

Operations Manual Manuel d'opérations



Hurricane Rally

Auto-Scrubber / Auto-récurveuse
Code : 19366 (21") / 19367 (24") / 19368 (28")

Serial Number:
Numéro de série : _____

Date of Purchase:
Date d'achat : _____

More info/Plus d'info : www.dustbane.ca
2015-10



Safety, Operations and Maintenance

Save these instructions. Read and follow all warnings and cautions before using this autoscrubber
This unit is intended for commercial use.

This autoscrubber will give you many years of trouble-free operating satisfaction, provided it is given proper care. All parts have passed rigid quality control standards prior to their assembly to produce the final product. Prior to packaging, your autoscrubber was again inspected for assurance of flawless assembly.

This autoscrubber is protectively packed to prevent damage in shipment. We recommend that upon delivery, you unpack the unit and inspect it for any possible damage. Only a visual examination will reveal damage that may have occurred during shipping.

General description

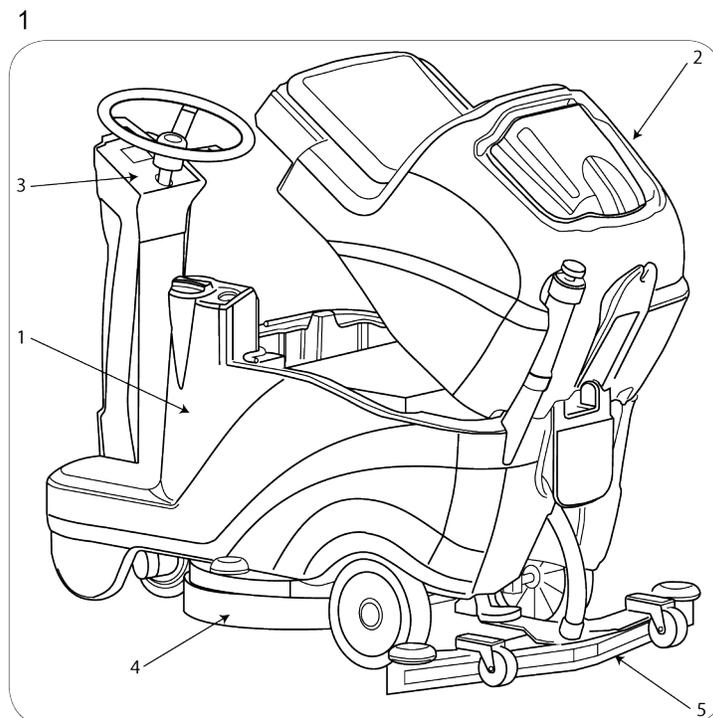
This machine is a scrubber drier for sweeping, washing and drying flat, horizontal, smooth or moderately rough, even and obstacle free floors in civil and industrial premises.

The scrubber drier spreads a solution of water and detergent in the correct concentration on the floor and then scrubs it to remove the dirt. By carefully choosing the detergent and brushes (or abrasive disks) from the wide range of accessories available, the machine can be adapted to a wide range of combinations of types of floor and dirt.

A suction system incorporated in the machine dries the floor after washing by means of the low pressure generated in the dirty water tank by the suction motor. The squeegee connected to the tank collects the dirty water.

Parts of the machine

- The machine comprises the main parts described below (fig. 1).
- The water/detergent tank (fig. 1, ref. 1) contains and carries the mixture of clean water and cleaning product.
- The dirty water tank (fig. 1, ref. 2) collects the dirty water picked up from the floor after washing;
- Control panel (fig. 1, ref. 3).
- Head assembly (fig. 1, ref. 4), the main element comprises the brushes/rollers which distribute the detergent solution onto the floor and remove the dirt.
- Squeegee assembly (fig. 1, ref. 5): wiper and dries the floor by collecting the water.





Important Safety Instructions

WARNING - Read all instructions before using your Dustbane autoscrubber.

To reduce the risk of fire, electric shock or injury:

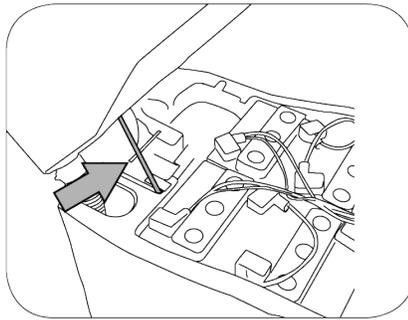
- The machine must be used exclusively by persons trained in its use and/or who have demonstrated their ability and have been expressly authorised to use it.
- The machine must not be used for purposes other than those for which it was expressly designed.
- **RESPECT** all safety standards and conditions applicable to the type of building in which the machine is to be operated (e.g.: pharmaceutical companies, hospitals, chemicals, etc.).
- **DO NOT** use this machine outdoors.
- **ALWAYS** keep the machine in closed environments at all times.
- The machine is designed to operate in temperatures between +4°C and +40°C. It can be stored in temperatures between +0°C and +50°C when not in use. The machine is designed to operate at relative humidity levels between 30% and 95%.
- **DO NOT** use the machine to clean up flammable or explosive liquids (e.g. petrol, fuel oil, etc.), acids or solvents (e.g. paint solvents, acetone etc.) even if diluted. Never clean up burning or incandescent objects.
- **DO NOT** use the machine on slopes or ramps; never drive sideways cross even gentle slopes. Always manoeuvre with care and avoid reversing. When transiting steeper ramps or slopes, take the utmost care to prevent tipping and/or uncontrolled acceleration.
- **DO NOT** use to pick up flammable or combustible liquids such as gasoline or use in areas where they may be present.
- **NEVER** park the machine on a slope.
- **NEVER** leave the machine unattended with the motor or engine on. Before leaving it, turn the motor or engine off and make sure it cannot move accidentally.
- **ALWAYS** pay attention to other people, especially children, in the place where you are working. Children must be supervised to make sure they do not play with the machine.
- The machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised by a person responsible for their safety and have received instruction in the use of the machine.
- **NEVER** use the machine to transport people or goods or to tow things.
- **DO NOT** tow the machine.
- **NEVER** rest objects of any weight on the machine for any reason.
- **NEVER** obstruct the ventilation and heat dispersion openings.
- **NEVER** remove, modify or circumvent safety devices.
- Numerous unpleasant experiences have shown that a wide range of personal objects may cause serious accidents. Before beginning work, remove jewellery, watches, ties, etc..
- **ALWAYS** use personal protection devices: protective apron or overalls, non-slip waterproof shoes, rubber gloves, protective goggles and ear protectors and mask to protect the respiratory tract.
- **KEEP** hands away from moving parts.
- **MAKE SURE** the power sockets used for the battery charger are connected to a suitable earth system and protected by thermal magnetic and earth leakage breakers.
- **MAKE SURE** the electrical characteristics of the machine (voltage, frequency, power) given on the nameplate correspond to those of the mains electricity supply.
- It is indispensable to respect the battery manufacturer's instructions and applicable legislation. The batteries should always be kept clean and dry to avoid surface leakage current. Protect the batteries from impurities such as metal dust.
- **NEVER** rest tools on the batteries as they could cause short circuits leading to explosions.
- When using battery acid, always follow scrupulously the safety instructions given in the "Batteries: preparation" section.
- Battery charger (OPTIONAL): check the power cable regularly for damage. If the power cable is damaged, do not use the charger; to replace the cable, contact a specialist service centre.
- To recharge the batteries, always use the battery charger supplied with the machine (when provided).
- **NEVER** wash the machine with water jets.
- In the case of malfunction and/or faulty operation, turn the machine off immediately (disconnecting it from the mains power supply or batteries) and do not tamper with it. Contact a service centre authorised by the Manufacturer.
- All maintenance operations must be performed in an adequately illuminated area and only after disconnecting the machine from the power supply.
- All work on the electrical system and all maintenance and repair operations other than those explicitly described in this manual must be performed by specialist and experienced personnel only.

N.B. This auto-scrubber is intended for commercial use only.

**DANGER!**

When lifting the dirty water tank (after having first been emptied) to access the compartment, the safety bracket must be inserted in position, to stop the tank from accidentally closing again (Fig. 29). Only use original accessories and spare parts supplied by the Manufacturer to guarantee safe and problem-free operation of the machine. Never use parts removed from other machines or from other kits.

