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Operations & Maintenance Manual  
For Commercial Use Only



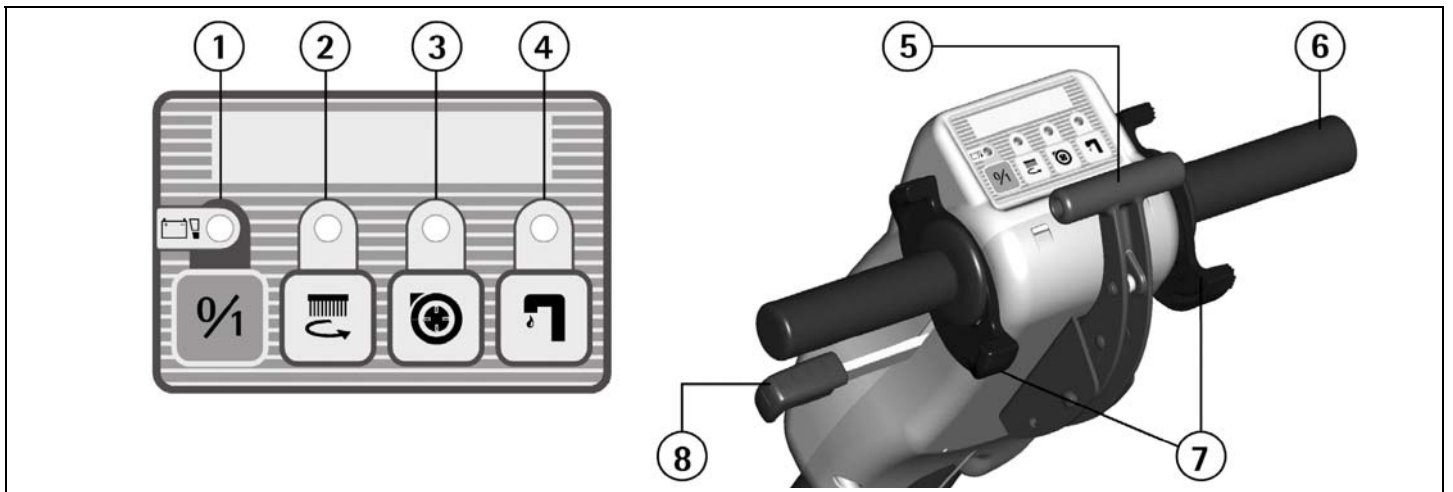
**COMPACT AUTOSCRUBBER**  
**BD 14/4**  
**99414**

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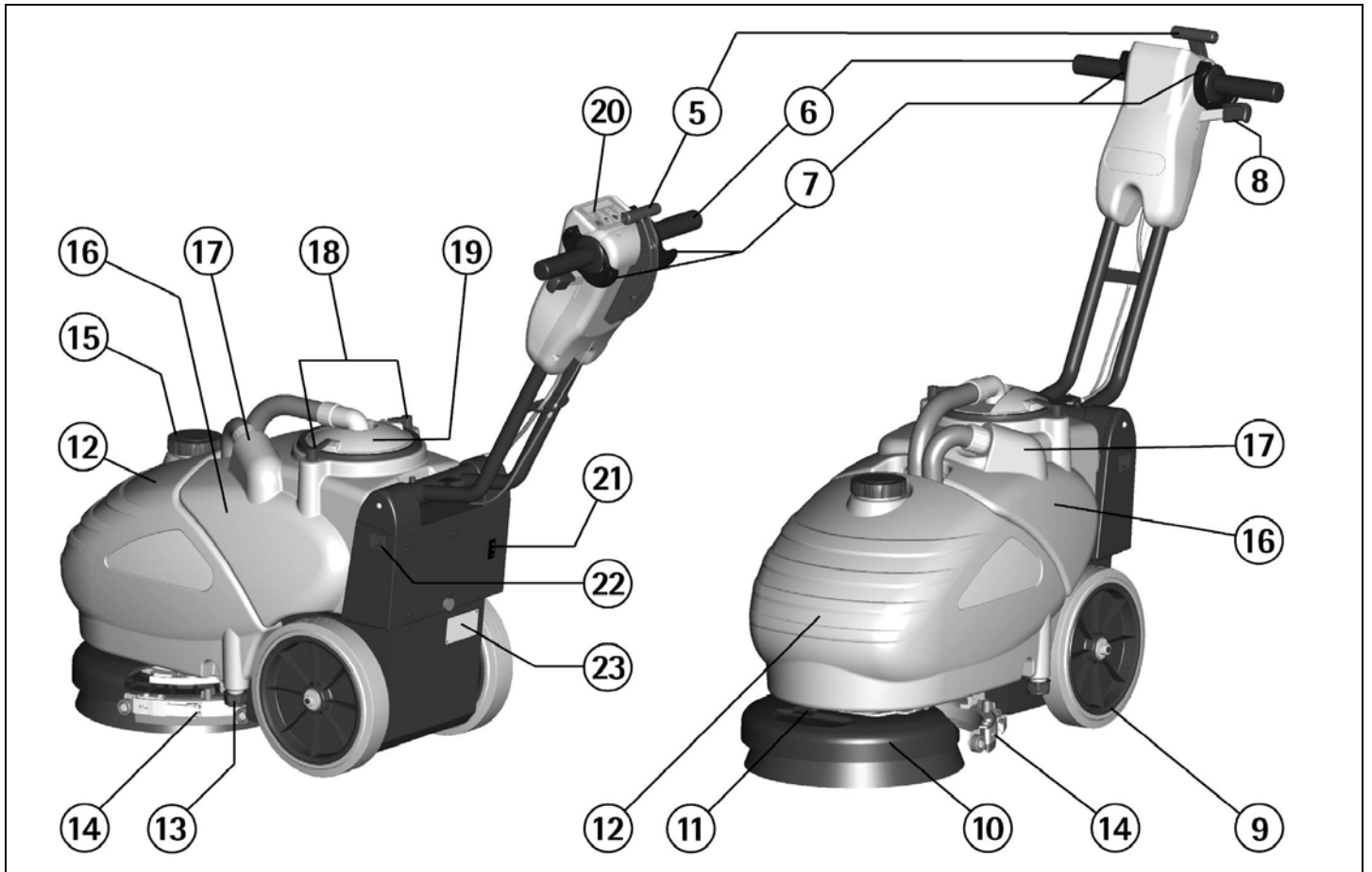
## LEGEND INSTRUMENT BOARD AND CONTROLS

