

# INSTRUCTION MANUAL

## E100 ECO



EN

Instruction manual  
(Original instruction)



Attention: Read the instruction before use  
the machine





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**FROM FRAME 100003890524**

**SN0423**

# PRESENTATION

*Our company, a leader in the production of industrial cleaning machines, is delighted to have you among the owners of this scrubber and is sure you will be fully satisfied with it. We are sure that during its use, you will see the quality, robustness and possibilities of use it has to offer. This scrubber is suitable for private, industrial or public use. This manual describes the various installation operations, controls and maintenance interventions necessary to maintain perfect efficiency of your scrubber. These are normal maintenance operations that any operator can carry out using devices normally available in a company. For particular works, please contact specialist staff.*

OUR COMPANY AIMS TO CONSTANTLY IMPROVE ITS PRODUCTS AND RESERVES THE RIGHT TO MAKE CHANGES AND IMPROVEMENTS WHEN NECESSARY WITHOUT ANY OBLIGATION TO UPGRADE PREVIOUSLY SOLD MACHINES.

## ATTENTION!

### **THE MACHINE IS NOT CERTIFIED FOR ON-ROAD USE.**

BEFORE USING THE MACHINE OR CARRYING OUT ANY OPERATION ON IT, ALL THE PROCEDURES AND WARNINGS DESCRIBED IN THIS MANUAL MUST BE READ AND UNDERSTOOD. STRICT COMPLIANCE WITH THE REGULATIONS AND THE INSTRUCTIONS CONTAINED IN THIS MANUAL, COMBINED WITH THE OPERATOR'S ATTENTION AND CAUTION, WILL BE THE BEST GUARANTEE AGAINST ACCIDENTS THAT CAN OCCUR IN THE WORKPLACE.

SCRUBBERS ARE DESIGNED TO PROVIDE UTMOST SAFETY IF USED ACCORDING TO INSTRUCTIONS. THIS MACHINE IS INTENDED FOR COMMERCIAL USE, FOR EXAMPLE IN HOTELS, IN SCHOOLS, IN HOSPITALS, IN FACTORIES, IN SHOPS, IN OFFICES AND IN BUSINESSES.

THIS MACHINE IS NOT INTENDED FOR USE BY PEOPLE (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR PSYCHOLOGICAL CAPACITY, OR WITH LACK OF EXPERIENCE AND KNOW-HOW. CHILDREN SHOULD BE MONITORED TO ENSURE THEY DO NOT USE THE EQUIPMENT TO PLAY ON.

THE USER MANUAL IS AN INTEGRAL PART OF THE SCRUBBER AND MUST ACCOMPANY IT UP TO ITS DEMOLITION.

PURSUANT TO DIRECTIVE 2006/42 EC, AND DPR 459 ON 24/07/1996 AND SUBSEQUENT UPDATES, IT IS MADE KNOWN THAT: OPERATOR IS INTENDED AS THE PERSON OR PEOPLE RESPONSIBLE FOR INSTALLING, OPERATING, ADJUSTING, CARRYING OUT ROUTINE MAINTENANCE, CLEANING, REPAIRING AND TRANSPORTING THE MACHINE.

THIS COMPANY CANNOT BE HELD LIABLE FOR PROBLEMS, BREAKAGES, ACCIDENTS OR OTHER ISSUES DUE TO LACK OF KNOW-HOW OR NON-APPLICATION OF THE PROCEDURES CONTAINED IN THIS MANUAL, OR DUE TO IMPROPER USE OF THE MACHINE.

THIS COMPANY ALSO CANNOT BE HELD LIABLE FOR CHANGES, INSTALLATION OF PARTS AND/OR ACCESSORIES WITHOUT PRIOR AUTHORISATION.

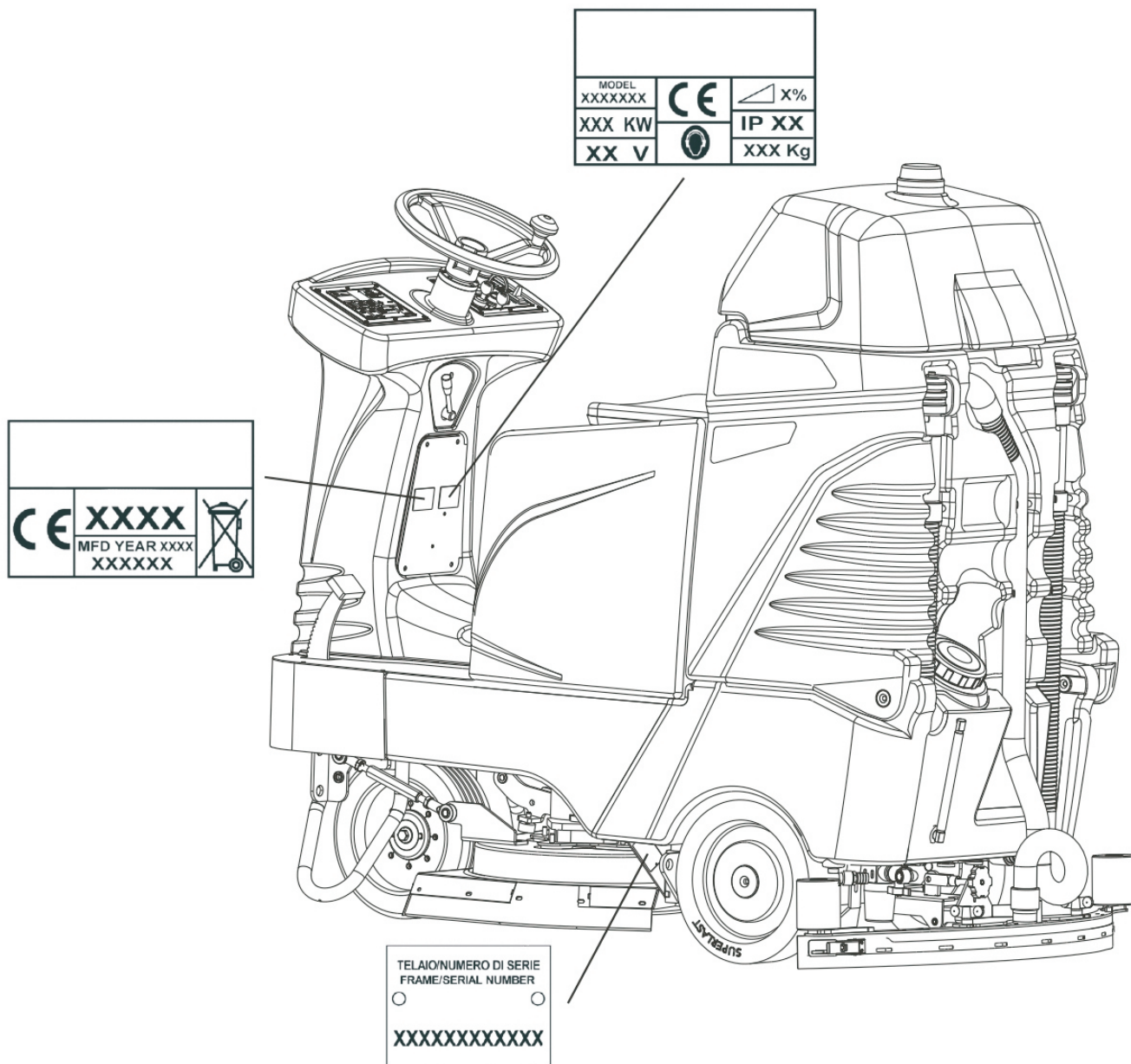


### **EMERGENCY SITUATIONS**

**IN THE EVENT OF FIRE, ONLY USE POWDER EXTINGUISHERS  
IF OCCURS ANY ABNORMAL BEHAVIOR (UNCONTROLLED SPEED INCREASE,  
OVERHEATING, ...) TURN OFF THE MACHINE IMMEDIATELY**

# MACHINE IDENTIFICATION

The machine and manufacturer are identified through three plates on the left of the driver's seat.



REFER TO THESE DETAILS TO ORDER SPARE PARTS OR WHEN SENDING ANY REQUEST TO THE MANUFACTURER.

The scrubbers comply with EEC directives and display the CE logo.

# GENERAL WARNINGS AND ADVICE

## DANGER - ATTENTION SIGNS



THIS SYMBOL HIGHLIGHTS ALL THE OPERATIONS THAT REPRESENT A SITUATION OF POTENTIAL DANGER FOR THE OPERATOR.  
THEREFORE, PROCEED IN COMPLIANCE WITH THE CONDITIONS HIGHLIGHTED BY THIS SYMBOL



USE OF GLOVES COMPULSORY



USE OF GOGGLES COMPULSORY



ATTENTION: MOVING PARTS, RISK OF TRAPPING HANDS



ATTENTION: DO NOT WET  
THE DEVICES MARKED WITH THIS INDICATION MUST NOT GET WET  
(THEY ARE NORMALLY ELECTRICAL COMPONENTS)



USE OF ANTI-VAPOUR MASKS WHEN USING CORROSIVE DETERGENTS



## RESPONSIBILITIES OF THE OPERATOR

- The operator is responsible for the day-to-day servicing of the machine.
- The operator must care for the machine and keep it in good operating condition.
- The operator must inform his or her superior or the technical department when scheduled maintenance is requested in the case of damage or breakage.
- The operator must not carry people, animals or objects on the machine.
- When moving the machine, observe the safety measures for circulation.
- The machine cannot be used for toxic-harmful materials.
- Never let people get close to the machine's sphere of action.
- Never leave the scrubber-dryer with the key inserted.
- If the machine malfunctions, have a look at the procedures shown in the various chapters.
- Never collect pieces of string, wire or anything else that could damage the brushes by winding around them.
- Never suck up pieces of wood, plastic waste etc. as they may clog the vacuum pipe.
- Never remove or alter the plates on the machine.

## IMPORTANT COMMUNICATION

WARNING! DURING THE LAST FEW YEARS, A NEW AGGRESSIVE SOLVENT-BASED DETERGENT TYPE WAS MADE AND DISTRIBUTED IN THE MARKET. THIS DETERGENT IS CURRENTLY NAMED AS "DETER-SOLVENT". EVEN IF THE SOLVENT CONTAINED IN THE DETERGENT IS OBTAINED FROM THE FRUITS, IT STILL HAS TO BE CONSIDERED AS "SOLVENT". THE POLIETHYLENE MATERIAL USED IN THE SCRUBBER TANKS IS MIXED WITH A % OF RUBBER. THE "DETER-SOLVENT" PRODUCT, IF LEFT IN THE SCRUBBER'S TANKS FOR A LONG PERIOD OF TIME COULD ATTACK THE RUBBER'S MOLECULAS, CAUSING THE TANK TO SWELL AND CRACK. IF THE "DETER-SOLVENT" PRODUCT IS USED, IT'S MANDATORY TO RINSE THE TANKS PROPERLY WHEN THE MACHINE STOPS WORKING.



## CLEANING AND MAINTENANCE

Machine cleaning must be carried out by staff correctly trained for the purpose, who know the controls to bypass energy sources and are familiar with the characteristics of the machine to avoid dangerous situations.

Clean the coverings of the machine, the panels and the controls with a cloth soaked in water or detergent solution.

No solvents must be used such as petrol, alcohol, etc.

Have specialist staff clean the electrical components who should use non-corrosive products, suitable for electrical circuits.

Maintenance of the machine must be carried out by specialist staff with in-depth knowledge of the machine and its components.

Any maintenance and cleaning must be carried out with the machine off, with all the mechanisms stopped, the hot parts cooled and the battery disconnected.

When using compressed air guns for cleaning, protect eyes and ears.

## STORAGE OF THE MACHINE

If the machine is unused for long periods of time, it is essential to:

- Recharge the batteries before storing the machine as empty batteries may get damaged;
- Empty and wash the tanks as described in the relative section;
- Clean the clean water filter, empty the filter protection and drain the water completely from the system;
- Clean the machine inside and outside. Avoid washing the machine using direct water jet, pressurized water, or corrosive substances;
- Keep the brushes and the squeegee raised;
- Remove the key and remove the battery lead connections;
- Keep the machine in a protected place;
- Keep the machine within a temperature range of 5°C / 40 °C;
- Keep the machine within a humidity range of 30°C / 80 °C.



## SAFETY PRECAUTIONS FOR OPERATORS AND TECHNICIANS

- The machine must not be used by non-authorized personnel who have not been trained to use it properly or by people who are under the influence of substances that could alter their nervous reflexes (alcohol, psycho pharmaceuticals, drugs etc.)
- Do not use the machine in inflammable areas or where there is the danger of explosions;
- Do not collect material that is alight or anything else that could cause a fire;
- Do not remove protections or guards when the machine is in operation;
- Do not use the machine to clean objects;
- Do not start to perform maintenance operations with parts in movement;
- Protect eyes and ears when using compressed air or water guns for cleaning the machine;
- To raise the machine make use of devices that are adequate to bare the weight of the machine itself;
- Do not cause flames or sparks around the machine;
- Disconnect the battery cables before working on the electrical circuit;
- Avoid contact with battery acid;
- Move carefully over uneven or crumbling paving and on slopes;
- Slow down on slopes and slippery surfaces;
- Make sure the machine is not exposed to rain and bad weather conditions, whether in motion or still;
- Temperature of usage of the machine must be kept within + 5 °C / + 40 °C;
- Humidity should be kept within 30% / 80 %.

## RESIDUAL RISK

**Residual risk is considered as a potential danger, which is impossible to eliminate or partially eliminate, that can cause harm to the operator if they do not follow correct practices in the work place.**

Despite the safety devices provided, some residual risks, as described here below, remain:

1. Risk of electric motor heating, which can lead to burns if contact is prolonged

WAIT FOR AN ELECTRIC MOTOR TO COOL BEFORE TOUCHING IT

2. Risk of rolling

SLOW DOWN WHEN WORKING ON AN INCLINE

3. Risk of collision

SLOW DOWN WHEN WORKING ON WET OR SLIPPERY SURFACES IN ORDER TO AVOID COLLISIONS WITH PEOPLE OR OBJECTS

4. Risk of injury to people

DO NOT STOP IN THE AREA WHERE A MACHINE IS WORKING

5. Risk of fire or explosion during battery charging, with risk of burns or death

NEVER APPROACH THE BATTERY CHARGING AREA WITH AN OPEN FLAME DURING CHARGING. BATTERY CHARGING MUST BE CARRIED OUT IN A VENTILATED AREA, WHICH IS PROTECTED FROM OPEN FLAMES OR EXTERNAL AGENTS THAT COULD CREATE DANGEROUS SITUATIONS. BEFORE CHARGING, CAREFULLY READ THE INSTRUCTIONS IN THE MANUAL AND THE BATTERY SPECIFICATIONS

### UPDATING OF THE USER'S MANUAL

When large-scale modifications are made to the machine or new parts are installed, the updated documentation must be sent to the Dealer along with the purchased part or as an update of the manual.

### OBLIGATIONS OF THE EMPLOYER OR OWNER OF THE MACHINE

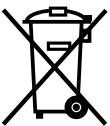
The employer or owner of the machine is responsible for giving the User's Manual to all the personnel who are going to have to use the machine.

The employer or owner of the machine also undertakes to update the manual with the documentation that the Manufacturer will send if modifications are made to the machine.

## DISPOSAL



All packaging is recyclable. The packaging should not be thrown away with domestic waste, but sent to the relevant collection centres.



### EXHAUSTED LEAD-ACID BATTERIES

Exhausted batteries are considered harmful toxic waste and therefore should be exclusively given to collection companies with specific authorisation (ascertain on hand-over).

### MATERIAL COLLECTED FROM THE MACHINE

The waste collected by the machine must be given to the relevant urban cleaning company since it is considered urban waste or similar. The machine cannot be used to collect toxic-harmful materials.

### SCRAPPING THE MACHINE

On scrapping, proceed with the correct disposal of the materials that make up the machine. It is compulsory to give the machine to authorised collection companies which will correctly dispose of oil, filters, plastic, metal, electric motors, electric boards, etc. in compliance with legislation in force. Decommissioned equipment contains precious recyclable materials and therefore should be given to the relevant collection centres. Please dispose of decommissioned equipment through differentiated collection systems.

### DISPOSAL OF THE RECOVERY TANK SOLUTION

Prior to be moved to specific purification plants, the recovery tank solution is to be disposed of in appropriate sites.



### DISPOSAL OF ELECTRICAL EQUIPMENT AND ELECTRONICS



## TRANSPORT

The machine must be fixed to a pallet to make it easier to transport and more secure.

At the reception of the machine, check that the packaging is in good condition –in case of damage, inform the forwarder.

**PAY ATTENTION WHILE TRANSPORTING THE MACHINE AT TEMPERATURES BELOW 0°C TO PREVENT THE WATER INSIDE THE TANKS AND THE PIPES FROM BECOMING FROZEN.**

**DRAIN THE TANKS, REMOVE THE SCREEN OF THE CLEAN SOLUTION FILTER AND LET THE WATER FLOW AWAY COMPLETELY OUT OF THE PIPES.**



## TRANSPORT- HANDLING

When the machine is moved from one place to another you are advised to:

- Not load it on the vehicle with a forklift truck in order not to damage it;
- Lock the machine in place with the parking brake;
- Fix it well to the vehicle using belts, ropes and chains;

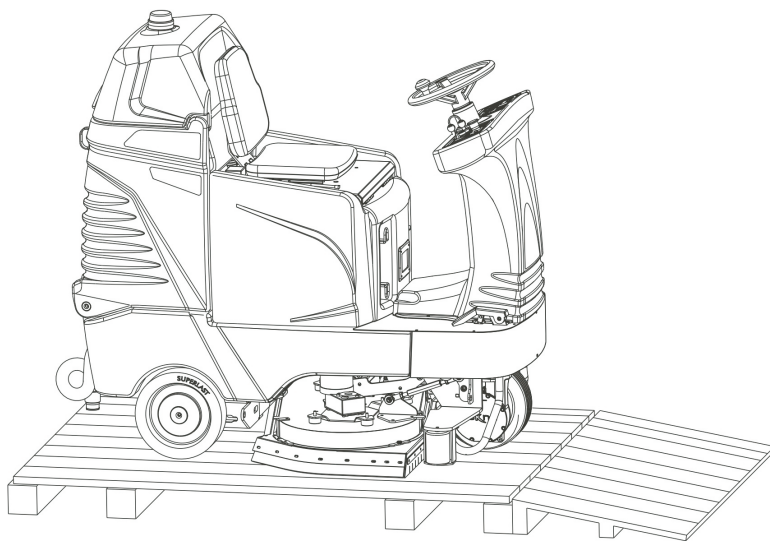


## TRANSPORTING THE MACHINE BY MANUAL PUSHING

In case of transport by means of manual pushing, for machines featuring electronic traction only, the machine must be pushed on at walking pace. Do not tow it with fork lifts



## UNPACKING



Make sure that all the parts indicated in the following list are present before unpacking the machine:

- squeegee;
- battery cable fitted with connector, terminals and terminal covers;
- on board battery charger.

