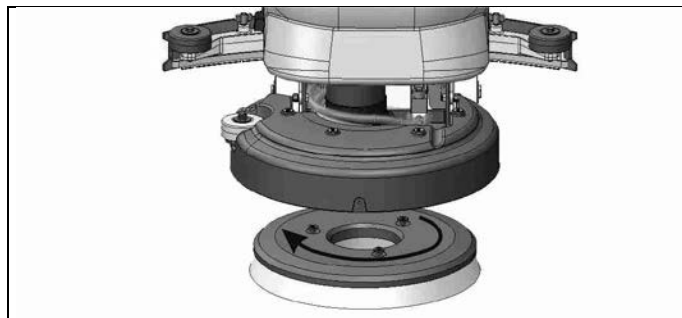
**BRUSH ASSEMBLY**

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.

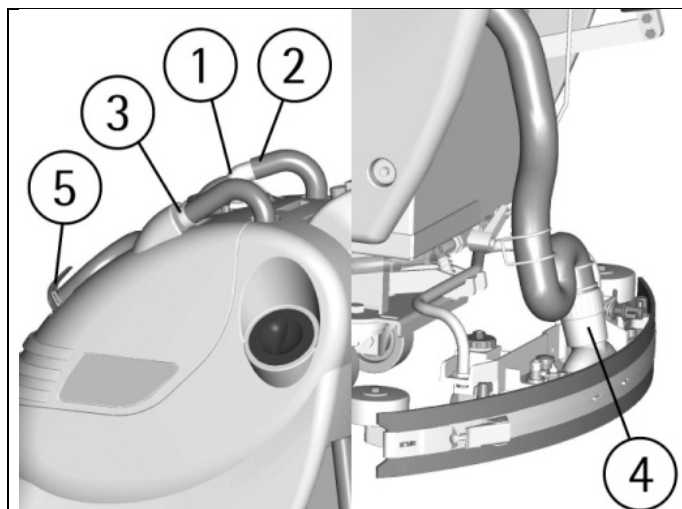
**GB**

Use only brushes supplied with the machine or the ones indicated in the paragraph "RECOMMENDED BRUSHES". The use of other brushes can compromise the security.

**RECOVERY TANK**

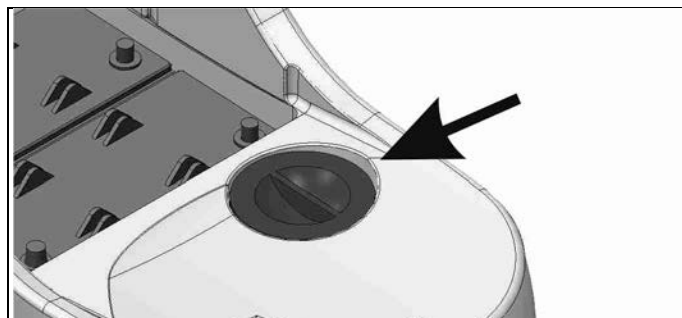
Check that the cover of the suction filter (1) is correctly secured, after rotating the levers and that the suction motor hose (2) is correctly connected.

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.

**DETERGENT SOLUTION TANK**

The solution tank is provided with an inspection opening. This permits to clean the exit point of the detergent solution.

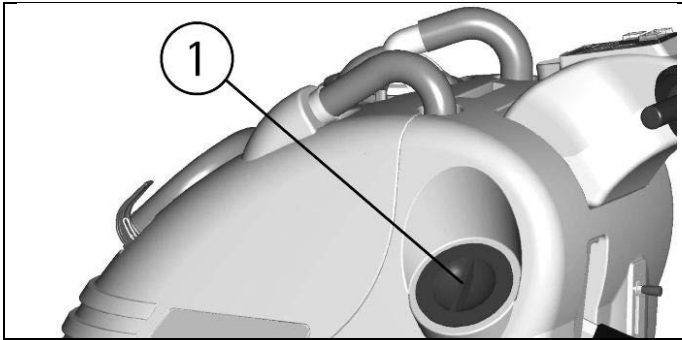
Be sure that the cap is well tightened after the cleaning.



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

Open the screw plug (1) placed in the rear 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 down the plug to close the tank.