1. MAIN SWITCH WITH SIGNAL LAMP
2. BRUSH MOTOR SWITCH WITH SIGNAL LAMP
3. SUCTION MOTOR SWITCH WITH SIGNAL LAMP
4. SOLENOID VALVE SWITCH WITH SIGNAL LAMP
5. SQUEEGEE LIFT LEVER
6. HANDLE BARS
7. BRUSH ACTIVATION LEVERS
8. HANDLE BAR RELEASE LEVER



## LEGEND MACHINE

- |                              |  |
|------------------------------|--|
| 9. WHEELS                    | 16. RECOVERY TANK                              |
| 10. BRUSH BASE ASSEMBLY      | 17. INLET OPENING SQUEEGEE HOSE                |
| 11. SOLUTION FLOW ADJUSTMENT | 18. BLOCKING LEVERS SUCTION COVER              |
| 12. SOLUTION TANK            | 19. SUCTION COVER                              |
| 13. SOLUTION TANK DRAIN      | 20. INSTRUMENT BOARD                           |
| 14. SQUEEGEE ASSEMBLY        | 21. CHARGE LEVEL INDICATOR                     |
| 15. SOLUTION TANK CAP        | 22. POWER CABLE RECEPTACLE FOR BATTERY CHARGER |
|                              | 23. SERIAL NUMBER PLATE                        |



<b>TECHNICAL DESCRIPTION</b>		<b>with batteries AGM</b>
Cleaning width	in	14
Squeegee width	in	16
Tension batteries	V	24
Capacity of the batteries	Ah <sub>5</sub>	28
Power installed	W	430 (18A)
Working capacity, up to	Sq.ft/h	11,300
Brush diameter	In	14
Brush rpm	Rpm	170
Brush pressure (max)	Lbs.	55
Suction vacuum	Water lift	36"
Type of drive		semi automatic
Maximum gradient	%	2
Capacity solution tank	Gallon	4
Capacity recovery tank	Gallon	4.2
Machine length (min)	In	29
Machine height	In	21.6
Machine width	In	16.3
Machine weight (empty, with batteries)	Lbs.	143
Weight of the batteries	Lbs.	48
Recharging time max	Hour	10
Battery compartment with support (L x W x H)	in	8.5 x 10.6 x 7.5
Sound Level	dB (A)	< 70
Class		III
Protection level	IP	X3
Battery charger	V ~	100-240
Battery charger: frequency	Hz	50-60
Battery charger: nominal current	A	5
Battery charger: class		I

## INTRODUCTORY COMMENT

Thank you for having chosen our machine. This floor cleaning machine is used for the industrial and commercial cleaning and is able to clean any type of floor, except carpet cleaning. During its forward movement, the combined action of the brushes and the solution removes the dirt which is recovered 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 working order. We therefore ask you to read this instruction booklet carefully whenever difficulties arise in the course of the machine's use. We ask you to contact our service department for all advice and servicing as may prove necessary.

## GENERAL RULES OF SECURITY

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

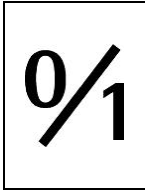
- Read the labels carefully on the machine. Do not cover them for any reason and replace them immediately if damaged.
- The machine must be used exclusively by authorized staff that has been instructed for its use.
- During the operation of the machine, pay attention to other people and especially to the children.
- In the presence of children guard the machine, so that they do not play with it.
- Do not touch or pass over the mains cable while the brushes are operating.

- The socket for the power supply must be equipped with a standard earthing (ground) system.
- Do not damage the mains cable by squashing, bending or stressing.
- Check the integrity of the mains cable. If during working a damage is noticed, stop the machine immediately and replace the cable.
- Do not mix different detergents, avoiding harmful odors.
- Storage temperature: between 40°F and 131°F (5°C and +55°C).
- Operating temperature: between 40°F and 104°F (5°C and 40°C).
- The humidity should not exceed 95%.
- Do not use the machine in explosive atmosphere.
- Do not use the machine as a means of transport.
- Do not use acid solutions which could damage the machine and/or the persons.
- Avoid working with the brush when the machine is standing still, in order to prevent floor damages.
- 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 fire-extinguisher.  
Do not use water.
- Do not strike shelvings or scaffoldings, where there is danger of falling objects.
- Do not use the machine on areas having a higher gradient than the one stated on the number plate.
- 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.
- Signal the areas of moist floors with suitable signs.
- If the machine does not work properly, check by conducting simple maintenance procedures. Otherwise, ask for technical advice

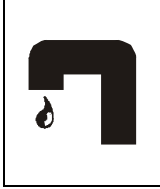
from an authorized assistance centre.

- 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".
- For any cleaning and/or maintenance operation take off the power supply from the machine.
- Do not take off the protections which require the use of tools to be removed.
- 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.
- 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.