**NOTICE:** brushes, discs and disc pad holders must be purchased separately

Follow the instructions below to unpack the machine:

- Connect the inclined ramp to the front part of the pallet, as shown in the figure;
- Remove the fasteners fixing the front wheels and eventual other devices;
- Make use of the inclined ramp;

**CAUTION: DO NOT USE A FORKLIFT TO REMOVE THE MACHINE FROM THE PALLET AS IT MAY CAUSE DAMAGE TO THE MACHINE.**

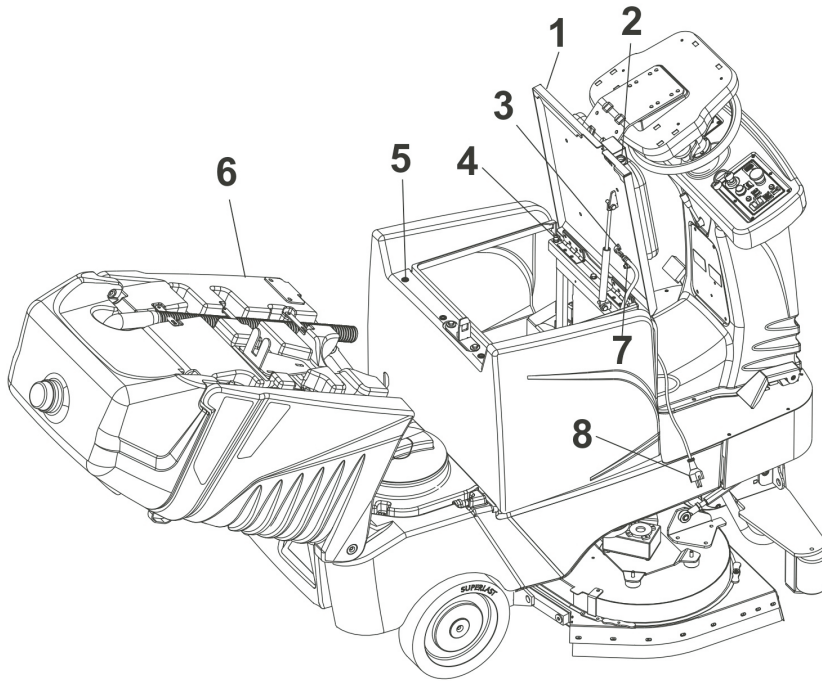


## INSTALLING BATTERIES

**CAUTION: USE PROTECTIVE GLOVES AND GOGGLES WHEN HANDLING BATTERIES, AVOIDING ANY CONTACT WITH THE ACID INSIDE THE BATTERIES.**

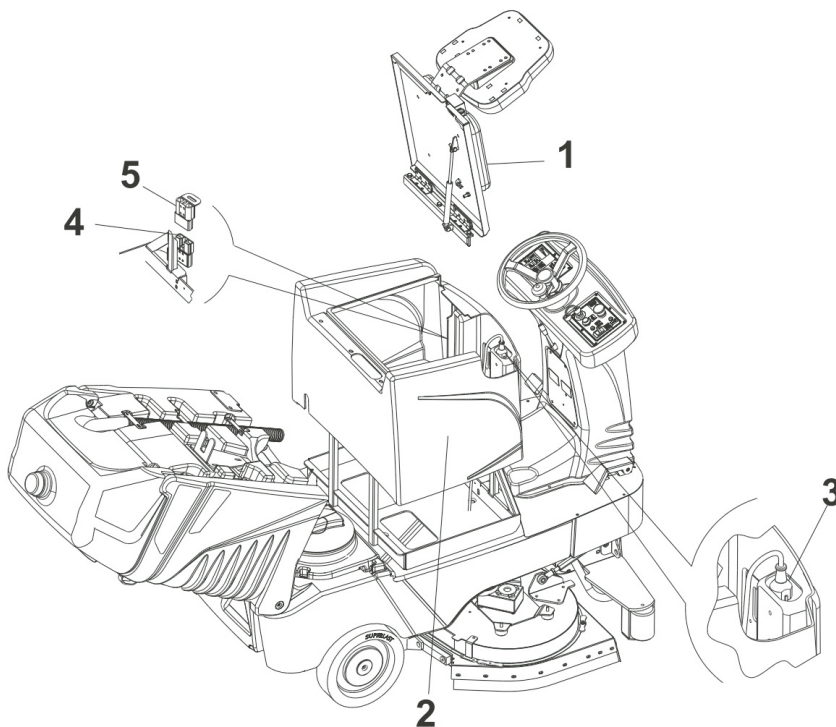
**CAUTION: THE MACHINE'S CONTROL BOARD AND BATTERY CHARGER COME OFF THE ASSEMBLY LINE CONFIGURED FOR USE WITH LEAD ACID BATTERIES. IF GEL BATTERIES OR AGM BATTERIES ARE USED, THE MACHINE'S CONTROL BOARD AND THE BATTERY CHARGER MUST BE SET. CONTACT A RESELLER OR A TECHNICIAN BEFORE MOUNTING THESE TYPES OF BATTERIES.**

Refer to the specification sheet for battery types and sizes suitable for the machine.

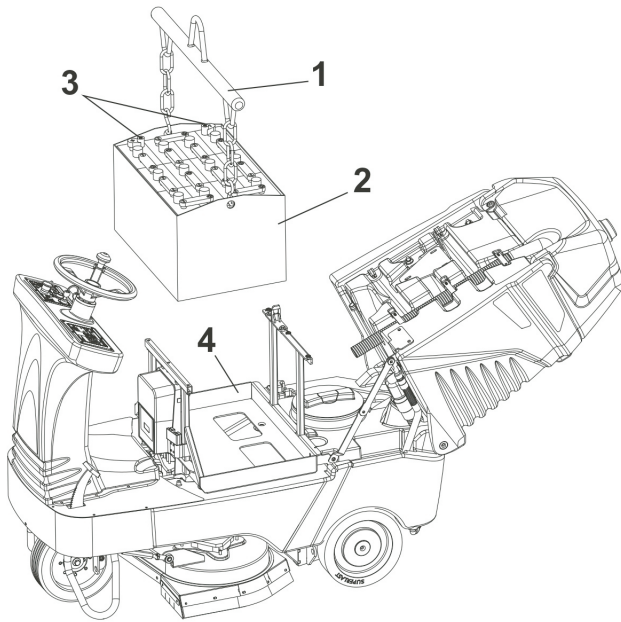


Follow the instructions below to mount the batteries:

- Park the machine on a flat surface, put on the brake and remove the key;
- Open the hood of the seat (pos.1) by releasing the special safety hook (see pos.2);
- Open the dirty water tank (pos.6) by pulling it back up until triggering the special lock;
- Remove the nut pos.3;
- Unplug the seat safety device cables (pos.7);
- Uncoil the battery charger cable (pos.8);
- Remove the screws from the hood lock of the seat (pos.4);
- Remove the 3 screws pos.5;

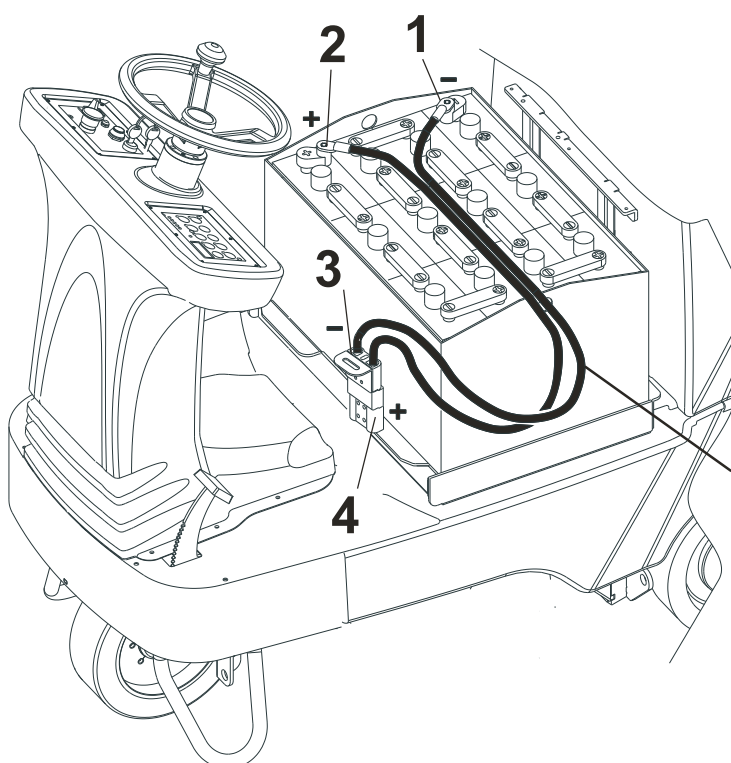
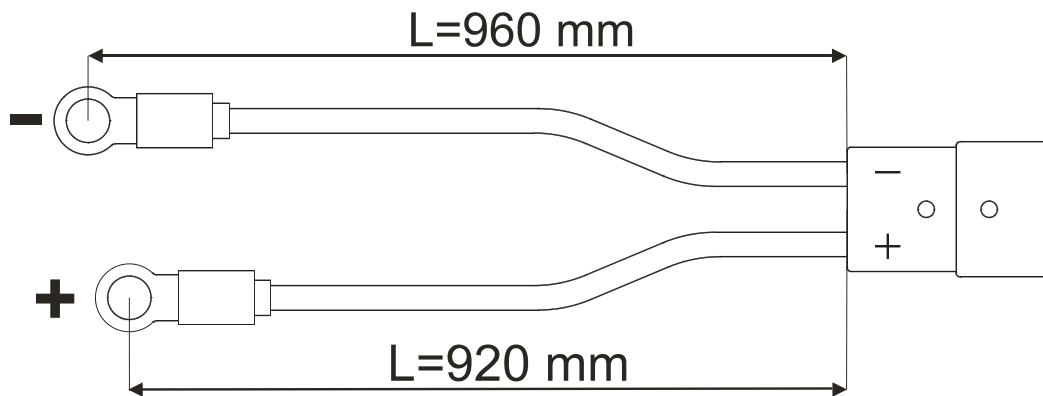


- Lift the hood pos.1;
- Unplug the mobile connector (pos.5) from the fixed connector (pos.4);
- Remove the battery hood (pos.2) by carefully passing the battery charger cable plug through the slit on the plastic (pos.3).



- To install the battery (pos.2), lift it with an overhead travelling crane, a carriage or a crane and use a lifting beam (pos.1), chains or belts to fasten it.
- Position the battery inside the compartment (pos.4) located on the machine; make sure to position the poles (pos.3) on the right side of the machine as shown in the figure at the bottom of the page.

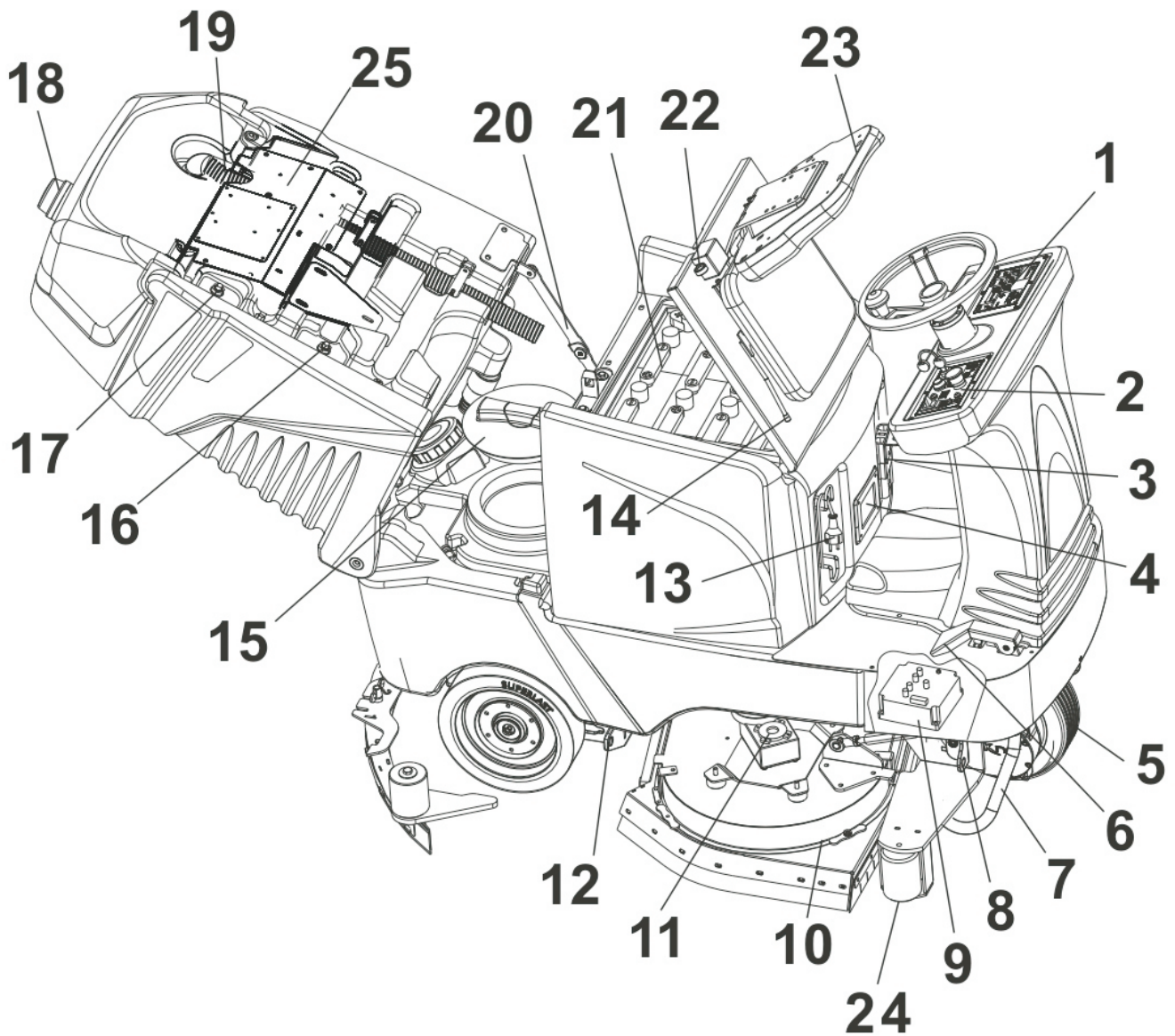
## BATTERY CONNECTION



**FIG.A**

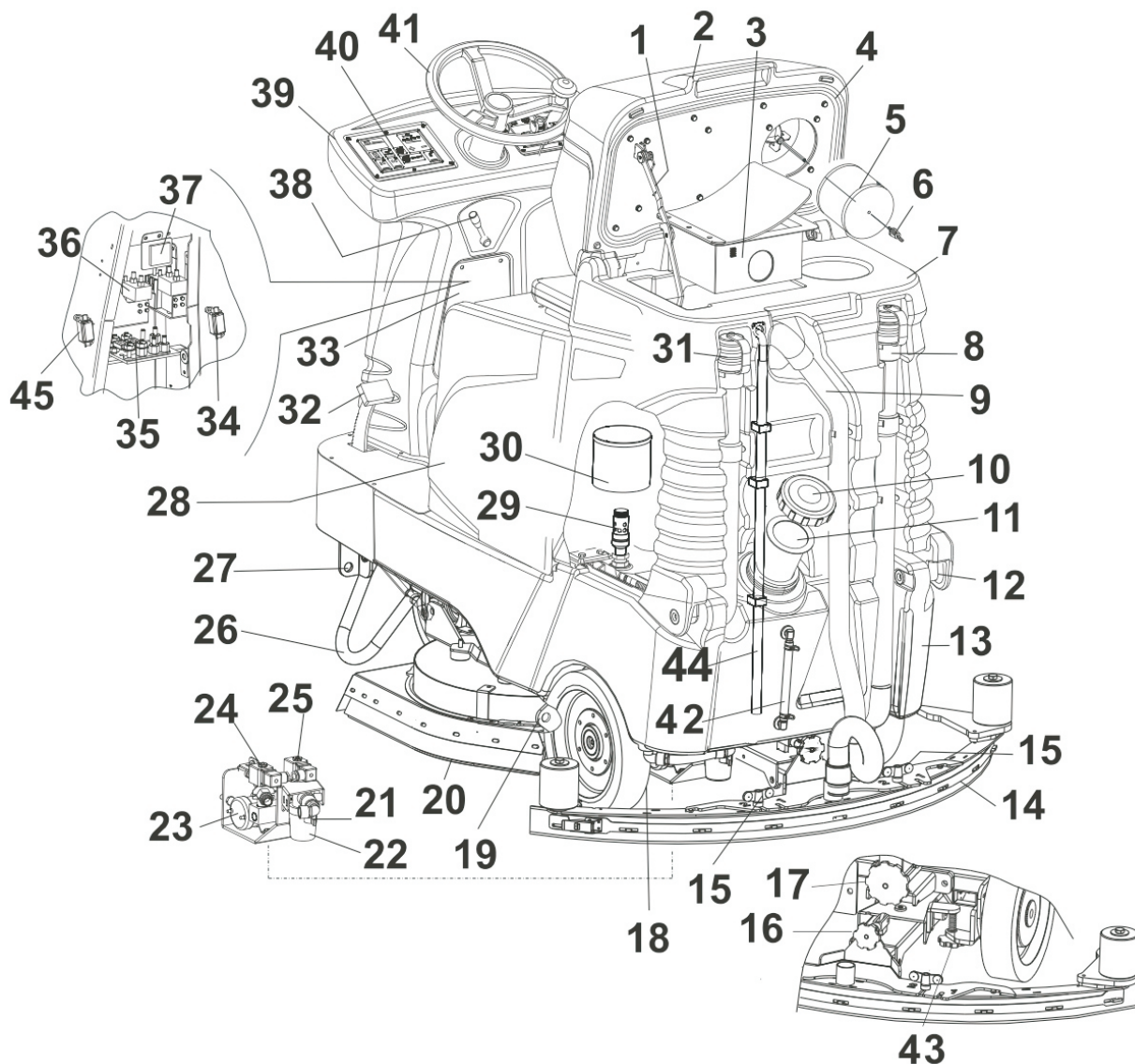
- After placing the battery on the edge of the machine, connect the battery cable FIG.A in accordance with the pole instructions as shown in mobile connector pos.3 for respectively positive and negative pole connections;
- Assembly the cable seat group by making the charger cable passing through the corresponding plastic slot;
- Make the mobile connector pass through the corresponding slot on the battery seat;
- Connect the mobile connector pos.3 with the fix connector pos.4 mounted on the machine;