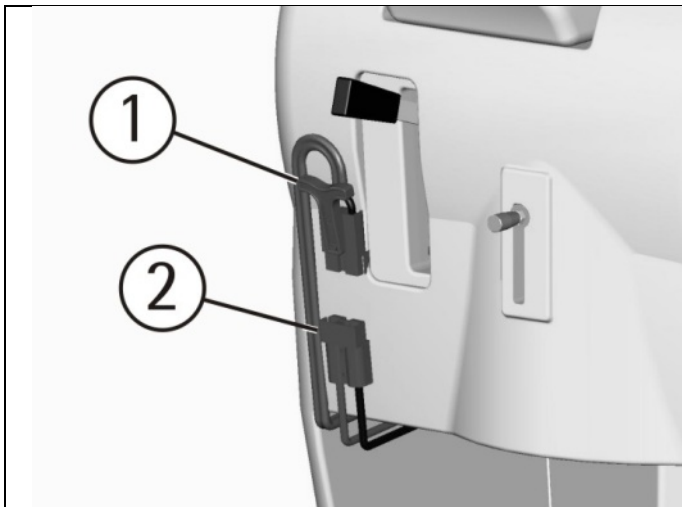


Use always low foam detergent. To avoid foam presence, before starting working operation, introduce into the recovery tank a minimum quantity of anti-foam product. **Never use pure acid.**

**FLOOR CLEANING**

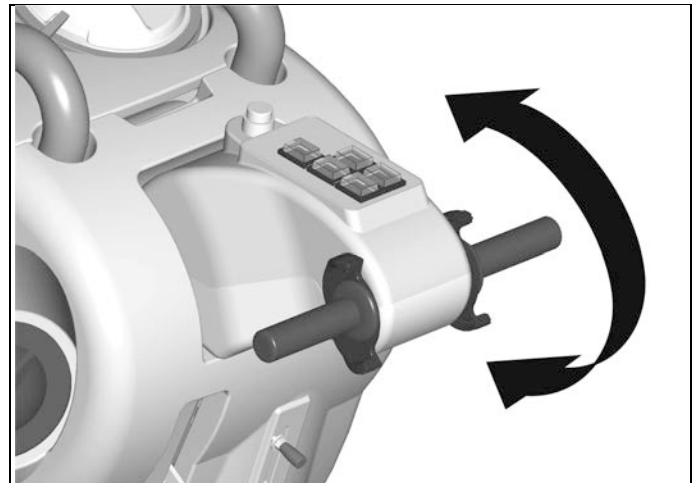
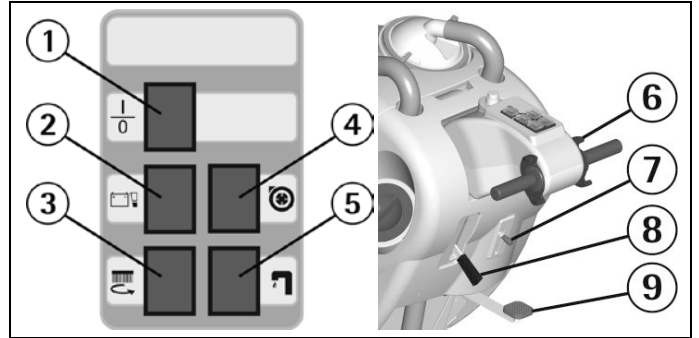
**CONNECTION OF THE BATTERIES TO THE MACHINE**

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



**STARTING OF THE MACHINE**

1. Press the switch ignition 1/0 (1).
2. Check that the signal lamp battery charge level is in green colour. If the red colour appears, it is necessary to proceed for the batteries' recharge (see under "BATTERIES RECHARGING").
3. Press the brush motor switch (3).
4. Press the suction motor switch (4).
5. Press the solenoid valve switch (5).
6. Acting upon the brush base lifting pedal (9) lower the brush base.
7. Acting upon the solution valve lever (7) open and adjust the solution detergent flow. The water starts to flow automatically when the brush motor is activated. On the instrument board the indicator of the solenoid valve switch (5) will turn on.
8. Activating the levers drive control (6) the machine will start moving, the brush starts to rotate, the solenoid valve activates the water flow and the squeegee will start drying the floor.
9. During the first meters check that the detergent solution flow is appropriate and that the squeegee adjustment guarantees a perfect drying action.



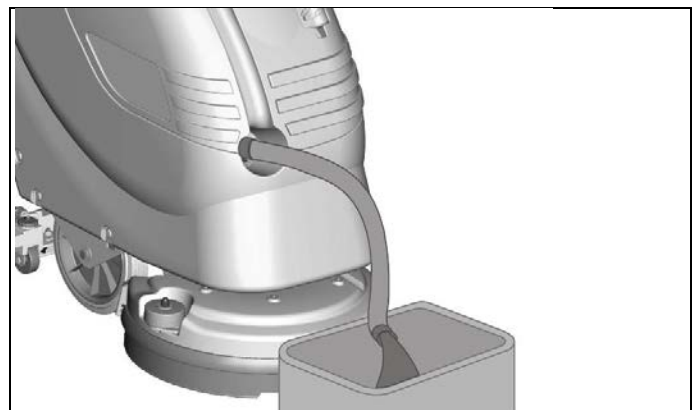
**OVERFLOW DEVICE**



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.