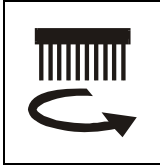
SYMBOLOLOGY



Symbol 0/1 indicating the main switch and its signal lamp.



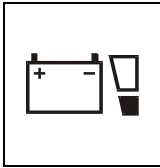
Symbol denoting the solution valve. Indicates the switch and the signal lamp of the solenoid valve.



Symbol denoting the brush. Indicates the switch and the signal lamp of the brush motor.



Symbol denoting the suction motor. Indicates the switch and the signal lamp of the suction motor.



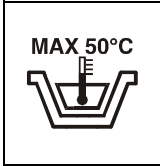
Symbol denoting the charge level of the batteries.



Symbol that indicates the position of the outlet plug of the solution tank.



Symbol that indicates to empty the tanks before rotating the machine.



Indication of the maximum temperature of the solution detergent.



Symbol that indicates the flow adjuster of the detergent solution.



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.



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



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

## BEFORE USE

### Handling of the packed machine

The machine is supplied with suitable packing.

The total weight is 165lbs.

Packing dimensions:

Base: 30 in x 16 in

Height: 24.5 in

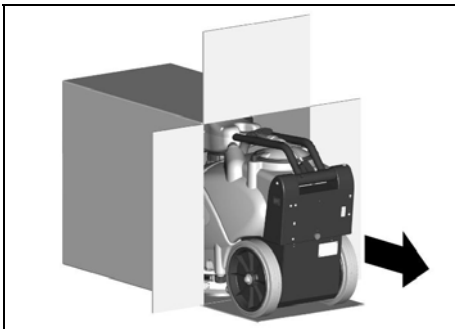


### ATTENTION:

Do not place more than 2 packings on top.

### Unpacking of the machine

1. Open the packing as shown in the figure.
2. Take the machine off the packing avoiding heavy contacts to mechanical parts.
3. Keep the packing for eventual transport needs.



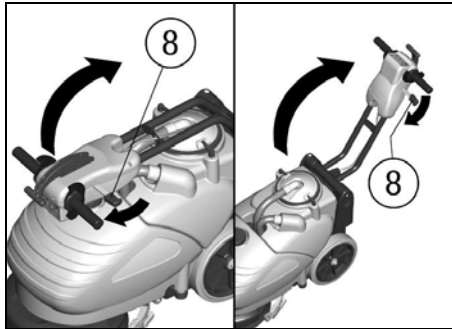
### Movements of the handle bar

The handle bar in the package arrives in closed position.

To rotate the handle bar in one of the different working positions to move the machine:

1. Pull up the release lever (8) near the handle bars.
2. Rotate the handle bar into the working position while holding the release lever (8).
3. Release the release lever (8) to lock the handle bar.

Use the same procedure for further height adjustment of the handle bar to find the most comfortable working position.

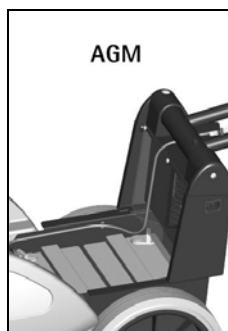


### Batteries

This machine is supplied with two batteries already connected in series, placed in its appropriate compartment under the recovery tank.

In case the batteries need to be disassembled and/or replaced, please contact the authorized technical assistance.

In fact, the replacement must be made exclusively with batteries which have the identical performances as the ones already installed.



To reach the battery compartment it is necessary to:

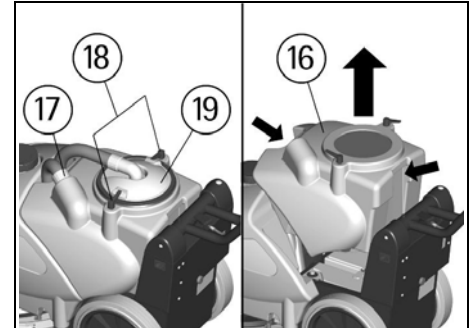
1. Remove the squeegee hose from its seat (17).
2. Remove the suction filter cover (19) after turning the blocking levers (18).
3. Lift and remove the recovery tank (16) holding it from the provided handles. One on the front and one on the rear of the tank.



### ATTENTION:

Strictly follow manufacturer/distributor indications for the maintenance and

daily recharge of the batteries. Specialized staff, using suitable protection accessories must execute all installation and maintenance operations.



### Batteries recharging

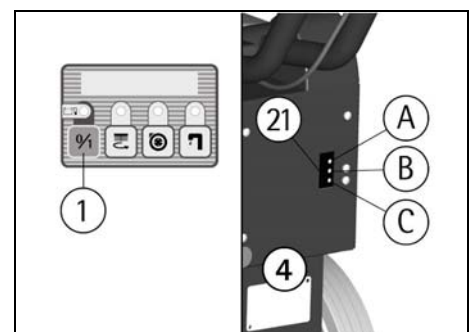
(Standard version with AGM batteries)

The charge level of the batteries is visible by first activating the main switch (1) placed on the instrument board, through three luminous leds placed on the frame in the rear part of the machine.

A: green led on = batteries charged.

B: orange led on = level at half charge.

C: red led on = complete discharge of the batteries with consequent automatic switching off of all the machine's function.