# MACHINE DESCRIPTION



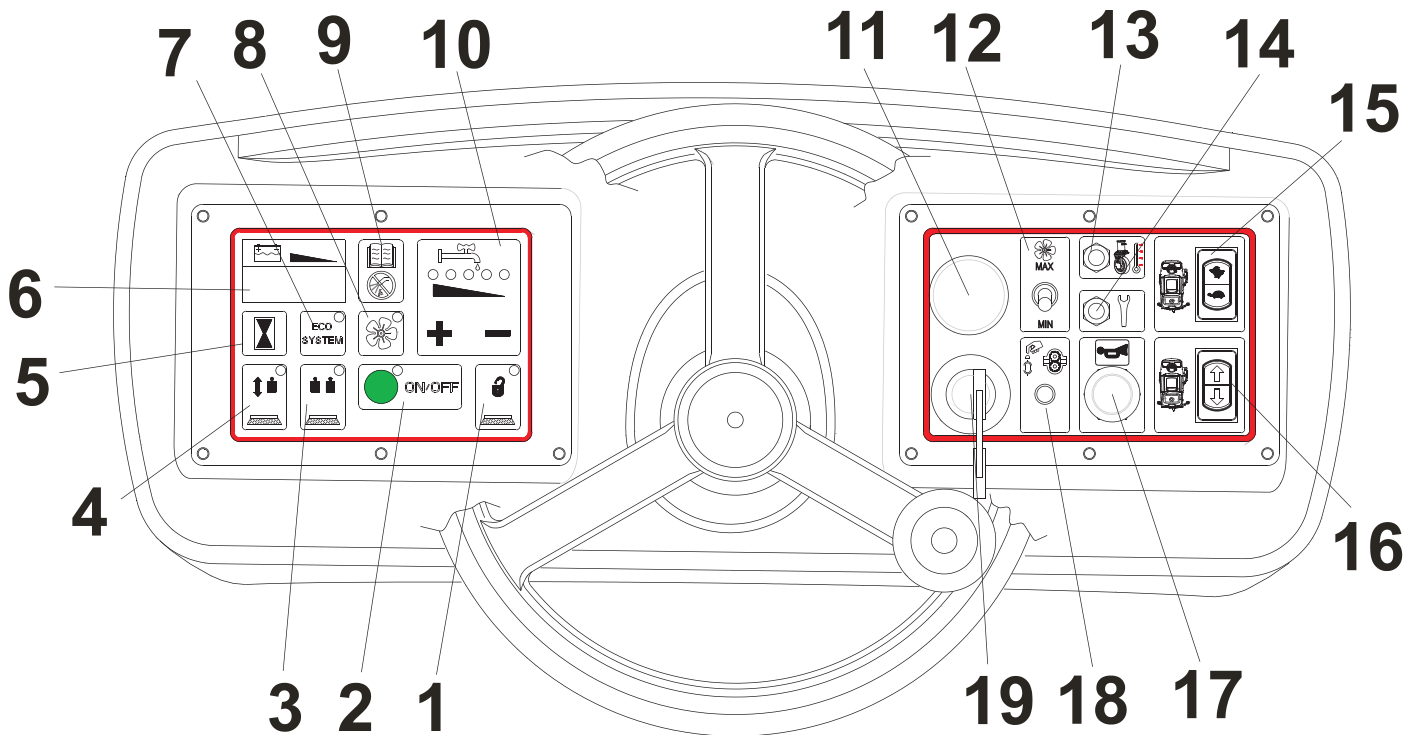
1. LEFT CONTROL PANEL (CONTROL CARD)
2. RIGHT CONTROL PANEL
3. BETTERY MOBILE CONNECTOR
4. ON-BOARD BATTERY CHARGER DISPLAY
5. FRONT WHEEL
6. FORWARD/REVERSE MOVEMENT PEDAL
7. ANTICAPSIZING DEVICE
8. FRONT ANCHOR POINT
9. DRIVE CONTROL CARD
10. SPLASH GUARD
11. BRUSH MOTOR
12. REAR ANCHORPOINT
13. BATTERY CHARGER CABLE

14. SEAT ADJUSTING LEVER
15. SOLUTION TANK LID FOR INSPECTION
16. ECO SYSTEM FLOATING DEVICE
17. MAX LEVEL FLOATING DEVICE OF RECOVERY TANK
18. FLASHING LIGHT
19. VACUUM MOTOR DISCHARGE PIPE
20. RECOVERY TANK BLOCKING LEVER
21. BATTERY
22. HOOD AND SEAT OPENING DEVICE
23. SEAT
24. BUMPER ROLL
25. ECO SYSTEM CLEANING DEVICE



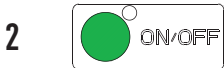
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|--|--|
| 1. OPENING LID SAFETY DEVICE                 | 24. RECOVERY TANK ELECTROVALVE                 |
| 2. LID AND VACUUM MOTOR SEAT                 | 25. SOLUTON ELECTROVALVE                       |
| 3. GATHERING MATERIAL GASKET                 | 26. ANTICAPSIZING DEVICE                       |
| 4. LID GASKET                                | 27. FRONT ANCHOR POINT                         |
| 5. VACUUM FILTER                             | 28. BATTERY SEAT                               |
| 6. BLOCKING FILTER DEVICE                    | 29. ECO SYSTEM SAFETY FILTER                   |
| 7. RECOVERY TANK                             | 30. ECO SYSTEM FILTER                          |
| 8. SOLUTION DRAIN PIPE                       | 31. RECOVERY TANK DRAIN PIPE                   |
| 9. SQUEEGEE VACUUM PIPE                      | 32. PEDAL BRAKE                                |
| 10. SOLUTION TANK FILLING CAP                | 33. FUSES INSPECTION DOOR                      |
| 11. FILLING SOLUTION SPECIAL DEVICE          | 34. FUSE HOLDER BRUSH RELEASE BH               |
| 12. PIVOTS FOR TANK ROTATION                 | 35. FUSES                                      |
| 13. SOLUTION TANK                            | 36. REMOTE CONTROL SWITCHES                    |
| 14. SQUEEGEE                                 | 37. FUSES                                      |
| 15. SQUEEGEE LOCKING KNOBS                   | 38. PARKING BRAKE LOCKING AND UNLOCKING DEVICE |
| 16. SQUEEGEE ADJUSTING INCLINATION HANDWHEEL | 39. MACHINE FRONT NOSE                         |
| 17. SQUEEGEE ADJUSTING PRESSURE HANDWHEEL    | 40. LEFT CONTROL PANEL (CONTROL CARD)          |
| 18. REAR WHEEL                               | 41. HANDWHEEL                                  |
| 19. REAR ANCHOR POINT                        | 42. SOLUTION TANK LEVEL                        |
| 20. BRUSH TRAY                               | 43. SQUEEGEE HEIGHT ADJUSTMENT KNOB            |
| 21. SOLUTION FAUCET                          | 44. ECO SYSTEM CLEANING TUBE                   |
| 22. SOLUTION FILTER                          | 45. VACUUM FUSE HOLDER CA                      |
| 23. SOLUTION PUMP                            |  |

# MAIN FUNCTIONS AND CONTROLS



## BRUSH RELEASE BUTTON

This button will enable the brush release sequence. The led light will start blinking during this sequence. This operation shall be carried out with the still machine, with deactivated brushes and raised brush plate.



## GREEN ON/OFF BUTTON

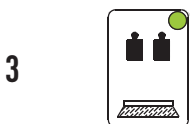
This button enables the operator to use all the functions of the machine. Press the button once to lower the brush plate and the squeegee, the led lights on this button and on the brush and suction fan buttons will come on. Push the drive pedal to start rotating the brushes and the solution metering pump.

The vacuum motor will also turn on. The quantity of water used will equal to the quantity stored after the last use.

Press this button again to stop the operation of the brushes and the brush plate will lift from the floor.

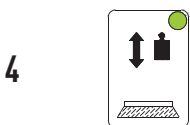
The squeegee will also lift from the floor with a pre-set delay to allow the operator to dry the entire floor.

If this button is pressed when the tank is empty, the five led lights on the solution metering unit will start flashing and the brush function will not be enabled, but only the squeegee. When this occurs, make sure to fill the tank.



## EXTRA-PRESSURE BUTTON

Press this button to increase pressure on the brush plate; a green led light will come on. This function can be activated only if the brush function is already active. Switch it off to disable extra-pressure and work in normal conditions. By pressing the brush button when working on extra-pressure mode, you will cause the brushes to stop rotating and the brush plate to automatically rise.



## BRUSH BUTTON

Press this button to enable the brush function; a green led light will come on and the brush plate will descend. The brushes will start rotating when the forward pedal is pressed. When the forwards pedal is released, the brushes will rotate for other 3 seconds before stopping. In case of prolonged halt, after 1 min the brush plate will automatically rise.

When the machine is in motion with lowered brushes, by pressing the brush button the brushes will stop rotating and the brush plate will automatically rise. With the extra-pressure function on, by pressing the brush button the brushes will stop rotating and the brush plate will automatically rise. The electrovalve and the solution pump are also connected to the brush function and allow the user to automatically open or shut the flow of the solution while the brush is rotating.

This function cannot be activated if there is not solution in the tank. In this case by pressing the button, the five led lights on the solution metering unit will start flashing and the brush function will not be enabled. When this occurs, make sure to fill the tank.

This function will be automatically deactivated in case there is no solution in the tank. When this occurs, the five led lights on the solution metering pump will start flashing and the brushes function will be deactivated.

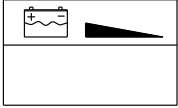
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### HOUR METER BUTTON

Hold down this button to display the operating hours of the machine.

6



### CHARGE BATTERY LEVEL INDICATOR AND DISPLAY

The charge level of the battery is displayed when the machine is switched on (100 – 90 – etc). When the battery charge level reaches 20, the number on the display starts blinking and the brush operation is disabled raising the plate, since a protection device is triggered to prevent the battery from getting damaged, however the suction and forward functions remain active.

At this point, the brush plate shall be raised and the floor shall be dried quickly.

Upon reaching level 10, the number on the display shall start blinking and the suction function will also be disabled, the forward function will be the only active function. Lift the squeegee, go to the tank drainage area and charge the batteries.

When 4 blinking dashes (----) appear on the display, the forward function will also be disabled as the battery reaches a minimum discharging threshold. Therefore, the machine must be pushed over to the tank drainage area and then pushed over to the battery charging area.

7



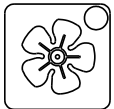
### ECO-SYSTEM OPERATION BUTTON

Press this button to enable the ECO-SYSTEM. The green light is on when the system is operating.

If the button is pressed and the led light does not come on, it means that the solution level on the recovery tank is too low and therefore, the function cannot be enabled. Continue to wash in "normal" mode until reaching the minimum level. However, it is advisable to have enough solution in the recovery tank for better performance in the ECO-SYSTEM mode.

If the level on the recovery tank goes below the minimum level required for the ECO-SYSTEM function, all five led lights on the water metering unit will start flashing and the brushes will stop operating.

8



### VACUUM FAN BUTTON

If the suction fan is switched off, this button can be used to turn it on, the squeegee lowers and a green light indicator will come on. If the suction fan is switched on, the light will start flashing, when this button is pressed, but the suction function will remain active for a fixed period of time and once lapsed the squeegee will lift and the suction function will come off. The warning light will start flashing even when the machine is in reverse drive to indicate that the squeegee is being raised from the floor.

The suction function may turn off automatically when the solution on the recovery tank is too full. The machine is equipped with a float that switches off the function when the tank reaches its maximum level. In case of prolonged idle time, the suction fan will switch off automatically after 1 minute regardless of whether the squeegee does not lift automatically from the floor for safety reasons but must be lifted by pressing the button. By pushing the vacuum button, the automatical ECO-SYSTEM cleaning device will be activated. This will keep filters and conduits clean during the use of the ECO-SYSTEM. Every 2 minutes a valve will be activated and you will hear a mechanical noise.

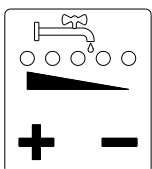
9



### WARNING SYMBOLS

The symbol on the left advises to use the instruction manual at all times for any information regarding the machine, whereas the symbol on the right forbids the use of water on the instrument panel as there are electrical parts.

10



### WATER ADJUSTMENT BUTTONS

Use the buttons + or – to set the maximum quantity of water to use for the operation. Press the + button to increase the quantity of water; the 5 green led lights on the panel come on progressively one at a time.

Each led light is associated with a maximum pre-set quantity of water.

Press the - button to decrease the quantity of water; the 5 led lights will go out progressively one at a time. The water is shut off when all the led lights are off. The machine keeps memory of the pre-set quantity of water even when switched off. If the 5 led lights start flashing at the same time, this means that there is no solution into the tank.

11

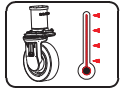


### EMERGENCY BUTTON

This button is used to halt the machine in case of emergency and to lock all of its functions.

Turn the knob clockwise to reset the power.

13



### RED WARNING LIGHT: FORWARD GEAR MOTOR TEMPERATURE

If the temperature on the gear motor casing exceeds 75 - 85°C, the red warning light will come on, the motor reducer will reduce its speed to 1.5 km/h and the acoustic signal will come on.

14



### GREEN WARNING LIGHT: DRIVE ALARM

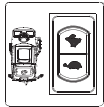
It shows anomalies on the traction card. On normal use the warning light flashes once every 5 seconds. If it flashes in a different way, it does mean that there is a problem with the drive system

The number of flashings indicates the type of fault (see troubleshooting table)

ATTENTION: With very charged batteries it may happen that 4 + 2 alarm flashes occur.

The machine still maintains full functionality and the error disappears when the voltage returns to acceptable values.

15

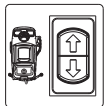


### SPEED SELECTOR

By pressing the button towards the "hare" symbol, the machine moves forward and in reverse at normal speed.

By pressing the button towards the "tortoise" symbol, the machine moves forward and in reverse at reduced speed. This speed can be used in very dirty environments and allows using a lot of solution at low speed.

16



### REVERSE GEAR SWITCH

It allows the operator to change the driving direction of the machine.

An acoustic signal will be emitted when the reverse gear is engaged. To avoid damages, the squeegee will automatically lift when the reverse gear is engaged.

The squeegee will automatically lower when the drive forward position is resumed.

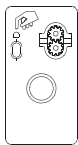
17



### HORN SWITCH

Pressing the button, it sounds the horn.

18

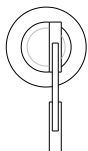


### SOLUTION PUMP CUT-OUT SWITCH

If during the washing phase, there is over-absorption of the pump, the cut-out switch intervenes and stops the brushes.

To re-start the brushes, activate the cut-out switch again by pressing the switch.

19

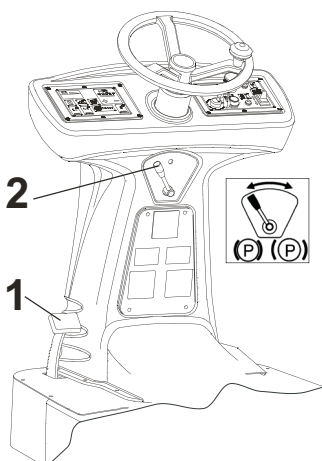


### KEY-OPERATED SWITCH

The ignition sequence will start by rotating the key-operated switch clockwise (position 1); a series of information will appear on the display in successive order. **THE BUTTONS ON THE INSTRUMENT PANEL AND THE DRIVE CONTROLS SHOULD NEVER BE TOUCHED DURING THIS SEQUENCE.** The charge level of the battery will appear on the display at the end of the sequence, e.g. 100 - 90 - 80 etc.

The machine is ready to be used only at this point.

## BRAKE PEDAL



### SERVICE BRAKE

The machine is fitted with a service brake that operates on both the rear wheels. By pushing the pedal pos.1, the brake gets inserted.

### PARKING BRAKE

The machine is fitted with a parking and emergency brake that operates on both the rear wheels. To lock the machine, push the brake pedal (pos.1) down, turn the lever pos.2 counter-clockwise to its maximum stroke and then release it.

Push the pedal (pos.1) and turn the lever (pos.2) clockwise to release the brake.

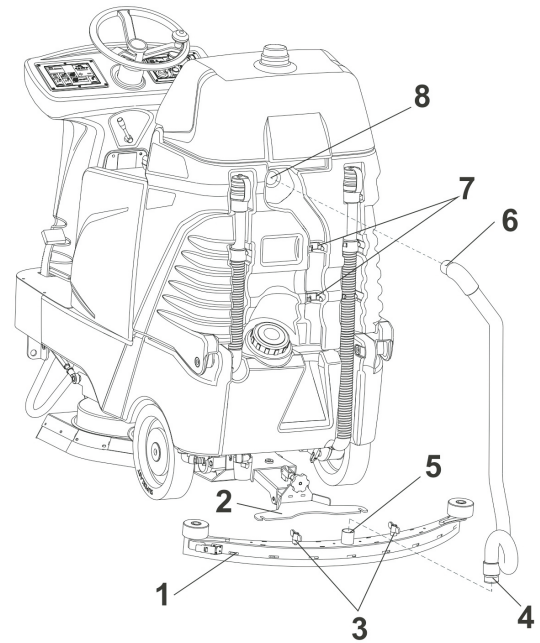
ATTENTION: to lock the machine by inserting the service brake, the acoustic signal is activated.



## MOUNTING THE SQUEEGEE

Follow the instructions below to mount the squeegee to the machine:

- Disable the suction function to keep the squeegee support in up position and facilitate assembling procedures;
- Park the machine on a flat surface, insert the brake, switch it off and remove the key;
- Fit in the squeegee (pos.1) into the squeegee support (pos.2) centring the knobs (pos.3) into the corresponding slits on the support (pos.2);
- Once the squeegee is fitted completely, secure the knobs (pos.3);
- Connect the squeegee hose from the curved side (pos.6) into the special hole located in the tank (pos.8) and press down until it fits into place completely;
- Mount the other end of the hose, from the roll-up side (pos.4) into the squeegee in the cuff pos.5;
- Connect the hose in the special locking springs pos.7.



## ADJUSTING THE SQUEEGEE

There are 3 types of adjustments that can be carried out on the squeegee:

- **Inclination adjustment** with knob position 1.

It adjusts the inclination of the squeegee in order to have a constant pressure over the entire length of the blade (pos.2). Turn the knob counter-clockwise if there is too much pressure on the outer points and little pressure on the central area.

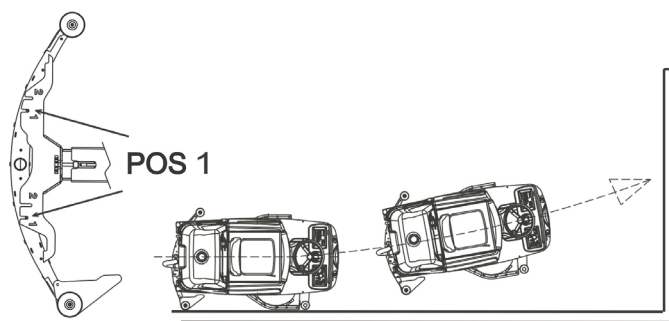
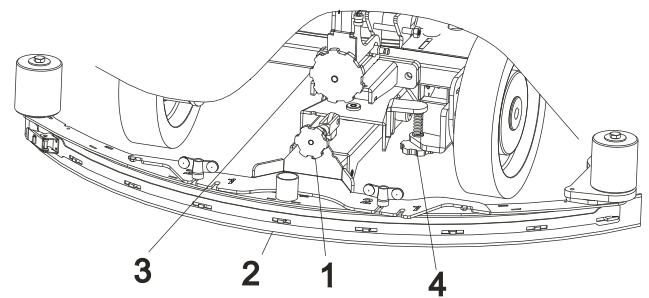
Turn the knob clockwise if there is little pressure on the outer points and too much pressure on the central area. To make the adjustment lower the squeegee, turn on the suction fan and drive forward slowly. Examine the pressure distribution on the blade and if necessary correct the inclination as described above;

- **Pressure adjustment** using the knob in pos.3.