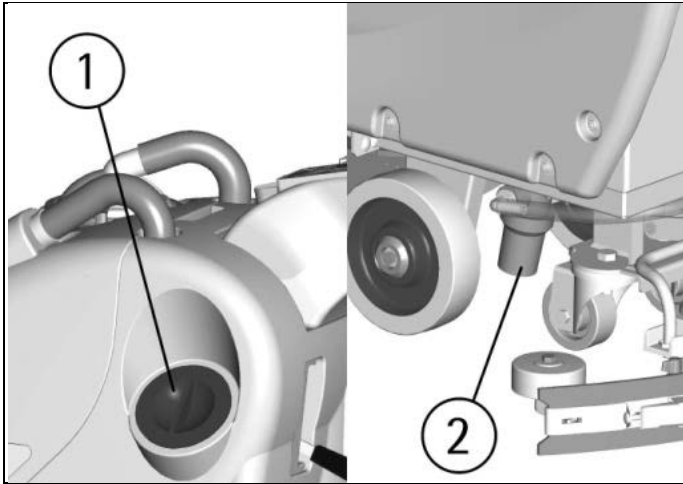
1. Hold the exhaust hose placed in the front part of the machine.
2. Take off the exhaust plug acting upon its lever and empty the recovery tank into appropriate containers, according to the standard norms for the liquid disposal.



**EMPTYING DETERGENT SOLUTION**



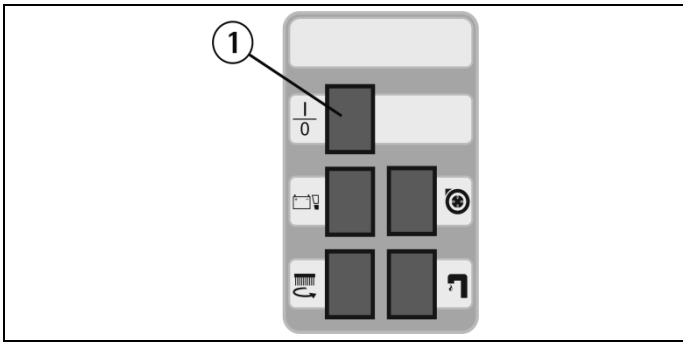
- To empty the detergent solution remained in the solution tank:
1. Bring the machine to an appropriate place for tanks draining.
  2. Unscrew the solution tank cap (1).
  3. Unscrew the exhaust plug (2).



**FORWARD MOVEMENT**

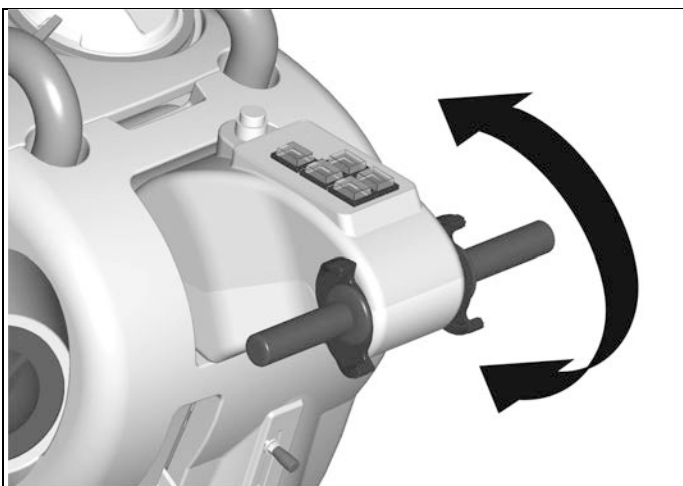
The traction of this machine is given through an electronically controlled motor.

To move the machine, act upon the switch (1), then rotate the levers drive control placed on the handle bar, in forward you obtain the forward drive, in reverse the backwards movement is obtained. The control acts in a progressive way, therefore it is possible to graduate the speed depending on each requirement rotating the lever whatever it is necessary. During reverse motion the speed is reduced.



**STOP**

Releasing the levers drive control, the machine and the brush will stop.