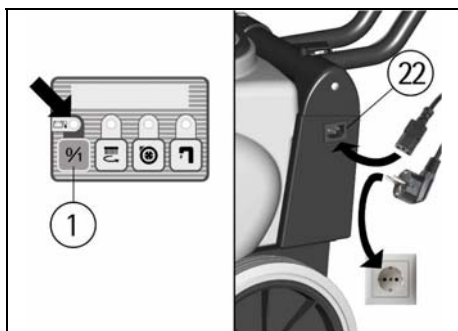
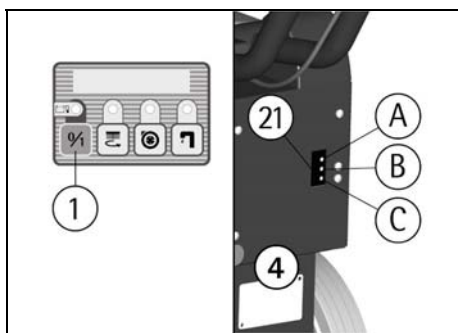
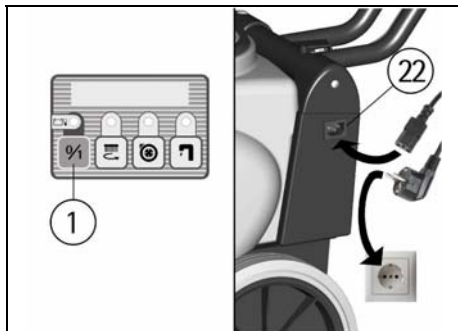
To prevent permanent damages to the batteries, it is essential to arrive to their complete discharge every 6/7 cycles, providing for the recharge only when the red signal of discharged batteries is activated. In fact, an extended series of charging cycles carried out when the batteries still have a residual

charge, causes a battery deterioration, thereby shortening the battery life.

**NOTE:** Never leave batteries completely discharged even if the machine is not used.

During the recharging operations a device is activated that forbids the machine's functioning.

Bring the machine on a level surface near to a suitable outlet. Switch off the main switch (1). Connect the mains cable supplied with the machine both to the machine and to the outlet socket as indicated in the figure. At the end of the charging phase take off the mains cable.



#### ATTENTION:

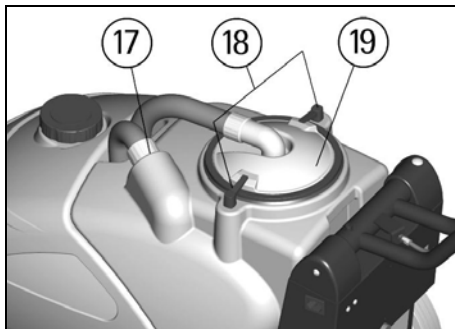
Never charge batteries with a non-suitable charger. Strictly follow the instructions supplied by the batteries and charger manufacturer.

#### Batteries disposal

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

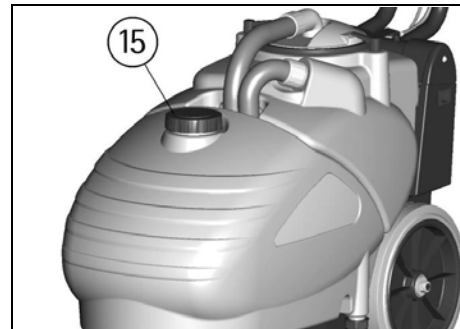
#### Recovery tank

Check that the cover of the suction filter (19) is correctly secured, after rotating the levers (18). Furthermore, check that the squeegee hose is correctly seated in its seat (17).



#### Solution tank

The capacity of the solution tank is indicated in the technical data. Remove the solution tank cap (15) placed in the top part of the machine and fill the solution tank with clean water at a maximum temperature of 122°F (50°C). Add the liquid detergent in the percentage and conditions recommended by the manufacturer. To avoid excessive foaming, which could cause problems to the suction motor, use the minimum percentage of detergent. Screw down the cap to close the tank.



#### ATTENTION:

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

#### FLOOR CLEANING

##### Starting the machine

The push buttons on the instrument board are equipped with an upper green signal light that will light when the control is activated.

1. Switch on the machine pressing the main switch (1).
2. Check the battery charge level (see under "BATTERIES RECHARGING").
3. Lower the squeegee by rotating the handle of the squeegee lifting lever (5) placed in the centre of the handle bar.
4. Press the switch for the brush motor (2).
5. Press the switch for the suction motor (3).
6. Press the switch for the solenoid valve (4).

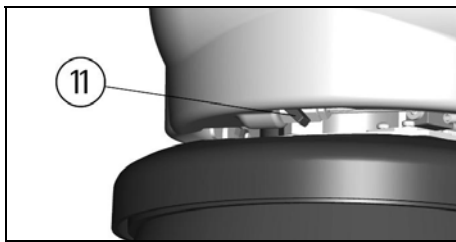
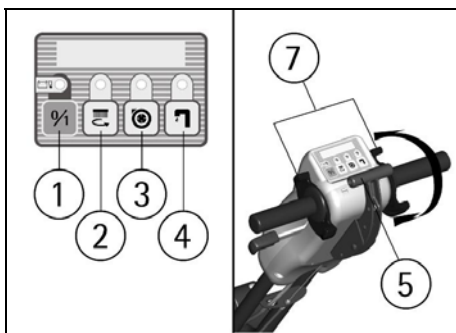
The machine is equipped with a solenoid valve, therefore the solution flow will be activated automatically by pressing the brush activation levers (7). Releasing these levers, will stop the flow automatically.

7. Pressing the brush activation levers (7) the brush will start rotating. The solution flow begins

to flow and the squeegee will start drying the floor.

8. During the first few feet check that the solution flow is appropriate. The flow adjuster of the solution is already adjusted at the factory to satisfy the cleaning of most floors. If it is necessary to adjust the quantity of solution onto the floor, adjust the lever of the flow adjuster (11).