Turn the knob clockwise if you want to increase the squeegee pressure; turn the knob counter-clockwise if you want to reduce the pressure;

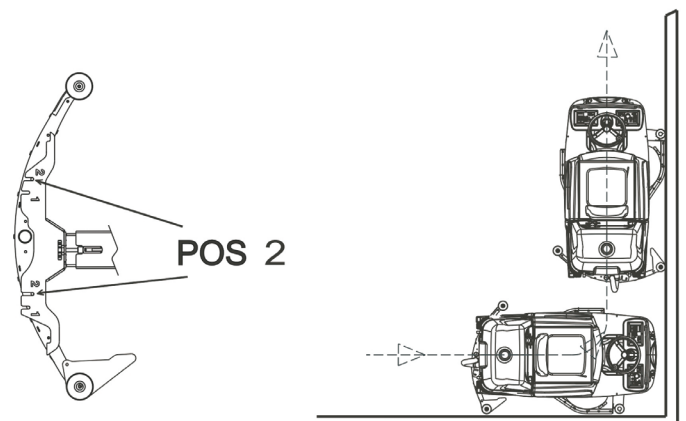
- **Squeegee height adjustment** using the knob in pos.4.

Adjust it according to the blades' thickness. Turn the knob clockwise if you want to increase the squeegee height from the floor; turn the knob counter-clockwise if you want to reduce the squeegee height from the floor.



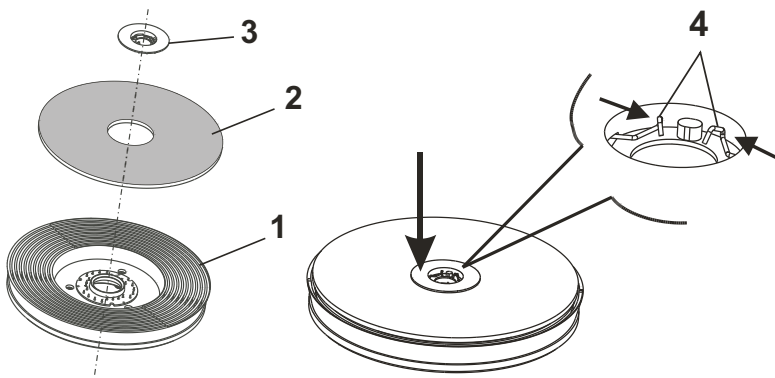
## POS. 1: NORMAL SITUATION

## POS. 2: ENABLE YOU TO WORK NEXT TO THE WALLS AND TO TURN LEFT OF 90° NEAR THE CORNER





## MOUNTING THE ABRASIVE DISC ONTO THE DISC PAD HOLDER

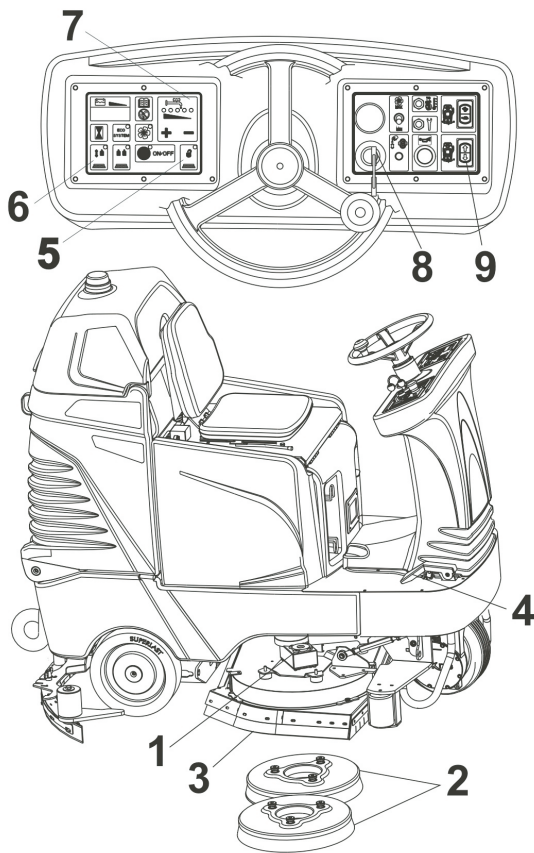


The machine can operate with brushes or abrasive discs of various types mounted on special disc pad holders. Follow the instructions below to mount the abrasive disc onto the disc pad holder:

- Remove the disc lock (position 3) from the disc pad holder (pos.1) by pressing the 2 ends of the spring catch (pos.4) against each other;
- Position the abrasive disc (pos.2) and centre it onto the disc pad holder;
- Place the disc lock (position 3) on the centre and press down hard until the spring fits into place (position 4); this operation can be carried out using the palm of your hand, or your foot if the disc pad holder is resting on the ground.



## ENGAGING AND RELEASING THE BRUSHES OR THE ABRASIVE DISCS



Follow the instructions below to engage the brushes or disc pad holder with abrasive disc:

- Turn off the machine and press the key into pos.;
- Position the brushes or the discs (pos.2) under the brush plate (pos.1) lifting the splashguard (pos.3). While carrying out this operation, try to centre the hole of the brush with the brush holder hub below the plate;
- Turn the key (pos.8) into pos. 1 and wait till the ignition sequence is over and the battery charge level is visible on the display;
- Lower the brush plate (pos.1) by pressing the brush button on the control panel (pos.6);
- Slowly push forward the drive control (pos.4). The brush motors will start rotating and the machine will start to move slowly. Go forward for a brief distance and then go in reverse drive using the switch (pos.8) and step back slowly until engaging the brushes. Repeat the operation if necessary. To prevent leaked waste during the operation, it is advisable to set the detergent solution flow to 0 (all led lights in position 7 are off).

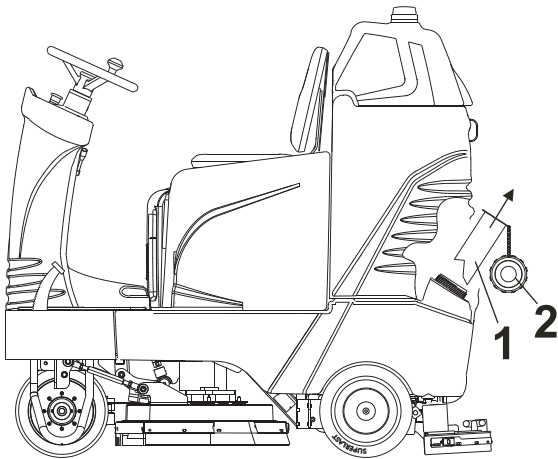
Follow the instruction below to release the brushes or disc pad holder with abrasive disc:

- Lift the brush plate and press the brush button to deactivate the brush function pos.6;
- Press the brush release button on the keyboard pos.5. The releasing sequence will be activated and the brush will be released from the plate.

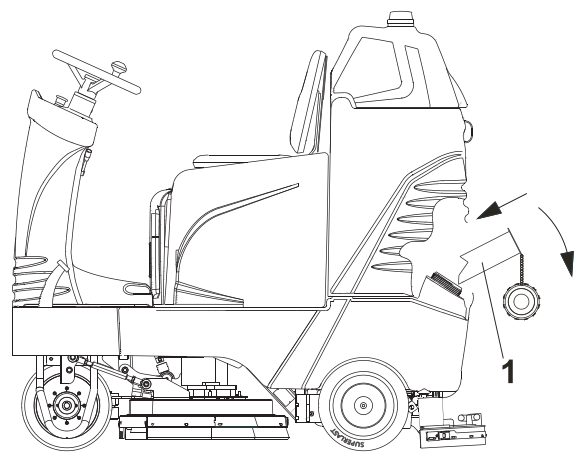


## FILLING THE DETERGENT SOLUTION TANK

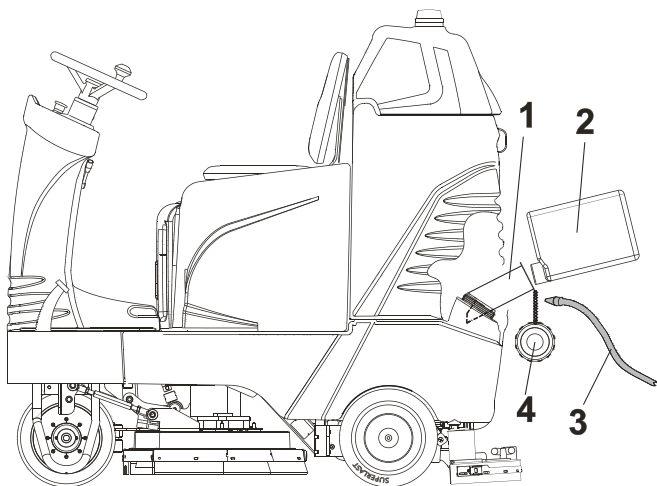
The tank should be filled using clean water mixed with an appropriate detergent solution suited for the type of floor and for the dirty conditions of the floor and using a product suitable for cutting down foam.



- Go to the rear part of the machine;
- Unscrew the cap (pos.2);
- Remove the device to facilitate filling (pos.1);

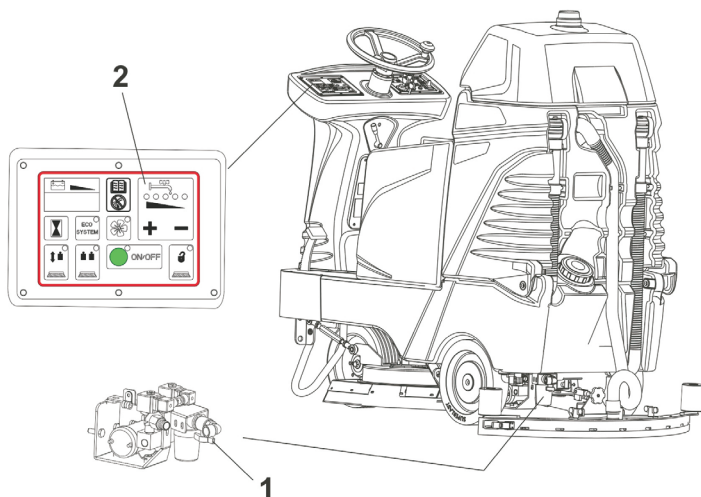


- Carefully turn the device (pos.1) towards the direction indicated by the arrow;
- Place the device (pos.1) once again into the feed opening until it gets stuck in it in an inclined position.



- Pour the detergent solution into the tank directly from the can (pos.2) using the filling device (pos.1). Look at the instructions on the package to determine how much detergent solution to use, how to mix the solution and what safety precautions to take before using the product. Make sure to use low-foaming liquid detergents or appropriate products to cut-down foam;
- After pouring the detergent solution, use a rubber hose connected to the water supply system to fill the tank. Make use the water used to fill the tank does not exceed 40°C.
- **WARNING: DO NOT POUR INFLAMMABLE LIQUIDS INTO THE TANK;**
- After filling the tank, place the device (pos.1) once again into the tank and screw the cap back on (pos.4).

## ADJUSTING THE QUANTITY OF SOLUTION ON THE BRUSHES (WATER + DETERGENT)



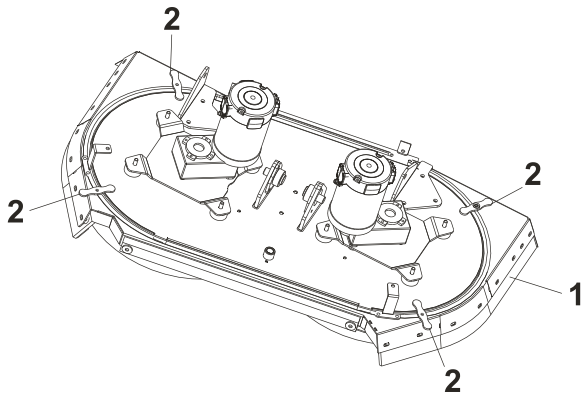
The max. quantity of the solution on the brushes can be adjusted by using the + and - keys (pos. 2) located on the board panel.

Our scrubber-dryer features a solution electronic dosing system which – for being proportional to the machine speed- constantly allows for the correct flow of solution on the brush – thus minimizing any waste. In fact, by decreasing the machine speed, the solution flow decreases accordingly. On the contrary, by increasing the machine speed, the flow will increase till reaching the pre-set maximum level at maximum speed.

The above-mentioned dosing device can be activated also with the machine in ECO-SYSTEM mode.

Make sure that the valve (pos.1) located beneath the machine is open before operating the machine.

## SPLASH GUARD LIFTING FOR PRE-WASHING



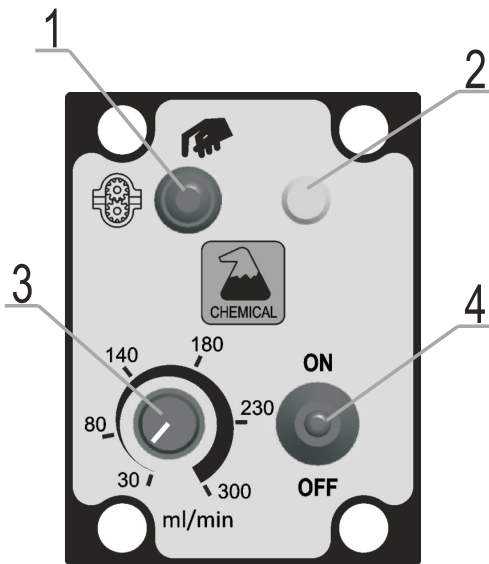
A pre-washing operation is highly advisable when using the machine for particularly dirty surfaces, as to allow the chemical product present in the detergent solution to remove the dirt more efficiently.

Once pre-washing is over, clean the surface by activating the brush function. Do not use the squeegee to gather the solution. During this operation it is advisable to lift the machine splashguard as to allow the detergent solution to spread smoothly over the surface. After a few minutes, wash the surface one more time after lowering the splashguard and activating the vacuum function as to dry the floor.

To lift the splashguard, please refer to the following instructions:

- Lift the splashguard pos.1 manually by pulling it upwards;
- Make the 4 blocking levers pos.2 rotate. This way, the splashguard will remain raised from the ground;
- Once pre-washing is over, unfasten the screws pos.2 thus letting the splashguard pos. 1 lower.

## DETERGENT DOSING SYSTEM (OPTIONAL)



Fix the tank containing the detergent by strap pos.6 and put in the tank tube pos.7. To operate the detergent dosing pump turn ON the toggle switch pos.4. When the pump is on the light pos.2 comes on green. **WARNING: THE PUMP DETERGENT DOSING PUMP WORKS ONLY WHEN THE BRUSHES ARE ACTIVE.** The amount of detergent fed into the solution is adjusted by potentiometer pos.3 (the amount of detergent varies from 30 to 300 ml / min depending on the position of the potentiometer as indicated on the dashboard). To turn off the pump set the switch pos.4 to OFF.

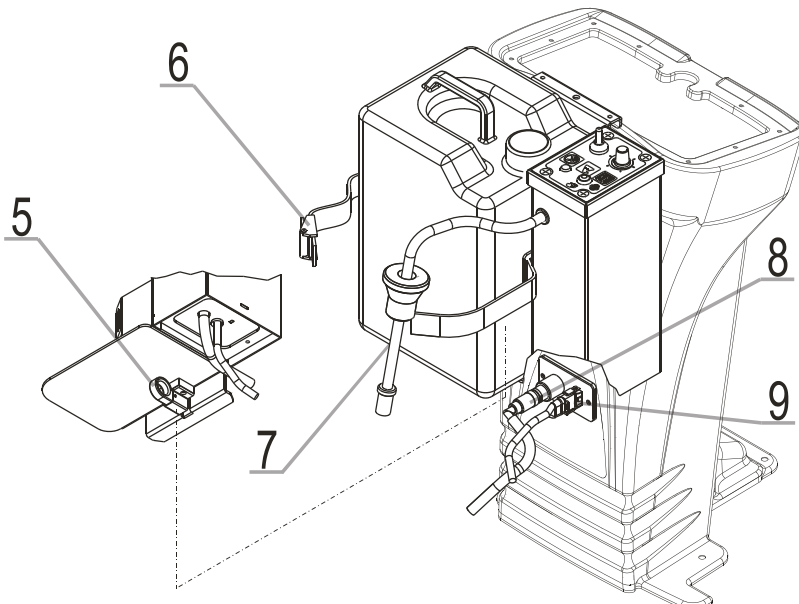
To bleed the circuit, turn the switch pos.4 ON, press the button pos.1 and use clean water.

To remove the complete system of detergent dosage off the machine:

- Push the quick release fitting pos.8 towards the machine and pull the tube to disengage;
- Disconnect the connector pos.9;
- Pull the hook positioned under the structure pos.5, lifting the group and remove it from the machine.

To reassemble the kit on the machine, align 3 pegs on the back of the group with the holes on the fixing plate, lower the group that will snap automatically to the machine.

Reconnect the hose and the electrical connector to the machine.



# USING THE MACHINE

Our scrubber-dryers must be operated by properly trained authorised staff.

Scrubber-dryers that do not operate properly must be taken out of service immediately.

## CHECK BEFORE USE

Make sure to check the following before using the machine:

- Make sure the battery connector is plugged-in;
- Make sure the key is fitted correctly;
- Check the battery charge level.

The charge level of the battery will appear in the instrument panel when the machine is on. Charge the batteries if the battery charging level is low.