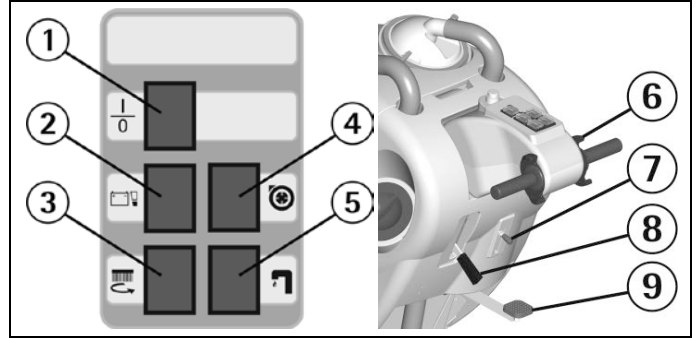


Moving the machine backwards, make sure that the squeegee is lifted.

**STOP OF THE MACHINE AFTER CLEANING OPERATION**

Before executing any type of maintenance:

1. Close the solution valve lever (7) and check that the indicator of open solution valve (5) on the instrument board turns off.
2. Lift the brushes base acting upon the pedal (9).
3. Lift the squeegee acting upon the lever (8).
4. Turn the brush motor switch off (3).
5. Turn the suction motor switch off (4).
6. Bring the machine to an appropriate place for tanks draining.



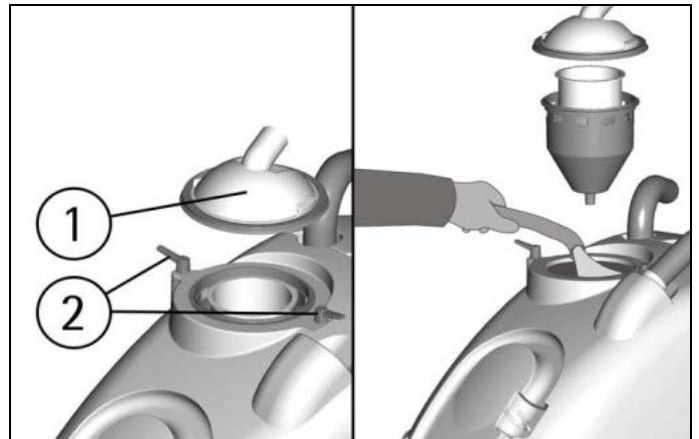
The machine is not equipped with a parking brake, therefore do not leave it on slopes.

**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.

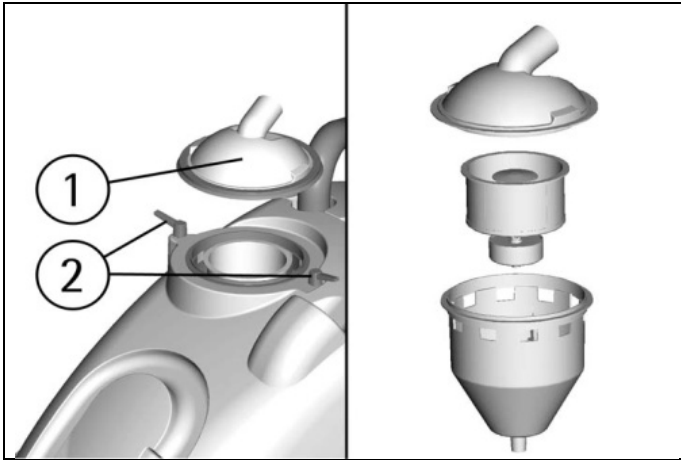


**SUCTION FILTER CLEANING**



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.

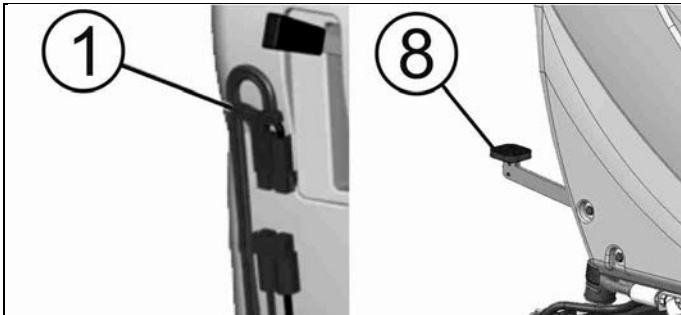




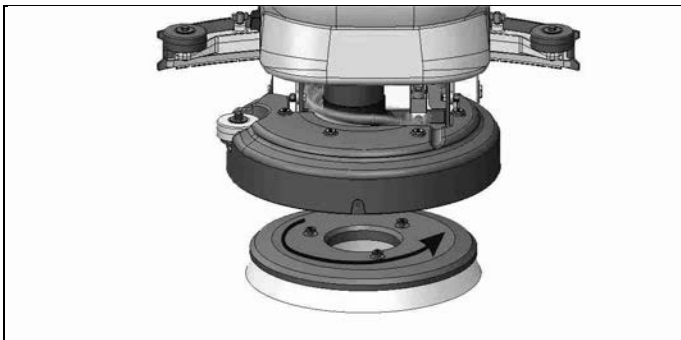
**BRUSH DISASSEMBLY**



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. The following figure shows the rotating sense for brush release.