9. When moving the machine backwards, make sure that the squeegee is lifted.



#### Handle bar adjustment

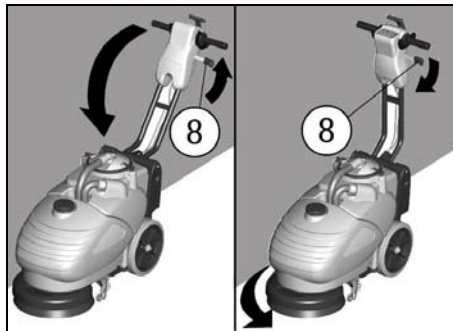
When approaching obstacles or near walls, it is possible to simplify the handling of the machine by adjusting the handle bar more vertically with respect to the machine.

To rotate the handle bar:

1. Lift up on the release lever (8)
2. Rotate the handle bar into the new working position keeping the release lever (8) pulled.
3. Release the lever (8) to lock handle bar.

Once the obstacle has been passed repeat the operation to return to the previous working position. This operation is also possible with the machine in motion by

temporarily holding the handle bar release levers (8).



#### 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.

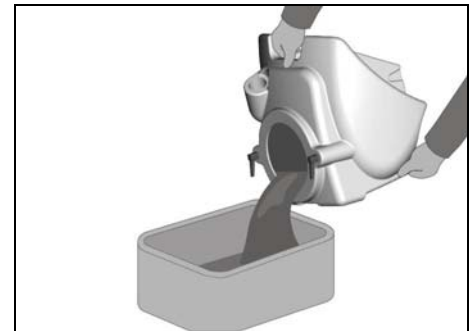
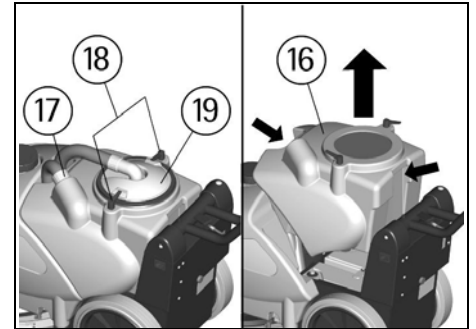
When this happens, it is necessary to empty the recovery tank.

1. Switch off the machine pressing the main switch.
2. Take off the suction filter cover (19) after turning the blocking levers (18).
3. Take off the squeegee hose from its seat (17).
4. Lift and remove the recovery tank (16) holding it from the provided handles, one on the front and one on the rear of the tank.
5. Reassemble everything.



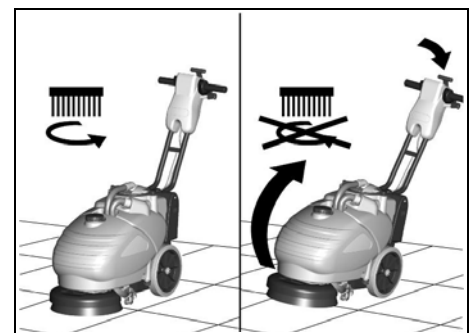
#### ATTENTION:

This operation must be carried out using gloves to protect from contact with dangerous solutions.



#### Security device brush lifting

A security device prevents the brush motor when, for any reason, the brush is lifted from the floor during operation. To check this operation, push down on the handle so that the brush is lifted off of the floor. The brush should stop rotating. When returned to the normal working position the brush should start rotating again.

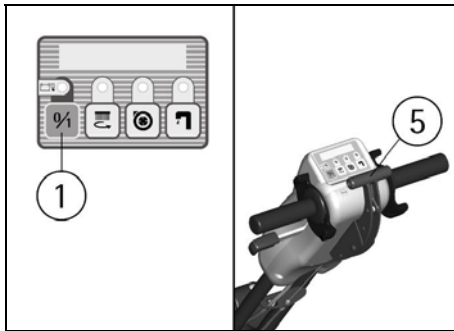


#### STOPPING THE MACHINE AFTER CLEANING OPERATION

Before carrying out any type of maintenance:

1. Switch off the main switch (1).
2. Lift the squeegee by rotating the squeegee lift lever upwards (5).

3. Bring the machine to an appropriate place for tank draining.



### ⚠ ATTENTION:

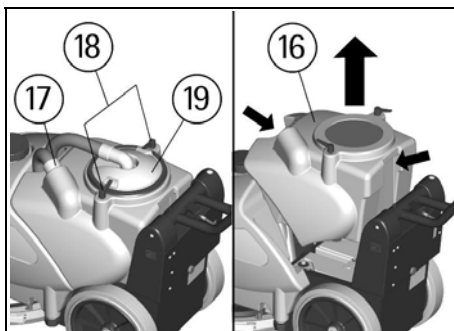
The machine is not equipped with a parking brake, therefore do not leave it on slopes.

## DAILY MAINTENANCE

Emptying and cleaning of the recovery tank

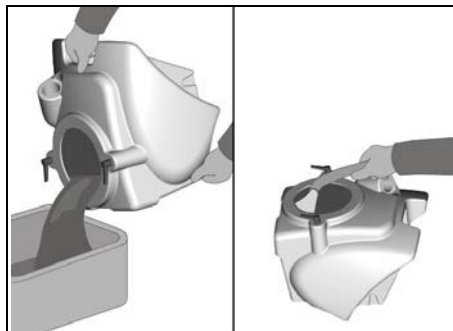
To empty and clean the recovery tank.

1. Switch off the machine pressing the main switch.
2. Take off the suction cover (19) after rotating the blocking levers (18).
3. Take off the squeegee hose from the seat (17).
4. Lift and take off the recovery tank (16) holding it from the provided handles located on the front and back of the tank.



Empty the recovery tank into appropriate containers, according to the standard norms for the liquid disposal.