29

**Movement Installation**

Lifting and transporting the packaged machine

WARNING:

During all lifting operations, make sure the packaged machine is firmly secured to avoid it tipping up or being accidentally dropped. Always load/unload lorries in adequately illuminated areas.

The machine is packaged on a wooden pallet by the Manufacturer. It must be loaded on to the transporting vehicle using suitable equipment (see EC Directive 89/392 and subsequent amendments and/or additions). At destination, it must be unloaded using similar means. A fork lift truck must always be used to lift the packaged body of the machine. Handle with care to avoid knocking or overturning the machine.

Delivery checks

When the carrier delivers the machine, make sure the packaging and machine are both whole and undamaged. If the machine is damaged, make sure the carrier is aware of the damage and before accepting the goods, reserve the right (in writing) to request compensation for the damage.

Unpacking**WARNING:**

When unpacking the machine, the operator must be provided with the necessary personal protection devices (gloves, goggles, etc.) to limit the risk of injury.

Proceed as follows to unpack the machine.

- Cut and remove the plastic straps using scissors or nippers.
- Remove the cardboard packaging.
- Remove the bags from the battery compartment and check their contents: this Operator's Manual, the maintenance manual, declaration of conformity, certificate of warranty; battery bridges with terminals; connector for battery charger.

Depending on the model, remove the metal brackets or cut the plastic straps fixing the machine chassis to the pallet. Using a sloping ramp, push the machine backwards off the pallet; see the paragraph "Pushing and pulling the machine" for details on engaging/disengaging the electric brake on the drive wheel.

Unpack the brushes from their packaging. Clean the outside of the machine, taking care to respect safety regulations. Once the machine is clear of the packaging, proceed to install the batteries (see the "Batteries: installation and connection" section). The packaging may be kept and reused to protect the machine if it is moved to another site or to a repair workshop. Otherwise it must be disposed of in compliance with current legislation.



Batteries

Batteries: Preparation



DANGER:

During battery installation and any type of battery maintenance, the operator must be provided with the necessary personal protection devices (gloves, goggles, overalls, etc.) to limit the risk of injury. Keep clear of naked flames, avoid short circuiting the battery poles, avoid sparks and do not smoke.

Batteries are normally supplied filled with acid and ready for use. If the batteries are dry, proceed as follows before installing them in the machine. Remove the caps and fill all elements with sulphuric acid solution specific for batteries until the plates are entirely covered (this requires at least a couple of passes for each element). Leave the batteries stand for 4-5 hours to allow air bubbles to come to the surface and the plates to absorb the electrolyte.

Make sure the level of electrolyte is still above the plates and if necessary top up with sulphuric acid solution. Close the caps. Install the batteries in the machine (following the procedure described below). Charge the batteries before starting up the machine for the first time. Follow the instructions in the "Battery maintenance and charging" section.

Batteries: installation and connection



DANGER:

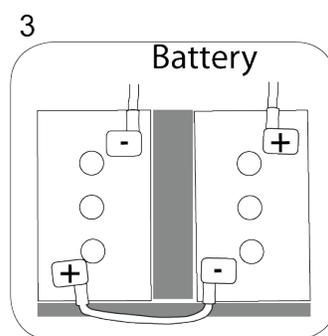
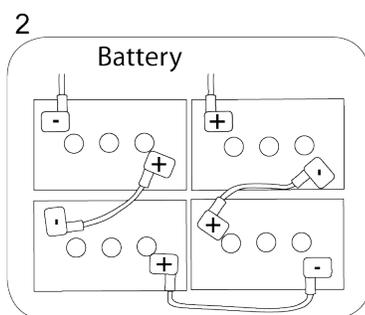
Check that all switches on the control panel are in the "0" (off) position. Make sure you connect the terminals marked with a "+" to the positive poles of the battery. Do not check the battery charge by sparking. Meticulously follow the instructions given below as short circuiting the batteries could cause them to explode.

Place the batteries in the battery compartment, orienting them as shown in the drawings (figs. 2 and 3). On machines fitted with two batteries, place the polystyrene spacers supplied between the compartment and the batteries, see the drawing (fig. 3) Referring to the cable layout shown in the above diagram, connect the battery cables and bridge terminals to the battery poles. Arrange the cables as shown in the diagram, tighten the terminals on the poles and coat with Vaseline. Lower the tank into the working position. When using the machine, follow the instructions below.



WARNING:

Never allow the batteries to become excessively flat as this could damage them irreparably.



Batteries: removal



DANGER:

When removing the batteries, the operator must be equipped with suitable personal protection devices (gloves, goggles, overalls, safety shoes, etc.) to reduce the risk of injury. Make sure the switches on the control panel are in the "0" position (off) and the machine is turned off. Keep away from naked flames, do not short circuit the battery poles, do not cause sparks and do not smoke. Proceed as follows.

- Disconnect the battery cables and bridge terminals from the battery poles.
- If necessary, remove the devices fixing the battery to the base of the machine.
- Lift the batteries from the compartment using suitable lifting equipment.

Choosing a battery charger

Make sure the battery charger is compatible with the batteries to be charged. Tubular lead batteries: an automatic charger is recommended. Consult the battery charger manufacturer and manual to confirm the choice. Gel batteries: use a charger specific for this type of battery.



DANGER:

Use CE-marked battery chargers that comply with the relevant product standards (EN60335-2-29), featuring double or reinforced insulation between input and output, and a SELV output circuit.

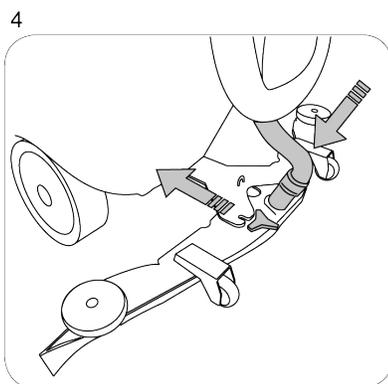
Preparing the battery charger

If you wish to use a battery charger not provided with the machine, you must fit it with the connector supplied with the machine. The connector supplied for the external battery charger is suitable for cables with a minimum crosssection of 16 mm². Proceed as follows to fit the connector: Remove about 13 mm of protective sheath from the red and black cables of the battery charger. Insert the wires into the connector contacts and squeeze them forcefully with suitable pliers. Respect the polarity (red wire + black wire -) when inserting the wires into the connector.



Squeegee Installation and Adjustments

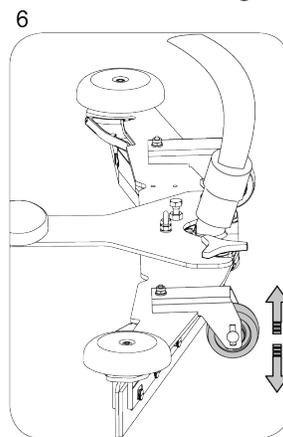
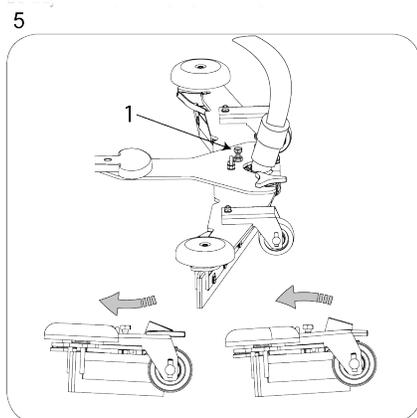
Switch the machine on, lower the squeegee by pressing the suction motor button. Place the squeegee in the slots provided on the support (fig. 4), then tighten the fastening knobs and insert the suction hose.



Squeegee adjustment

The squeegee blades scrape the film of water and detergent from the floor and prepare the way for perfect drying. With time, the constant rubbing makes the edge of the blade in contact with the floor rounded and cracked, reducing the drying efficiency and requiring it to be replaced. The state of wear should be checked frequently.

For perfect drying, the squeegee must be adjusted in such a way that the edge of the rear blade bends during operation by about 45° with respect to the floor at every point. The angle of the blades can be adjusted using the screw (fig. 5, ref. 1), while the height of the squeegee from the floor can be adjusted by changing the height of the two wheels (fig. 6).

