IPC
BY TENNANT COMPANY

CT40 MK2

Walk-Behind Floor Scrubber

Operator Manual



Model Part No.:

LPTB03941--CT40 BT50 MK2

LPTB03942--CT40 B50 MK2

IPC North America

To view, print or download the parts manual, visit:

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IMPORTANT SAFETY PRECAUTIONS

Parts of the text requiring special attention are printed in bold and preceded by the symbols illustrated and described below.

! DANGER:
Indicates the need for care in order to avoid serious consequences that could lead to the death of personnel, or to situations representing a possible health and safety hazard.

! ATTENTION:
Indicates the need for care in order to avoid serious consequences that could involve harm being done to the machine or to the workplace, or lead to economic losses.

! DANGER: If lead-acid (WET) batteries are installed in the machine, keep sparks, flames and smoking materials away from the batteries. Explosive gases can escape during normal use, particularly when charging.

! DANGER: If lead-acid (WET) batteries are installed in the machine, highly explosive hydrogen gas is produced when charging this type of battery: be sure to carry out the procedure only in well ventilated areas and away from naked flames.

! DANGER: Never use the machine to clean up flammable or explosive liquids (e.g. petrol, fuel oil, etc.), acids or solvents (e.g. paint thinners, acetone etc.) even if diluted.

! DANGER: Never pick up burning or incandescent objects.

! DANGER: This machine must not be used on floors where there are hazardous coatings / finishes / materials.

! DANGER: Do not spray flammable liquids.

! ATTENTION: the machine may be equipped with technology that communicates automatically over a mobile phone network. If the machine must operate in places where the use of mobile phones is forbidden due to problems of interference with instrumentation, contact the manufacturer for information on how to deactivate the mobile communication functionality.

! ATTENTION: If particularly strong magnetic fields are present, assess their possible effect on the control electronics.

! ATTENTION: make certain that the electrical specifications of the machine (voltage, frequency and power consumption) indicated on the data plate are compatible with those of the mains electricity supply.

Do not use the machine:
- **without having read the operating and maintenance manual.**
- **without having been trained in its use.**
- **without having been specifically entrusted with its use.**
- **if legally under age.**
- **if the machine is not working properly.**
- **in places without adequate lighting.**
- **in explosive environments.**
- **on public roads.**
- **outdoors: the machine must be used only indoors.**
- **where there is dirt that can be harmful to health (dust, gas, etc.).**
- **where there is danger of falling objects, unless the machine is equipped with an overhead protective structure.**
- **in areas that are too dark to see the controls or operate the machine in safety.**

Clothing and equipment:
- **Wear safety shoes with non-slip soles.**
- **Wear protective eyewear or visor and safety garments.**
- **Depending on the surface being cleaned and on the environment, the protective measures necessary for atomized sprays include respiratory masks with class FFP2 or equivalent or higher protection.**

Before starting the machine:
- **Check that the machine is not damaged.**
- **Check that all safety devices are in place and operating correctly.**

When using the machine:
- **The machine must be operated by one person only.**
- **Be careful to follow the safety regulations of the particular workplace regarding wet floors. When necessary, place warning signs on the wet floor while using the machine**
- **Park the machine on a flat, level surface.**
- **Do not allow children to play on or near the machine.**
- **Evaluate the type of building the machine is operating in (e.g: hospitals, pharmaceutical or chemical industries, etc.) and scrupulously comply with the safety regulations and conditions in force in these facilities.**
- **The machine must not be used for purposes**

other than those expressly intended.
- The machine is intended for commercial use, for example in hotels, schools, hospitals, factories, shops, offices and business premises generally. Do not use for other purposes.
- The machine can be used only indoors.
- The machine must be stored only indoors.
- Do not allow the machine to be used as a toy.
- The machine is not designed for towing or being towed.
- Never rest objects of any significant weight on the machine, for whatever reason.
- Never obstruct the air inlet and release vents.
- Never remove, modify or by-pass safety devices.
- The machine has been designed for use with detergents supplied or recommended by the manufacturer. The use of other detergents or chemicals can affect the safety of the machine.
- When using floor cleaning products, follow the instructions and warnings on the container labels.
- Do not use detergents that may produce dangerous reactions, vapours, heat, etc.
- During use, atomized spray may form. Inhaling this atomized spray can be harmful to health.
- Work providers must conduct a risk assessment in order to specify the necessary protective measures relating to the formation of atomized sprays, depending on the surface being cleaned and the environment. Masks with class FFP2 or equivalent or higher protection are suitable for protecting against the inhalation of atomized spray.
- Keep hands away from moving parts.
- In the case of malfunction and/or faulty operation, turn the machine off immediately (disconnect from the batteries/mains power supply) and do not tamper with it; contact a service centre approved by the manufacturer.
- The machine is designed to operate in temperatures between +4 °C / 39.2 °F and +40 °C / 104 °F, and when not in use, can be stored in temperatures between +0° C / 32° F and +50 °C / 122 °F.
- Whatever the operating conditions, the machine is designed to withstand relative humidity of between 30% and 95%.
- The machine must operate at an altitude of less than 2000 m / 6561.68 ft.
- Do not use the machine to clean surfaces on gradients or ramps steeper than indicated on the data plate.
- Do not operate the machine on gradients or ramps steeper than indicated on the data plate.
- When using the machine on gentle gradients, do not move transversely across the slope, but keep the machine on a line parallel to the direction of the incline, manoeuvring carefully and without making U-turns.
- The machine must not be used by persons (including children) with diminished 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 for towing.
- Do not wear jewellery, watches, ties or other items.
- The operator must always use Personal Protective Equipment: protective apron or overalls, non-slip waterproof shoes, rubber gloves, protective eyewear and ear defenders, and mask for protection of the respiratory airways.
- Always use the battery charger accompanying the machine (if supplied), or if not, a product with specifications as recommended in the technical data.
- Inspect the power cable of the battery charger periodically to ensure that it is not damaged; in the event of damage being discovered, the appliance cannot be used. Replacement of the cable should be entrusted to an IP CLEANING approved service technician (referred to herein as authorized technician). Detach both connections of the battery charger (AC side and DC side).
- Do not tug at the battery charger cable to disconnect it from the socket: grip the plug firmly and pull.

Before leaving the machine or before carrying out maintenance:
- Park the machine on a flat, level surface.
- Switch the machine off by turning the ignition key from position 1 to position 0, and remove the key.

When performing maintenance:
- All operations must be carried out in conditions guaranteeing adequate visibility and lighting.
- Isolate the machine from its power source by disconnecting the battery.
- Never lift or handle a battery by its terminals.
- The operator must always use Personal Protective Equipment: protective apron or overalls, non-slip waterproof shoes, rubber gloves, protective eyewear and ear defenders, and mask for protection of the respiratory airways.
- Do not wear jewellery, watches, ties or other items.
- Protect batteries from impurities such as metal dust.

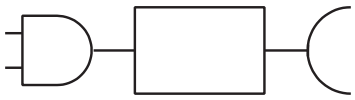
- **Take care when handling battery acid, and avoid contact. In the event of battery fluid leakage, do not touch the fluid and observe the following precautions: Contact with the skin can cause irritation; wash with soap and water. Inhalation of vapours can cause irritation to the airways; stay out in the open air and consult a doctor. Contact with the eyes can cause irritation; wash the eyes immediately, flooding with water for at least 15 minutes, and consult a doctor.**
- **Never rest tools on batteries as they could cause short circuits leading to explosions.**
- **Installation of the battery should be entrusted to an authorized technician.**
- **Never hose down the machine with water jets.**
- **Cleaning and maintenance operations that can be performed by the user must not be entrusted to children unless under supervision.**
- **All repairs must be carried out by an authorized technician.**
- **Use only original accessories and spare parts supplied exclusively by the manufacturer, as only these are able to guarantee safe and trouble-free operation of the machine.**
- **Never use parts removed from other machines or taken from other kits.**

When the machine is to be loaded onto or unloaded from a vehicle:

- **Empty the tanks before loading the machine.**
- **Raise the brush head and remove the squeegee from the machine.**
- **Do not manoeuvre the machine on a slippery ramp.**
- **Take particular care when operating the machine on ramps.**
- **Switch the machine off by turning the ignition key from position 1 to position 0, and remove the key.**
- **Lock the wheels of the machine.**
- **Use straps to anchor the machine.**

KEEP THESE INSTRUCTIONS SAFE.

SAFETY SYMBOLS

	WARNING! RISK OF ABRASION
	NEGOTIABLE GRADIENT
	OPERATOR MANUAL, INSTRUCTIONS FOR USE
	READ THE OPERATOR MANUAL
	DIRECT CURRENT SYMBOL
	INSULATION CLASS: THIS CLASSIFICATION ONLY APPLIES TO BATTERY POWERED MACHINES.
	EXTERNAL BATTERY CHARGER CONNECTION POINT.

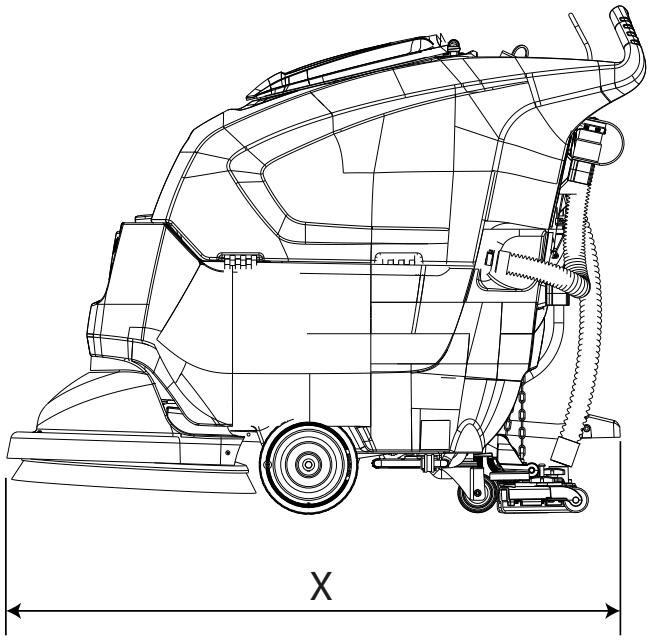
TECHNICAL SPECIFICATIONS

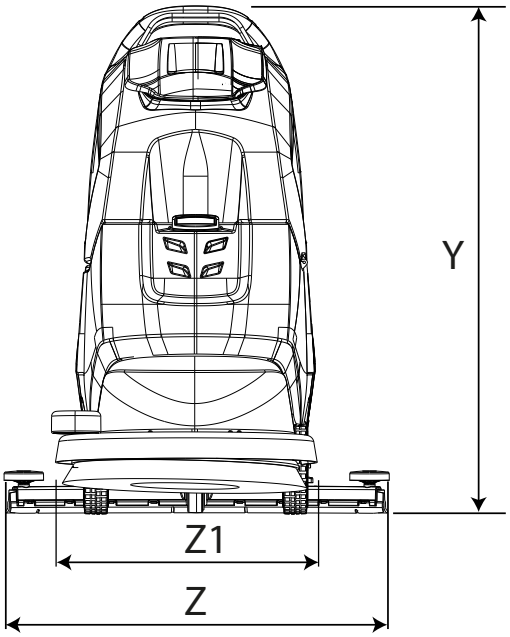
			50
Scrubbing width		mm	500
		inches	19.69
Squeegee width		mm	784
		inches	30.87
Hourly coverage		m^2/h	1750
		ft^2/h	18837
Number of brushes		no.	1
Brush diameter		mm	496
		inches	19.53
Maximum brush pressure		kg	21,5
		lbs	47.4
Brush rotation speed		rpm	150
Brush motor power		W	550
		HP	0.54
Drive motor power		W	120
		HP	0.16
Vacuum motor power		W	390
		HP	0.52
Machine power (P_M)		W	948
		HP	1.27
Maximum speed		km/h	3,5
		mph	2.17
Solution tank		l	42
		galls.	11.1
Dirty water tank		l	42,5
		galls.	11.23
Front wheel diameter		mm	200
		inches	7.87
Rear wheel diameter		mm	80
		inches	3.15
Negotiable gradient		%	2
Gross weight (GVW) (**)		kg	211
		lbs	465.2
Transported weight without batteries		kg	86
		lbs	189.6
Transport weight		kg	169
		lbs	372.1
Machine voltage V_M		V	24
Number of batteries	GEL	no.	2
Individual battery capacity		Ah (5h)	105
Individual battery weight		kg	42,7
		lbs	94.1
Number of batteries	WET-ACID	no.	2
Individual battery capacity		Ah (5h)	118
Battery weight		kg	41.4
		lbs	118
Supply voltage (battery charge)	Version without on board battery charger	V	24 dc
Max current (battery charge)		A	15
Mains supply voltage, V	Versions with on-board battery charger	V	"100-240 ac 50-60Hz"
Max current (amperes) I		A	10