5. Clean and rinse the tank and allow to air dry.
6. Reassemble everything.



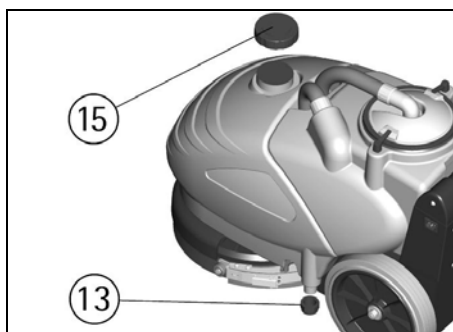
### ⚠ ATTENTION:

This operation must be carried out using gloves to protect from contact with dangerous solutions.

Emptying and cleaning of the solution tank

To empty the solution remained in the solution tank:

1. Bring the machine to an appropriate place for draining of the tank.
2. Switch off the machine pressing the main switch.
3. Unscrew the cap (15) of the solution tank.
4. Unscrew the drain plug (13) placed in the rear low left part of the machine.

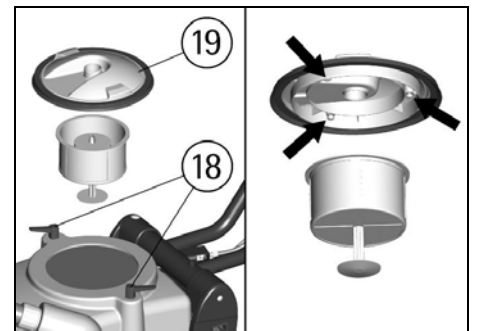


### ⚠ ATTENTION:

This operation must be carried out using gloves to protect from contact with dangerous solutions.

Suction filter cleaning

1. Take off the suction cover (19) after rotating the blocking levers (18).
2. Take off the filter with the float, bending the filter edge to release it from the screws on the cover.
3. Clean all parts with a water jet and especially the surfaces and filter bottom.
4. Carry out the recovery tank cleaning operations.
5. Reassemble everything.



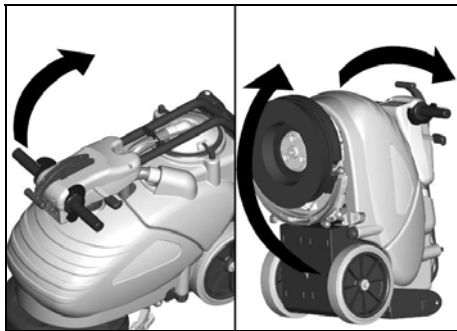
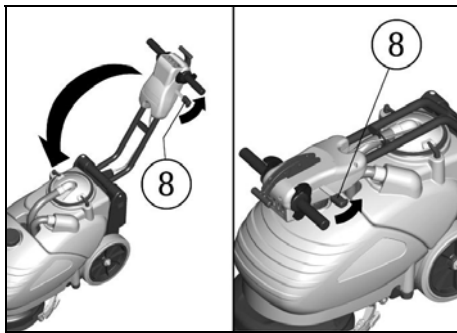
Positioning of the machine for maintenance and parking

The machine can assume a vertical positioning, tipped over at the back, after having folded the handle bar onto the machine. This position allows the unit to be stored in a small space and simplifies maintenance operations.

To rotate the machine to a storage position it is necessary to:

1. Switch off the main switch.
2. Check that both tanks are empty, otherwise empty them (see under "EMPTYING AND CLEANING OF THE RECOVERY TANK" and "EMPTYING AND CLEANING OF THE SOLUTION TANK").
3. Pull up on the handle bar release lever (8) near the handle bar.
4. Rotate the handle bar towards the tanks keeping the release lever (8) pulled.
5. Release the lever (8) to obtain the handle bar locking position.
6. Holding the handle bar firmly, lift the front part of the machine

making it rotate onto the rear wheels bringing it into the vertical position as shown in the figure.

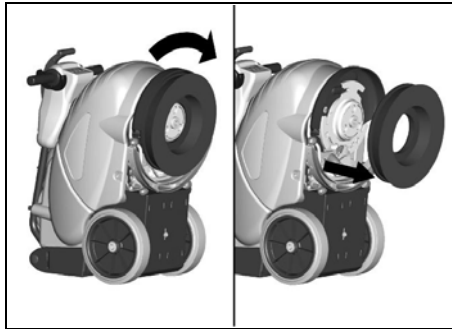


#### Brush cleaning

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

#### Brush disassembly/assembly

1. Tip the machine over backwards (see under "POSITIONING OF THE MACHINE FOR MAINTENANCE AND PARKING") paying attention to remember to switch off the main switch and to empty the tanks before tipping over the machine.  
2. With the machine in this position rotate the brush clockwise, as indicated in the figure, until it is released from the seats of the brush holder plate.

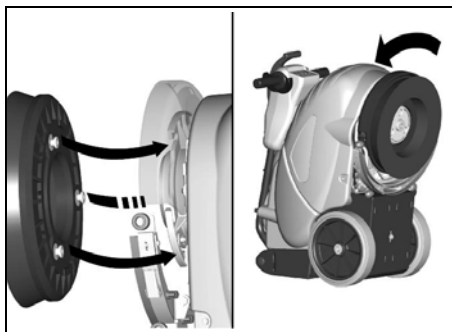


3. To reassemble the brush, insert the coupling buttons on the brush into the slots of the brush holder plate and rotate counterclockwise until it locks.



#### ATTENTION:

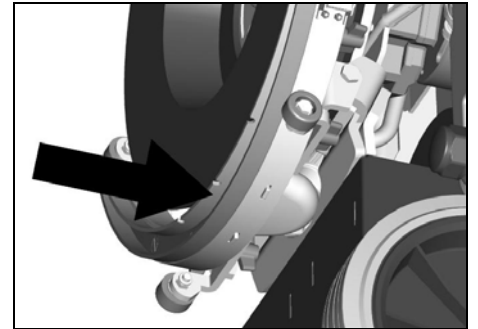
The handling of the brushes operation must be carried out using suitable gloves to protect both mechanically from contact with the bristles and the chemical risk of contact with dangerous solutions.