- Make sure the brushes or discs are in good condition and mounted correctly;
- Make sure the splash guards that are mounted into the brush plate are in good condition;
- Make sure the rubber wheels on the squeegee are in good condition and set properly;

## OPERATION

- Release the parking brake using the lever and turn the key to position 1;
- Push the ON/OFF button. A green led will turn on and all the functions will be activated. At this point, both the brush tray and the squeegee will lower. The brush motors and the vacuum motor will switch by pressing the advance pedal. The quantity of detergent solution will be the one which has been kept in memory since the last time the machine has been used. In case you wish to adjust it, work on the + and – buttons – on the control panel;
- The brush function can be enabled individually using this button on the instrument panel. The brush plate will lower onto the floor by means of the actuator; however, the brushes will not start rotating until the drive command is activated. Press the button again to disable the function and the pilot light will start flashing giving enough time to lift the brush plate and switch off the motors before turning off itself. If during the washing operation the led light of the brush bottom starts flashing, this means that there is an over-absorption of the motors. After 1 minute with the flashing led light, the writing E1 appears on the control board. The brushes will stop lifting the plate;
- When using the machine on particularly dirty surfaces, it is possible to have a further “extra-pressure” on the brush plate. This function can be activated by pressing the special button, and only if the brush function is already active. Switch it off to disable extra-pressure and resume normal working conditions. By pressing brush button when working on extra-pressure mode, you will cause the brushes to stop rotating and the brush plate to automatically rise. If during washing operation the led light of the extra-pressure bottom starts flashing, this means there is an over-absorption of the motors. After 1 minute with the flashing led light, the extra-pressure function will be deactivated automatically and you will continue working with the normal pressure;
- It is possible to turn on the suction fan using the special button in the instrumental panel. The squeegee will lower by means of the actuator; however, the suction fan will only come on when the drive pedal is pressed. Press the button again to disable the function and the pilot light will start flashing; the squeegee will remain on the floor for a preset period of time and it will then lift and switch off the suction fan as well as the pilot light on the instrument panel. The pilot light will also start to flash if the machine goes in reverse drive to indicate that the squeegee is being raised from the floor. The machine is also fitted with a float that shuts off the vacuum motor when the water level in the recovery tank is too high. If this occurs, the pilot light on the suction motor button will start to flash and switch off the suction fan. The pilot light will continue to flash until the tank is emptied, or until the machine switches off. Drain the tank into the special drainage areas. By pushing the vacuum button, the automatical ECO-SYSTEM cleaning device will be activated. This will keep filters and conduits clean during the use of the ECO-SYSTEM. Every 2 minutes a valve will be activated and you will hear a mechanical noise;
- Set the desired maximum solution quantity using + and – keys. The led lights may start flashing if there is a leakage of the solution while operating or while attempting to enable the brush function without solution in the tank. When this occurs, make sure to fill the tank;
- Select the desired direction using the switch located on the instrument panel. The machine can wash in both directions, however the drying operation in reverse drive cannot be enabled; therefore, when engaged in reverse drive, the squeegee will lift automatically to prevent the blades from damaging and will lower again when resuming the forward drive;
- Select the desired speed using the switch located on the control panel. By pressing the button towards the “hare” symbol, the operating speed is normal; by pressing the button towards the “tortoise” symbol the operating speed is reduced in both directions;
- When starting the washing operation, make sure to lubricate the cutting edge of the splashguard blades. As soon as the brush plate lowers with the detergent solution opened, slowly move the machine forwards and backwards for a few meters in order get the splashguard rubber wet. This operation will protect the cutting edge of the splashguard blades and increase its life;
- To avoid damaging the floors, when you start working, be very careful not to halt the machine over the same floor area while the brushes continue to operate. The brushes will stop automatically after 3 seconds when the forward pedal is released. Stopping the pump and closing the electrovalve, the flow of the solution will be shut off. When resuming the drive operation, the brushes will start and the solution will automatically start to flow;
- In case of prolonged idle time, the brush plate will lift after 1 minute and switch off the function. The suction fan will also switch off but the function will remain active (pilot light on) and the squeegee will not lift automatically for safety reasons. The suction fan will resume operation when the drive pedal is pressed again. Make sure to press this button to lift the squeegee;
- If the squeegee leaves wet lines on the floor during the washing operation, it means that there are pieces trapped beneath the rear rubber wheels of the squeegee. Lift the squeegee and remove the trapped pieces. Use a cloth to wipe off the rear rubber wheels if the pieces cannot be removed manually. In any case, it is always advisable to sweep the floors before washing;
- Once the solution is used up, the machine can continue its washing operation using the ECO SYSTEM function that can be enabled by pressing the button located in the instrument panel, this will enable the machine to re-use the water from the recovery tank as it is duly filtered by the special tank filter. The ECO-SYSTEM function can also be enabled before consuming the entire detergent solution; in this case, the operation will only be allowed if there is enough solution in the recovery tank. The function will not be enabled if the level is too low (the pilot light will not come on when pressing the button). If this occurs, continue to wash the floor using the detergent solution until the function can be enabled.

However, if the ECO SYSTEM is started when there is still some solution left in the clean water tank, the operation can be deactivated at any time and it is possible to resume washing using the solution from this tank. When using the ECO SYSTEM mode, the water is also distributed according to the speed of the machine, therefore the maximum quantity of water will flow when the machine reaches its maximum speed.

- When completing the washing operation turn off the wash functions using the green ON/OFF button, which will switch off the brush function as well as the vacuum function after a preset delay and lift the squeegee. The 2 functions can be switched off individually using the relevant buttons for each function. In this case, the pilot light on the green ON/OFF button will remain active and must be switched off by pressing the button.

# MAINTENANCE

SERVICING YOUR SCRUBBER-DRYER REGULARLY AND PERIODICALLY WILL ENSURE BETTER PERFORMANCE AND MORE DURABILITY. THE FOLLOWING PAGES CONTAIN INFORMATION THAT WILL HELP YOU PLAN THE MAINTENANCE AND CARE FOR THE MACHINE NEEDS.

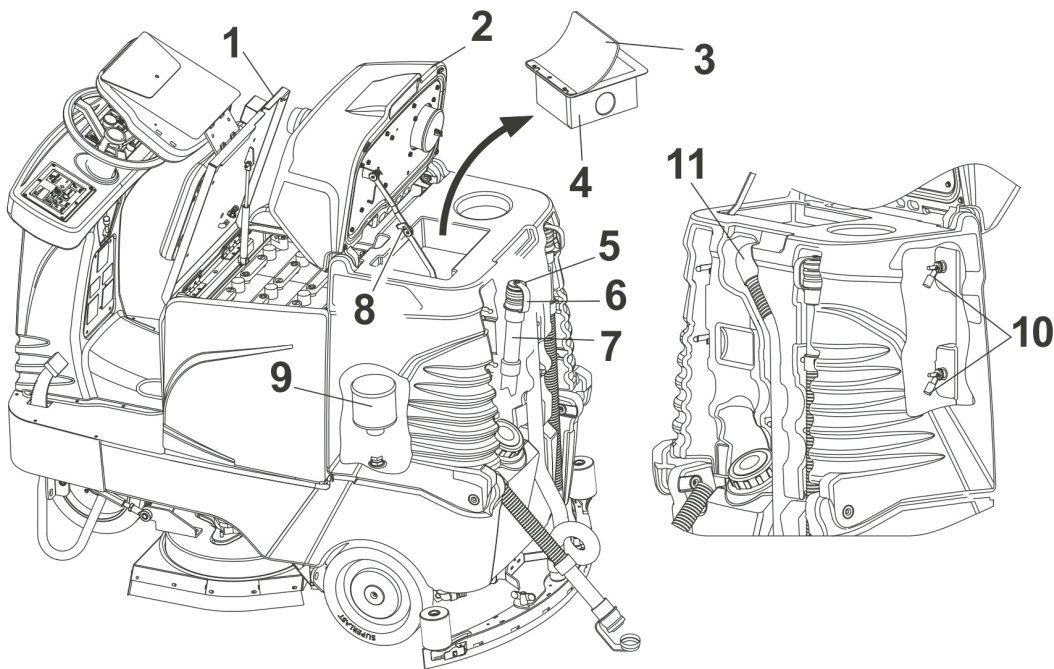
**WARNING!:** DO NOT PERFORM ANY MAINTENANCE ON THE MACHINE OR ANY OF ITS COMPONENTS WITHOUT TURNING OFF THE MACHINE AND UNPLUGGING THE BATTERY CONNECTOR.

**WARNING!:** DO NOT TAMPER WITH ANY SAFETY DEVICE.

THESE DEVICES CAN ONLY BE REMOVED WHEN PERFORMING MAINTENANCE BY AN AUTHORISED ASSISTANCE CENTRE (AAC).



## DRAINING AND CLEANING THE RECOVERY TANK



The recovery tank must be drained and cleaned after each washing operation.

To drain and wash the tank proceed as follows:

- Turn off the washing function using the ON/OFF button and go to the tank drainage area;
- Turn off the machine, remove the key and put on the brake;
- Open the hood of the seat pos.1 by releasing the special safety hook;
- Open the tank lid pos.2 by lifting it manually till the safety bar pos.8 gets inserted;
- Remove the safety filter for bigger debris (pos.4) by holding it from its upper part and pulling it out of the tank. Empty the filter in an appropriate dirt container. To carry out this operation, bend the sealing rubber pos.3. Wash the filter with water and remove the pieces which have got stuck through the meshes of the net, if there are any. Remove the drain pipe from the dirty water tank (see pos.6) and while keeping the pipe vertically (see pos.5) open the lid by rotating it counterclockwise as indicated by the arrow. Part of the pipe is flexible (see pos.7) and therefore it can be squeezed to limit the water flow. Once opened, lay the pipe on the ground;
- After draining the tank, make sure to clean it thoroughly using water;
- Wash the ECO-SYSTEM filter (pos.9) use water throughout the filter, paying attention not to damage it. Periodically, carefully remove the filter and wash it inside to remove possible encrustations. Before doing it, wash the area surrounding the filter. Unscrew the filter anti-clockwise;
- Wash the level sensors pos.10. Do not direct the water flow directly onto the sensors as not to damage them. If necessary, clean them by using a tissue to remove the material which might have got stuck in them (metallic debris) and could thus prevent the floating device from closing properly;
- After completing the cleaning procedures, remount the ECO-SYSTEM filter (pos.9), put the cap back on the dirty water drain pipe and rotate it clockwise, then place the pipe back into its housing in the tank;
- The suction pipe on the squeegee (pos. 11) shall be washed periodically, to prevent encrustation formation inside the pipe.

**AVOID SPLASHING WATER ONTO THE BATTERY TRAY WHILE CLEANING THE TANK.**



## CLEANING INSTRUCTIONS ECO-SYSTEM

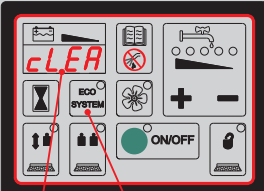

At the end of each working day take the machine to the tank draining area, turn off the key and activate the parking brake. Empty and wash the recovery tank. Start a cleaning cycle of the ECO-SYSTEM following the instructions shown in the label.

**ATTENTION!**

At the end of each use it is necessary to completely empty the Eco-System, even if this function has not been used.

**Instructions:**

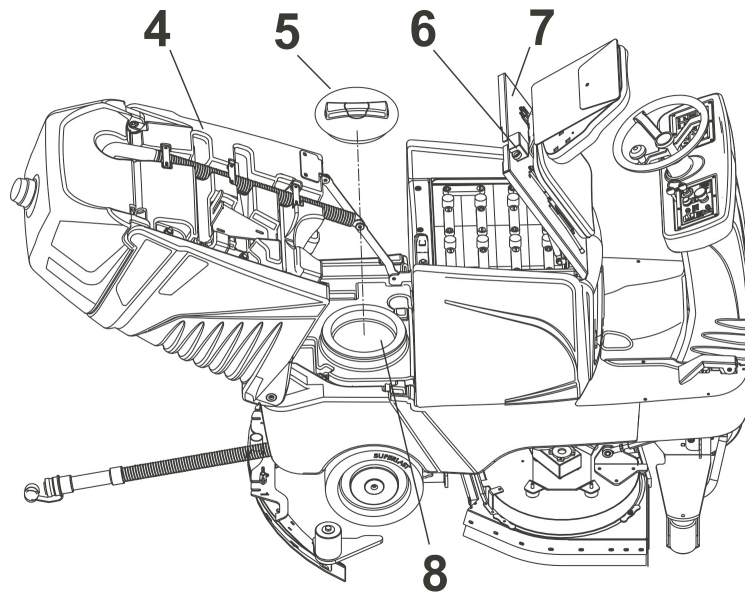
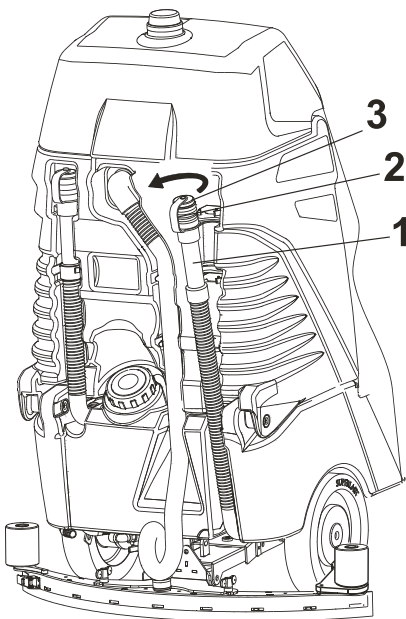
1. Take the machine to a drainage area and **switch it off**.
2. Simultaneously, hold button **(A)** (Eco-System) and **turn the key to position "1"**. Hold until "cLEA" is displayed **(B)**.
3. After 5 seconds, the drainage cycle will start, lasting 40 seconds.
4. Turn the key to position "0" to **switch off** the machine.


Periodically, once a month, remove and wash carefully the ECO-SYSTEM filter. Start the automatic cleaning cycle (as indicated above). Pour water in the base of the ECO-SYSTEM to allow the complete washing of it (pipes, valve, pump). The cleaning operation will last about 40 seconds. If this time is not enough, repeat the complete cycle. To restore the normal functions of the machine, turn off and on the key. REASSEMBLE THE ECO-SYSTEM FILTER.



## DRAINING AND CLEANING THE SOLUTION TANK



The solution tank must be drained after each washing operation. To drain and wash the tank proceed as follows:

- Turn off the washing function using the ON/OFF button and go to the tank drainage area;
- Turn off the machine, remove the key and put on the brake;
- Remove the drain pipe from the clean water tank (see pos.1) and while keeping the pipe vertically (see pos.3) open the lid by rotating it counterclockwise as indicated by the arrow. Part of the pipe is flexible (see pos.2) and therefore it can be squeezed to limit the water flow. Once opened, lay the pipe on the ground slowly;
- After completing the cleaning procedures, open the hood of the seat pos.7, by releasing the special safety hook pos.6;
- Open the solution tank pos. 4 by pulling it inwards and release it only once the blocking device has got inserted;
- Unscrew the cap pos.5 and remove it;
- Wash the tank with water by means of a rubber pipe, trying to direct the water flow towards the interior of the machine as to clean it completely;
- Once completing the cleaning procedures, close the cap pos.5, as well as the dirty solution tank pos.4, and the hood of the seat pos.7 and place the drain pipe pos.1 with its cap pos.3 into its housing.



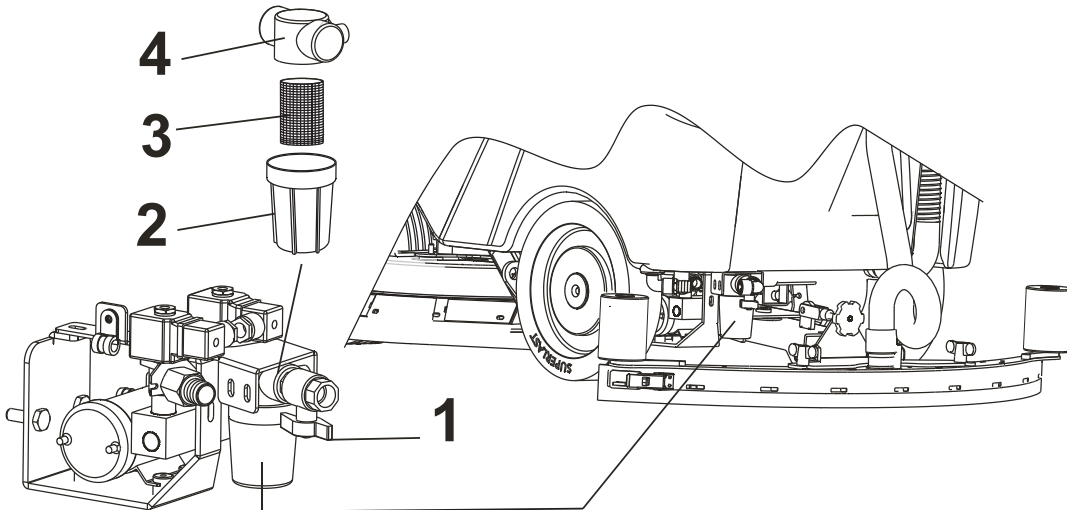
## CHECKING BRUSHES OR ABRASIVE DISCS

After using the machine, remove the brushes or discs by activating the brush release function.

- Check the condition of the brushes and replaced them if they are worn out (the length of the lower bristle shall not be less than 10 millimetres);
- Check the condition of the abrasive discs and replace them if worn out. Make sure to switch the right brush with the left brush periodically to even out the wear so they can last longer.



## CLEANING THE DETERGENT SOLUTION FILTER

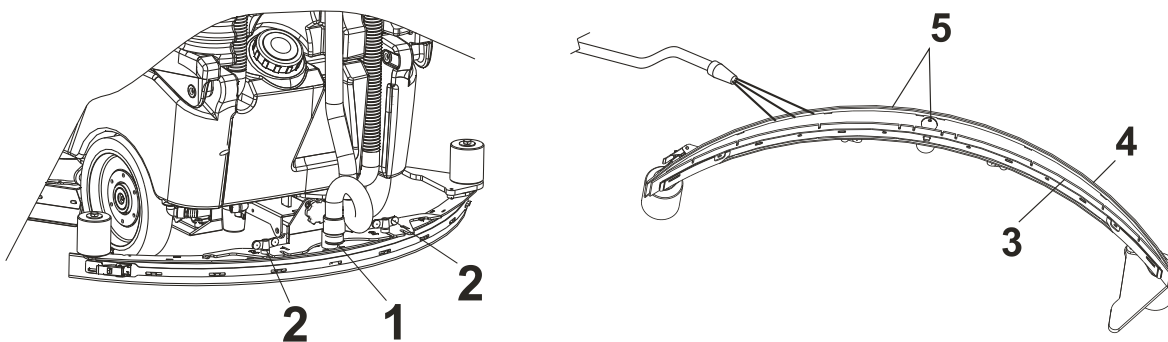


The machine is fitted with a filter on the pipe that comes from the detergent solution tank. In theory, the solution located in this tank should not have any impurities as the buckets or containers used to fill the solution are supposed to be clean, in addition there is a filter in the mouth of the tank that filters the water. Follow the instructions below to clean the filter:

- Bring the machine into a stop position in a flat surface area and put on the brake;
- Turn off the machine and remove the key;
- Close the valve pos.1 and remove the transparent cup pos.2;
- Remove the protective screen (see pos.3) and clean it with water together with the cup;
- Put the cup (see pos.2) and the protective screen (see pos.3) on the fixed part of the filter (see pos.4); make sure the protective screen is fitted correctly into its housing inside the cup and into the support;
- Open the valve pos.1;



## CLEANING THE SQUEEGEE



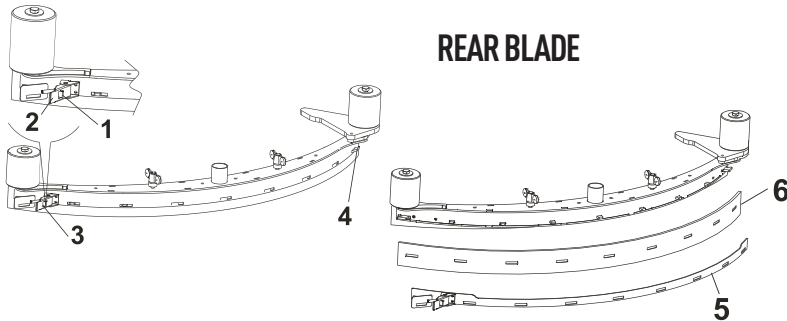
After completing the washing operation, clean the squeegee and make sure the blades are in good condition, then proceed as follows:

- Deactivate the suction function, in case it is active as to lift the squeegee;
- Bring the machine into a stop position in a flat surface area;
- Turn the key to pos.0 and put on the brake;
- Unscrew both screw knobs (see pos.2) and remove the squeegee vacuum pipe (see pos.1);
- Remove the squeegee, lay it on the ground facing up (as shown in the figure), wash it using water and for better vacuum flow, remove any pieces or incrustations from the lower part and from the mouth of the squeegee (see pos.5);
- Use a piece of cloth to wipe off the rear drying blade (see pos.4) and the front drying blade (see pos.3);
- Make sure the blades are in good condition and rotate them if necessary in order to have a new edge in contact with the floor.