Machine dimensions (length, width, height)		mm X Z Y	1294 772 1028
		inches X Z Y	50.94 30 40.47
Battery compartment dimensions (length, width, height)		mm	360 344 268
		inches	14.17 13.54 10.55
Machine dimensions without squeegee (length, width, height)		mm X Z1 Y	1294 538 1028
		inches X Z1 Y	50.94 21.18 40.47
Sound pressure - Annex DD (Emission of acoustical noise) EN 60335-2-72: 2012		LpA (dBA)	69,6
Measurement uncertainty		K (dBA)	3
Vibration level (hand) - IEC 60335-2-72		ahv m/sec^2	≤ 2,5
Vibration level (body) - IEC 60335-2-72		HBV m/sec^2	/
Maximum water and detergent temperature		°C	55
IP degree		IP	IPX3
Width of U-turn corridor		mm	
		inches	

(**) Gross weight (GVW): maximum permissible weight of the machine ready for use and with full tanks. The gross weight of the machine includes the detergent solution tank full of clean water, empty dirty water tank, empty dust bags, the hopper filled to its rated capacity, the largest recommended batteries and all accessories such as cables, hoses, detergent, mops and brushes.
Transported weight: the weight of the machine including batteries, but excluding optionals (for example, operator's cabin, FOPS — Falling Object Protective Structure — second and third side brushes and front brush attachment), fresh water (in the case of scrubbers or combination machines) and the weight of a standard operator (75 kg - 165.35 lb).
Data subject to changes without prior warning
V, I: charging / supply values
V_M , P_M : machine in average operating conditions (all functions active)

MACHINE DIMENSIONS





X-Y-Z: See "TECHNICAL SPECIFICATIONS" table

GENERAL INFORMATION

Purpose of the manual

This manual has been written by the Manufacturer and is an integral part of the equipment package making up the machine[1].
It defines the purpose for which the machine has been designed and built and contains all the information needed by operators[2].
In addition to this manual, containing information intended essentially for users, other publications are available providing specific information for authorized technicians.
The terms “right” and “left”, “clockwise” and “anti-clockwise” refer to the forward movement of the machine.
Consistent observance of the instructions in this manual will guarantee the safety of the operator and the equipment, ensure low running costs and high quality results, and extend the working life of the machine. Failure to follow these instructions could result in injury to the operator or damage to the machine, to the floor and to the surroundings.
Consult the table of contents at the beginning of the manual to find the section of interest without delay.

Although your machine may differ appreciably from the illustrations contained in this document, the correctness and validity of the instructions in the manual remain guaranteed.

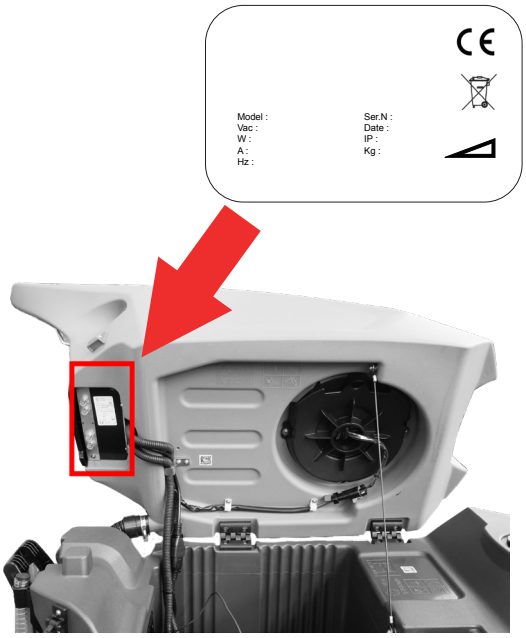
Identifying the machine

The nameplate provides the following information:

- Name of manufacturer.
- Model.
- Serial number.
- Year of manufacture.
- Power supply voltage (charging/supply value).
- Current intensity (maximum charge level, in line as far as possible with the value indicated by the battery manufacturer).
- Gross weight (GVW).
- IP degree of protection.
- Machine voltage (in average operating conditions).
- Machine power (in average operating conditions).
- Maximum negotiable gradient.

Documentation provided with the machine

- User manual.
- CE certificate of conformity.
- Battery charger operator manual.
- Certificate of warranty.



1 The definition "machine" replaces the trade name of the product to which this manual relates.

2 Persons responsible for using the machine without performing any operations requiring precise technical skills.

TECHNICAL INFORMATION

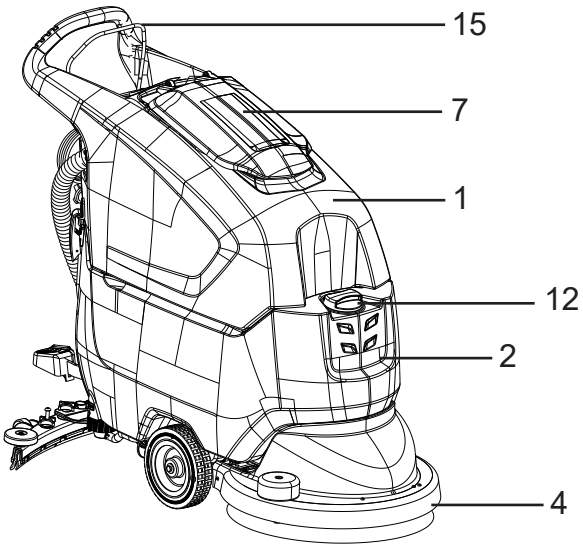
General description

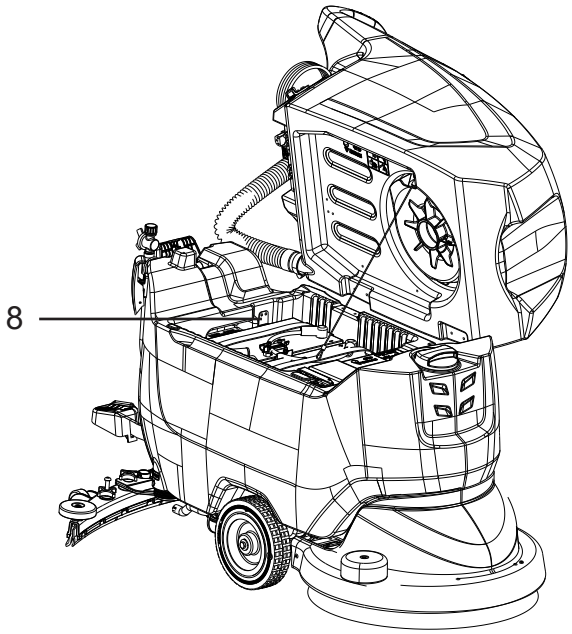
This machine is a scrubber dryer for washing and drying flat, horizontal, smooth or moderately rough, uniformly structured and obstacle-free floors in civil and industrial premises.
The scrubber dryer spreads a solution of water and detergent in the correct concentration on the floor and then scrubs the surface to remove the dirt. With careful selection of the detergent and of the appropriate brushes (or abrasive disks), from the wide range of accessories available, the machine can be adapted to numerous combinations of floor types and dirt types.
The machine incorporates a wet-vacuum system that dries the floor as the surface is scrubbed clean. The drying action is produced by the vacuum motor, which generates a depression in the dirty water tank. The squeegee is connected to the tank, and collects the dirty water.

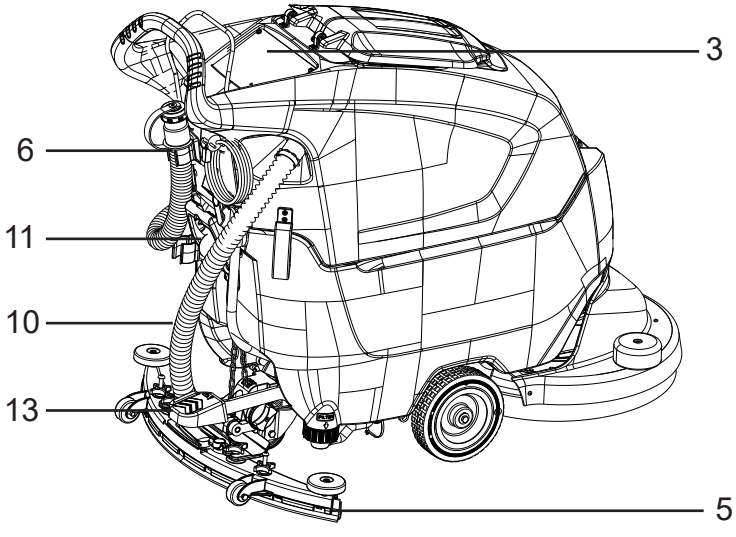
Main parts of the machine

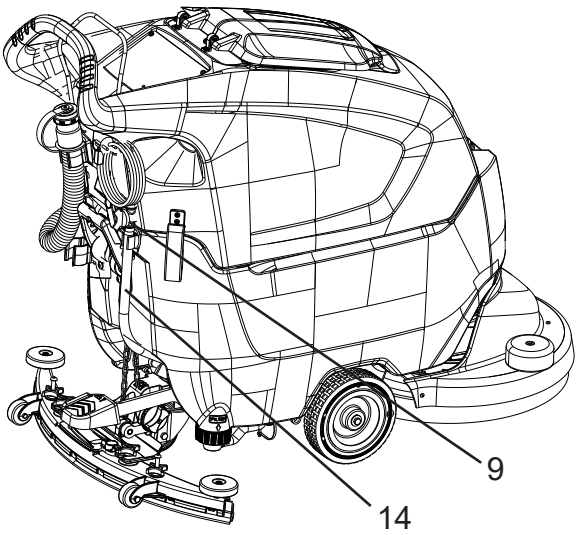
The main parts of the machine are listed below:

1. Dirty water tank.
2. Solution tank.
3. Control panel.
4. Head assembly.
5. Squeegee
6. Dirty water tank drain hose.
7. Dirty water tank lid.
8. Battery compartment.
9. Solution tank drain hose(Accessory).
10. Squeegee hose.
11. Squeegee operating lever: raises the squeegee (if lowered), lowers the squeegee (if raised).
12. Solution tank filler.
13. Brush head lift pedal
14. Solution tank level indicator tube
15. Drive control lever.









Control panel

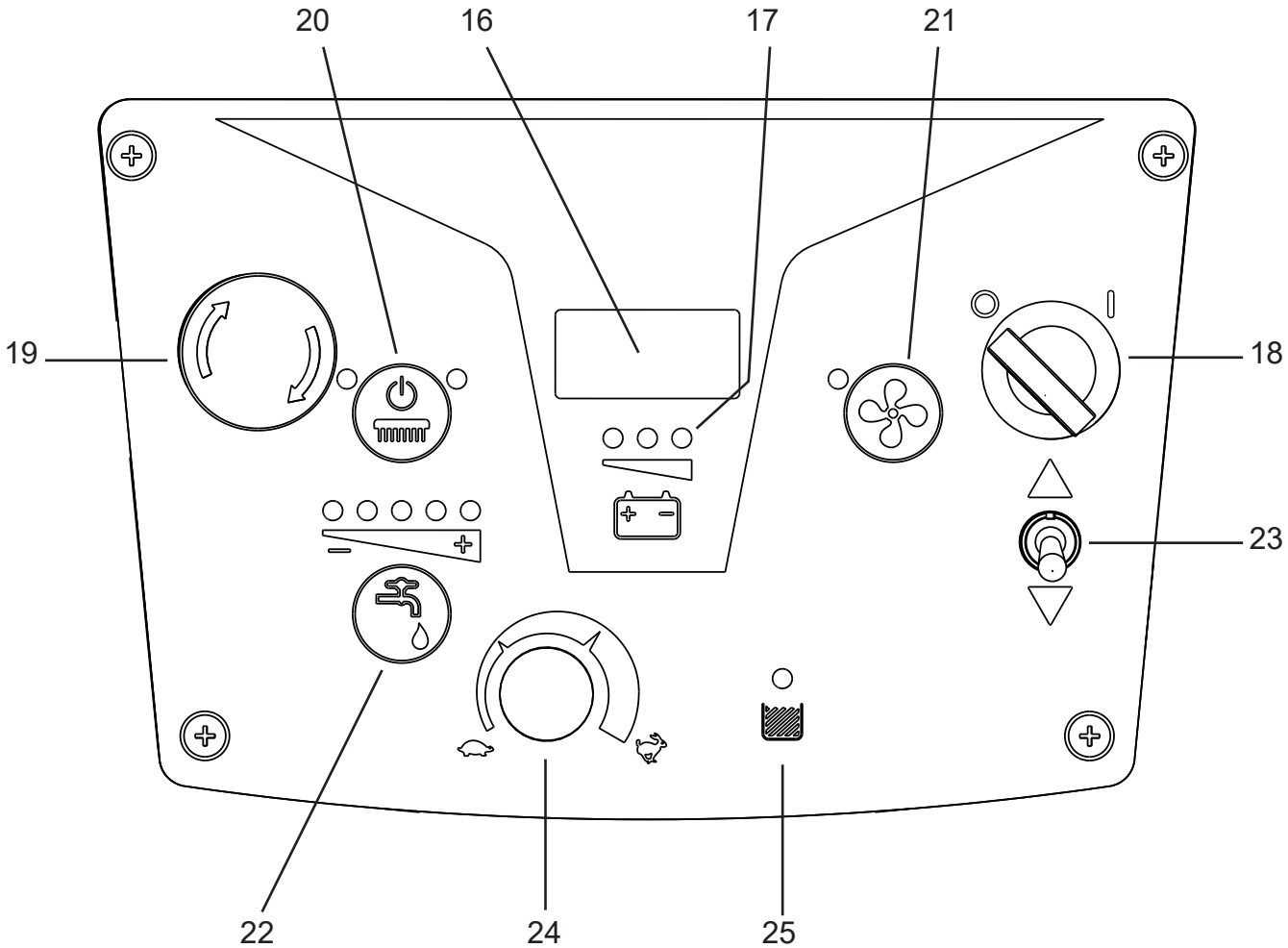
The machine has the following controls and indicator lights:

16. Display, showing:
    - Hour meter (actual operating time of the machine)
    - Alarm codes.
    - Machine menu.
17. Remaining battery charge led.
18. Main switch/Ignition switch: connects and disconnects electrical power to and from all functions of the machine.
19. Emergency stop button: acts as a safety device.
20. Brush button: enables/disables rotation of the brush.
21. Vacuum button: enables/disables the vacuum motor.
22. Solution flow regulation button: allows continuous regulation of the flow of liquid delivered.
23. Direction selector switch, determines movement of the machine forward or in reverse.
24. Speed potentiometer: regulates the maximum speed of the machine forward and in reverse.
25. Dirty water tank level indicator: when the dirty water tank is full, the indicator lights up and all cleaning functions are inhibited.