**BRUSH CLEANING**

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

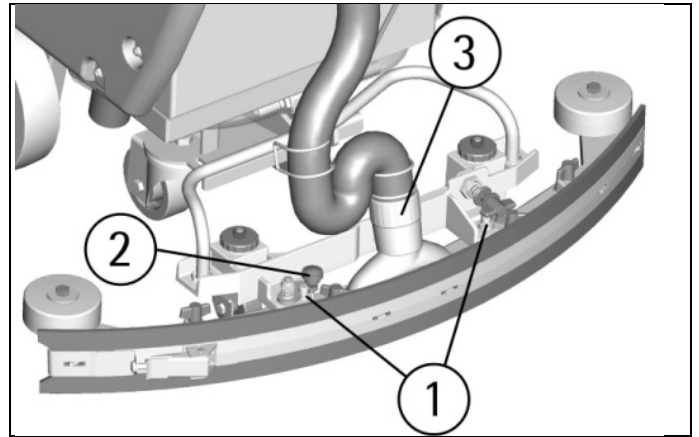
**SQUEEGEE CLEANING**



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 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.



**WEEKLY MAINTENANCE**

**REAR SQUEEGEE RUBBER REPLACEMENT**

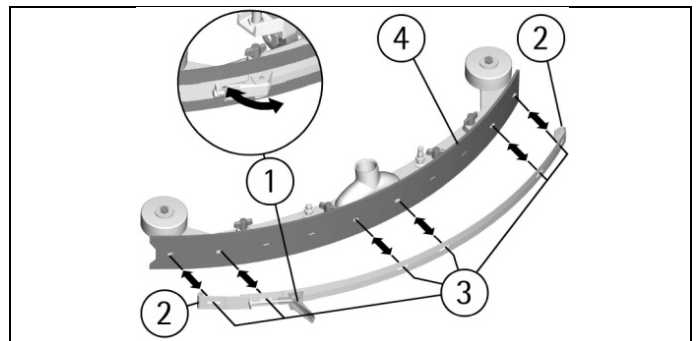
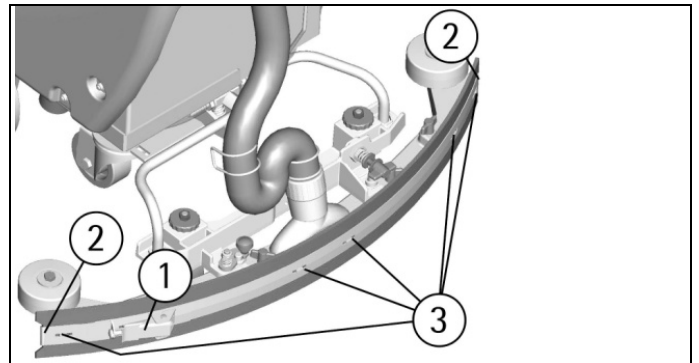


Check the squeegee rubber wear and eventually turn or replace it.

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).

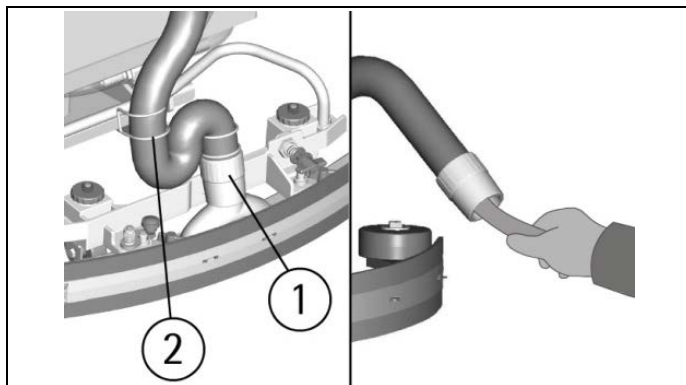


**SQUEEGEE HOSE CLEANING**



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:

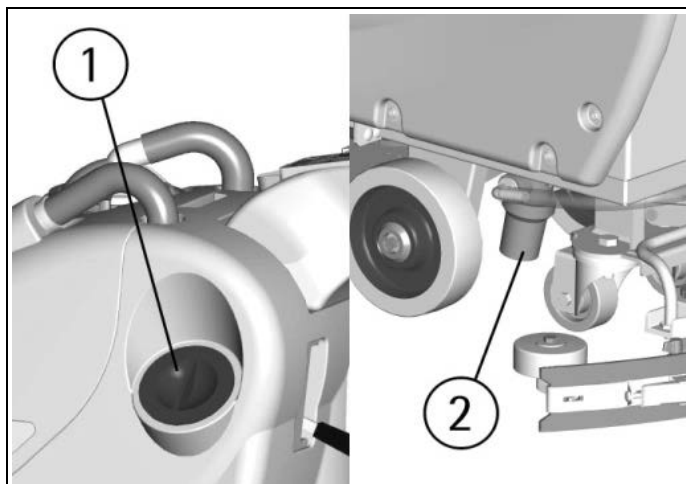
1. Take off the hose from the squeegee coupling (1) and release the guide spring of the suction hose (2).
2. Wash the inside of the hose with a water jet, from the squeegee hose side.
3. To reassemble the hose repeat reverse the operations above-mentioned.



**CLEANING OF SOLUTION 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 solution tank.
5. Rinse the solution tank filter placed inside the exhaust plug, under the machine.



**TWO-MONTHLY MAINTENANCE**

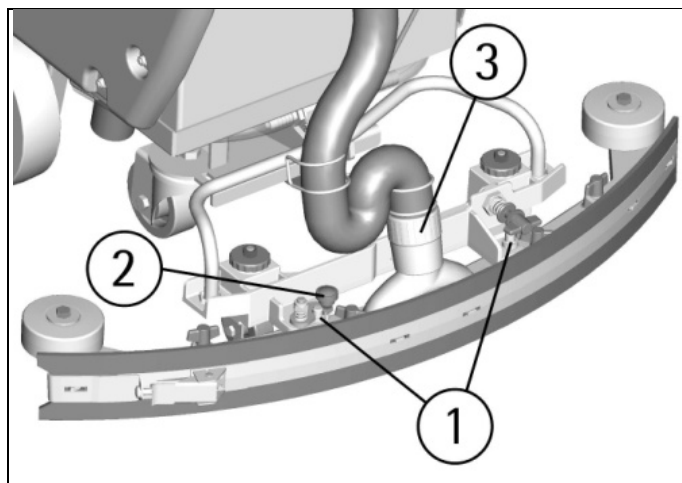
**FRONT SQUEEGEE RUBBER REPLACEMENT**



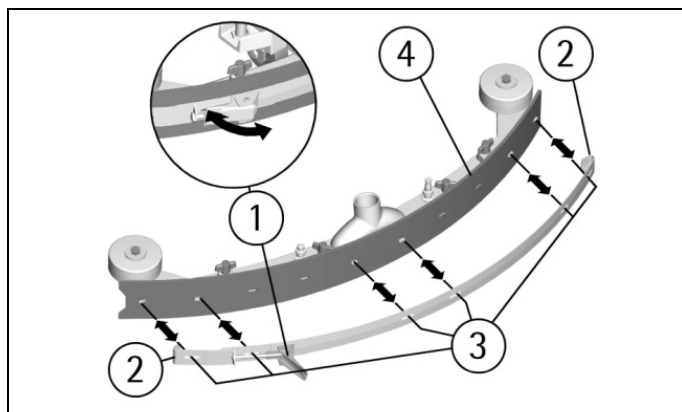
Check the wear of the squeegee rubber and eventually replace it.

For the replacement it is necessary to:

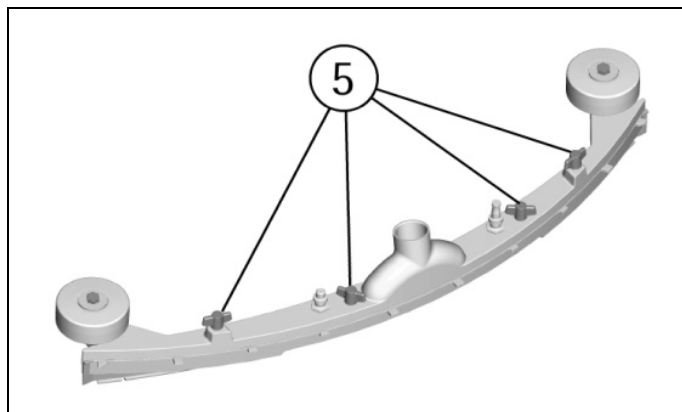
1. Take off the squeegee hose (3) from its coupling.
2. Disassemble the squeegee from the support rotating the lever (2) counterclockwise and sliding the stud bolts (1) in their slots.