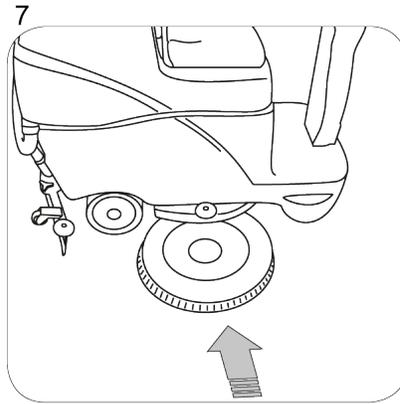




Brush installation

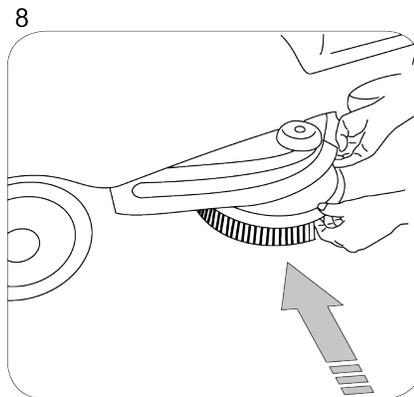
Single-brush machine:

- Position the brush underneath the head, in the centre (Fig. 7); switch the machine on. Pressing the ATTACH/RELEASE button once after starting the machine releases the brushes, pressing the button a second time activates automatic brush attachment; the button is only enabled when all the functions are deactivated (suction motor and brushes).



Double-brush machine:

- Position the brushes underneath the head on both sides (Fig. 8), the brushes should rest on the brush centering device in the centre of the head; switch the machine on. Pressing the ATTACH/RELEASE button once after starting the machine releases the brushes, pressing the button a second time activates automatic brush attachment; the button is only enabled when all the functions are deactivated (suction motor and brushes).



Lifting and transporting the machine



WARNING! All phases of lifting and moving must be performed in an adequately illuminated environment with the adoption of the safety measures most appropriate to the situation. The operator must always use personal protection devices.

Proceed as follows to load the machine onto a means of transport.

- Empty the tanks.
- Remove the batteries.
- Position the machine on a pallet and fix it in place with plastic straps or metal brackets.
- Lift the pallet (with the machine) using a fork lift truck and load it onto the means of transport.
- Anchor the machine to the means of transport with cables connected to the pallet and to the machine itself.



Warnings

- Before starting work, wear overalls, ear protectors, non-slip and waterproof shoes, mask to protect the respiratory tract, gloves and all other personal protection devices necessitated by the work environment.
- Do not leave the machine unattended or parked with the key in the switch and the parking brake disengaged.
- If you are using the machine for the first time, we recommend trying it out on a large obstacle-free surface first to acquire the necessary familiarity.
- To avoid damaging the surface of the floor you are cleaning, avoid rotating the brushes with the machine stationary.
- The machine is fitted with a driver detection device. It is only possible to start the machine while seated correctly in the driving seat. The device halts the machine if you get up from the seat.
- Always dilute the detergent according to the manufacturer's instructions. Do not use sodium hypochlorite (bleach) or other oxidants, particularly in strong concentrations. Do not use solvents or hydrocarbons. The water and detergent temperature must not exceed the maximum indicated in the "Technical specifications". They must be free of sand and/or other impurities.
- The machine has been designed for use with low-foam biodegradable detergents made specifically for scrubber driers.
- For a complete and up-to-date list of the detergents and chemicals available, contact the Manufacturer:
- Use products suitable for the floor and dirt to be removed only.
- Follow the safety regulations on use of detergents given in the section "Safety regulations".

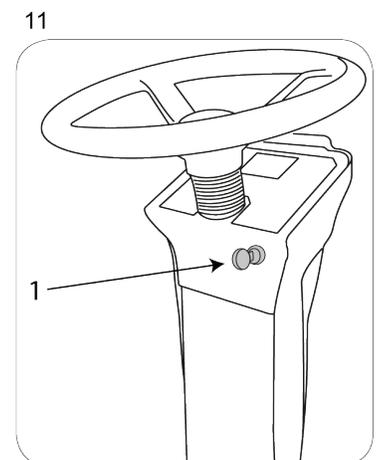
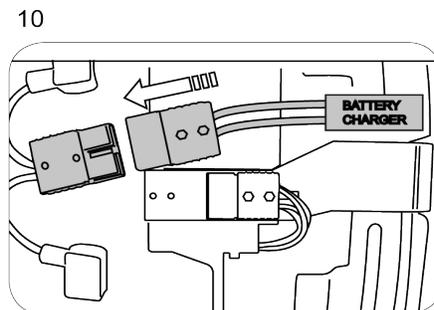
Preparing the machine for work

Proceed as follows before starting work.

- Check that the display shows the batteries to be fully charged. Recharge if necessary. See the "Battery maintenance and charging" section.
- Make sure that the dirty water tank is empty. Empty it if necessary, see "Emptying the dirty water tank".
- Make sure that the solution tank is full. Fill it if necessary, see "Filling the water/detergent tank". If the machine is not fitted with the "Chem-Dose" accessory, add detergent to the tank in the required percentage, using the measuring cap.

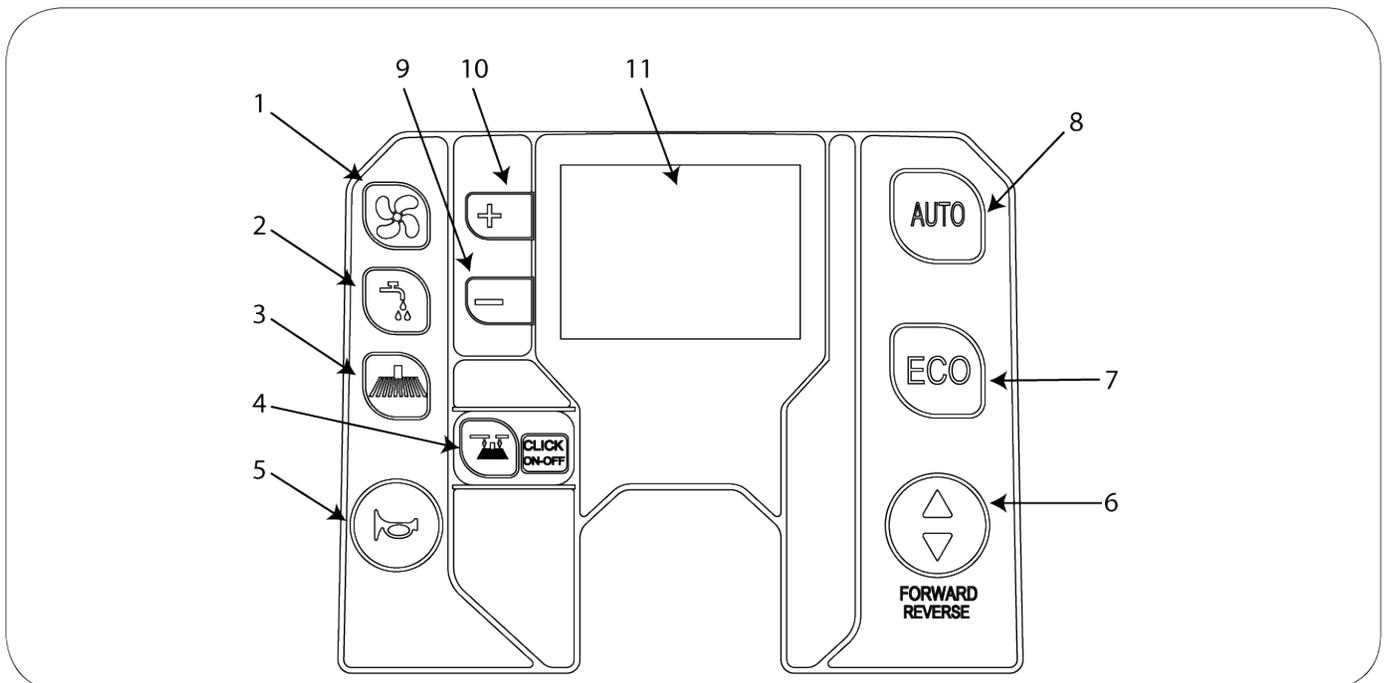
Controls

- **Emergency switch (fig. 9, ref. 1):** pushing the safety lever towards the tank, when necessary or in the event of imminent danger, stops all the machine's functions, opening the electrical circuit that supplies power to the machine.
- **Accelerator pedal (fig. 9, ref. 2):** press this pedal to control the speed of the machine. If the accelerator pedal is released for more than three seconds while the machine is switched on, the "AUTO POWER-OFF" function switches off all machine functions. To start again, simply press the accelerator pedal. To enable/disable and change the delay for "AUTO POWER-OFF" mode, go to the "Technical menu".
- **Battery charger socket (fig. 10):** if the machine is not fitted with a battery charger, to recharge the batteries, plug in the connector highlighted, see "Preparing the battery charger".
- **Main switch (fig. 11, ref. 1):** Switches power to all machine functions on/off.