Accessories

See list of recommended spare parts

- Bristle brushes, used for scrubbing delicate floors and for polishing.
- Polypropylene brushes, used for normal floor scrubbing duties.
- Tynex brushes, used for removing accumulated stubborn dirt on resistant floors;
- Drive disc: allows use of the different types of cleaning pad.
- WET and GEL-AGM battery.
- Battery charger.



HANDLING AND INSTALLATION

Lifting and transporting the palletized machine

! ATTENTION: during all lifting operations, make certain the palletized machine is firmly secured to prevent it tipping over or being accidentally dropped. The machine must be loaded onto/unloaded from vehicles in areas with adequate lighting.

The machine is packaged on a wooden pallet by the Manufacturer. It must be loaded on to the transport vehicle using suitable equipment (see Directive 2006/42/EEC and subsequent amendments and/or additions), and on arrival at the destination, unloaded using similar equipment.
The palletized body of the machine can be lifted only with the aid of a fork lift truck. Handle with care to avoid impact and ensure the machine is not overturned.

Inspection on delivery

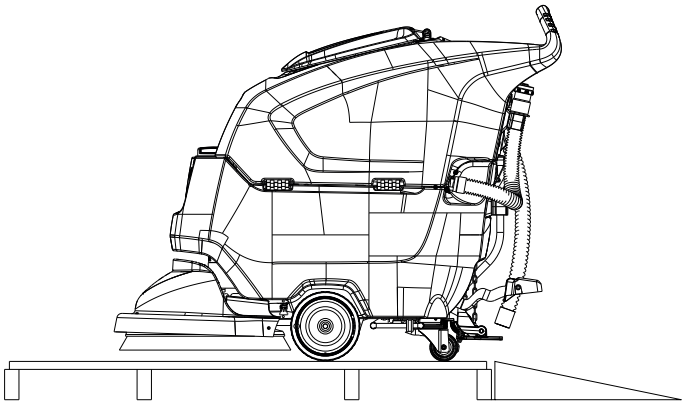
When the carrier delivers the machine, check that the packaging and the machine are both intact and undamaged. If the machine is damaged, make sure the carrier is aware of the damage and before accepting the goods, reserve the right (in writing) to request compensation for the damage.

Unpacking

! DANGER: when unpacking the machine, the operator must wear suitable Personal Protective Equipment (gloves, eyewear, etc.) to limit the risk of injury.

When unpacking the machine, proceed as follows:

- Cut and remove the plastic straps using scissors or nippers;
- Remove the cardboard box;
- Remove the bag placed inside the battery compartment and check the contents: operator manual; CE certificate of conformity; battery charger user manual; certificate of warranty; battery bridge with terminals; 1 x connector for battery charger (machine without on board battery charger); 2 x hex wrench;.
- Remove the metal brackets securing the front/ rear wheels and the machine chassis to the pallet base.
- Before depalletizing the machine, check that the brush head assembly is raised.
- Using a ramp, push the machine off the pallet in the reversing direction. The machine must not be lifted.



- Remove the brush from its packaging.
- Clean the outside of the machine, taking care to observe safety procedures.

Once the machine has been removed from its packaging, proceed to install the batteries, referring to the section "**Batteries: installation and connection**" and fit the squeegee, referring to the section "**Fitting the squeegee**".
Keep the various items of packaging, if so desired, as they can be reused to protect the machine in the event of it being moved to a different site or sent to a repair workshop. If not retained, the packaging must be disposed of in compliance with current regulations.

Batteries

! ATTENTION: do not use NON-rechargeable batteries

Two different types of battery can be installed on these machines:
Leak-proof tubular batteries (WET): the level of the electrolyte must be checked periodically.
GEL or AGM batteries: this type of battery requires no maintenance.
The technical specifications of the battery must correspond to those listed in the section on the "**Technical specifications"** of the machine. The use of heavier batteries could seriously jeopardize manoeuvrability and lead to the drive motor overheating. Lighter batteries of lower capacity, on the other hand, will need to be charged more frequently.

Setting the battery type on the machine

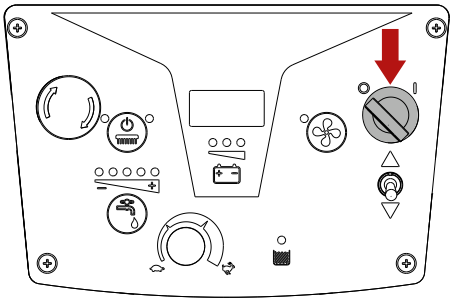
! ATTENTION: Where machines are shipped without batteries, the machine is factory set for GEL - AGM batteries as the default configuration.
Depending on the type of battery selected (WET or GEL - AGM), the "battery type" parameters for the machine MUST be changed if different from the factory setting.

! ATTENTION: when machines are shipped with batteries already installed, the "battery type" parameters are factory-set.
The machine is ready for operation.

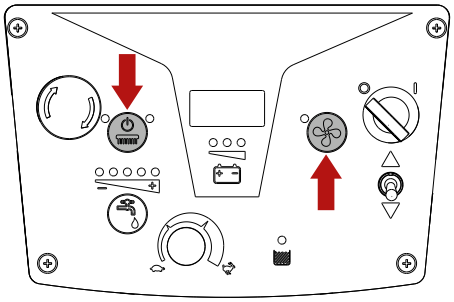
! NOTICE
Enter the type of battery installed in the machine software settings.

Follow the instructions below to adjust the machine logic settings for the type of battery installed.

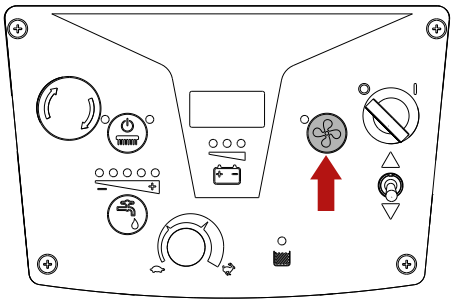
- Switch the machine on by turning the ignition key from position 0 to position 1.



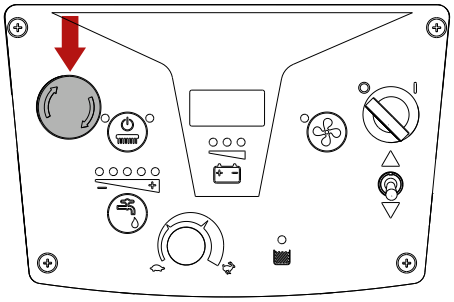
- Press the brush button and the vacuum button simultaneously, and hold for at least 5 seconds: this will access the battery setting menu.



- Select the type of batteries installed using the Vacuum button: "ACd" for acid batteries (WET) or "GEL" for GEL/AGM batteries.



- Press the emergency stop button to store the parameter.



WET batteries, preparation:

! DANGER: The installation and connection/ removal of batteries must be entrusted to an authorized technician.

! DANGER: during the installation of batteries or any type of battery maintenance, the authorized technician must wear the Personal Protective Equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents. Keep away from naked flames, do not short circuit the battery poles, do not generate sparks and do not smoke.

! DANGER: in the event of battery fluid leakage, do not touch the fluid and observe the following precautions:
Contact with the skin can cause irritation; wash with soap and water.
Inhalation of vapours can cause irritation to the airways; stay out in the open air and consult a doctor.
Contact with eyes can cause irritation, wash eyes immediately and thoroughly with water for at least 15 minutes; consult a doctor.

WET batteries are normally supplied filled with acid and ready for use.

If the batteries in use are dry charged, they must be activated before being installed in the machine. Proceed as follows:
Remove the caps and fill all elements with sulphuric acid solution specific for batteries until the plates are completely covered (this requires at least a couple of passes for each element). IF IN DOUBT, CONTACT YOUR LOCAL DEALER.
Leave the batteries to 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 section "**Charging the batteries**".

Batteries: installation and connection

! DANGER: The installation and connection/ removal of batteries must be entrusted to an authorized technician.

! DANGER: during the installation of batteries or any type of battery maintenance, the authorized technician must wear the Personal Protective Equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents. Keep away from naked flames, do not short circuit the battery poles, do not generate sparks and do not smoke.

! DANGER: in the event of battery fluid leakage, do not touch the fluid and observe the following precautions:
Contact with the skin can cause irritation; wash with soap and water.
Inhalation of vapours can cause irritation to the airways; stay out in the open air and consult a doctor.
Contact with the eyes can cause irritation; wash the eyes immediately, flooding with water for at least 15 minutes, and consult a doctor.

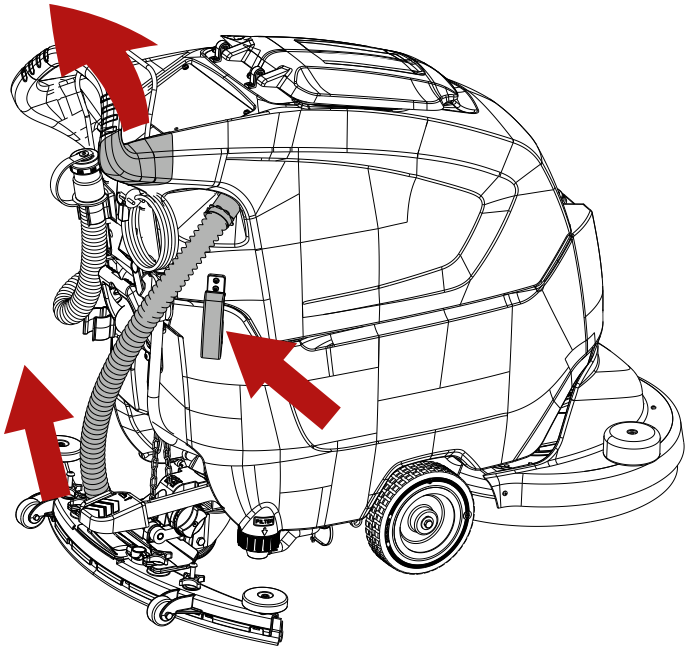
! ATTENTION: when installing and connecting the batteries, ensure that the battery charger is unplugged from the power socket.

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

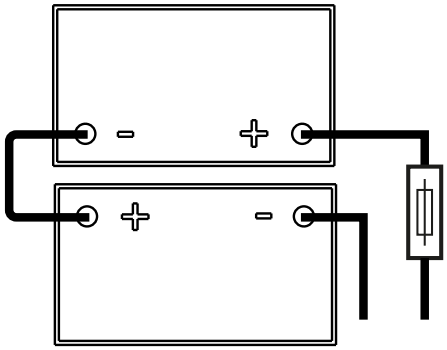
! ATTENTION: before carrying out the operations described below, empty the dirty water tank, referring to the section "Emptying the dirty water tank".

! DANGER: Make certain that the terminals marked with a "+" are connected to the positive battery poles. Do not check the battery charge by sparking.

- Free the dirty water tank from the solution tank by releasing the lever.
- Disconnect the vacuum hose from the squeegee.
- Tip up the dirty water tank, gripping it by the area illustrated.



- Place the batteries in the compartment, positioning them as shown in the drawing below.
- Connect the wiring terminals to the battery poles, tighten and smear with Vaseline.



- Return the tank to the operating position.
- Reconnect the vacuum hose to the squeegee.
- Lock the dirty water tank to the solution tank, securing it in place by means of the lever.
- When using the machine, follow the instructions below.

Selecting a battery charger

! DANGER: use a battery charger with CE marking that is in compliance with product standard (EN 60335-2-29), equipped with double insulation or reinforced insulation between input and output and with SELV type output circuit.