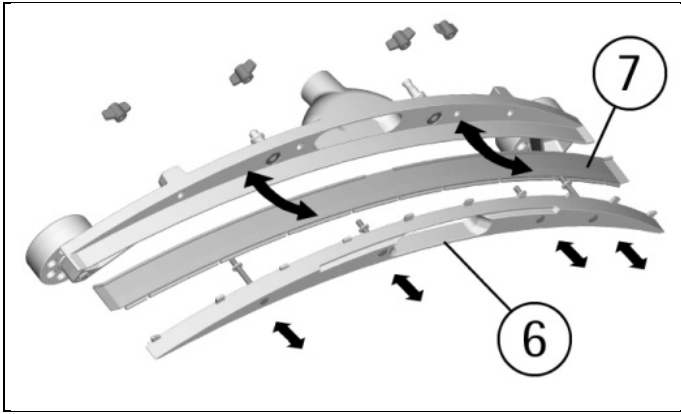
3. Uncouple the hook (1) of the rubber holder blade, release the extremities (2) from the squeegee body and take off the rubber (4).



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.

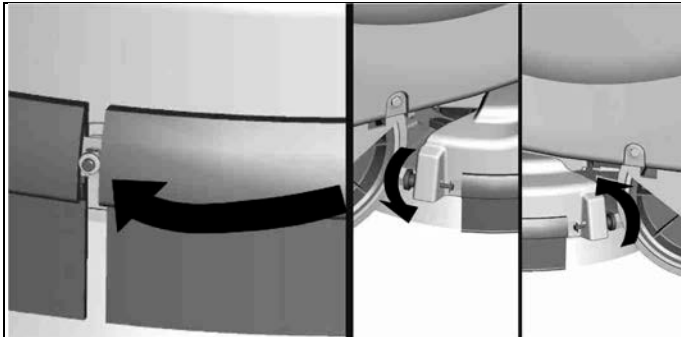
**SIX-MONTHLY MAINTENANCE**

**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.



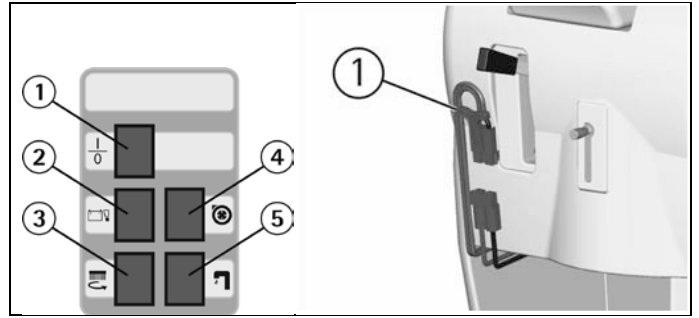
**TROUBLESHOOTING GUIDE**



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

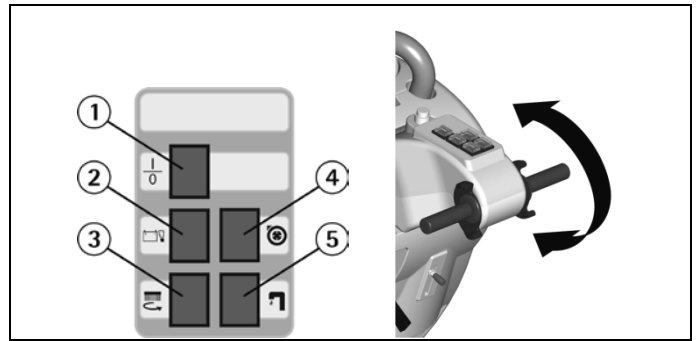
**THE SUCTION MOTOR DOES NOT WORK**

1. Verify that the switch (3) is on.
2. Check the charge level of the batteries: pressing the switch of the brush motor (2) the signal lamp of the battery charge level (1) comes on. Check that it is in green colour. If the red colour appears, it is necessary to proceed for the batteries' recharge (see under "BATTERIES RECHARGING").
3. Check that the battery connector (1) is correctly plugged in. If the problem persists, please contact the authorized technical assistance.