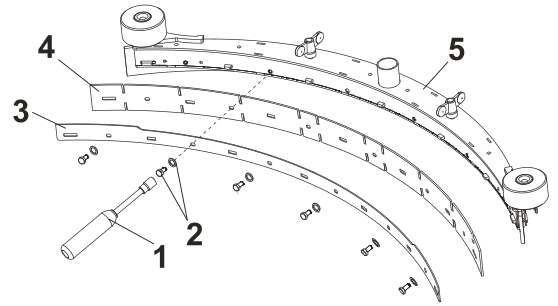
## REPLACING SQUEEGEE BLADES

The squeegee is fitted with two drying blades, a rear and a front blade, as specified in the previous paragraph. Each blade has 4 edges that can be used and rotated 4 times before being replaced, unless one of the edges is torn. For better drying performance, make sure the edge of the rear blade is not worn out. If the blade is worn out, rotate it or replace it.



Follow the instructions below to rotate or replace the rear blade:

- Remove the squeegee from the machine;
- Remove the blade locking plate (see pos.5) by unlocking the retainer (see pos. 3). This retainer is fitted with a safety device that keeps it from opening involuntarily. To release the retainer, push the small lever (see pos.1) towards the outer part of the squeegee and then pull the big lever (see pos.2) towards the rear part of the squeegee;
- Follow the same procedure to remove the locking plate (see position 5) from the other end of the squeegee (see pos.4);
- Remove the blade (see pos.6);
- Rotate the blade and mount it back so that a new edge is on the drying side;
- Hook the locking plate (see pos.4);
- Hook the retainer (see pos.3) and lock it into place.

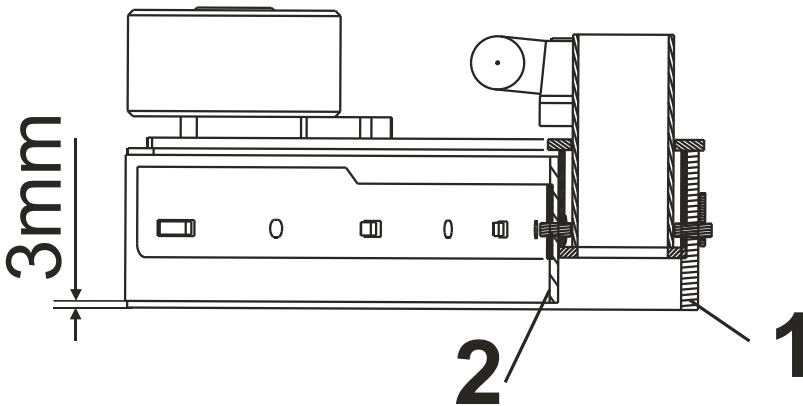


## FRONT BLADE

Follow the instructions below to replace the front blade:

- Remove the squeegee (see pos.5) from the machine;
- Use a 10 mm tubular nut driver (see pos.1) and remove the 6 screws and the respective washers (see pos.2);
- Remove the blade locking plate (see pos.3);
- Remove the blade (see pos.4);
- Rotate the blade and mount it back so that a new edge is on the drying side of the blade;
- Put the blade locking plate (see pos.3) back into place;
- Put the 6 screws back into place and the respective washers (see pos.2), and make sure not to tighten the screws excessively causing the rubber blade to deform (swell).

## CHECKING THE INSTALLATION OF THE SQUEEGEE BLADES



Once the squeegee blades are rotated or replaced, lay the squeegee onto a flat surface and check the following:

- Make sure the rear blade (see pos.1) is fitted correctly and levelled throughout its entire length. If the blade is not fitted evenly, release the blade locking plate and re-position the blade so that it is levelled correctly against the floor;
- Make sure the front blade (see pos.2) is fitted evenly and check for any deformations due to tightening the screws excessively.

Also make sure the blade is raised 3 mm above the ground throughout its entire length;



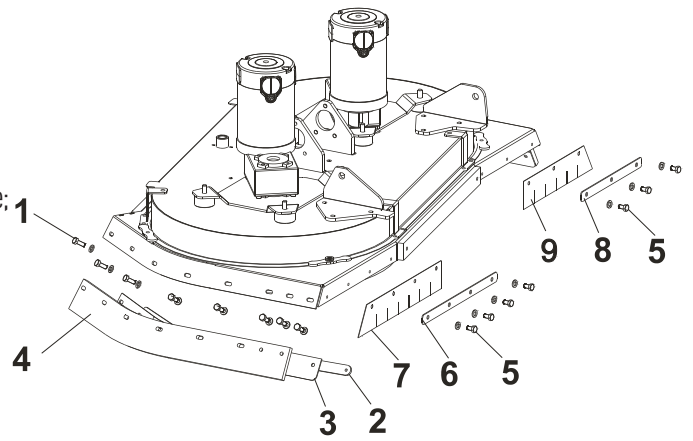
## REPLACING THE SPLASHGUARD BLADES

Follow the instructions below to replace the splashguard side or front blade:

- Turn off the brushes function and lift the brush plate;
- Turn off the machine, remove the key and the battery connector and put on the brake;

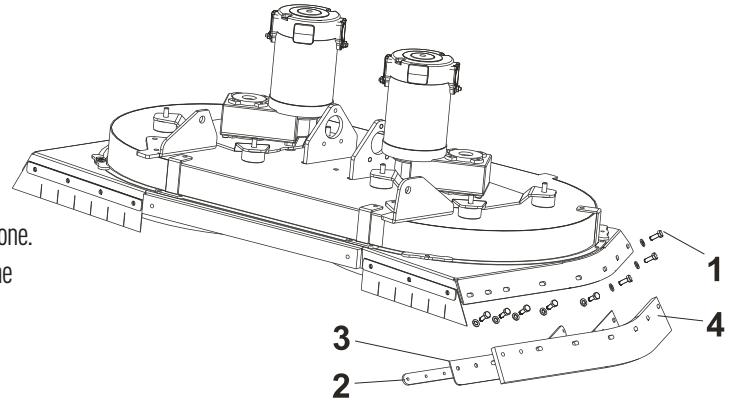
### REPLACING THE FRONT BLADE (RIGHT AND LEFT)

- Use a hex wrench and remove the screws (pos.5) and the respective washers;
- Remove the rubber locking plates (pos.6 and 8);
- Remove the rubbers (pos.7 and 9) and replace them;
- Put everything back into place.



### REPLACING THE SIDE BLADES

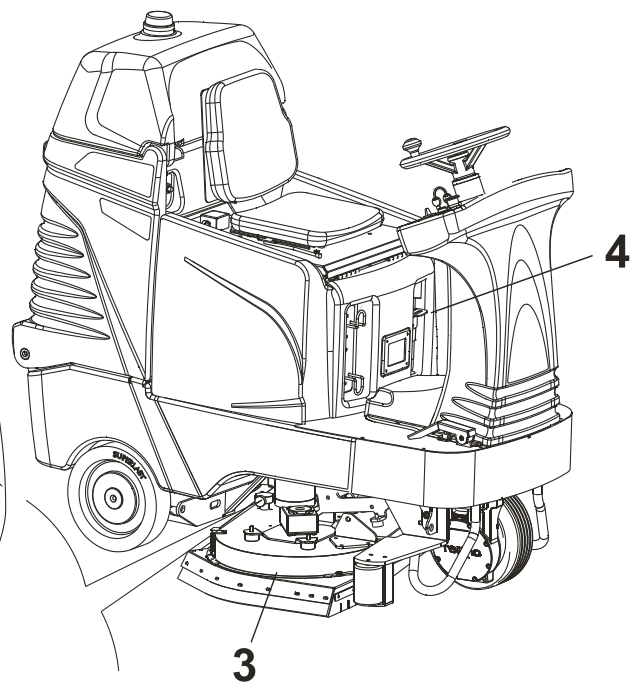
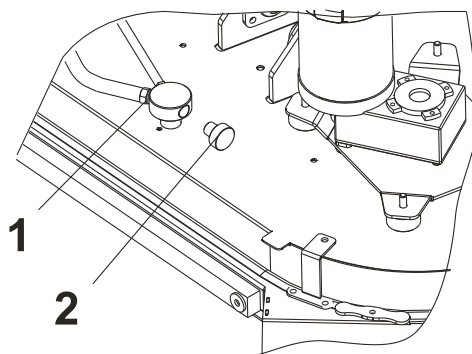
- Use a hex wrench and remove the screws (pos.1) and the respective washers;
  - Remove the internal rubber locking plate (pos.2) and the nylon support (pos.3)
- Remove the side blades (pos.2), and replace it with a new one;
- Check if the nylon support is in good condition, otherwise replace it with a new one.
  - Put the rubber, the nylon support and the internal plate back into place using the screws (pos.1) and the respective washers making sure that the rubber is equally distributed over the entire length.



## CLEANING THE DETERGENT SOLUTION DISTRIBUTOR

The machine is fitted with a metering pump for detergent solutions. If the solution does not flow out of the tank properly, make sure the output distributor is not obstructed or clogged. To check that proceed as follows:

- Bring the machine into a stop position in a flat surface area and put on the brake;
- Lower the brush plate pos.3 by pressing the special button in the control board;
- With the lowered plate, turn off the machine and remove the key;
- Unplug the mobile connector pos.4 from the fixed connector on the machine to remove the current;
- Unscrew the cap manually pos.2;
- Use a thin piece of wire of approximately Ø2-3 mm and remove any incrustations from the distributor (position 1);
- Mount the cap pos.2;
- Connect the mobile connector pos.4 to the fixed connector;
- Insert the key and turn it towards the ignition;
- After some seconds, the machine will lift automatically the plate and it will be ready to start working;





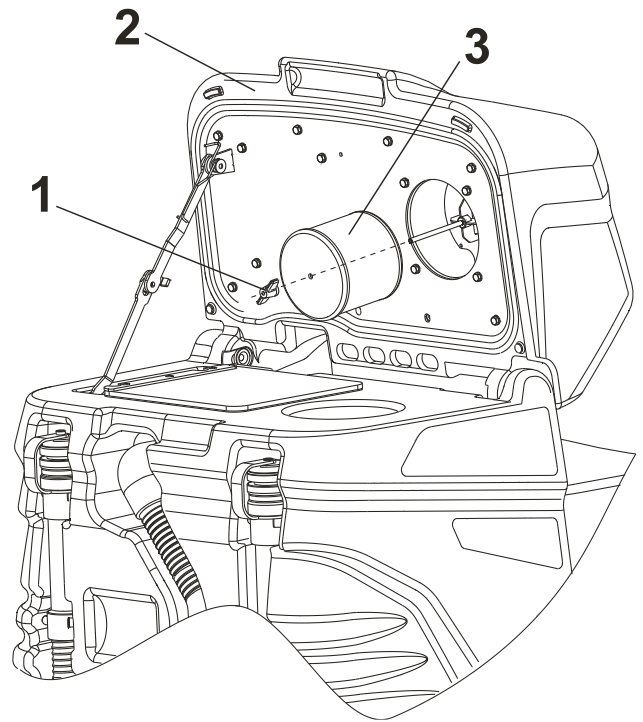
## CLEANING THE SUCTION FILTER

The machine is fitted with a stainless steel washable cartridge filter and a stainless steel filter on the suction duct, which provides two functions:

- 1) To filter the air vacuumed by the squeegee, trapping dust before releasing it into the environment, without putting it back into the air;
- 2) To protect the suction motor against dust that may ruin moving mechanical parts, making them last longer.

Follow the instructions below to clean the filter:

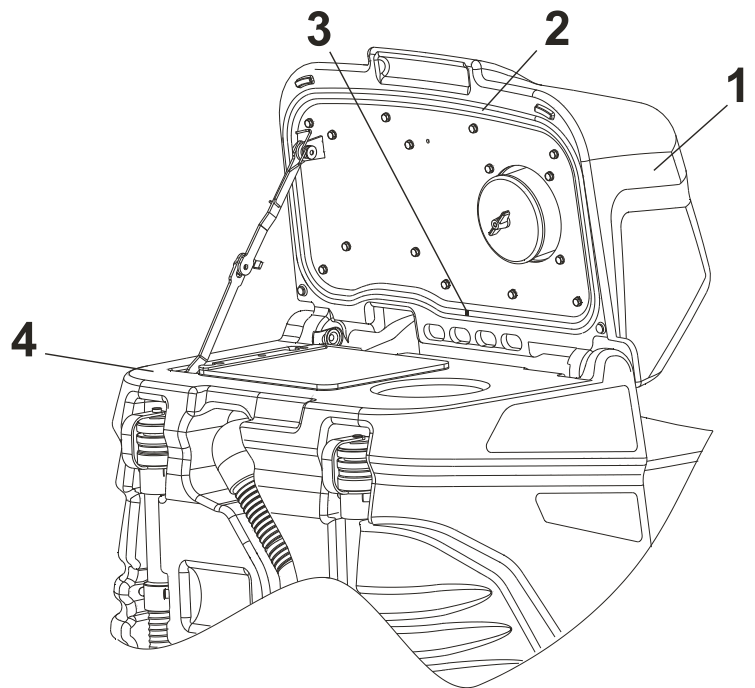
- Bring the machine into a stop position in a flat surface area and put on the brake;
- Turn off the machine and remove the key;
- Open the cover (see pos.2);
- Unscrew the locking filter handwheel pos.1;
- Remove the filter pos.3 from its seat;
- Wash the filter with water and dry it using hot air, be careful not to damage it;
- Put the air filter back into place (see pos.3);
- Lower the locking filter handwheel pos.1;
- Close the tank cover pos.2.



## CHECK THE SEAL ON THE COVER

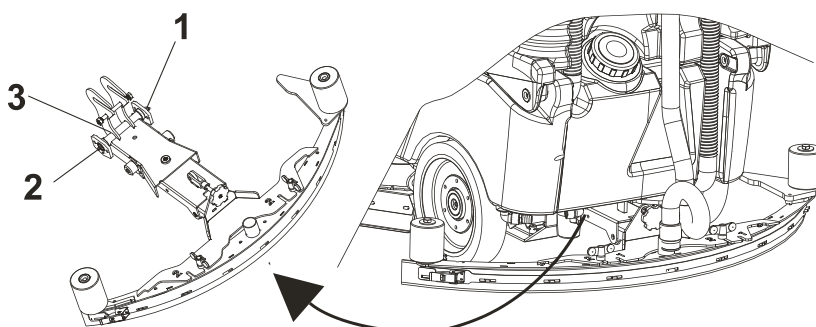
The recovery tank cover seal ensures that a proper vacuum is created inside the tank and this provides a better suction performance on the squeegee. It is very important to keep the seal intact for the machine to work properly. To clean and check the seal, proceed as follows:

- Open the cover (see pos.1);
- Use a piece of cloth to wipe off the seal (pos.2) and make sure it is not broken or damaged;
- If the seal is damaged, remove it from the cover, mount a new seal and make sure to fit the seam of the seal into the rear position (see pos.3);
- Clean the area of the tank where the seal leans (see pos.4) when the cover is closed



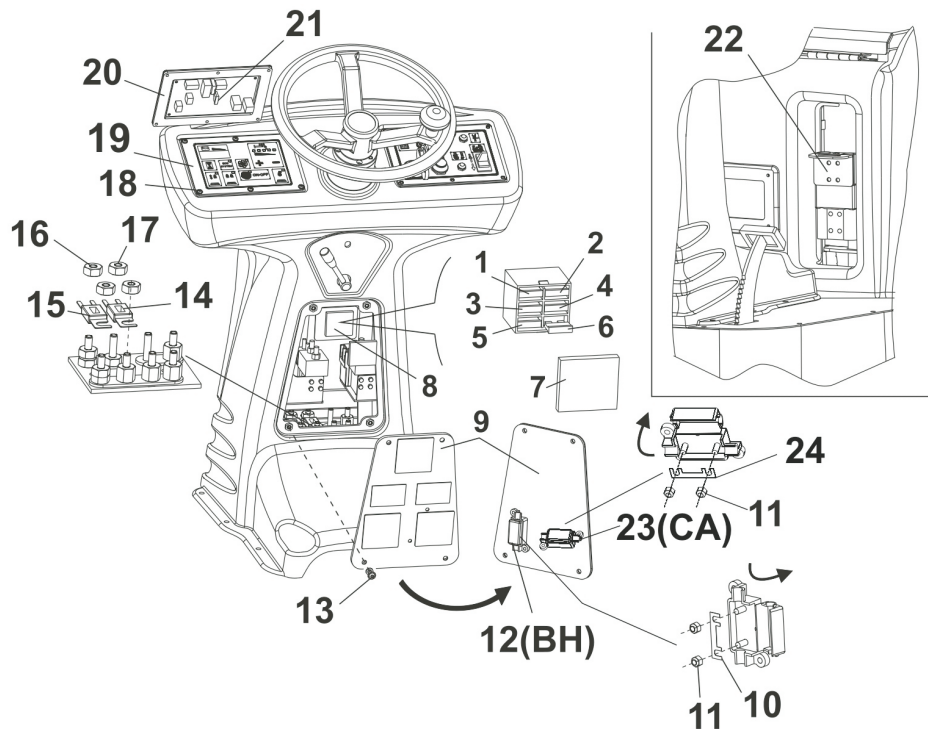
## GREASING POINTS

Once every 100 hours, see to the greasing of the squeegee rotating pivot pos. 3 by filling with grease the two grease cups pos. 1 and 2 placed on the extremities of the pivot.





## CHECKING AND REPLACING FUSES



To check or replace the fuses on the switchboard proceed as follows:

- Bring the machine into a stop position in a flat surface area, turn the key in pos. 0 and put on the brake;
- Unplug the battery plug (see position 22);
- Remove the 4 locking screws pos.13 from the fuse holder hood pos. 9;
- Remove the hood carefully as in the rear side of this hood there is the fuse holder pos. 12 with the relative connected cables;
- In the electric plan there are different fuses and fuse holders that have the following functions;

**1) Fuse holder pos. 12 recognizable from the label BH: 40 A fuse PROTECTION OF BRUSH RELEASE;**

TO REPLACE IT, PROCEED AS FOLLOWS:

- Open the lid of the fuse holder (pos. 12) by pulling it up from the side indicated by the arrow;
- Unscrew the 2 fuse locking nuts (pos. 11);
- Replace the 40 A fuse (pos. 10) with a fuse of equal amperage;
- Reassemble the nuts and close the lid of the fuse holder.

**2) Fuse holder pos. 23 recognizable from the label CA: 30 A fuse PROTECTION OF VACUUM MOTOR;**

TO REPLACE IT, PROCEED AS FOLLOWS:

- Open the lid of the fuse holder (pos. 23) by pulling it up from the side indicated by the arrow;
- Unscrew the 2 fuse locking nuts (pos. 11);
- Replace the 30 A fuse (pos. 24) with a fuse of equal amperage;
- Reassemble the nuts and close the lid of the fuse holder.

**3) There are 7 fuses located in the fuse holder pos. 7 and they have the following functions and features ;**

POSITION 1: 5 A fuse Eco System cleaning device safety card;

POSITION 2: 5 A fuse control board and battery charger protection;

POSITION 3: 15 A fuse positive pole protection;

POSITION 4: 15 A fuse pump protection;

POSITION 5: 3 A fuse flashing light protection;

POSITION 6: 3 A fuse cooling fan protection;

**4) Fuse pos.15: 80 A fuse BRUSH MOTORS PROTECTION**

ATTENTION: This fuse is used by the function card to control the correct absorption of brush motors (amperometric protection).