! ATTENTION: make certain the battery charger is compatible with the batteries being charged.

Tubular lead acid (WET) batteries: the use of an electronic battery charger is recommended; in any event, consult the manufacturer and the battery charger manual to confirm the suitability of the external battery charger.
GEL or AGM batteries: use a charger intended specifically for the type of battery.

Preparing the battery charger

! ATTENTION: this procedure must be carried out only by an authorized technician.

When using a battery charger not provided with the machine, it must be fitted with the connector included in the machine equipment package.
The connector supplied for the external battery charger is compatible with cables of maximum cross-section 16mm^2.
Proceed as follows to fit the connector:

- Remove around 13 mm of the protective sheath from the red and black conductors of the battery charger cable;
- Attach the ends to the contacts of the connector and squeeze forcibly with suitable crimping pliers;
- Make certain the polarity is correct (red + black –) when attaching the wires to the connector.

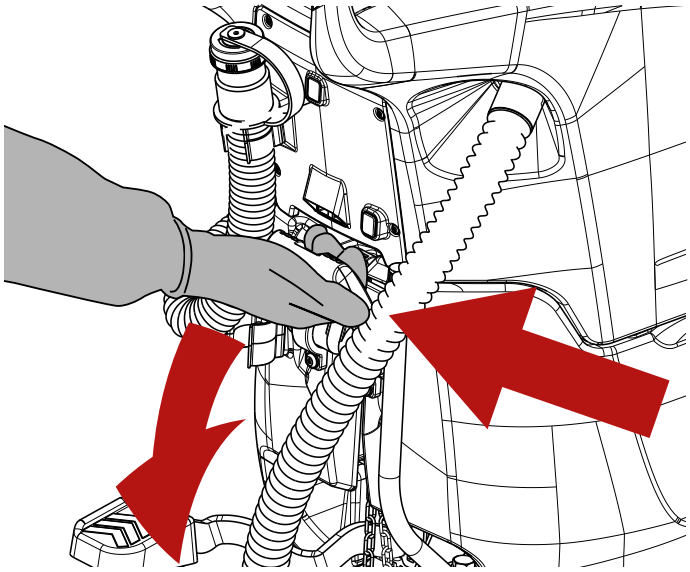
Battery charger settings

! ATTENTION: where the machine is shipped without battery, the machine and the battery charger are factory set for GEL-AGM batteries as the default configuration. If the intention is to fit a different type of battery, the battery charger setting MUST be changed: consult an authorized technician. Failure to observe these instructions could result in damage to the battery. Depending on the type of battery selected (WET or GEL - AGM), the battery parameters of the machine MUST be adjusted if different from the factory setting. See section "Setting the battery type on the machine" for directions.

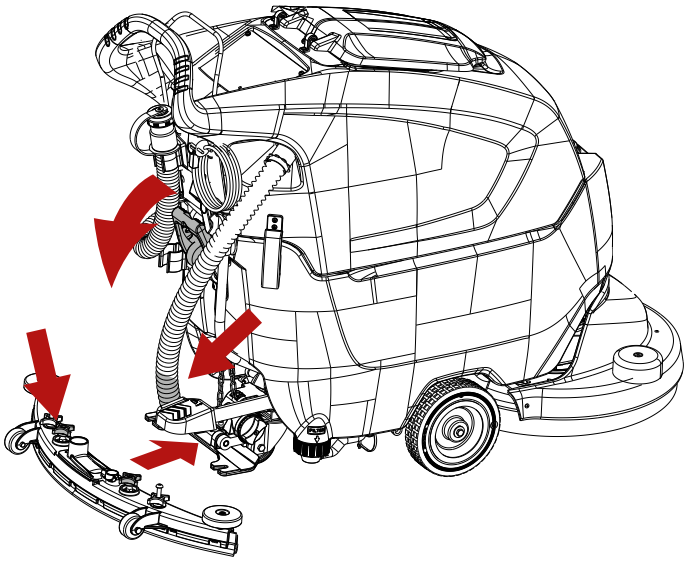
Fitting the squeegee

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

- Lower the squeegee by means of the "squeegee operating lever".



- Unscrew the two squeegee clamp knobs.
- Locate the two threaded pins in the two slots on the support.
- Fit the squeegee to the slots on the support.
- Tighten the two clamp knobs.
- Reconnect the vacuum hose to the squeegee.

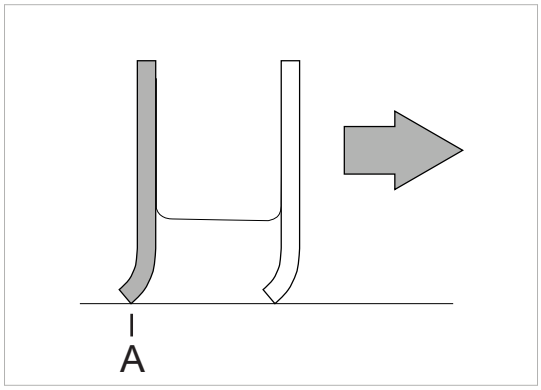


The position of the squeegee is factory-set. Should the squeegee blade require adjustment, refer to the section "**Squeegee adjustment**".

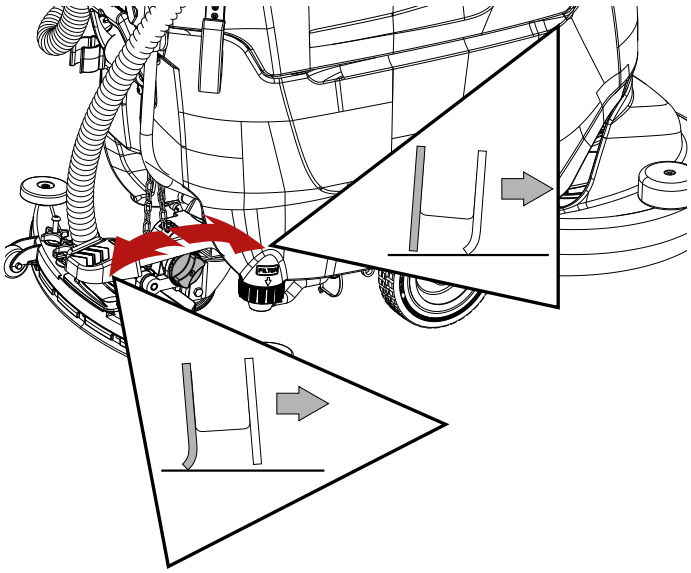
Squeegee adjustment

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

The squeegee blades serve to wipe the film of water and detergent from the floor, ensuring that the surface will dry faultlessly. With time, and the constant wiping action, the edge of the blade in contact with the floor becomes rounded and cracked, diminishing its drying efficiency, so that ultimately a new blade is required. Accordingly, the state of wear should be checked frequently.
To ensure faultless drying, the squeegee must be adjusted as illustrated, in such a way that the edge of the rear blade deflects during operation by about 45° relative to the floor, at all points along its length.



The angle of the blades can be adjusted by turning the yellow knob.



Fitting the brush / pad

! DANGER: during installation, the operator must wear personal protective equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents.

! ATTENZIONE: before installing the Drive disk on the machine, make certain that the Pad is attached to the disk.

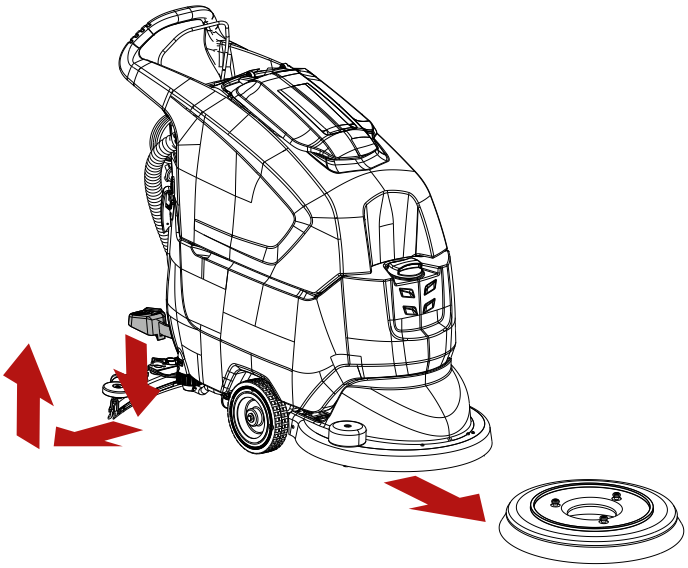
! ATTENTION: never leave the machine at standstill with the brush running: this could result in damage to the floor.

! ATTENTION: before carrying out the operations described below, stop the machine on a flat, level surface.

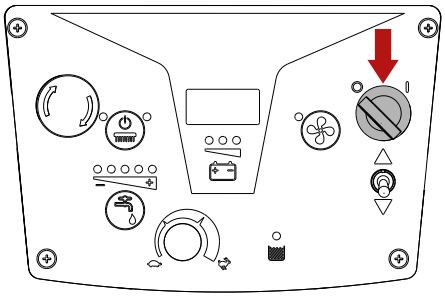
! NOTICE
Where the terms RIGHT and LEFT appear, this is always referred to the forward movement of the machine

Fitting the brush (or pad):

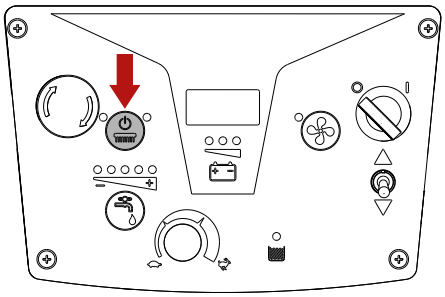
- Place the brush on the floor in front of the machine and align it with the guard.
- Lower the brush head assembly by depressing the lift pedal and shifting it toward the right.



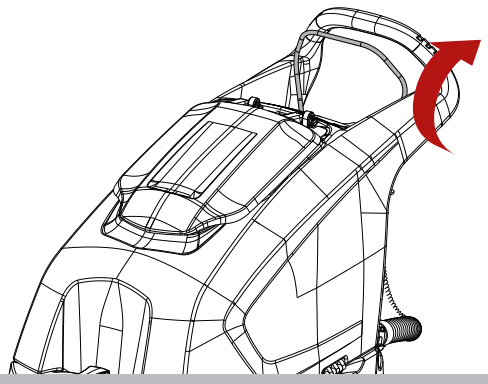
- Switch the machine on by turning the ignition key from position 0 to position 1.



- Press the brush button.



- Jog the drive control handlebar repeatedly.
- The brush will be coupled to the drive disk.



Filling the detergent solution tank

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

! DANGER: flammable liquids can be the cause of explosion or fire. Do not put flammable liquids into the tank.

! ATTENTION: fill the tank with water and detergent at a temperature of between +4 °C / 39.2 °F and 55 °C / 131 °F.

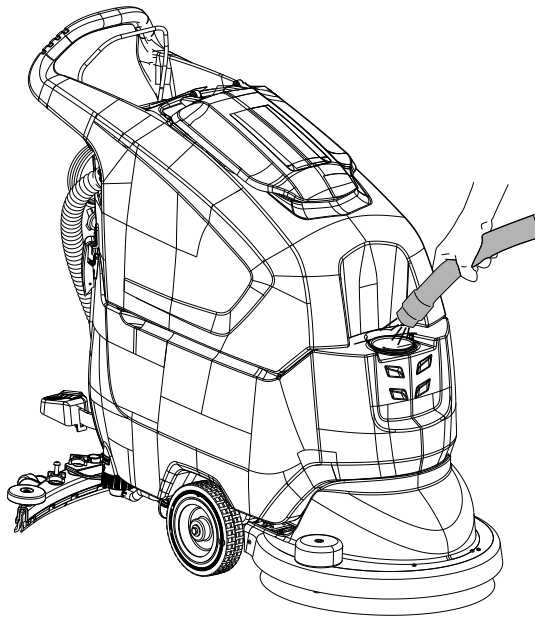
! ATTENTION: the machine has been designed for use with detergents supplied or recommended by the Manufacturer. The use of other detergents or chemicals can affect the safety of the machine.

! ATTENTION: the selected detergent should be utilized rationally, in accordance with the directions given on the packaging of the product.

! ATTENTION: select a detergent from the range of recommended products that is most suitable for the cleaning operation in hand, and dilute with water following the instructions on the pack or in the catalogue.

! NOTICE
The machine is equipped with a graduated measuring cap that can be used to dilute the detergent inside the tank.

- Remove the cap.
- Fill the tank through the opening provided.



PRACTICAL GUIDE FOR THE OPERATOR

Clothing and equipment

Wear safety shoes with non-slip soles.
Wear protective eyewear or visor and safety garments.
Depending on the surface being cleaned and on the environment, the protective measures necessary for atomized sprays include respiratory masks with class FFP2 or equivalent or higher protection.

Before starting the machine

Clear away larger items of refuse before scrubbing. Pick up any pieces of wire, tape, string and similar items that could become entangled around the brushes.
Before scrubbing with the machine, sweep the area so as to prevent streaks forming on the floor.