**THE BRUSH MOTOR DOES NOT WORK**

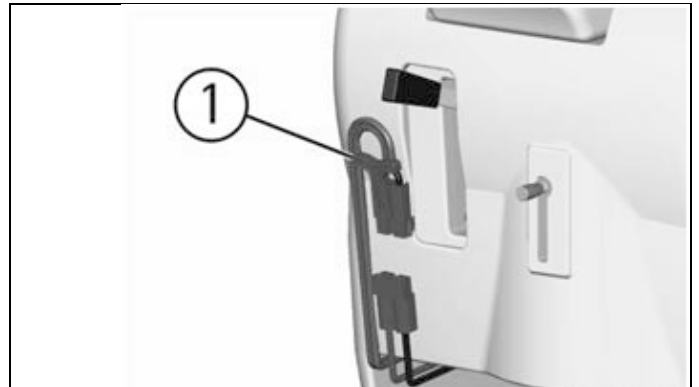
1. Verify that the switch (2) is on.
2. Activate the levers movement.
3. Check the charge level of the batteries: pressing the switch of the brush motor (2) the signal lamp of the battery charge level (1) comes on. Check that it is in green colour. If the red colour appears, it is necessary to proceed for the batteries' recharge (see under "BATTERIES RECHARGING").



4. Check that the battery connector (1) is correctly plugged in. If the problem persists, please contact the authorized technical assistance.

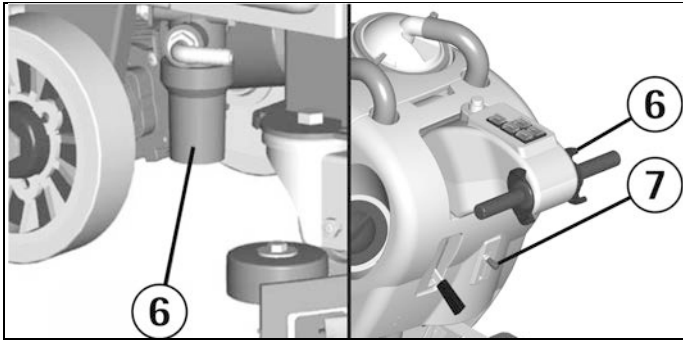


Never leave the batteries discharged for a long time.



**INSUFFICIENT WATER ON THE BRUSH**

1. Check that the solution valve lever (6) is open.
2. Check the level of the liquid in the solution tank.
3. Check that solution filter (1) is clean. 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	•	
SOLUTION TANK FILTER CLEANING		•
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		•
SOLUTION TANK CLEANING		•
CHECK BATTERIES ELECTROLYTE		•



			
24 V 	1030 W	 74 kg	
		IP23	 190 kg
<b>ruby 48blt</b>		S / N	

## RECOMMENDED BRUSHES

Brushes must be chosen depending on type of floor and dirt to be removed.

The employed material and the bristles diameter are the elements that distinguish different types of brushes.

MATERIAL	CHARACTERISTICS
PPL (Polypropylene)	Good wear resistance. Maintains characteristics with hot water up to 50°C. It is not hygroscopic.
NYLON	Excellent wear resistance, even with hot water. It is hygroscopic.
TYNEX	Nylon bristles with grains of abrasive material. Use with caution in order not to mark the floor or ruin the polishing.
BRISTLES THICKNESS	Thicker bristles are more rigid and must be used on smooth floor or floor with small joints. On irregular floors with deep joints or relieves, it is recommended to use softer bristles which penetrate more easily and deeper. Please be aware that when brush bristles are worn out and therefore too small, they become rigid and unable to penetrate and clean deeper. This may also happen with thicker bristles creating brush vibration.
PAD HOLDER	It is equipped with anchor points which permit the blocking of the abrasive pad during work. The pad is recommended to clean smooth floors.

MACHINE	CODE	QUANTITY	DESCRIPTION	USE
<b>ruby 48 blt</b>	48902010	1	Brush PPL 0,3 Ø 508	Irregular floors with large joints.
	48902020	1	Brush PPL 0,7 Ø 508	Smooth floors with small joints and persistent dirt.
	48902030	1	Brush PPL 0,9 Ø 508	Smooth floors with small joints and persistent dirt.
	48902040	1	Brush TYNEX Ø 508	Floors of resistant material and particularly dirty.
	48902050	1	Brush PPL 0,6 Ø 508	Normal floors.
	48902060	1	Brush 5-mix Ø 508	For all types of floors.
	48802010	1	Pad holder Ø 495 + center lock green	For pads of 20", for smooth surfaces cleaning.
	48802020	1	Pad holder Ø 495 + center lock black	For pads of 20", for smooth surfaces cleaning.