- **Suction button (fig. 12, ref. 1):** in the AUTO and ECO programs, starts/stops the suction motor; outside of these programs, starts the suction motor in manual mode, lowering the squeegee.
- **Water/detergent button (fig. 12, ref. 2):** in the AUTO and ECO programs, starts/stops the delivery of water/detergent; outside of these programs, starts/stops delivery in manual mode. In manual mode, pressing and holding the button (two seconds) accesses the mode for adjusting the quantity of water/detergent delivered, using the "+" and "-" buttons; the adjustment ranges from 1 to 5 or can be automatic, based on machine speed. Pressing and holding the button (four seconds) accesses the mode for adjusting the quantity of detergent (CHEM-DOSE accessory) using the "+" and "-" buttons; the adjustments are "OFF" - 0.2% - 0.4% - ... - 7%, if enabled, alongside the tap symbol the vial symbol is shown to indicate that the accessory is operating. In the AUTO or ECO program, changes to either of these parameters will terminate the selected program and activate manual mode.
- **Brush button (fig. 12, ref. 3):** in the AUTO and ECO programs, starts/stops the brushes; outside of these programs, starts/stops operation of the brushes in manual mode. Pressing and holding the button (two seconds) accesses the mode for adjusting brush pressure, using the "+" and "-" buttons; the adjustment ranges from 1 to 5 (VERSION WITH TWO BRUSHES ONLY). In the AUTO or ECO program, changes to this parameters will terminate the selected program and activate manual mode.
- **Attach-release brushes "CLICK-ON-OFF" (fig. 12-ref. 4):** used to automatically attach and detach the brushes. Pressing the button once after starting the machine releases the brushes, pressing it a second time activates automatic brush attachment. The button is only enabled when all the functions are deactivated (suction motor and brushes); it can also be used to navigate the "Technical Menu".
- **Horn button (fig. 12, ref. 5):** Press to sound the horn.
- **Forwards travel button (fig. 12, ref. 6):** selects the machine's travel direction; when selecting reverse gear, the display shows the letter "R" and the buzzer sounds intermittently.
- **ECO button (fig. 12, ref. 7):** all the functions are activated in "ECO" mode; brush pressure, water flow-rate, detergent delivery, brush speed and suction motor speed. In this program, energy consumption is reduced and the machine emits less noise.
- **AUTO button (fig. 12, ref. 8):** all the functions are activated in "AUTOMATIC" mode; brush pressure, water flow-rate, detergent delivery are pre-set by the manufacturer, however can be modified in the "Technical Menu".
- **"+, -" buttons (fig. 12, ref. 9-10):** these are used to set travel speed, or increase or decrease the user parameters.
- **Display (fig. 12, ref. 11):** this displays the current battery charge level expressed as a percentage, logos for active functions, an hour counter showing the total hours of use of the machine and any active alarms, see the "Display alarms" section.

12



Working

- Sit correctly in the seat.
- Turn the main switch to position "1".
- Select the direction of travel with the direction selector.
- Select the AUTO or ECO program.
- Press the accelerator pedal to move off and start work.

Some useful tips to get the most from your scrubber drier

In the event of particularly stubborn dirt on the floor, washing and drying can be performed in two separate operations. Prewashing with brushes or pads:

- Turn the main switch to position "1".
- Select the AUTO or ECO program.
- Press the suction motor button to stop suction.
- Press the accelerator pedal to move off and start work.
- If necessary, adjust the flow of detergent delivered to the brush, using the water/detergent button; the outlet flow must be metered in relation to the required travel speed; the slower the machine travels, the less detergent must be delivered.
- Persist when washing particularly dirty points to give the detergent time to perform its chemical action detaching and suspending the dirt and the brushes time to exert an effective mechanical action.

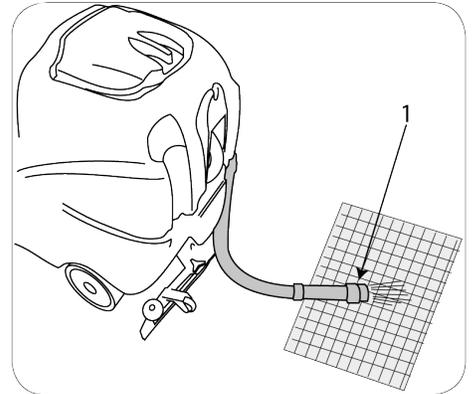
Drying:

Lower the squeegee and with the suction motor on, pass over the same area washed previously. The result is equivalent to in-depth washing and subsequent ordinary maintenance will take less time.

Emptying the collection tank:

If the tank is full, the display shows the corresponding alarm, see "Display alarms"; after a few seconds, the suction motor shuts down, then stop the machine and empty the tank following the instructions shown below:

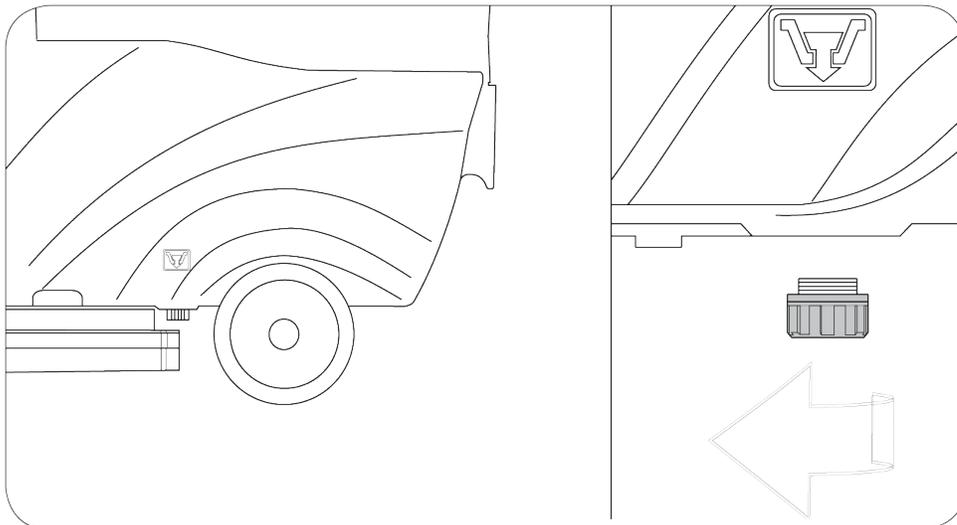
- Switch off all the machine's functions.
- Take the machine to the disposal area.
- Unhook the hose from the clip.
- Empty the tank using the hose (see figure), at the end rinse the tank with clean water.



Emptying the water/detergent tank

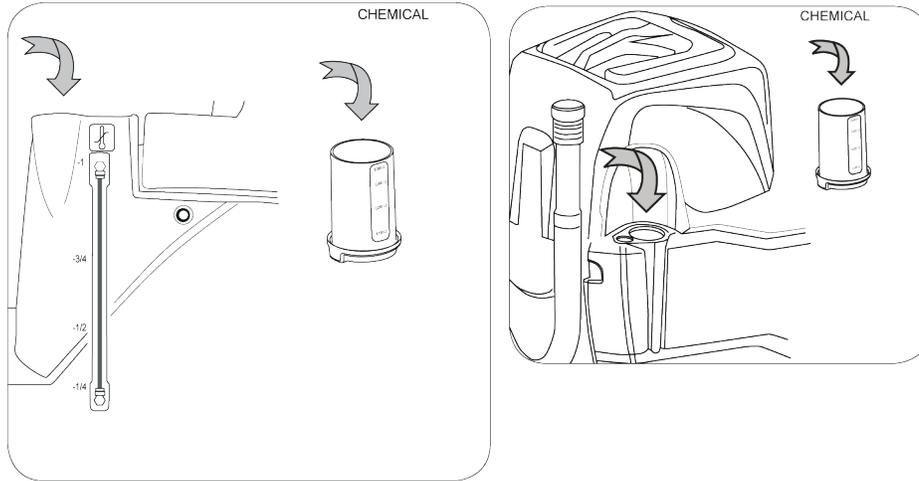
To empty the tank, follow the instructions shown below:

- Switch off all the machine's functions.
- Take the machine to the disposal area.
- Stop the machine.
- Empty the tank by unscrewing the plug (see figure below).