Preparing the machine for operation

Proceed as follows before starting work:

- Check that the batteries are fully charged, and if not, carry out the charging procedure: when undertaking this operation, refer to the section "**Charging the batteries**".
- Make certain that the dirty water tank is empty, and if not, empty it, referring to the section **"Emptying the dirty water tank"**.
- Make certain that the solution tank is full, and if not, proceed to fill it, referring to the section **"Filling the water/detergent tank"**.
- Make certain that the brush / pad is coupled securely to the drive disk: refer to the section **"Fitting the brush/pad"**.

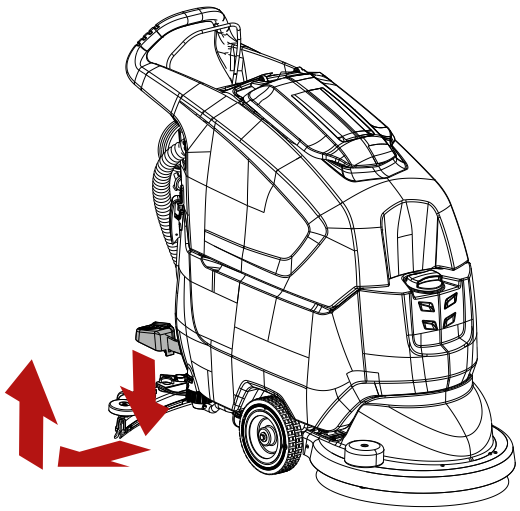
Working

! DANGER: Never use the machine to clean up flammable or explosive liquids (e.g. petrol, fuel oil, etc.), acids or solvents (e.g. paint thinners, acetone etc.) even if diluted.

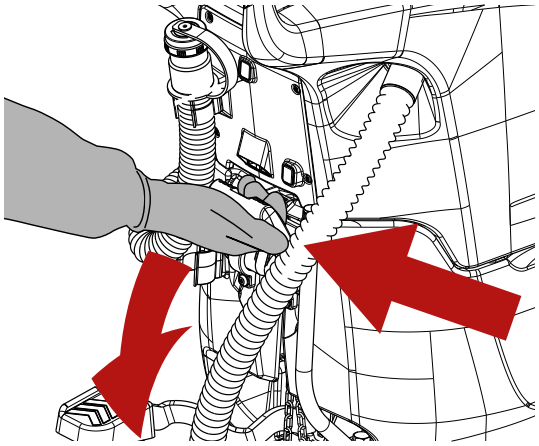
! ATTENTION: never leave the machine at standstill with the brush running: this could result in damage to the floor.

! ATTENTION: do not use the machine without first reading the operating and maintenance manual.

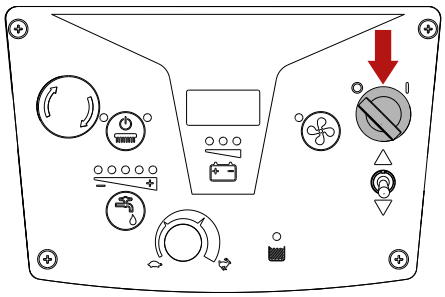
- Lower the brush head assembly by depressing the lift pedal and shifting it toward the right.



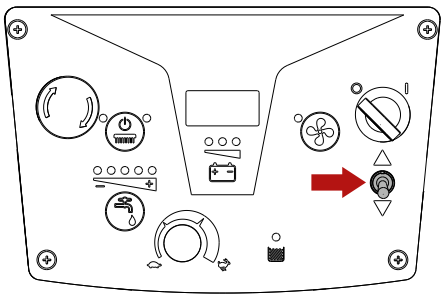
- Lower the squeegee by means of the "squeegee operating lever".



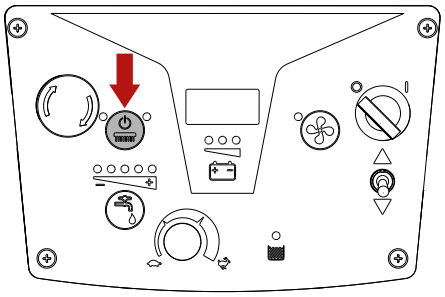
- Switch the machine on by turning the ignition key from position 0 to position 1.



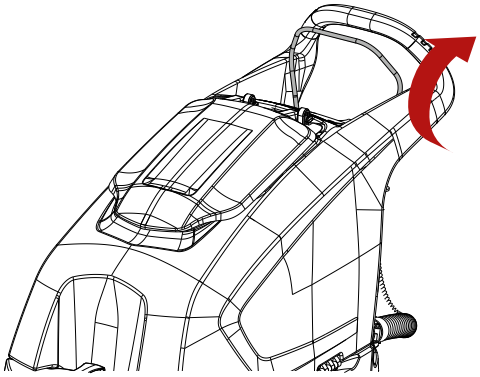
- Use the drive direction selector to select forward drive.



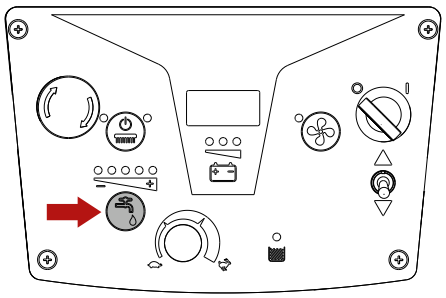
- Press the brush button to activate the brush, the vacuum motor also comes into operation.



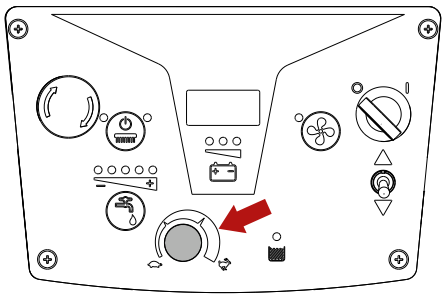
- Operate the drive control lever to start scrubbing.



- Check periodically that the detergent solution is reaching the brushes, adjusting the quantity of liquid released by means of the solution flow regulation button and topping up the tank when the level runs low; the level of detergent solution in the tank can be viewed by way of the “solution tank level indicator tube”, which is located alongside the “squeegee operating lever”;



- The maximum operating speed can be set by turning the speed potentiometer.

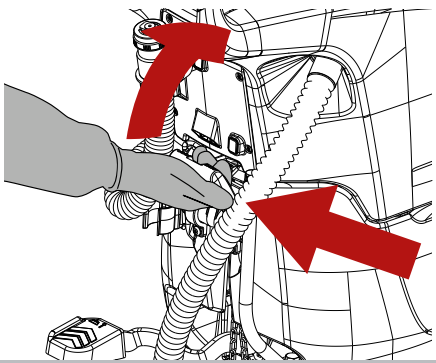


! NOTICE
Should the need arise to select reverse drive when operating with the squeegee lowered, the machine must first be stopped and the squeegee raised, otherwise damage could occur.

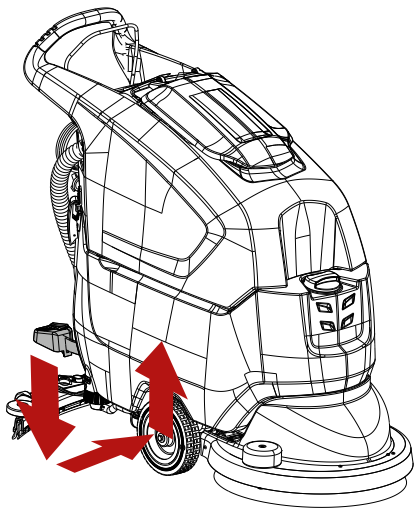
- To bring the machine to a halt, release the drive control handlebar.

After work

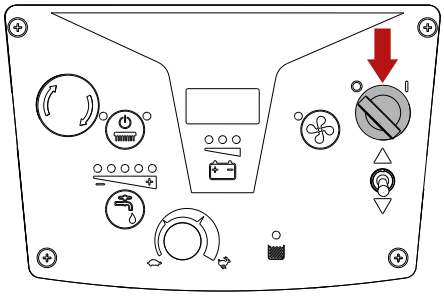
- Release the drive control handlebar.
- Raise the squeegee by means of the squeegee operating lever”.



- Raise the brush head assembly by depressing the lift pedal and shifting it toward the left.



- Switch the machine off by turning the ignition key from position 1 to position 0.



Dual wash

In cases where floors are soiled with particularly stubborn dirt, the scrubbing and drying steps can be performed in succession, separately, for a more thorough clean.

Thorough scrub with brushes or pads:

- Switch the machine on by turning the ignition key from position 0 to position 1.
- Press the brush button.
- Press the vacuum button to deactivate the vacuum motor.

! NOTICE
The squeegee must remain clear of the floor.

- Lower the brush head assembly by depressing the lift pedal and shifting it toward the right.
- Adjust the amount of detergent utilized by means of the solution flow regulation button.
- When scrubbing particularly dirty areas, give the detergent sufficient time to perform its chemical action of detaching and suspending the dirt in the film of water, and allow the brushes time to exert an effective mechanical action.

Drying:

- Press the vacuum motor button: the vacuum fan switches on.
- Raise the squeegee by means of the squeegee operating lever.
- Pass the machine over the area scrubbed previously: the effect will be to produce a deep cleansing action, with the result that subsequent routine maintenance operations will take much less time.

During operation of the machine

- Keep the cleaning passes as straight as possible.
- Overlap successive cleaning passes by a few centimetres.
- Adjust the flow of detergent solution according to the type of cleaning.
- Adjust the ground speed and the flow of detergent solution to suit the type of cleaning.
- Check the battery charge level to ensure there will be sufficient power for completion of the cleaning operation.
- Check the level of liquid in the detergent solution tank: this can be viewed by way of the “solution tank level indicator tube”, which is located alongside the “squeegee operating lever”.
- Check the dirty water level indicator to ensure that the tank is not full; once the dirty water tank fills up, the vacuum motor will shut off automatically, at which point cleaning operations must be stopped and the dirty water tank emptied, as described in the section **“Emptying the dirty water tank”**.

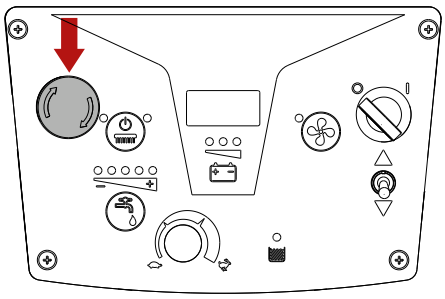
! ATTENTION: do not attempt to clean surfaces on slopes or gradients steeper than indicated on the machine data plate.

! ATTENTION: Do not operate the machine on slopes or gradients steeper than indicated on the data plate.

! ATTENTION: When using the machine on gentle gradients, do not move transversely across the slope, but keep the machine on a line parallel to the direction of the incline, manoeuvring carefully and without making U-turns.

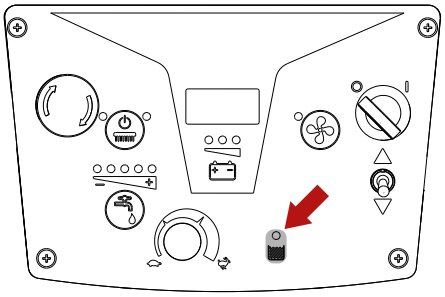
Emergency stop button

To cut off the power supply, push the button in.
To restart the machine, rotate the button.



Dirty water tank full indicator

When the dirty water tank is full, the indicator lights up and all cleaning functions are inhibited. Proceed to empty the dirty water tank: when carrying out this operation, refer to the section "**Emptying the dirty water tank**".

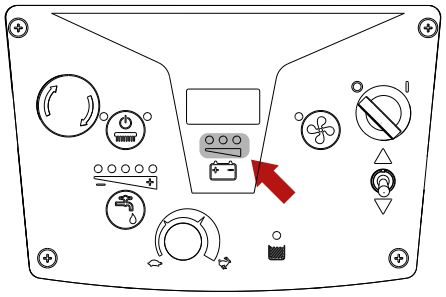


Battery charge indicator

The indicator shows the level of charge remaining in the batteries:

1. green LED alight: 100% to 50% battery charge remaining;
2. yellow LED alight: 50% to 18% battery charge remaining;
3. red LED alight: battery charge very low.
4. red LED blinking: batteries completely flat.

When the batteries are completely discharged, all cleaning functions remain inhibited until recharging has taken place: when undertaking this operation, refer to the section "**Charging the batteries**".

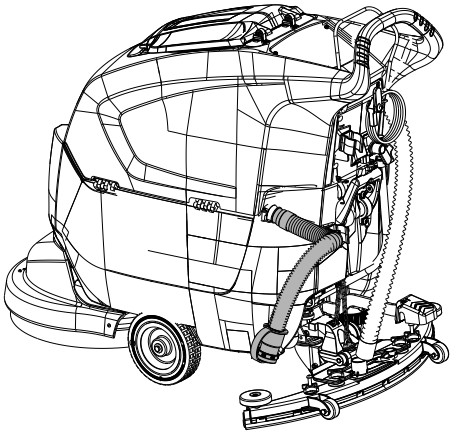


Emptying the dirty water tank

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

When work has finished, proceed to empty the dirty water tank, following the instructions given below:

- Take the machine to the designated service area.
- Detach the hose from the clip.
- Empty the tank by way of the drain hose: keep the hose raised initially and remove the plug, then lower the hose gently and position it over the drain outlet.
- Rinse the tank with clean water.
- Refit the plug to the drain hose and reattach the hose to the clip.