It is possible that, although the motor reducers work with a correct absorption, error E1 appears on the display.

In this case there is an oxidation of the fuse that gives a wrong reading.

- Unscrew the 2 nuts pos. 16 that fix the fuse of 80 A pos. 15;

- Clean the fuse holder and oil it with vaseline;

IMPORTANT: use exclusively the spare fuse by company

**5) Fuse pos. 14: 100A fuse PROTECTION OF THE DRIVE SYSTEM;**

TO REPLACE IT, PROCEED AS FOLLOWS:

- Remove the 2 nuts pos. 17;
- Replace 100 A fuse pos. 14 with a fuse of equal amperage and with the same manufacturing characteristics and reassemble the 2 nuts;

**6) Fuse pos. 21: 20A fuse CONTROL BOARD CARD PROTECTION;**

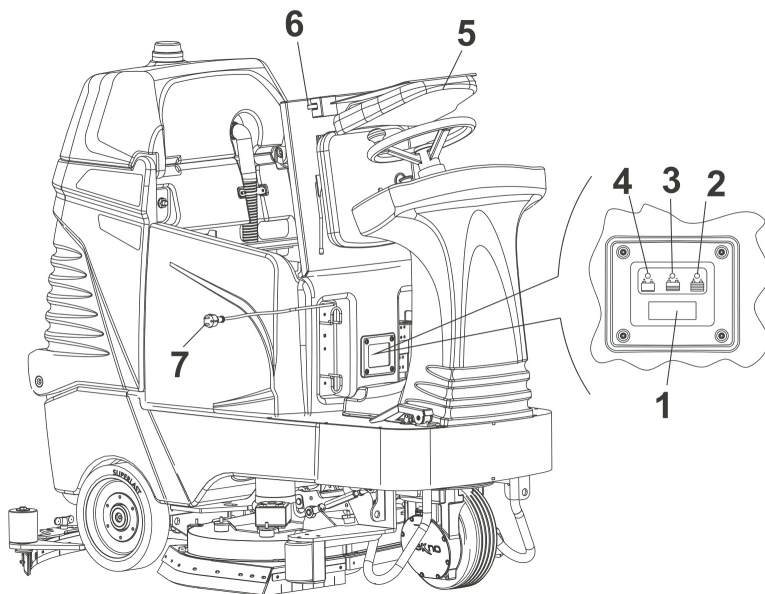
TO CHECK OR REPLACE IT, PROCEED AS FOLLOWS:

- Use a 2.5 mm Allen wrench and remove the 8 clamping screws (pos.18) from the instrument panel, including the respective nylon washers;
- Carefully turn the instrument panel (pos.19), follow the arrows and make sure not to jerk it as it may damage the electrical system;
- Remove the 20 A fuse (pos.21), check it and replace it if necessary with a fuse of equal amperage;
- Put the instrument panel back into place (pos.19)
- Put the washer and screws back (pos.18) and close the panel using the special wrench, make sure to apply enough pressure on the seal beneath the panel (pos.20).

Once the fuses are checked or replaced, put everything back together and bring the machine back to its operating condition.



## RECHARGING BATTERIES



**WARNING! THE CHARGER IS PRESET FOR LEAD BATTERIES. TO MOUNT GEL OR AGM BATTERIES, BOTH THE STATUS LED AND THE CHARGER HAVE TO BE SET ACCORDING TO THE TYPE OF BATTERY WHICH IS TO BE USED. TO THIS AIM, PLEASE CONTACT EITHER A TECHNICIAN OR AN AUTHORIZED RETAILER**

To charge the batteries follow the instructions below:

- Bring the machine into a stop position in a flat surface area, turn it off and put on the brake;
- Before charging the battery make sure to scrupulously follow the battery charger instruction manual provided with the machine;
- The recharging of the battery is to take place in well-aired environments;
- Open the hood of the seat pos. 5 by releasing the locking device pos. 6;
- The battery charger can run with a voltage range 230 VAC, for the use with different voltages it is advisable to use a proper charger;
- Uncoil the cable from the cable reel located on board the machine and connect the plug pos.5 into a standard electrical power socket. While plugging the socket, the display on the charger (pos.1) will come on and start reading which type of battery is being used (whether "ACD" or "GEL").

At this point the charger will make a test to check if it is necessary to charge the battery. In this case, the charging sequence will be enabled. If the battery does not need to be charged, the charging sequence will not be activated. If the battery is not connected to the charger or it has reversed polarity, the display will read "BAT".

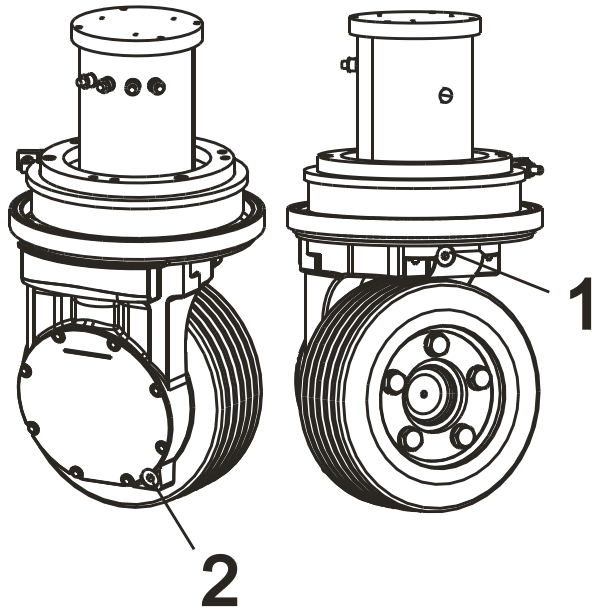
For any other anomaly shown in the display, refer to the manual of the battery charger.

**WARNING: WHEN PLUGGING THE BATTERY CHARGER INTO THE ELECTRICAL SOCKET, THE MACHINE FUNCTIONS ARE AUTOMATICALLY DISABLED;**

- There are 3 led lights located above the battery charger: position 4 "RED" light – position 3 "YELLOW" light – position 2 "GREEN" light
- These lights indicate the charging status of the battery. The GREEN light indicates that the charging cycle is completed and the plug can be disconnected from the electrical socket and rolled back into the cable reel;
- Once the battery is charged make sure to check the electrolyte level and if necessary fill it up only using distilled water;
  - The gas released during the charging process can cause explosions if it comes into contact with flames or sparks;
  - Battery acid should never come into contact with the eyes, skin or clothes, make sure to wear goggles, gloves and appropriate clothing;
  - If it comes into contact with the eyes or skin, wash immediately with abundant water;
  - Do not place metal objects on the batteries;
  - Do not fill the batteries with sulphuric acid or other products.



## CHECKING OR REPLACING THE OIL OF THE DRIVE WHEEL REDUCER



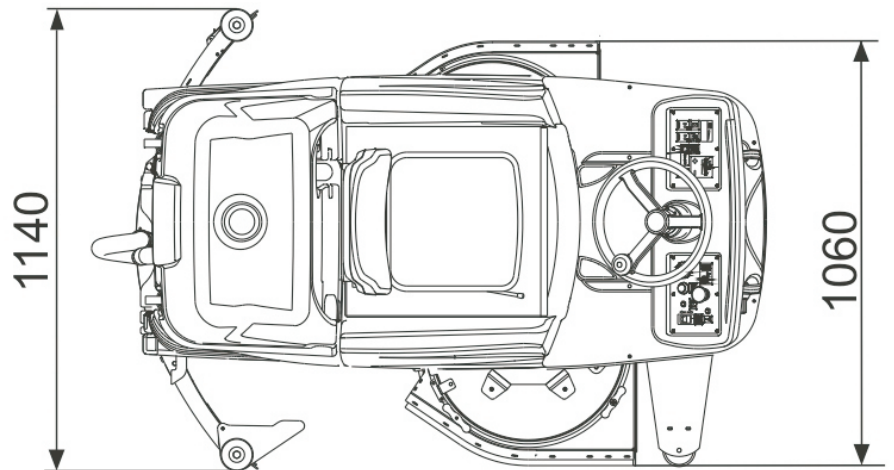
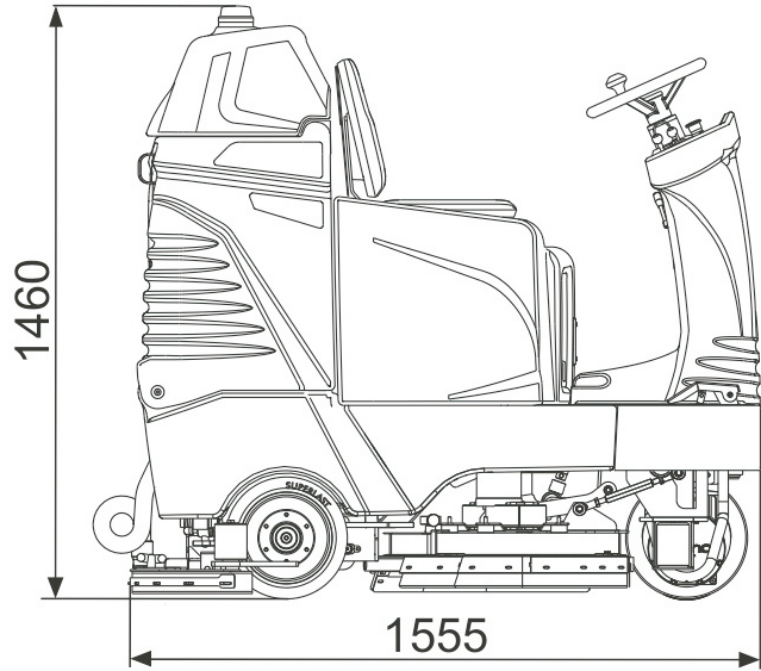
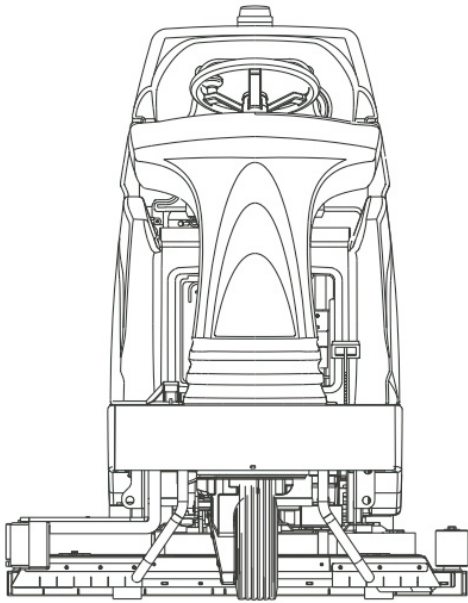
### OPERATIONS TO BE CARRIED OUT ONCE EVERY 500 WORKING HOURS AS TO CHECK THE OIL LEVEL OF THE DRIVE WHEEL REDUCER:

- 1) Check the oil level by removing the level/oil cap pos.1)
- 2) If necessary, fill up the wheel reducer with SYNTHETIC OR MINERAL OIL SAE 80W90 up to the level and then refit the cap pos.1.

### OPERATIONS TO BE CARRIED OUT ONCE EVERY 2000 WORKING HOURS AS TO REPLACE THE OIL OF THE DRIVE WHEEL REDUCER :

- 1) Unscrew and remove the level/oil filling cap pos.1;
  - 2) Fit a suitable basin for the oil gathering. Then, unscrew the drain plug pos.2 and remove it as to wait for the oil outflow;
  - 3) Remove any metallic waste which got stuck on the drain plug
  - 4) Refit the drain plug pos.2 by means of a proper gasket;
- Fill up the reducer with SYNTHETIC OR MINERAL OIL SAE 80W90 up to the level and then refit the oil filling cap pos.1.

# DIMENSIONAL TECHNICAL DRAWINGS



# TECHNICAL CHART

TECHNICAL SPECIFICATIONS		
<b>MAIN SPECIFICATIONS</b>	Cleaning path	1000 mm
	Hourly performance	7.500 m <sup>2</sup> /h
	Solution tank capacity	120 L
	Recovery tank capacity	135 L
	Forward speed	0 - 7.5 km/h
	Maximum gradient	18 %
	Turning radius	970 mm
<b>DIMENSIONS AND WEIGHT</b>	Dimensions (without squeegee)	1.535 x 1.060 x 1.450 mm
	Width (with squeegee)	1.120 mm
	Weight	373 kg
	Weight (with type A batteries)	643 kg
	Weight (with type B batteries)	633 kg
	Weight (with type C batteries)	503 kg
	Weight (with type D batteries)	497 kg
	Packaging dimensions	1.270 x 1.750 x 1.670 mm
	Packaging weight	85 kg
	Packaging volume	3,71 m <sup>3</sup>
<b>BRUSHES</b>	Brush dimensions	Ø 460 - 480mm
	Pad size (only with pad holder)	480 mm / 19"
	Brush motor	Gear motor: 24V - 650 W - 150 RPM - IP 20
<b>TRACTION SYSTEM</b>	Traction type	Forward and reverse traction via front drive wheel, electronically controlled
	Traction motor	24V - 900 W - IP 20 - 3500/3600 RPM
	Front wheel RPM (machine unloaded)	170 - 175 RPM
<b>BATTERIES</b>	Batteries	1 x 24 V / 4 x 6 V
	Battery tray dimensions	615 x 418 x 390 mm
<b>TYPE A BATTERIES</b>	Type	1 lead acid battery 24V 300A (5H) with auto watering system
	Dimensions ea.	615 x 418 x 376 mm
	Weight (with acid) ea.	270 kg
	Autonomy (theoretical)	3 h 40 min
<b>TYPE B BATTERIES</b>	Type	1 gel battery 24V 275A (5H)
	Dimensions ea.	615 x 418 x 376 mm
	Weight (with acid) ea.	260 kg
	Autonomy (theoretical)	3 h

TECHNICAL SPECIFICATIONS		
<b>TYPE C BATTERIES</b>	Type	4 lead acid batteries 6V 240A (20H) - 180A (5H)
	Dimensions ea.	242 x 190 x 128 mm
	Weight (with acid) ea.	32,6 kg
	Autonomy (theoretical)	1 h 40 min
<b>TYPE D BATTERIES</b>	Type	4 gel batteries 6V 180A (5H)
	Dimensions ea.	242 x 190 x 285 mm
	Weight (with acid) ea.	31 kg
	Autonomy (theoretical)	1 h 40 min
<b>BATTERY CHARGER</b>	Model	24V 30A IP 30 (230V (±10%) 50/60 Hz input voltage)
	Settings	Calibrated for lead acid, AGM/gel, or gel Sonnenschein batteries
<b>SOLUTION FLOW</b>	Solution control	24V 120W - 2/5A
	Flow rate	Min level: 4 L/min, max level 12 L/min
<b>VACUUM SYSTEM</b>	Vacuum motor	3 stage, 24V 550W 25A
	Water pick up	1.250 mm/H <sub>2</sub> O
	Standard filter	Stainless steel mesh
<b>WHEELS</b>	Front wheel	Ø 254 x 100 mm - solid rubber, super elastic, non-marking and oil resistant Hub made of steel coated in polyurethane
	Rear wheels	Ø 300 x 70 mm - solid rubber, super elastic, non-marking and oil resistant. Hub made of nylon coated in polyurethane
	Brakes	Drum brakes on rear wheels
<b>SOUND LEVEL (UNI EN ISO 11201)</b>	Noise emission value LpA	76.6 dB (A)
	Uncertainty KpA	2.4 dB (A)
<b>VIBRATION LEVEL</b>	Whole-body vibration level aW	0.67 m/s <sup>2</sup>
	Uncertainty K	0.34 m/s <sup>2</sup>
<b>TEMPERATURE RATING</b>	Storage temperature	+5 / +40 °C
	Operating temperature	+5 / +40 °C

# SERVICE AND MAINTENANCE RECORDS

1°

## SERVICE AND MAINTENANCE RECORD

**TO 100 HOURS**

**DATE**

DAY	MONTH	YEAR	WORKING HOURS

- Check that the battery clamps are not loosen or oxidized
- Check the batteries fluid level
- Check the cover gasket
- Check the vacuum motor filter
- Check the brake
- Check, and if necessary replace, the fuses
- Check the brushes and the components of the brush plate
- Check, and if necessary rotate or replace, the squeegee blades
- Check the adjusting/closing detergent solution tap
- Check the detergent solution filter (located just before the pump)
- Check the pump, the solenoid valve and the fitting outgoing from the pump
- Check that the vacuum pipe on the squeegee and the drainpipes of the solution and recovery tanks are not broken or clogged
- Clean the Ecosystem and its components
- Check the actuators of the squeegee and the brush plate (anyway if actuators have problems, they will be detected by the control board)
- Lubricate the squeegee pivot pin
- Test the machine in all its operating functions

**THE SERVICE WAS CARRIED OUT ON:**

**NAME:**

**SURNAME:**

**SIGNATURE:**

**STAMP OF DEALER WHO CARRIED OUT SERVICE**

**NOTES**

2°

## SERVICE AND MAINTENANCE RECORD

**TO 200 HOURS**

**DATE**

DAY	MONTH	YEAR	WORKING HOURS

- Check that the battery clamps are not loosen or oxidized
- Check the batteries fluid level
- Check the cover gasket
- Check the vacuum motor filter
- Check the brake
- Check, and if necessary replace, the fuses
- Check the brushes and the components of the brush plate
- Check, and if necessary rotate or replace, the squeegee blades
- Check the adjusting/closing detergent solution tap
- Check the detergent solution filter (located just before the pump)
- Check the pump, the solenoid valve and the fitting outgoing from the pump
- Check that the vacuum pipe on the squeegee and the drainpipes of the solution and recovery tanks are not broken or clogged
- Clean the Ecosystem and its components
- Check the actuators of the squeegee and the brush plate (anyway if actuators have problems, they will be detected by the control board)
- Lubricate the squeegee pivot pin
- Test the machine in all its operating functions

**THE SERVICE WAS CARRIED OUT ON:**

**NAME:**

**SURNAME:**

**SIGNATURE:**

**STAMP OF DEALER WHO CARRIED OUT SERVICE**

**NOTES**

**3°**

## SERVICE AND MAINTENANCE RECORD

**TO 300 HOURS**

**DATE**

DAY	MONTH	YEAR	WORKING HOURS

- Check that the battery clamps are not loosen or oxidized
- Check the batteries fluid level
- Check the cover gasket
- Check the vacuum motor filter
- Check the brake
- Check, and if necessary replace, the fuses
- Check the brushes and the components of the brush plate
- Check, and if necessary rotate or replace, the squeegee blades
- Check the adjusting/closing detergent solution tap
- Check the detergent solution filter (located just before the pump)
- Check the pump, the solenoid valve and the fitting outgoing from the pump
- Check that the vacuum pipe on the squeegee and the drainpipes of the solution and recovery tanks are not broken or clogged
- Clean the Ecosystem and its components
- Check the actuators of the squeegee and the brush plate (anyway if actuators have problems, they will be detected by the control board)
- Lubricate the squeegee pivot pin
- Test the machine in all its operating functions

**THE SERVICE WAS CARRIED OUT ON:**

**NAME:**

**SURNAME:**

**SIGNATURE:**

**STAMP OF DEALER WHO CARRIED OUT SERVICE**

**NOTES**

**4°**

## SERVICE AND MAINTENANCE RECORD

**TO 400 HOURS**

**DATE**

DAY	MONTH	YEAR	WORKING HOURS

- Check that the battery clamps are not loosen or oxidized
- Check the batteries fluid level
- Check the cover gasket
- Check the vacuum motor filter
- Check the brake
- Check, and if necessary replace, the fuses
- Check the brushes and the components of the brush plate
- Check, and if necessary rotate or replace, the squeegee blades
- Check the adjusting/closing detergent solution tap
- Check the detergent solution filter (located just before the pump)
- Check the pump, the solenoid valve and the fitting outgoing from the pump
- Check that the vacuum pipe on the squeegee and the drainpipes of the solution and recovery tanks are not broken or clogged
- Clean the Ecosystem and its components
- Check the actuators of the squeegee and the brush plate (anyway if actuators have problems, they will be detected by the control board)
- Lubricate the squeegee pivot pin
- Test the machine in all its operating functions

**THE SERVICE WAS CARRIED OUT ON:**

**NAME:**

**SURNAME:**

**SIGNATURE:**

**STAMP OF DEALER WHO CARRIED OUT SERVICE**

**NOTES**

5°

# SERVICE AND MAINTENANCE RECORD

**TO 500 HOURS**

**DATE**

DAY	MONTH	YEAR	WORKING HOURS

CHECK AND REMOVE THE MOTOR CARBON BRUSHES ONE AT A TIME SO AS NOT TO INVERT THEM. THE MOTOR CARBON BRUSHES SETTLE AND WEAR DIFFERENTLY THE ONE FROM THE OTHER, CONSEQUENTLY IF THESE ARE INSPECTED AND PUT BACK ON AGAIN BECAUSE THEY ARE NOT FULLY WORN, THEY MUST BE REFITTED IN THE SAME POSITION.