Filling the water/detergent tank

Fill the tank through the opening provided (figure below). The machine is equipped with a graduated measuring cap that can be used to dilute the detergent inside the tank. If the tank is empty, the display shows the corresponding alarm, see "Display alarms". The quantity of water/detergent in the tank can be checked using the level tube on the side of the machine (figure below).



Finishing work



IMPORTANT!

Empty the dirty water tank and recharge the batteries

When ending work, switch off the machine at the main switch. The machine does not have a parking brake as it is fitted with an electric brake, which automatically brakes the machine when the drive pedal is not pressed.

Moving the machine when not in operation

Proceed as follows to move the machine.

- Select the direction of travel.
- Press the accelerator pedal.

If the machine cannot be moved using the electric drive, the machine can be pushed after having disengaged the electric brake, see "Pushing and pulling the machine".

Periods of Inactivity

Proceed as follows to prepare the machine for extended periods of inactivity.

- Remove the squeegee and brushes (or abrasive disks), wash them and put them away in a dry place (preferably in a bag or wrapped in plastic film) away from dust.
- Make sure the tanks are completely empty and perfectly clean.
- Disconnect the machine from the power supply.
- Completely recharge the batteries and deposit them in the battery store. During long periods of inactivity, you should charge the batteries regularly (at least once every two months) to keep them constantly at maximum charge.



WARNING!

If you do not charge the batteries regularly, they may be irreparably damaged.

Maintenance Instructions



DANGER!

Never perform any maintenance operations without first disconnecting the batteries. Maintenance of the electrical circuit and all other operations not expressly required by this manual must be performed by specialised personnel only, in compliance with current safety legislation and as described in the maintenance manual.

Maintenance - General rules

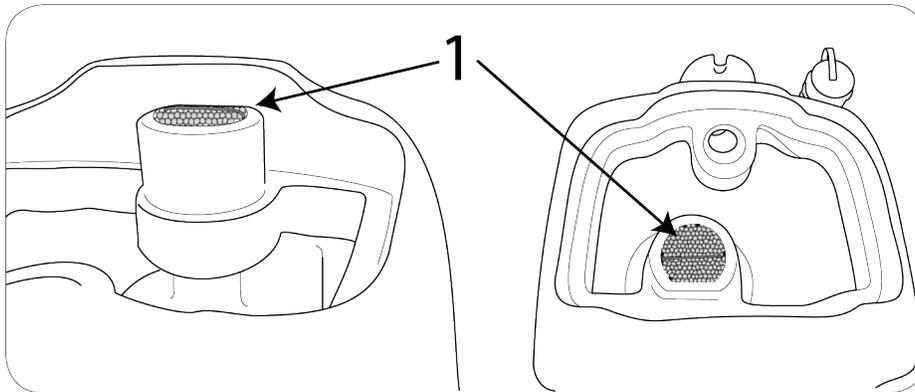
Performing regular maintenance according to the Manufacturer's instructions improves performance and extends the working life of the machine. When cleaning the machine, observe the following precautions.

Avoid using pressure washers. Water could penetrate the electrical compartment or motors leading to damage or short circuits.

- Do not use steam to avoid the heat warping plastic parts.
- Do not use solvents or hydrocarbon based products. These can damage the cowling and rubber components.

Cleaning the suction motor air filter

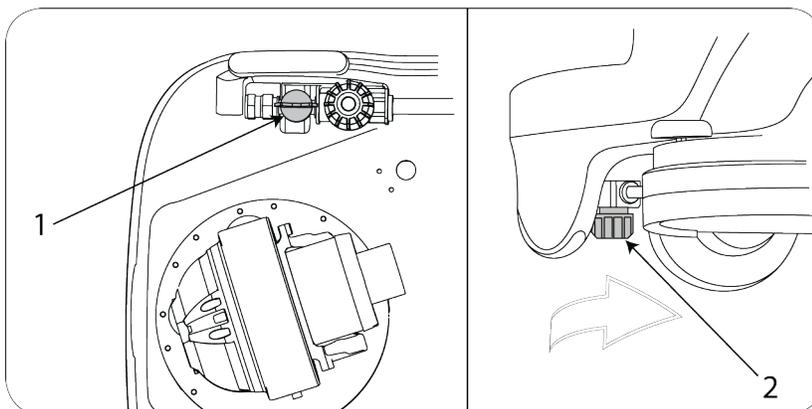
Open the dirty water tank lid, then remove the filter from its housing (fig. 17), wash it under running water or using the same detergent dispensed by the machine, then when it is dry, replace the filter in its housing.



Cleaning the water/detergent tank filter

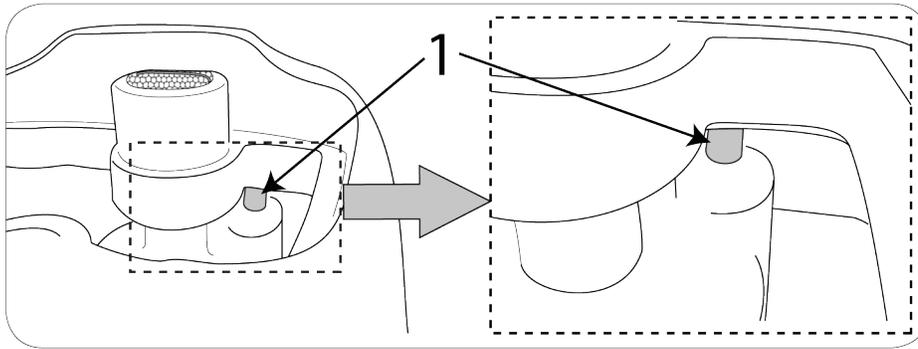
To clean the filter, proceed as follows:

- Close the tap (figure below) on the front left of the machine, next to the drive wheel.
- Unscrew the filter cover (figure below), remove the filter, then wash it under running water or using the same detergent dispensed by the machine.
- Replace the filter in its housing, making sure it is correctly positioned and retighten the screw.



Cleaning the dirty water tank float

Open the dirty water tank lid, clean the float (figure below) situated at the front of the dirty water tank, making sure not to aim the water directly against the float; make sure it slides freely on its rod.



Fuses: replacing

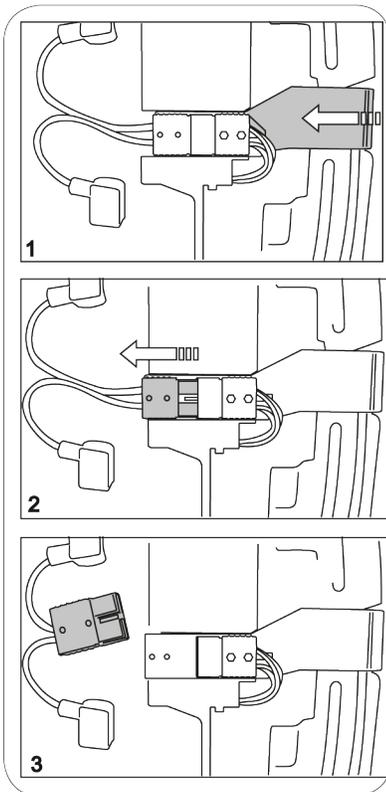


DANGER!

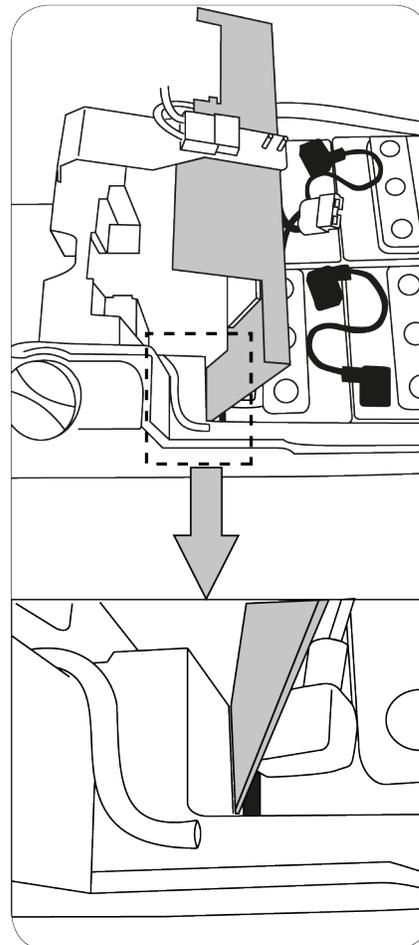
This operation must be performed with the machine switched off and the key removed. Never use a fuse with a higher amperage than specified. Do not rest the electronic board panel on the batteries, as a short-circuit may cause the batteries to explode.