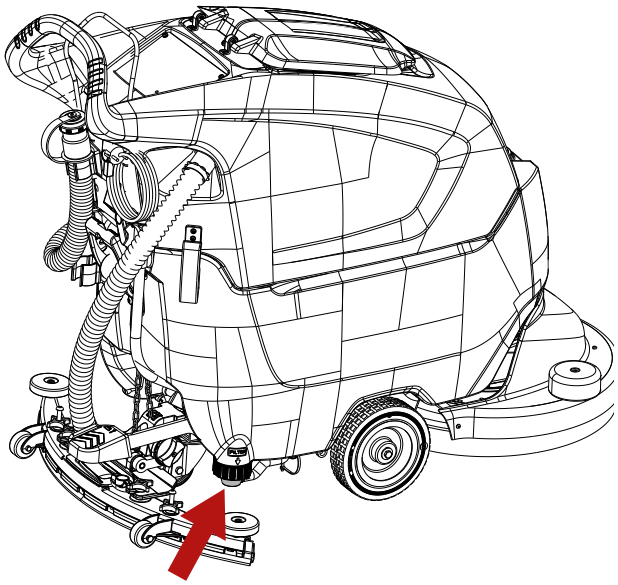
Emptying the solution tank

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

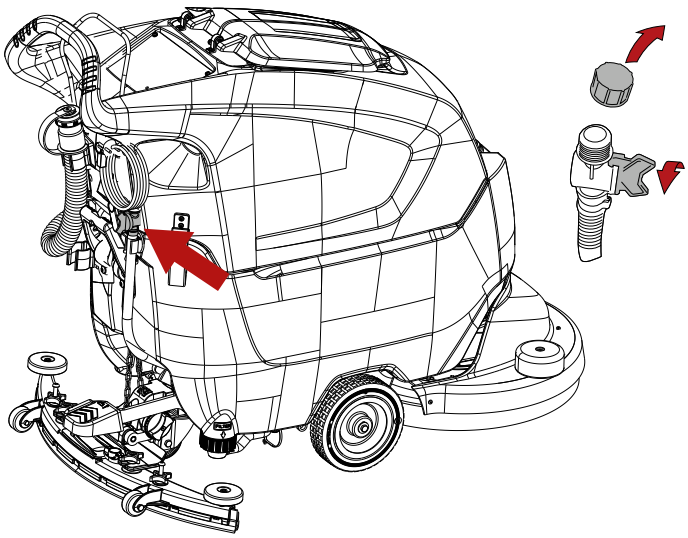
The detergent solution tank can be emptied by proceeding as follows:

- Take the machine to the designated service area.

- When emptying the tank, remove the filter assembly, referring to the directions given in the section “**Cleaning the solution tank filter**”



! NOTICE
If the machine is equipped with the “Solution tank drain hose” accessory, detach the hose from the clip, unscrew the cap and open the tap.

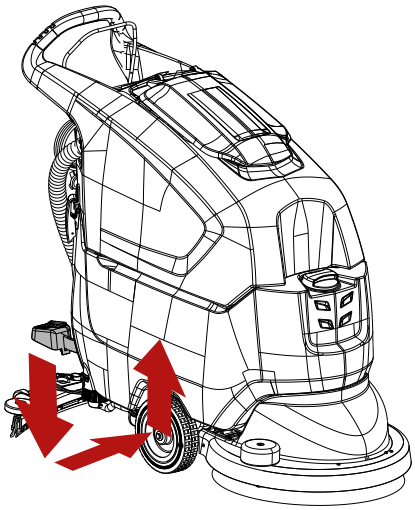


Brush/pad release

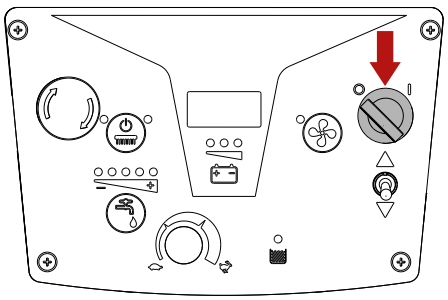
! ATTENTION: before carrying out the operations described below, stop the machine on a flat, level surface.

! NOTICE
Where the terms RIGHT and LEFT appear, this is always referred to the forward movement of the machine

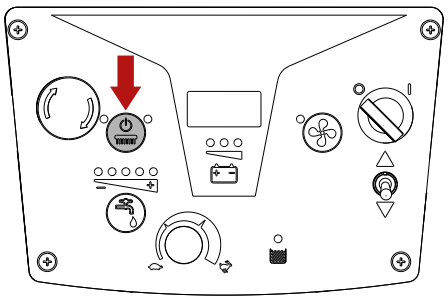
- Raise the brush head assembly by depressing the lift pedal and shifting it toward the left.



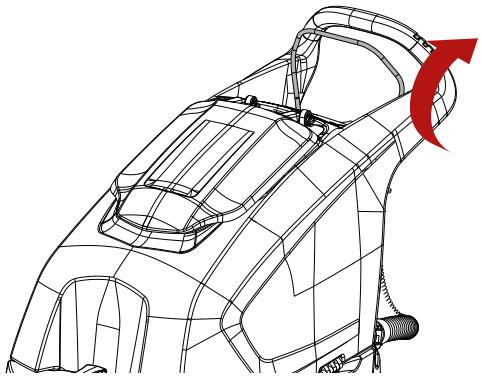
- Switch the machine on by turning the ignition key from position 0 to position 1.



- Press the brush button.



- Jog the drive control handlebar repeatedly. After a few moments, the brush is released and falls to the ground.



Moving the machine when not in operation

To move the machine, proceed as follows:

- Switch the machine on by turning the ignition key from position 0 to position 1.
- Raise the brush head assembly by depressing the lift pedal and shifting it toward the left.
- Raise the squeegee by means of the squeegee operating lever.
- Use the drive direction selector to select forward drive.
- Operate the drive control handlebar.
- The maximum ground speed can be set by turning the speed potentiometer.

MAINTENANCE INSTRUCTIONS

! DANGER: no maintenance work of any description must be carried without first having isolated the machine from its power source. Maintenance operations on the electrical circuit and in any event all other operations not explicitly described in this operating manual must be performed by authorized technicians only, in compliance with current safety regulations and as indicated in the maintenance manual.

! ATTENTION: before accessing the electrical compartment, empty the dirty water tank completely.

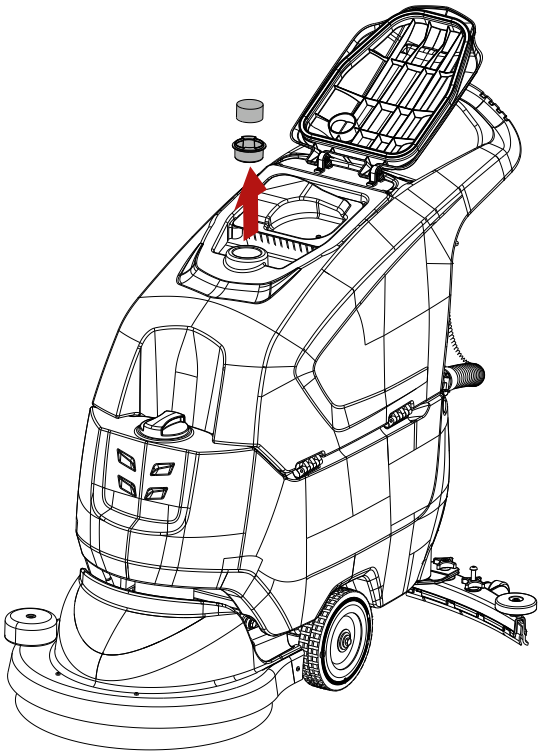
Maintenance - General rules

Performing regular maintenance according to the Manufacturer's instructions will improve performance and extend the working life of the machine.
When cleaning the machine, always observe the following precautions:
Avoid the use of high pressure washers: water could penetrate the electrical compartment or motors leading to damage or short circuits;
Avoid using steam, as the heat could cause the deformation of plastic parts;
Do not use solvents or hydrocarbon based products. These can cause damage to the bodywork and rubber components.

Cleaning the vacuum motor air filter

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

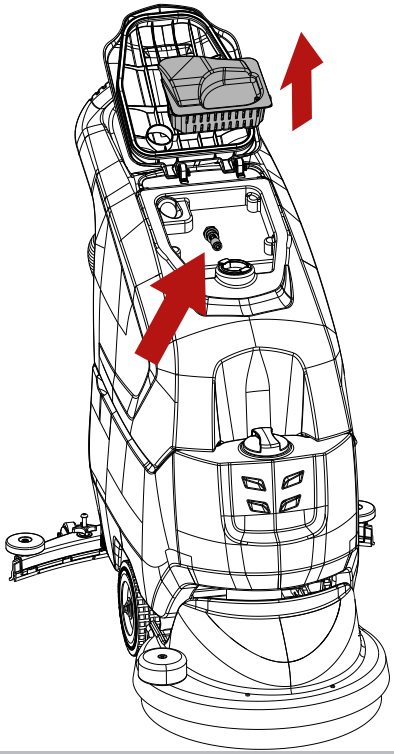
- Tilt up the lid of the dirty water tank.
- Remove the two filters from their housing, wash under running water or with the detergent solution used in the machine, then dry the filters and return them to the housing.



Cleaning the dirty water tank sensor

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

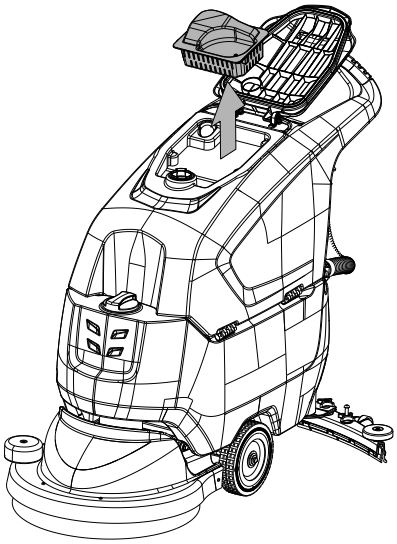
- Tilt up the lid of the dirty water tank.
- Take out the debris bin.
- Clean the sensor, checking that the float moves freely.



Cleaning the debris bin

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

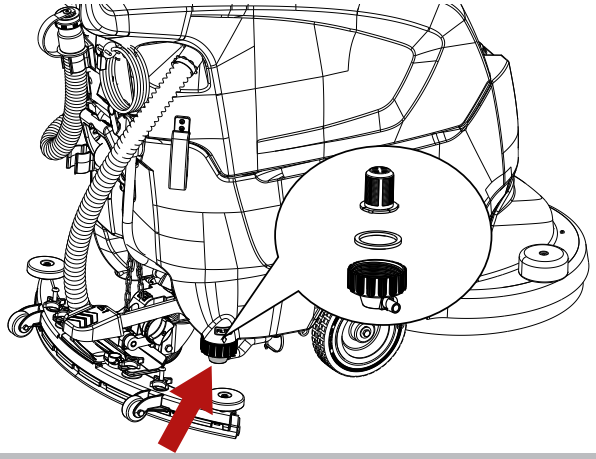
- Tilt up the lid of the dirty water tank.
- Take out the bin and wash under running water or with the detergent solution used in the machine;



Cleaning the solution tank filter

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

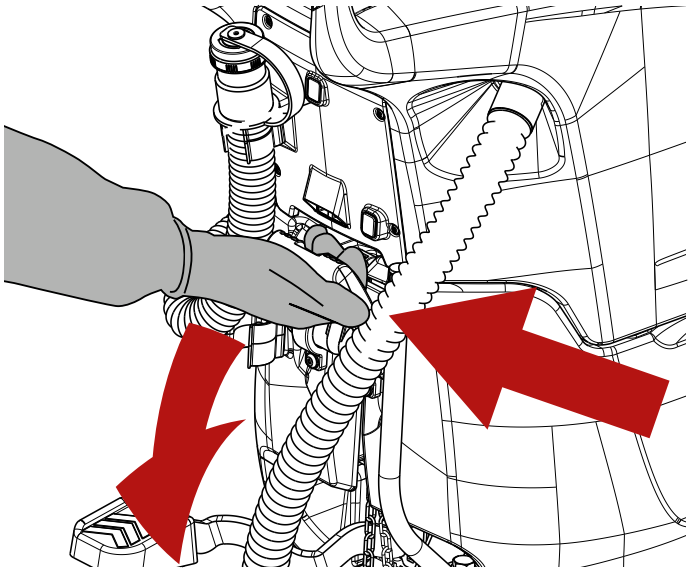
- Unscrew the filter cap.
- Remove the filter, then wash under running water or with the detergent solution used in the machine.
- Reposition the filter and the seal, making sure they are both correctly in place, and screw the cap back on.