#### Squeegee cleaning

Keeping the squeegee clean guarantees the best drying action.

1. Tip over the machine backwards (see under "POSITIONING OF THE MACHINE FOR MAINTENANCE AND PARKING") paying attention to remember to switch off the main switch and to empty the tanks before tipping over the machine.  
2. With the machine in this position clean the internal part of the squeegee inlet, eliminating dirt build up, and clean the squeegee rubbers.

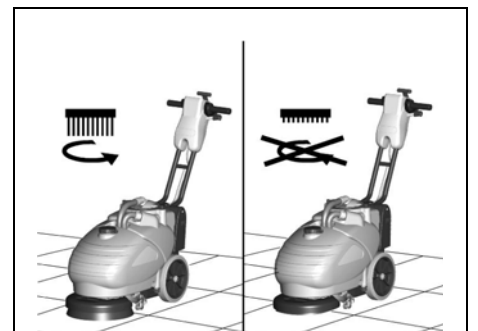


#### ORDINARY MAINTENANCE

##### Brush wear Control device

A safety device stops the brush motor when the brush reaches a low bristle level of about 10mm such that a good cleaning result is not guaranteed and to prevent floor damages.

To restore the working functionality of the machine it is necessary to replace the brush (see under "BRUSH DISASSEMBLY/ASSEMBLY").



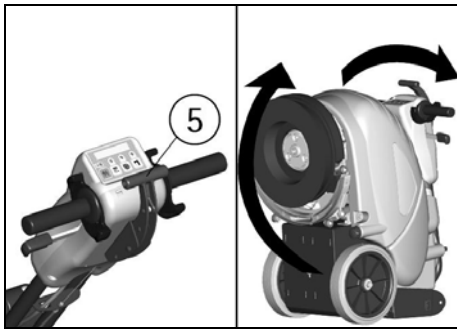
##### Brush replacement

The brush has to be replaced when the control device brush wear intervenes. It is possible to use other brush types, depending on the type and dirt of the floor to be cleaned (see under "RECOMMENDED BRUSHES"). Disassemble the old brush and replace it with a new one (see under "BRUSH DISASSEMBLY/ASSEMBLY").

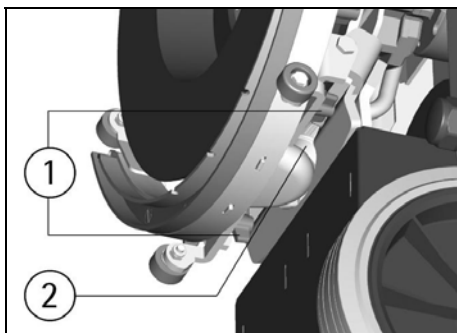
Rear squeegee rubber replacement  
Check the rear squeegee rubber wear and eventually turn or replace it.

For the replacement it is necessary to:

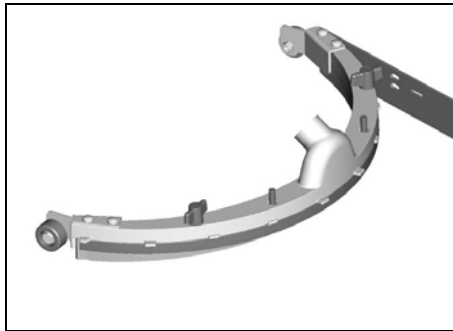
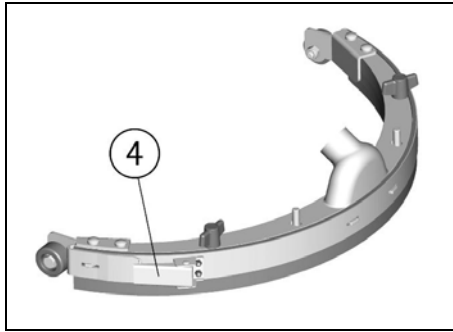
1. Rotate the squeegee lifting lever (5) to lower the squeegee assembly.
2. Tip over the machine backwards (see under "POSITIONING OF THE MACHINE FOR MAINTENANCE AND PARKING") remember to switch off the main switch and to empty the tanks before tipping over the machine.



3. With the machine in this position remove the wing nuts (1)
4. Remove the squeegee hose (2) and remove the squeegee assembly.



5. Release the catch (4) of the rubber holder blade and take the rubber off to turn it to a new side or replace it.
6. Check that the coupling and the squeegee hose are not obstructed and clean the entire assembly. To reassemble the squeegee, reverse the operations above.

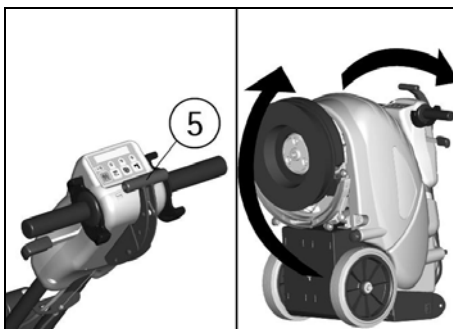


#### Front squeegee rubber replacement

Check the wear of the front squeegee rubber and replace it when necessary.

For the replacement it is necessary to:

1. Rotate the squeegee lifting lever (5) to lower the squeegee assembly.
2. Tip the machine over backwards (see under "POSITIONING OF THE MACHINE FOR MAINTENANCE AND PARKING") remember to switch off the main switch and to empty the tanks before tipping over the machine.