If a fuse continues to blow, the fault in the wiring, boards (if present) or motors must be identified and repaired. Have the machine checked by qualified personnel. Lift the dirty water tank, disconnect the battery wiring connector from the electrical system (fig.20. ref. 1-2-3), lift the electronic board panel, secure it to the corner of the tank, as shown in the figure (figure 21), then check the fuses.

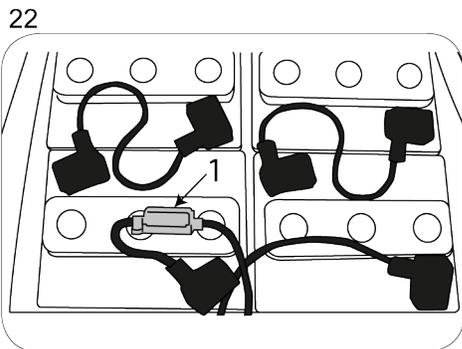
20



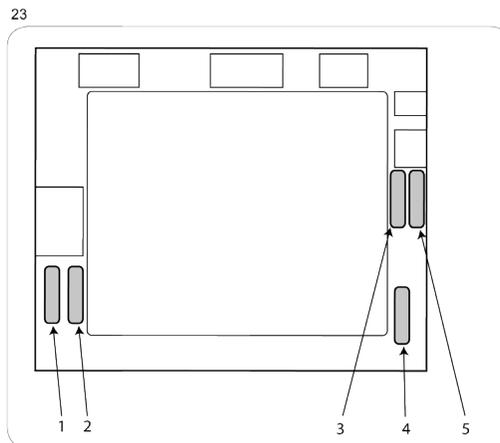
21



- (fig. 22, ref. 1) main fuse.



- (fig. 23, ref. 1-2) brush motor fuses.
- (fig. 23, ref. 3) head actuator, squeegee actuator fuse.
- (fig. 23, ref. 4) suction motor fuse.
- (fig. 23, ref. 5) solenoid valve, Chem-Dose pump fuse.



Battery maintenance and charging



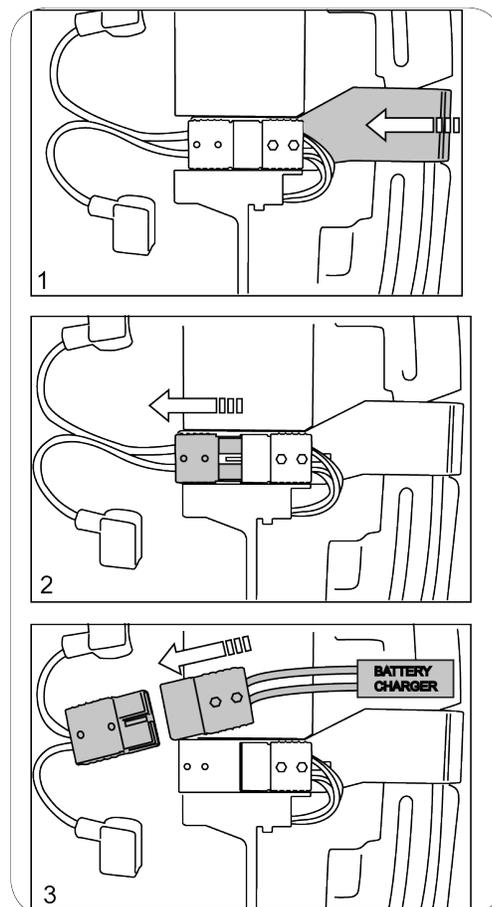
DANGER!

Do not check the batteries by sparking. The batteries give off flammable fumes. Put out all fires and hot embers before checking or topping up the battery level. Perform the operations described below in a ventilated area. When recharging the batteries, the dirty water tank must be open (rotated backwards) so as to allow correct air flow in the battery and battery charger compartment. In the case of gel batteries, use a specific charger for gel batteries only. To avoid permanent damage to the batteries, do not run them down completely. Charge the batteries as instructed in the battery charger manual. Disconnect the connectors at the end of charging. To avoid permanent damage to the batteries, do not run them down completely.

“STANDALONE” battery charger, electrical connection to the machine:

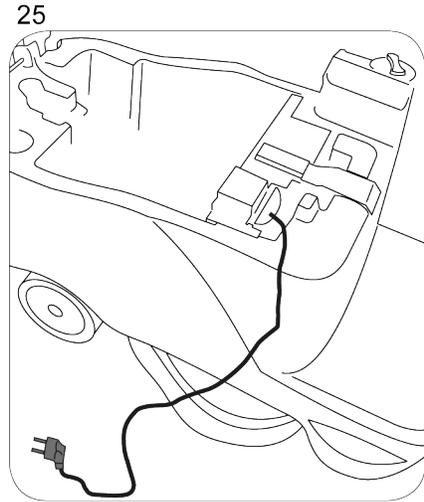
- Lift the dirty water tank.
- Press the emergency switch (fig.24, ref. 1).
- Lift the connector (fig. 24, ref.2-3), removing it from the two pins.
- Attach the connector to the battery charger.
- Start the recharge cycle.
- Disconnect the connectors at the end of charging.
- Reconnect the battery wiring connector to the machine connector.

24

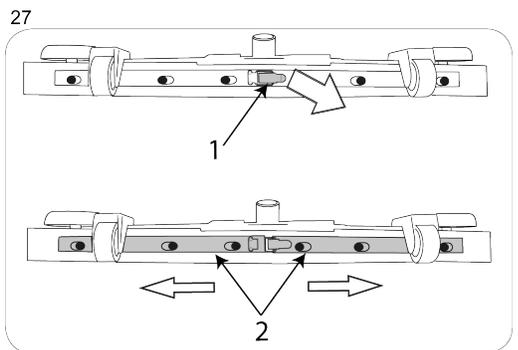
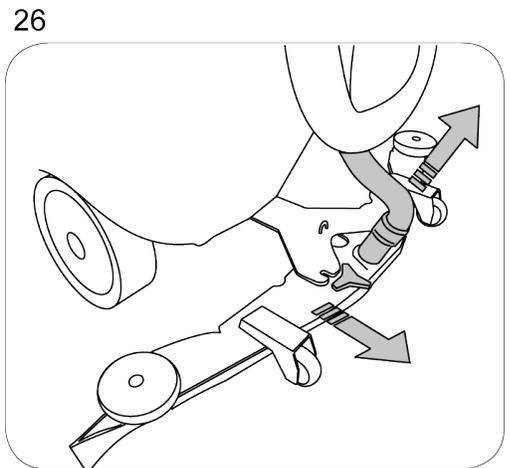


“ONBOARD” battery charger:

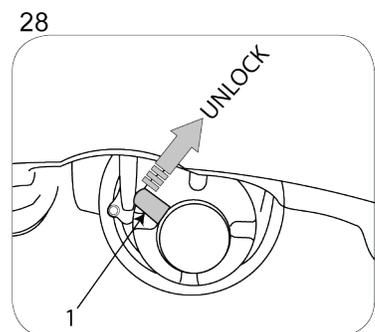
- Lift the dirty water tank
- Unplug the battery charger.
- Plug the cable into the power socket (fig. 25).
- Start the recharge cycle.
- The display will show when the recharge cycle ends, see “Display alarms”
- At end of the recharge cycle, unplug the cable from the power socket.

**Replacing the squeegee blades**

- Switch the machine on, lower the squeegee by pressing the suction motor button.
- Remove the suction hose from the squeegee (fig. 26).
- Unscrew the fastening knobs.
- Remove the squeegee from the slots on the support.
- Open the hook (fig. 27, ref. 1).
- Push the two blade pressing devices (fig. 27, ref. 2) outwards, then remove them.
- Remove the blade.
- Reuse the same blade by reversing the edge in contact with the floor until all four edges are worn out, or replace with a new blade, fitting it onto the screws on the body of the squeegee.
- Reposition the two blade pressing devices by centering the wider part of the slots on the squeegee body fastening pins, then push the blade pressing devices inwards.
- Close the hook again.
- Replace the squeegee on its support, following the instructions described previously.