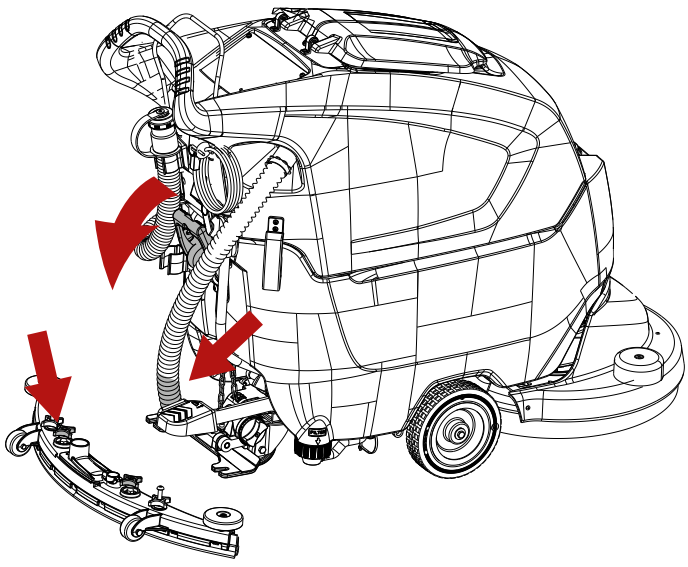
Cleaning the squeegee

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

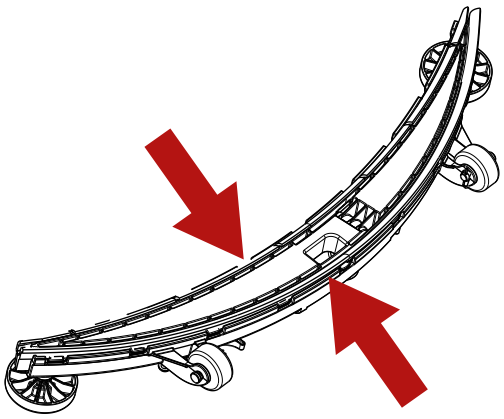
- Lower the squeegee by means of the “squeegee operating lever”.



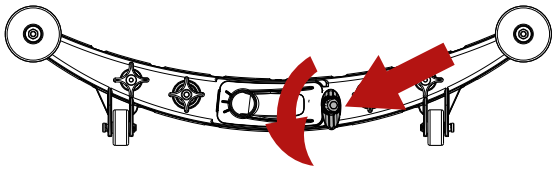
- Disconnect the vacuum hose from the squeegee.
- Unscrew the two squeegee clamp knobs.
- Remove the squeegee from the support.

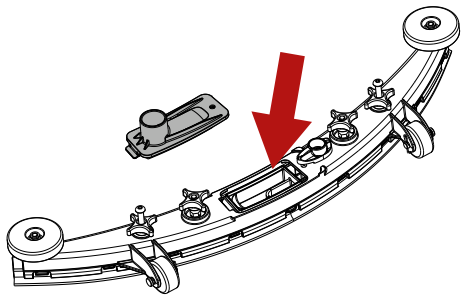


- Clean the squeegee blades.
- Check the edges for possible damage and wear, and if the blades need renewing, refer to the section “Replacing the squeegee blades”.



- Remove the cover of the drip collector from the squeegee assembly and clean the chamber.



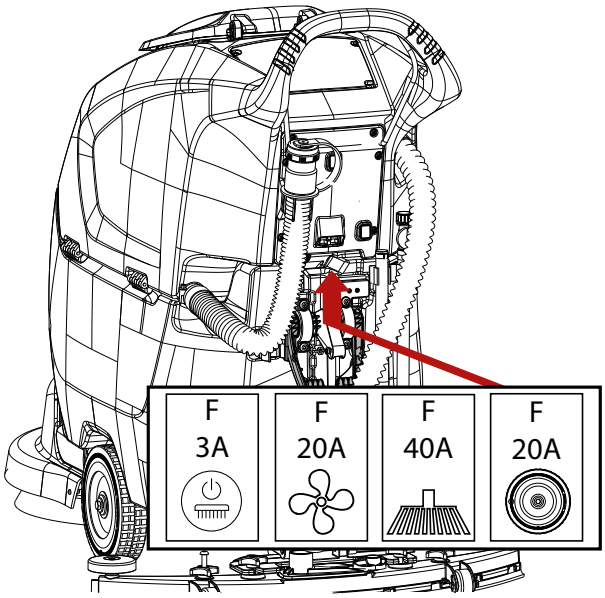


Fuses:

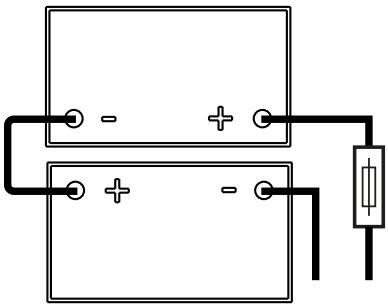
! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

! ATTENTION: never install a fuse with a current rating higher than that specified.

The replacement of fuses must be entrusted only to an IP CLEANING service centre or to an authorized technician. The fuse box is located under the cover of the electrical system compartment: for maximum ease of access to the fuses, tilt the dirty water tank.



The machine is equipped with resettable fuses, also known as thermal fuses. These resettable devices serve to protect the electrical circuits by shutting off the flow of current in the event of an overload. Once a thermal fuse has been tripped, allow time for it to cool, then press the reset button to restore normal operation.
If the cause of the overload by which the fuse was tripped is still present, the breaker contacts will continue to shut off the flow of current until the issue has been resolved.
In addition to the fuses described above, the machine is equipped with a main fuse connected directly to the battery.



Battery maintenance

! DANGER: do not check the batteries by sparking. Lead-acid (WET) batteries give off flammable vapours: extinguish any naked flames or embers before checking or topping up the batteries.

! DANGER: during any type of battery maintenance, the operator must wear the Personal Protective Equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents. Keep away from naked flames, do not short circuit the battery poles, do not generate sparks and do not smoke.

! DANGER: in the event of battery fluid leakage, do not touch the fluid and observe the following precautions:
Contact with the skin can cause irritation; wash with soap and water.
Inhalation of vapours can cause irritation to the airways; stay out in the open air and consult a doctor.
Contact with eyes can cause irritation, wash eyes immediately and thoroughly with water for at least 15 minutes; consult a doctor.

Useful battery life is dependent on proper maintenance. To obtain the best possible efficiency from batteries, observe the following rules:

- Do not leave batteries partially discharged for long periods of time.
- Allow batteries to charge completely before resuming use of the machine.
- Keep batteries clean, with the connections always well tightened.
- Check the level of the electrolyte every week (WET batteries).

Checking the electrolyte level of WET batteries

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

! DANGER: during any type of battery maintenance, the operator must wear the Personal Protective Equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents. Keep away from naked flames, do not short circuit the battery poles, do not generate sparks and do not smoke.

WET batteries must be inspected periodically to check the level of the electrolyte. Use only distilled water to top up the level so that the plates are covered. Do not overfill (maximum 5 mm above the plates), as the electrolyte could expand and overflow when the battery is charged.

Charging the batteries

! DANGER: do not check the batteries by sparking.

! DANGER: If lead-acid (WET) batteries are installed in the machine, keep sparks, flames and smoking materials away from the batteries. Explosive gases can escape during normal use, particularly when charging.

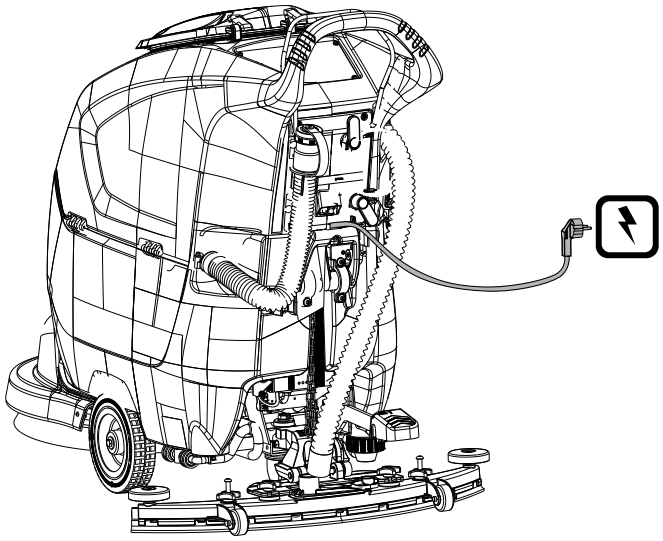
! DANGER: If lead-acid (WET) batteries are installed in the machine, highly explosive hydrogen gas is produced when charging this type of battery: be sure to carry out the procedure only in well ventilated areas and away from naked flames.

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

! ATTENTION: run the charging cycle exactly as specified in the battery charger manual, and at the end of the cycle, detach the connectors.

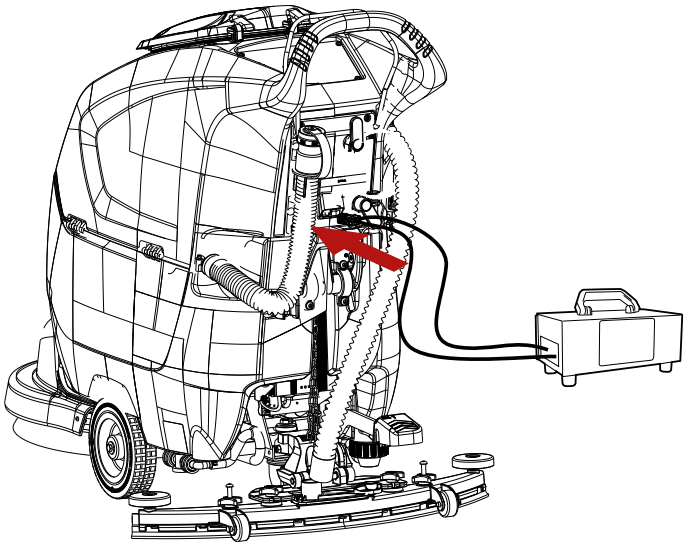
On board battery charger:

- Switch the machine off by turning the ignition key from position 1 to position 0.
- Plug the battery charger into the mains power socket.
- Start the charging cycle.
- At end of the charging cycle, unplug the cable from the power socket.
- Recoil and stow the extension cord in the spaces provided.



External battery charger:

- Switch the machine off by turning the ignition key from position 1 to position 0.
- Plug the battery charger connector into the socket on the machine as illustrated.
- Start the charging cycle.
- Unplug the connector when the charging cycle has ended.



Battery: removal

! DANGER: in the event of battery fluid leakage, do not touch the fluid and observe the following precautions:
Contact with the skin can cause irritation; wash with soap and water.
Inhalation of vapours can cause irritation to the airways; stay out in the open air and consult a doctor.
Contact with the eyes can cause irritation; wash the eyes immediately, flooding with water for at least 15 minutes, and consult a doctor.

! DANGER: during removal of the battery, the authorized technician must wear the Personal Protective Equipment (gloves, eyewear, overalls, safety footwear, etc.) needed to limit the risk of accidents. Keep away from naked flames, do not short circuit the battery poles, do not generate sparks and do not smoke.

! ATTENTION: before removing the battery, ensure that the battery charger is unplugged from the power socket.

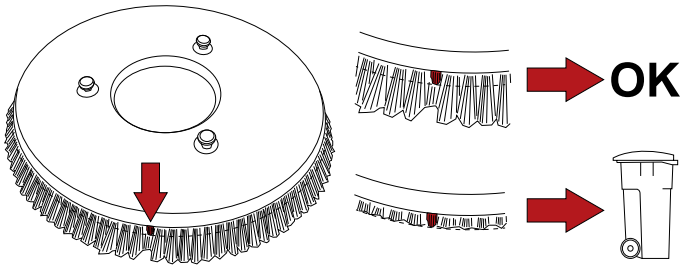
! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

- Disconnect the terminals of the battery cables from the battery poles.
- If necessary, remove the devices fixing the battery to the structure of the machine.
- Lift the battery from the compartment using suitable handling equipment.

Replacement of Brushes and Pads

! DANGER: during the replacement procedure, the operator must wear personal protective equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents.

The machine can be equipped with disk brushes and pads. Check the brushes and the pads every day to make certain there are no wires, threads or strings entangled around the brush or the drive board. Check for wear on the brushes and the pads.
Replace brushes when the bristles are worn down to the point of exposing the red indicator.
Replace pads when they no longer clean efficiently.
Wash brushes and pads with soap and water following use, and hang them up to dry.