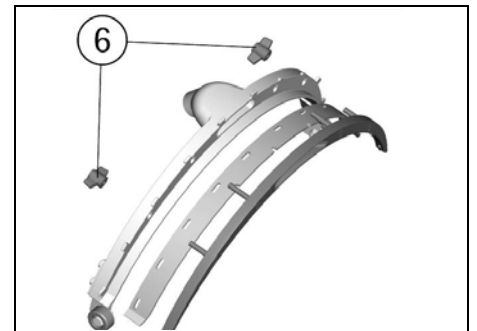
3. With the machine in this position proceed to disassemble

the squeegee and then the rear squeegee rubber (see under "REAR SQUEEGEE RUBBER REPLACEMENT").

4. Take off the wing nuts (6) in the upper part of the squeegee body, separate the two metal parts that form the squeegee body to take off the front rubber.

5. Clean and rinse all of the components.

To reassemble the squeegee reverse the operations above.

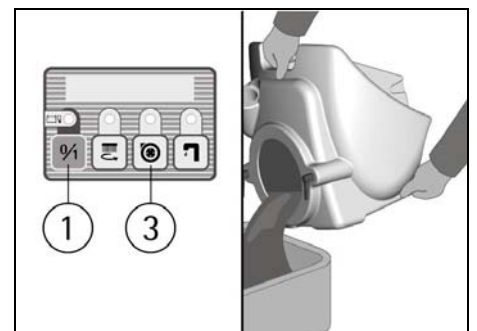


#### TROUBLESHOOTING GUIDE

The suction motor does not work

1. Check the charge level of the batteries that is visible by first activating the main switch (1) (see under "BATTERIES RECHARGING").
2. Verify that the suction motor switch (3) is on.
3. Check the level in the recovery tank (see under "OVERFLOW DEVICE") and if necessary, empty the tank.

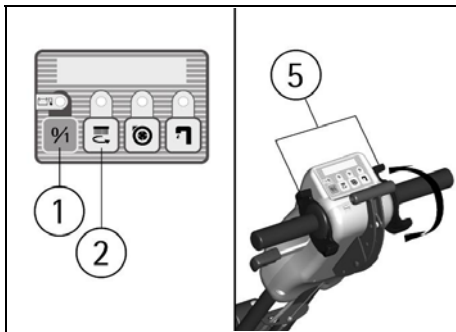
If the problem persists, please contact the authorized technical assistance.



The brush motor does not work

1. Check the charge level of the batteries that is visible when activating first the main switch (1) (see under “BATTERIES RECHARGING”).
2. Verify that the brush motor switch (2) is on.
3. Press the brush activation levers (5).
4. Check that the safety device for the brush lifting or the brush wear is not active.

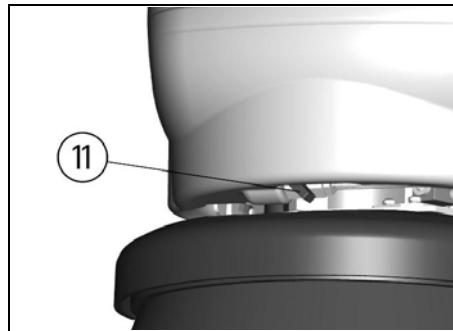
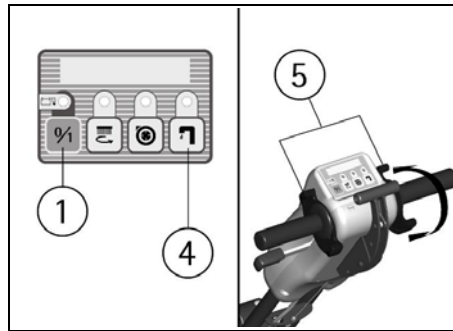
If the problem persists, please contact the authorized technical assistance.



Insufficient water on the brush

1. Check that the solenoid valve switch (8) is on.
2. Check the level of the liquid in the solution tank (see under “SOLUTION TANK”).
3. Check that the solution flow adjuster (11), placed in front underneath the solution tank, is sufficiently open.
4. Press the brush activation levers (5).

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 solution is insufficient: Adjust the solution flow adjuster (11).
3. 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 that the suction hose is correctly inserted in the proper seat on the recovery tank.
3. Clean the suction filter.
4. Replace the squeegee rubbers if worn.
5. Check that the suction motor switch is on.
6. Check the level in the recovery tank (see under “OVERFLOW DEVICE”) and if necessary, empty the tank.

Excessive foam production

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

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

**PROGRAMMED MAINTENANCE**

INTERVENTION	DAILY	ORDINARY
RECOVERY TANK CLEANING	•	
SUCTION FILTER CLEANING	•	
BRUSH CLEANING	•	
BRUSH DISASSEMBLY	•	
SOUEEGEE CLEANING	•	
FRONT SOUEEGEE RUBBER REPLACEMENT		•
REAR SOUEEGEE RUBBER REPLACEMENT		•
SOUEEGEE HOSE CLEANING		•
SOLUTION TANK CLEANING		•

### 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 140°F (60°C). It is not hygroscopic.
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
PAD HOLDER	Pad holder is recommended to clean smooth surfaces. It has anchor points, which permit the blocking of the abrasive pad during work.

CODE	QUANTIT	DESCRIPTION	USE
48903020	1	Brush PPL 0,6 Ø 345	Normal floors.
48903030	1	Brush PPL 0,9 Ø 345	Smooth floors with small joints and persistent dirt.
48903050	1	Brush 5-mix Ø 345	For all types of floors.
48803010	1	Pad holder Ø 330	For pads of 14", for smooth surfaces cleaning.
48803030	1	Pad holder Ø 330 + center lock green	For pads of 14", for smooth surfaces cleaning.
48803040	1	Pad holder Ø 330 + center lock black	For pads of 14", for smooth surfaces cleaning.