**Pushing and pulling the machine:**

- When the electric drive cannot be used, the machine can be easily pushed or pulled by turning the lever (fig. 28) clockwise, so as to release the electric brake. After moving the machine, set the lever back to the original position.

**WARNING!**

If the lever is in the position where the electric brake is disengaged (lever turned clockwise), the machine's brake will be disabled. Never start the machine with the electric brake disabled.

Periodic Checks

Check	Daily Operations	Weekly Operation	Six Months Operations
Empty and wash the dirty water tank	X		
Clean the squeegee blades and check them for wear	X		
Check that the suction hole in the squeegee is not blocked	X		
Recharge the batteries	X		
Clean the dirty water tank float		X	
Clean the suction motor air filter		X	
Clean the water/detergent tank filter		X	
Clean the suction motor hose		X	
Clean the dirty water tank and the solution tank		X	
Check the battery electrolyte level		X	
Have the electrical system checked by qualified personnel.			X

Troubleshooting

PROBLEM: The machine doesn't work	
CAUSE	SOLUTION
1. The batteries are disconnected.	1. Connect the batteries to the machine
2. The batteries are flat	2. Recharge the batteries
3. Battery disconnect lever pressed	3. Return the lever to its correct position
PROBLEM: The brushes do not turn	
CAUSE	SOLUTION
1. The dirty water tank is full	1. Empty the dirty water tank
2. Blown fuse	2. Replace
3. Faulty switch	3. Replace
4. The batteries are flat	4. Recharge the batteries
5. Damaged motor	5. Replace
6. Wire detached	6. Check
PROBLEM: The machine does not clean uniformly	
CAUSE	SOLUTION
1. The brush or disks are worn	1. Replace
PROBLEM: No solution comes out of the detergent	
CAUSE	SOLUTION
1. The tap upstream of the filter is closed	1. Open the tap
2. Damaged solenoid valve	2. Replace
3. Dirty solenoid valve	3. Check
4. The detergent tank is empty	4. Top up
5. The hose delivering detergent to the brush is blocked	5. Unblock
6. Blown fuse	6. Replace

PROBLEM:
Detergent flow does not stop

CAUSE	SOLUTION
1. Damaged solenoid valve	1. Replace
2. Damaged solenoid valve wiring	2. Check

PROBLEME:
The suction motor does not start

CAUSE	SOLUTION
1. The dirty water tank is full	1. Empty the dirty water tank
2. Blown fuse	2. Replace
3. Faulty switch	3. Replace
4. The batteries are flat	4. Recharge the batteries
5. Damaged motor	5. Replace
6. Wire detached	6. Check

PROBLEM:
The squeegee does not clean or has poor suction

CAUSE	SOLUTION
1. The edge of the rubber blades in contact with the floor is worn	1. Replace the blades
2. Blockage or damage in the squeegee or in the hose	2. Check
3. The dirty water tank float is activated or is blocked by dirt, or is faulty	3. Empty the dirty water tank, check the float.
4. Blockage in the suction hose	4. Check
5. The suction hose is not connected to the squeegee or is damaged	5. Check
6. Suction motor not powered or faulty	6. Check

PROBLEM:
The machine does not move

CAUSE	SOLUTION
1. The batteries are flat	1. Recharge the batteries
2. Drive wheel actuator problem	2. Check the alarm code shown on the display

PROBLEM:
The machine does not brake

CAUSE	SOLUTION
1. Electromagnetic brake disengaged	1. Check

PROBLEM:
The batteries do not provide the normal working time

CAUSE	SOLUTION
1. The battery poles and charging terminals are dirty and oxidised	1. Clean and grease the poles and terminals, charge the batteries
2. The battery charger does not work or is not suitable	2. Check

Display Alarms

Alarm	Possible cause	What to do
BRUSH PROTECTOR	The brush motor has overheated. Faulty thermal protector contact on the motors. Faulty connection.	Wait for the brush motors to cool down. Replace the brush motor. Check the connection.
DRIVE PROTECTOR	The drive wheel has overheated. Faulty thermal protector contact on the motor. Faulty connection.	Wait for the drive wheel to cool down. Replace the drive wheel. Check the connection.
NO OPERATOR	The driver detection microswitch is not detecting an operator.	Sit correctly in the seat. Check the connection. Check the seat microswitch.
ACCELERATOR KEY	Incorrect start-up sequence Faulty accelerator pedal microswitch. Faulty connection.	Release the accelerator pedal during start-up. Replace the accelerator pedal microswitch. Check the connection.
WATER RESERVE	Solution tank almost empty. Stuck sensor. Faulty sensor or connection.	Fill the solution tank. Clean the level sensor. Replace the level sensor. Check the connection.
NO WATER	Solution tank empty. Stuck sensor. Faulty sensor or connection.	Fill the solution tank. Clean the level sensor. Replace the level sensor. Check the connection.
DIRTY WATER THANK	Dirty water tank full. Stuck sensor. Faulty sensor or connection.	Empty the dirty water tank. Clean the level sensor. Replace the level sensor. Check the connection.
CHEMICAL FINISHED	Chem-Dose tank empty. Stuck sensor. Faulty sensor or connection.	Fill the Chem-Dose tank. Clean the level sensor. Replace the level sensor. Check the connection.
FUNCTION BOARD NOT DETECTED	Communication with functions board interrupted. Faulty auxiliary boards.	Check the connection between the boards. Check the auxiliary boards.
BATTERY FLAT	Battery voltage less than: 20.7 V GEL/AGM - 20.3 V ACID. Flat batteries.	Recharge the batteries. Replace the batteries.
BATTERY RESERVE	Battery voltage less than : 21.5 V GEL/AGM - 20.5 V ACID. Flat batteries.	Recharge the batteries. Replace the batteries.
CALL SERVICE	The set number of hours for scheduled service have been reached/exceeded.	Call a service centre to arrange scheduled service.
BATTERY CHARGING	The on-board battery charger is operating, all the machine's functions are disabled.	Disconnect the battery charger
CHARGING COMPLETE	The on-board battery charger is operating, the charge is complete, all the machine's functions are disabled.	Disconnect the battery charger
ERROR FROM C.B.	Battery charger malfunction	Replace the battery charger
BATTERY NO CONNECT	Battery not connected Fuse inside the battery charger blown	Connect the battery Replace the battery charger
O.C. BRUSH	Brush motor short-circuit	Replace the brush motor
BRUSH FUSE	Brush motor fuse blown	Replace the fuse

DRIVE BOARD DISPLAY ALARMS

DRIVE BOARD TEMPERATURE	Board temperature between -10°C and +80°C. Excessive vehicle effort. Electric brake engaged.	Cool or heat the board. Do not overwork the machine on long ramps. Check the electric brake.
ACCELERATOR FAULT	Faulty potentiometer connections. Faulty potentiometer. Incorrect potentiometer type setting.	Check the connection. Replace the potentiometer. Set the correct potentiometer.
SPEED FAULT	Speed signal connections interrupted. Faulty functions board.	Check connection between functions board and drive board. Replace functions board.
DRIVE BOARD U.V.	Battery voltage less than 17 V. Connection error between batteries and controller.	Charge or replace the batteries. Check battery connection.
DRIVE BOARD O.V.	Battery voltage over 31 V. Machine moving with battery charger connected. Faulty battery connection.	Check or replace the batteries. Disconnect the battery charger. Check battery connection.
RELAY FAULT	Faulty relay. Faulty drive board.	Replace the drive board.
INPUT FAULT	Emergency input activated on the drive board. Key connection on the drive board.	Check connection between functions board and drive board.
HDP 10 SEC.	Accelerator pedal pressed when starting for more than 10 seconds. Potentiometer not adjusted.	Release accelerator pedal when starting the machine. Check potentiometer adjustment.
ELECTRIC BRAKE FAULT	Faulty drive board. Faulty electric brake.	Replace the drive board. Check / replace the electric brake.
PRE-CARCHE FAULT	Check electric brake short. Faulty board. MOSFET failure.	Replace the drive board.
HDP	Accelerator pedal pressed when starting. Potentiometer not adjusted.	Release accelerator pedal when starting the machine. Check potentiometer adjustment.
TRACTION DRIVE FAULT	Drive motor short Drive motor connection short. Faulty board.	Check / replace the drive motor. Check motor connections. Replace the drive board.
DRIVE BOARD FAULT	Faulty drive motor connection. Faulty board.	Check motor connection. Replace the drive board.
DRIVE BOARD POWER SUPPLY	Battery not connected. Faulty battery connection.	Connect battery cables. Check battery cables
OVERCURRENT	Excessive machine effort. Drive motor damaged.	Do not overwork the machine on long ramps. Check / replace the drive motor.