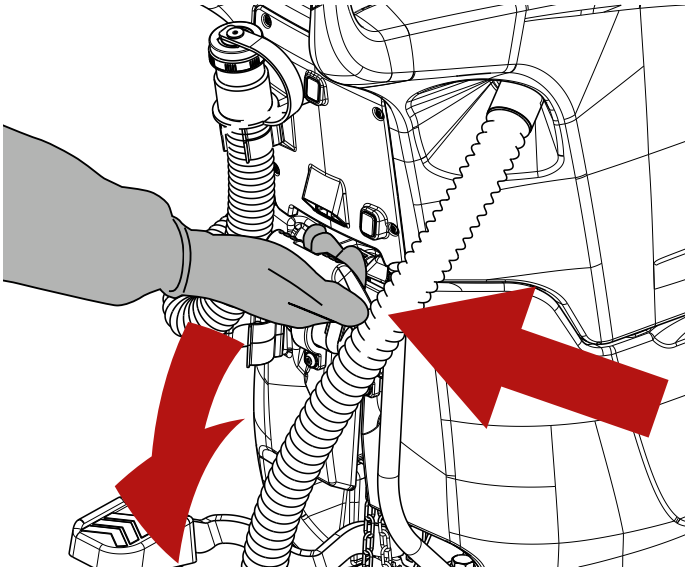
Replacing the squeegee blades

! ATTENTION: before carrying out the operations described below, stop on a flat and level surface, switch off the machine by turning the ignition key from position 1 to position 0 and remove the key.

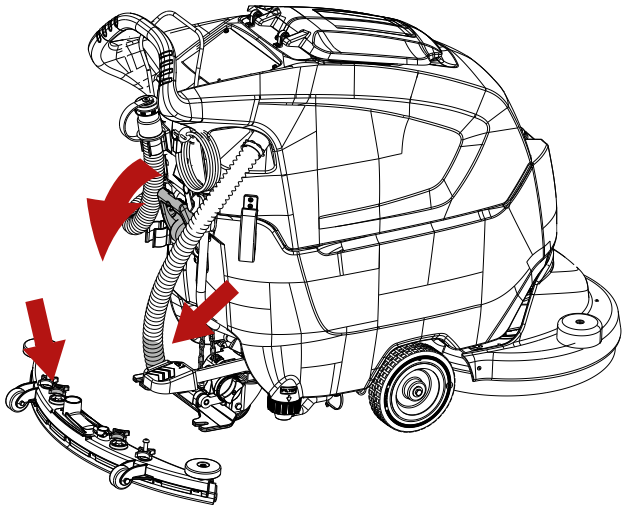
! DANGER: during the replacement procedure, the operator must wear personal protective equipment (gloves, eyewear, overalls, etc.) needed to limit the risk of accidents.

The squeegee blades serve to wipe the film of water and detergent from the floor, ensuring that the surface will dry faultlessly. With time, and the constant wiping action, the edge of the blade in contact with the floor becomes rounded and cracked, diminishing its drying efficiency, so that ultimately a new blade is required.

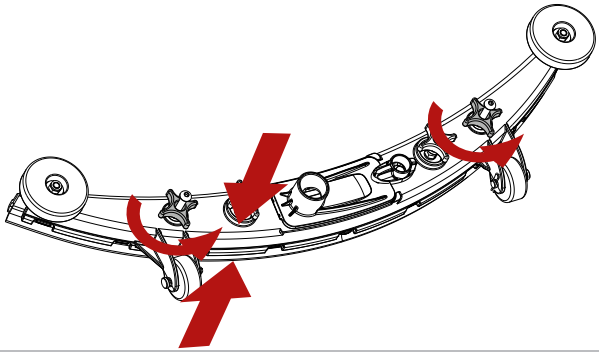
- Lower the squeegee by means of the “squeegee operating lever”.



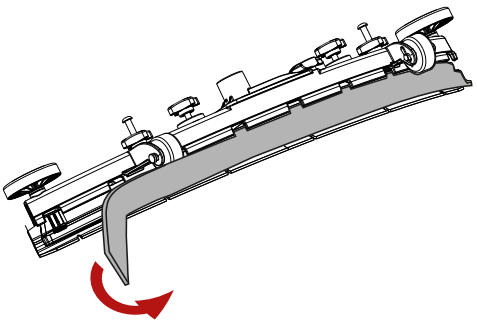
- Disconnect the vacuum hose from the squeegee.
- Unscrew the two knobs and remove the squeegee from the slots on the support.



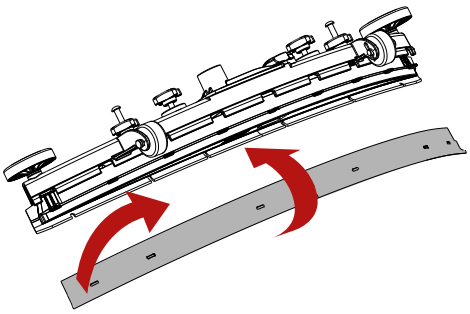
- Loosen the two outer knobs on the squeegee; this has the effect of separating the spring-loaded blade retainer from the squeegee frame. To speed up the step of loosening the knobs, squeeze the blade retainer and the squeegee frame together.



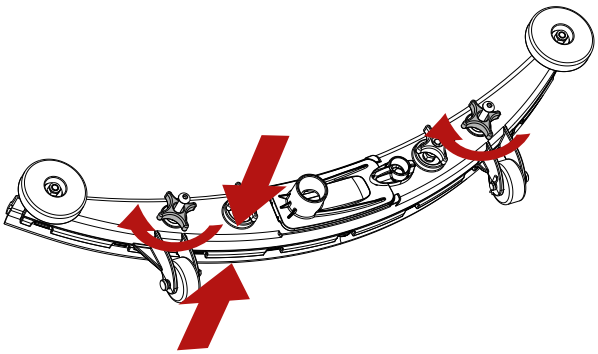
- Remove the worn blades from the blade retainer.



- Refit the rear blade, switching it around so that all four edges in turn are placed in contact with the floor, until all are worn out, or replace it with a new blade. Check that the grooves in the blade are correctly aligned with the tongues on the blade retainer.



- Press the spring-loaded blade retainer and the squeegee frame firmly together and retighten the two outer knobs.



- Reattach the assembled squeegee to the bracket, referring to the instructions given previously.
- Press the spring-loaded blade retainer and the squeegee frame firmly together and retighten the two outer knobs.
- Reattach the assembled squeegee to the bracket, referring to the instructions given previously.

Periodic checks

CHECK	DAILY OPERATIONS	WEEKLY OPERATIONS	SIX MONTHLY OPERATIONS
EMPTY AND WASH THE DIRTY WATER TANK	X		
CLEAN THE SQUEEGEE BLADES AND CHECK THEM FOR WEAR	X		
CHECK THAT THE VACUUM PORT OF THE SQUEEGEE ASSEMBLY IS NOT BLOCKED	X		
CLEAN THE CHAMBER OF THE SQUEEGEE DRIP COLLECTOR	X		
RECHARGE THE BATTERIES	X		
CLEAN THE DIRTY WATER TANK LEVEL SENSOR		X	
CLEAN THE VACUUM MOTOR AIR FILTERS		X	
CLEAN THE SOLUTION TANK FILTER		X	
CLEAN THE DEBRIS BIN		X	
CLEAN THE VACUUM HOSE		X	
CLEAN THE DIRTY WATER TANK AND THE SOLUTION TANK		X	
CHECK THE BATTERY ELECTROLYTE LEVEL (WET BATTERIES)		X	
HAVE THE ELECTRICAL SYSTEM CHECKED BY AN AUTHORIZED TECHNICIAN			X
HAVE THE CARBON BRUSHES OF THE BRUSH MOTOR CHECKED BY AN AUTHORIZED TECHNICIAN.	CHECK AFTER FIRST 500 HOURS OPERATION AND EVERY 100 HOURS THEREAFTER.		

PERIODS OF INACTIVITY

If the machine will not be used for an extended period — typically more than one month, e.g. when on display in a showroom or left in storage — the following operations are required:

- Recharge the batteries completely. During long periods of inactivity, remember to recharge the batteries periodically (at least once every two months) so that they are kept at the maximum charge level.
- Disconnect the batteries from the machine.
- Unplug the battery charger (if present) from the mains power supply.
- The squeegee and brushes (or abrasive disks) must be removed from the machine, washed and stored in a dry place (preferably in a bag or wrapped in plastic sheet) away from dust.
- Make certain that the tanks are completely empty and perfectly clean.

! ATTENTION: remember to check the batteries — if they are not recharged periodically as described above, they could become damaged beyond repair. The manufacturer will not be liable for possible malfunctions resulting from neglect, improper and/or incorrect use.

! ATTENTION: when the batteries discharge to the minimum level, make certain they are not left in this condition for any length of time, as this can reduce their working life. Check the battery charge level at least once a week

TROUBLESHOOTING

PROBLEMS	CAUSES	REMEDIES
Machine not working	Batteries disconnected	Connect the batteries to the machine
	Battery charge low	Recharge the batteries
	Main fuse tripped	Replace the fuse.
	Machine switched off	Switch on the machine
	Ignition key not engaged	Turn the ignition key.
	Emergency button depressed	Release the emergency button
Brush not turning	Fuse tripped	Reset the fuse
	Battery charge low	Recharge the batteries
	Motor thermal overload cutout tripped	Wait for the motor to cool down.
	Motor damaged	Replace
Machine not scrubbing uniformly	Brushes or abrasive disks worn	Replace
No liquid flowing from the detergent solution tank	Damaged solenoid valve	Replace
	Dirty solenoid valve	Check
	Detergent solution tank empty	Fill the tank
	Hose delivering detergent solution to brush is blocked	Remove the obstruction
Detergent solution flow does not shut off	Damaged solenoid valve	Replace
	Dirty solenoid valve	Clean
Vacuum motor not working	Dirty water tank full	Empty the dirty water tank
	Fuse tripped	Reset the fuse
	Battery charge low	Recharge the batteries
	Damaged motor	Replace
Squeegee not wiping properly or not vacuuming efficiently	Worn edge of rubber blades in contact with the floor	Replace the blades
	Squeegee blocked or damaged	Check
	The dirty water tank sensor has been activated or is blocked by dirt, or is faulty	Empty the dirty water tank, check the sensor.
	Blockage in the vacuum hose	Check
	Vacuum hose not connected to the squeegee, or damaged	Check
Machine does not move	Battery charge low	Recharge the batteries
	Damaged motor	Replace
	Fuse tripped	Reset the fuse
Batteries not giving expected operational endurance.	Battery poles and terminals dirty or oxidized	Clean and grease the poles and terminals, charge the batteries
	Electrolyte evaporated and not covering the plates completely (WET batteries)	Top up all elements with distilled water so that all plates are covered, then recharge the battery.
	The battery charger does not work or is not suitable	Check

ALARMS/WARNINGS DISPLAYED

ERROR CODE	CAUSE	REMEDY
ACC / MAN	Appears if the handlebar is pushed while switching on the machine, or after an emergency reset.	Release the drive control handlebar when starting the machine.
		If the problem persists, contact customer service.
POT	This indicates a fault or failure of the speed adjustment knob	Drive ceases to function: release the drive handlebar, then press again.
		If the problem persists, contact customer service.
Lim	Appears when the MOSFET reaches the internal temperature limit.	Drive ceases to function: release the drive handlebar, then press again.
		Wait a few minutes for the Mosfet to cool down.
		If the problem persists, contact customer service.
Hom	Appears when the temperature sensor inside the MOSFET is activated	Switch the machine off and wait 10 minutes for the component to cool down.
		If the problem persists, contact customer service.
Hot	Appears when the thermal overload cutout of the motor is tripped.	Wait a few minutes for the motor to cool down.
		If the problem persists, contact customer service.
MoS	Appears when there is a short-circuit in the drive Mosfet or the contactor coil does not close correctly and the brush or drive functions are not activated. Drive ceases to function, whatever the cause. When this message appears, the main contactor will automatically be disabled.	Contact customer service
MoF	Appears when the drive Mosfet remains open. Drive ceases to function.	Contact customer service.
	Brushes and vacuum are enabled, drive is inhibited.	Contact customer service.
bLt	Appears when the battery voltage is too low and the drive is inhibited.	Recharge the battery and try again.

AcS	Appears when there is a fault with the contactor that operates the brush motor.	Press the brush button.
		If the message does not clear, contact customer service.
AcA	Appears when there is a fault involving the relay that operates the vacuum motor.	Press the vacuum button.
		If the message does not clear, contact customer service.
ACH	Appears when there is a fault involving control of the water solenoid valve.	Contact customer service
FuP	Appears when the supply voltage to the drive motor is either absent or less than 80% of Vbatt. Possible causes include blown fuse or missing fuse, break in circuit, damage to the actual motor.	Contact customer service.
	Internal problem with display circuit board, or no contact with earth cable.	Contact customer service
CLH	Appears when there is a problem with the memory of the instrument panel circuit board.	Contact customer service
Err	Generic error affecting electrical circuit of instrument panel circuit board.	Contact customer service

USER MENU

To access user programming:

- Switch the machine on by turning the ignition key from position 0 to position 1.
- Press the brush button and the vacuum button simultaneously, and hold for at least 5 seconds: this will access the battery setting menu.
- Select the type of batteries installed using the Vacuum button: “ACd” for acid batteries (WET) or “GEL” for GEL/AGM batteries.
- Press the emergency stop button to store the parameter.