**VACUUM MOTOR**

Check the carbon brushes and replace them if they are shorter than 10 mm. Length of new motor carbon brush: 26.8 mm.

N°2 carbons (cod 640337) for each motor;

**BRUSHES MOTOR**

Check the carbon brushes and replace them if they are shorter than 11.5 mm. Length of new motor carbon brush: 24 mm.

N°4 carbons (cod 640350) for each motor;

**MOTORWHEEL**

Check the carbon brushes and replace them if they are shorter than 15 mm. Length of new motor carbon brush: 25 mm.

N°4 carbons (cod 640222) for each motor (1 kit). Check also the motor oil level in the motorwheel.

- Check that the battery clamps are not loosen or oxidized
- Check the batteries fluid level
- Check the cover gasket
- Check the vacuum motor filter
- Check the brake
- Check, and if necessary replace, the fuses
- Check the brushes and the components of the brush plate
- Check, and if necessary rotate or replace, the squeegee blades
- Check the adjusting/closing detergent solution tap
- Check the detergent solution filter (located just before the pump)
- Check the pump, the solenoid valve and the fitting outgoing from the pump
- Check that the vacuum pipe on the squeegee and the drainpipes of the solution and recovery tanks are not broken or clogged
- Proceed with the cleaning of the ECO system device and its components
- Check the bearings of the wheels
- Check the actuators of the squeegee and the brush plate
- Lubricate the squeegee pivot pin
- Test the machine in all its operating functions

**THE SERVICE WAS CARRIED OUT ON:**

**NAME:**

**SURNAME:**

**SIGNATURE:**

**STAMP OF DEALER WHO CARRIED OUT SERVICE**

**NOTES**

<b>UP TO 500 HOURS AS FOR 50 HOURS</b>	<b>DATE</b>	<b>DAY</b>	<b>MONTH</b>	<b>YEAR</b>	<b>WORK. HOURS</b>
THE SERVICE WAS CARRIED OUT ON:		<b>STAMP OF DEALER WHO CARRIED OUT SERVICE</b>			
NAME:					
SURNAME:					
SIGNATURE:					

<b>UP TO 600 HOURS AS FOR 100 HOURS</b>	<b>DATE</b>	<b>DAY</b>	<b>MONTH</b>	<b>YEAR</b>	<b>WORK. HOURS</b>
THE SERVICE WAS CARRIED OUT ON:		<b>STAMP OF DEALER WHO CARRIED OUT SERVICE</b>			
NAME:					
SURNAME:					
SIGNATURE:					

<b>UP TO 700 HOURS AS FOR 200 HOURS</b>	<b>DATE</b>	<b>DAY</b>	<b>MONTH</b>	<b>YEAR</b>	<b>WORK. HOURS</b>
THE SERVICE WAS CARRIED OUT ON:		<b>STAMP OF DEALER WHO CARRIED OUT SERVICE</b>			
NAME:					
SURNAME:					
SIGNATURE:					

<b>UP TO 800 HOURS AS FOR 300 HOURS</b>	<b>DATE</b>	<b>DAY</b>	<b>MONTH</b>	<b>YEAR</b>	<b>WORK. HOURS</b>
THE SERVICE WAS CARRIED OUT ON:		<b>STAMP OF DEALER WHO CARRIED OUT SERVICE</b>			
NAME:					
SURNAME:					
SIGNATURE:					

<b>UP TO 900 HOURS AS FOR 400 HOURS</b>	<b>DATE</b>	<b>DAY</b>	<b>MONTH</b>	<b>YEAR</b>	<b>WORK. HOURS</b>
THE SERVICE WAS CARRIED OUT ON:		<b>STAMP OF DEALER WHO CARRIED OUT SERVICE</b>			
NAME:					
SURNAME:					
SIGNATURE:					

<b>UP TO 1000 HOURS AS FOR 500 HOURS</b>	<b>DATE</b>	<b>DAY</b>	<b>MONTH</b>	<b>YEAR</b>	<b>WORK. HOURS</b>
THE SERVICE WAS CARRIED OUT ON:		<b>STAMP OF DEALER WHO CARRIED OUT SERVICE</b>			
NAME:					
SURNAME:					
SIGNATURE:					

<b>NOTES</b>
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# TROUBLE-SHOOTING CHART

## WARNING!

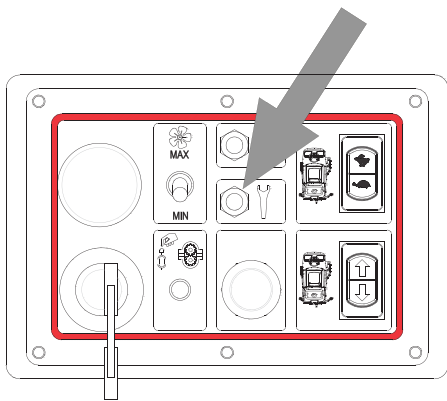
ANY TYPE OF SERVICE OPERATION OR TEST, WITH THE EXCEPTION OF THOSE SHOWN IN THE ENGINE'S MANUAL OR THE BATTERY'S MANUAL, MUST BE CARRIED OUT BY AUTHORIZED SERVICE CENTRES ONLY.

BEFORE ANY INTERVENTIONS CHECK THE CORRECT VOLTAGE OF THE BATTERY: 24 V		
PROBLEM	CAUSE	SOLUTION
The battery gets discharged	Either exhaust or broken elements	Replace it
The display of the control card does not switch on when inserting the key	Flat or worn out battery	Recharge it
	Fuse burn out	Replace it
	Emergency switch pressed	Unblock it
	Battery mobile connector disconnected	Connect it
	Key operated switch broken	Replace it
	Control board is broken	Replace it
When you press the brush button the brush plate cannot be lowered	Flat or worn out battery	Recharge it
	Faulty actuator	Replace it
	Faulty card	Replace it
	Actuator control module on the control board is broken	Replace it
	Some material got entangled underneath the brush plate thus preventing it from lowering	Remove the material as to unlock the brush plate
	Empty tank. The water output pipe lights are flashing	Fill the tank
	Faulty floating device	Replace it
The brush motor does not rotate	Flat or worn out battery	Recharge it
	Electric remote switch is broken	Replace it
	Control board is broken	Replace it
	Amperometric protection for over-absorption of the motor <b>(ON THE DISPLAY IT WILL APPEAR THE INDICATION "E1")</b>	Follow the instruction at pag. 44 (E1)
	The thermal drill of the brush motor reducers intervenes	Wait until the machine gets cool and start it again. Check that there aren't any threads or any other material which might get tangled with the brush
	Carbons are worn out	Replace them
	Fuse burn out	Replace it
	Faulty engine	Replace it
By pressing the "extra-pressure" button the brush plate does not get into correct position	Faulty actuator	Replace it
	Faulty card	Replace it
	Actuator control module on the control board is broken.	Replace it
The brush release function does not work	The brush function is still on	Disable the brush function
	The machine is in motion	Release the drive button
	40A Fuse (FUSE-HOLDER WITH LABEL AM) for protection of brush release is broken	Replace it
	Release remote switch is broken	Replace it
	Control board is broken	Replace it

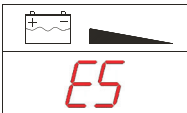
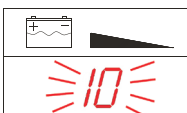
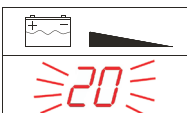
<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
RED LIGHT on the control board; the alarm enters into function and the gear motor reduces speed	The temperature on the forward motor reducer exceeds 75-85° C	Wait till the temperature falls down before re-starting the machine- Check the reason of the over-heating (climbs, overabsorption etc.) Clean the motor air inlets.
	Gear motor thermal probe disconnect or defect	Check the connection or replace the thermal probe
RED LIGHT on the control board is on, the acoustic alarm enters into function but the traction does not work.	Defect temperature alarm relay or disconnected cables	Check the connections or replace it
By pushing the brake pedal, the machine does not stop	Blocked pedal	Check it
	Blocked clamps	Replace it
	Worn clamps	Replace it
	Broken steel rope	Replace it
Not enough water flow on the brush	Tap is closed	Open the tap
	Faulty electrovalve of the detergent solution	Replace it
	Clogged detergent solution filter	Clean the filter
	The solution pipe from the tank to the brush is clogged	Make sure there is no incrustations
	Faulty 15A pump fuse	Replace fuse pos. 4 of the fuseholder
	Worn out carbons of the pump motor	Replace them
	Pump either clogged or faulty	Check the pump / replace it
	Clogged cleaning solution distributor	Clean the distributor
	Control board is broken	Replace it
	Thermal drill intervenes	Start it again
Not enough water flow on the brush with the ECO-SYSTEM	Faulty ECO-SYSTEM electrovalve of the detergent solution	Replace it
	Clogged ECO-SYSTEM filter.	Clean it
	Control board is broken	Replace it
	Clogged pipe from the recovery tank to the brush	Make sure there is no incrustations
	Faulty 15A pump fuse	Replace fuse pos. 4 of the fuse-holder
	Worn out carbons of the pump motor	Replace them
	Pump either clogged or faulty	Check the pump / replace it
	Clogged cleaning solution distributor	Clean the distributor
	Thermal drill intervenes	Start it again
	Eco System cleaning device stuck or damaged	Verify it and the fuse (pos.1 of the fuse holder)
The drive does not work	Brake is engaged	Disengage it
	Flat or worn out battery	Recharge it
	Seat safety device engaged	Sit down
	Key disconnected	Insert it
	100 A protection traction fuse is faulty	Replace it
	Wheel motor reducer id faultyo	Repair/replace it
	Wheel motor is broken or blocked	Repair/replace it
	Motor carbons are worn out	Replace it
	Faulty electric motor remote switch	Replace it
	Electronic control board is broken (traction board)	Replace it
	Faulty pedal box	Repair/replace it
	Faulty pedal control	Repair/replace it

**WHEN THE GREEN LIGHT IS OFF, THE MACHINE IS WORKING PROPERLY. WHEN THE LIGHT IS FLASHING, THE CONTROL (TRACTION BOARD) REPORTS AN ALARM.**

<b>N° FLASHES</b>	<b>ERROR</b>	<b>CAUSE AND SOLUTION</b>
1	Machine in motion before ignition	The vehicle is in motion when the key is turned on. If the error persists, the traction board can be replaced.
2	Contactora connection problem	Check the cables and coil connections regarding the line contactor. Check the 100A fuse (AN)
3	Low battery voltage	The battery voltage has dropped below the minimum permitted value. Recharge the battery.
4	Overvoltage	The battery voltage has gone above the maximum permitted value. Check that the battery installed is 24V.
6	Broken potentiometer	Check potentiometer cables and connections
7	Overheating	Restore correct temperature. Check wheel motor consumption. Check correct mounting of the controller
8	Shutdown during motion	The control was switched off while the vehicle was moving. Always switch off the traction board when the vehicle is stopped.
9	Incorrect parameter settings	Calibration values are incorrect. Check programming. If the error persists, contact service.
11	Electrical field not properly connected	The control (traction board) cannot get the required field current. Check field winding connections. Switch the machine off and on again.
12	Acquisition failed	Check the calibration of the feed potentiometer. If the error persists, replace the drive board.
23	Error in Serial Communication	Check the serial communication wiring (connector C). If the error persists, contact service.
24	Hardware error	Contact service



<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
By pressing the vacuum button, the squeegee does not lower	Flat battery	Recharge it
	Reverse speed microswitch engaged	Put the forward speed microswitch
	Faulty actuator	Replace it
	Faulty card	Replace it
	Faulty actuator on the electronic control card	Replace it
	Material underneath the squeegee prevents it from lowering	Remove the material which got entangled in the squeegee
	The recovery tank is full; the floating device gets inserted and the button led is on	Empty the tank
	Faulty float device	Replace it
The vacuum motor does not work	Flat batteries	Recharge them
	30A vacuum motor fuse worn out	Replace the fuse – Pos. CA
	Vacuum motor disconnected	Check the motor wiring
	Vacuum motor is faulty	Replace it
	Vacuum motor carbons are worn out	Replace them
	Control board is broken	Replace it
	Faulty remote switch	Replace it
When you start the vacuum motor, it works for 6/7 seconds, then it stops	Faulty floater	Clean the floater
	Dirty or blocked floater	Replace the floater
	Recovery tank full, floater engaged	Empty the tank
Not enough suction on the squeegee	Recovery tank is full	Empty the tank
	Lid on the exhaust pipe is open	Tight the lid
	Vacuum pipe disconnected	Verify that it is mounted properly
	Vacuum pipe is clogged	Clean the vacuum pipe
	Faulty vacuum pipe	Replace the pipe
	Dirty squeegee	Clean the squeegee
	The squeegee is not adjusted properly	Adjust inclination and pressure
	Material tangled with the squeegee blades	Clean the blades
	Squeegee blades either broken or worn out	Reverse the blade or replace them
	The tank is either open or not properly closed	Close or verify the lid
	Damaged lid gasket	Replace the gasket
	Faulty suction motor	Replace or check the motor
	Flat batteries	Recharge them
Eco System cleaning device stuck or damaged	Verify it and the fuse (pos.1 of the fuse holder)	

PROBLEM	CAUSE	SOLUTION
	<p>Amperometric protection for over-absorption of the brush motor. The led light of the brush bottom flashes for 1 minute and then the writing E1 appears, the brushes will stop lifting the plate.</p>	<p>Stop the machine and start it again. If the problem persists, check out the cause of over-absorption (threads or any other material which might get tangled with the brush; the brush is not suitable for the type of floor) If the alarm persists, check if there is any oxidation in the 80 Ah fuse that can give a wrong reading. Check pag.28, 80A fuse (pos.15).</p>
	<p>The contact of both the brushes actuator limit switches is open.</p>	<p>Make sure that there are no foreign bodies preventing brush plate from functioning. If the problem persists, contact either a retailer or technician.</p>
	<p>The contact of both the squeegee actuator limit switches is open.</p>	<p>Make sure that there are no foreign bodies preventing the squeegee from functioning. If the problem persists, contact either a retailer or technician.</p>
	<p>The final position of the brush plate actuator is not reached within the max. lapse of time (10secs)</p>	<p>Make sure that there are no foreign bodies preventing brush plate from functioning. If the problem persists, contact either a retailer or technician</p>
	<p>The final position of the squeegee actuator is not reached within the max. lapse of time (10secs)</p>	<p>Make sure that there are no foreign bodies preventing the squeegee from functioning. If the problem persists, contact either a retailer or technician</p>
	<p>When starting up the machine, the brushes actuator does not reach the pos. 0 within the max. lapse of time (10 sec.)</p>	<p>Make sure that there are no foreign bodies preventing brush plate from functioning. If the problem persists, contact either a retailer or technician</p>
	<p>When starting up the machine, the squeegee actuator does not reach the pos. 0 within the max. lapse of time (10 sec.)</p>	<p>Make sure that there are no foreign bodies preventing the squeegee from functioning. If the problem persists, contact either a retailer or technician.</p>
	<p>That is not an alarm but rather a warning signal indicating that the brush plate is not in raised position when starting up the machine. The machine requires the brush plate to be lowered before being used for any other operation.</p>	<p>Wait for a few seconds till the brush plate has been raised completely.</p>
	<p>The battery charge level is too much low. Upon reaching level 20 the number on the display shall start blinking and the brush function will be disabled, lifting the plate</p>	<p>Complete drying. Empty the recovery tank and recharge the batteries.</p>
	<p>The battery charge level is too much low. Upon reaching level 10 the number on the display shall start blinking and the suction function will be disabled.</p>	<p>Lift the squeegee, empty the recovery tank and recharge the batteries</p>
	<p>The battery charge level is too much low. When 4 blinking dashes appear on the display unit, it means that the minimum discharge threshold of the battery has reached its maximum level and if the battery is used any further it will cause irreparable damages. At this point, the forward drive will move the machine at a very low speed.</p>	<p>The machine must be taken to the tank drainage area manually to charge the batteries</p>

## EU DECLARATION OF CONFORMITY

according to Annex II A of the Machinery Directive 2006/42/CE

The manufacturer that places this product on the market:

**EUREKA S.p.A. Unipersonale**  
VIALE DELL'ARTIGIANATO 30/32, 35013 CITTADELLA (PD) - ITALY

formally declares that the product:

### Scrubber E100 ECO

complies with the following EU Directives:

**2006 / 42 / CE**  
**2014 / 30 / UE**  
**2014 / 35 / UE**  
**2011/ 65 / UE + 2015 / 863**  
**2009 / 125 / CE**

Machinery Directive, Annex 1  
Electromagnetic Compatibility (EMC) Directive  
Low Voltage Directive  
RoHS 3 Directive  
Energy-Related Products (ErP) Directive

The following harmonised and technical standards have been applied:

<b>EN ISO 12100:2010</b>	Safety of machinery - General principles for design - Risk assessment and risk reduction.
<b>EN 60335-1:2013</b>	Household and similar electrical appliances - Safety - Part 1: General requirements.
<b>EN 60335-2-72:2016</b>	Household and similar electrical appliances - Safety - Part 2: Particular requirements for floor treatment machines with or without traction drive, for commercial use.
<b>EN 55014-1:2019</b>	Electromagnetic compatibility - Requirements for household appliances - electric tools and similar apparatus - Part 1: Emission.
<b>EN 55014-2:2015</b>	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard.
<b>EN 61000-6-2:2016</b>	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments.
<b>EN 61000-6-4:2018</b>	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments.
<b>EN 62233:2008</b>	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure.

Legal representative and person authorized to compile the technical file: Antonio Barile

Cittadella, 15/12/2023

EUREKA S.p.A  
(Legal representative)