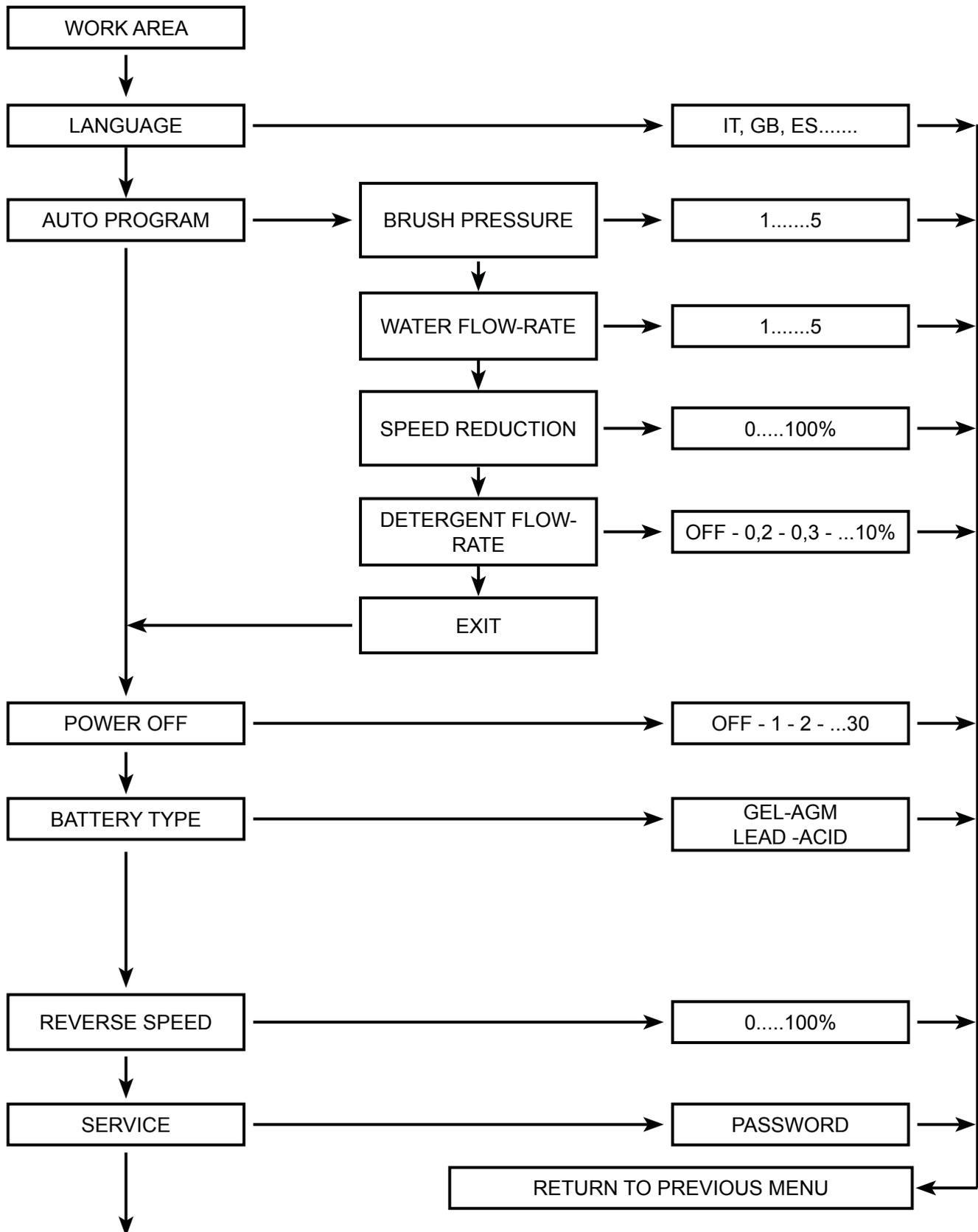
Technical Menu

Enter the menu by pressing "+" and "-" together when no functions are active.

The "+" button increases the selected parameter or the variable relating to the selected parameter.

The "-" button decreases the selected parameter or the variable relating to the selected parameter.

The "Attach-release brushes" button selects the parameter to be set and confirms the entered variable.



DUSTBANE WARRANTY

Dustbane Products Ltd. • www.dustbane.ca



- 10** TEN YEARS UNCONDITIONAL WARRANTY ON ALL POLYETHYLENE ROTATIONAL MOLDED RESERVOIRS TO BE FREE FROM ALL CRACKS AND/OR CORROSION.
- 3** THREE YEARS WARRANTY ON ALL EQUIPMENT PARTS AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND CARE WITH THE EXCEPTION OF ANY RUBBER COMPONENTS AND SPRINGS.
- 1** ONE YEAR UNCONDITIONAL WARRANTY ON LABOUR AND EQUIPMENT PARTS UNDER NORMAL USE AND CARE WITH THE EXCEPTION OF ANY RUBBER COMPONENTS AND SPRINGS.

DUSTBANE PRODUCTS LIMITED warrants each new unit of Dustbane Equipment accompanied by this Warranty, including accessories thereto (but except any rubber parts and springs) manufactured or supplied by Dustbane Products Limited and delivered to the original retail purchaser by an authorised Dustbane distributor, to be free from defects in material and workmanship under normal use and care. The obligation of Dustbane Products Limited under this Warranty shall be limited to repairing or replacing, at its option, any part or parts of Dustbane Equipment which shall have been returned to a Dustbane authorised repair depot, and which, upon examination, shall disclose to the satisfaction of Dustbane Products Limited to have been defective, whereupon any required repair or replacement shall be made by such Dustbane authorised repair depot.

THE obligation of Dustbane Products Limited to the repair or replacement of defective parts is further limited to :

- **to the cost of parts and labour for returns of polyethylene rotational moulded reservoirs made within ten (10) years**
- **to the cost of parts only for returns made within three (3) years**
- **the cost of parts and labour for returns made within twelve (12) months based on Dustbane's Labour Rates all as calculated from the delivery date of such unit of Dustbane Equipment to the original retail purchaser.**

THE provisions of this Warranty shall not apply to:

- any unit of Dustbane Equipment which has been subject to misuse, negligence or accident, or which shall have been repaired or altered by a person or persons outside a Dustbane authorised repair depot, in any way so as, in the judgement of Dustbane Products Limited, to affect adversely its performance and reliability
- normal maintenance services and the replacement of service items (including but not limited to electric cord, painted parts, any rubber parts and springs, switch and bearings) made in connection with such services as required in the Dustbane Recommended Maintenance Schedule

NEITHER Dustbane Products Limited nor any authorised Dustbane distributor shall be liable for any claims or damage (including but not limited to consequential damage and loss of income) resulting from any failure of Dustbane Equipment, whether caused by negligence or otherwise; Nor for claims or damages resulting from service delays while in performance of the obligations under this Warranty which are beyond the reasonable control of Dustbane Products Limited or any authorised Dustbane Distributor.

THIS Warranty is expressly in lieu of all other warranties expressed or implied, (including any implied warranty of merchantability or fitness for a particular purpose), and there are no conditions, warranties or representations, whether oral or written except as expressly stated herein. Neither Dustbane Products Limited, any authorised Dustbane Distributor, any salesman or employees thereof, nor any other person or individual is authorised to make any statement or representation concerning the obligations of Dustbane as to the new Equipment unit purchased, nor will Dustbane assume any obligation or liability pursuant to any such statement or representation except pursuant to this Warranty.

The purchaser upon purchasing any unit of Dustbane Equipment accompanied by this warranty agrees to accept the protection provided herein and the limitations thereto as being both sufficient and commercially reasonable.

1999 Dustbane Products Limited

