Manual
Scrubber Dryers

S 35 E / S 35 B
S 45 E / S 45 B
S 50 E / S 50 B

CE

Perfection is our aim

Wilms®

Operating Manual

Scrubber Dryers

S 35 E / S 35 B
S 45 E / S 45 B
S 50 E / S 50 B

Attention! - Hans Wilms GmbH & Co. KG reserves the right to make changes and improvements of the product and the operating manual without prior notice.

INDEX

Page

1. Technical Specifications

Type		S 35 E / B	S 45 E / B	S 50 E / B
Working width	mm	350	450	500
Squeegee width	mm	450	550	730
Brush motor power	W	250/200	400/350	450/400
Brush diameter	mm	350	450	500
Brush rotation speed	min	140	140	140 / 160
Suction motor power	W	400/550	400/550	400/550
Connection cable version	230 V / 50 Hz			
Connection battery version	AH	29	2 x 24 V 74	74
Solution tank	l	16	28	40
Dirty water tank	l	19	30	45
Net weight (incl. battery)	kg	57	92	99
Net weight electric	kg	37	49	55
Machine dimensions (length, width, height)	mm	740 x 394 x 535	960 x 550 x 1220	821 x 576 x 1220
Cable length E-version	m	15	15	15
Noise level	dB(A)	70/68	79,6/69	80/69
Subject to technical and dimensional changes!				

General information

This manual contains information for the safe operation and maintenance of the Wilms scrubber dryers type S 35 E/B, S 45 E/B and S 50 E/B. For your own safety and to protect yourself from injury, you must read the safety instructions in this manual carefully to familiarize yourself with them and to observe them at all times.

The manufacturer expressly reserves the right to make unannounced technical changes if they serve to improve the performance or the safety standards of the device.

The information contained in this manual is based on devices that were manufactured up to the time of printing. The manufacturer reserves the right to make unannounced changes to this information.

A spare parts list is included for ordering spare parts. If these operating instructions are missing, a replacement can be requested from Hans Wilms GmbH & Co. KG.

This manual refers to approved spare parts, additional devices and changes. The use or implementation of non-approved components, accessories or modifications can have the following consequences:

- Risk of serious injuries to the operator and other people in the work area
- Permanent damage to the device that is not covered by the guarantee

2. Technical information

2.1 The above mentiond scrubber dryers can be used in the civil and industrial premises for sweeping, washing and drying even, horizontal, smooth or moderately rough floors that are even and free of obstacles. The devices are available as battery and cable versions.

After the well-dosed solution (water / detergent) applied to the floor has been distributed by the machine, the floor can be scrubbed to remove the dirt.

Due to a liquid suction system built into the machine, the floor that has just been cleaned can be dried. The drying takes place through the subpressure in the dirty water tank, which is generated by the suction motor. With the help of the suction foot which is directly connected with the tank the dirty water can be sucked off.

2.2 Legend

The main parts of the machine are as follows: (Fig. A)

-	The detergent tank (fig. A, ref. 1)	contains and transports the mixture of clean water and detergent
-	The dirty water tank (fig. A, ref. 2)	collects the dirty water picked up from the floor after washing
-	Control panel (fig. A, ref. 3)	
-	Head assembly (fig. A, ref. 4)	the main element is the brush which distributes the detergent solution on the floor and remove the dirt
-	Squeegee assembly (fig. A, ref. 5)	wipes and dries the floor by collecting the water

2.3 Danger zones

A	Tank assembly:	When using certain detergents, **danger** of irritation for eyes, skin, mucous membranes and respiratory tract and of asphyxia. Danger represented by the dirt collected from the environment (germs and chemical substances). **Danger of crushing** between the two tanks when the dirty water tank is replaced on top of the detergent tank.
B	Control panel:	Danger of short circuit.
C	Bottom of washing head:	Danger due to the brush rotation.
D	Rear wheels:	Danger of crushing between the wheel and chassis.
E	Battery compartment: (in the detergent tank)	Danger of short circuit between the battery poles and presence of hydrogen during charging.

2.4. Accessories

Bristle brushes:		For washing delicate floors and polishing.
Polypropylene brushes:		For normal floor washing.
Tynex brushes:		For removing accumulated stubborn dirt on resistant floors.
Drive disks:		Enable the following disks to be used:
	Yellow disks:	For washing and polishing marble and similar surfaces
	Green disks:	For washing resistant floors
	Black disks:	For thorough washing of resistant floors with stubborn dirt.

3. Safety information

3.1 Safety regulations

Read the „User Manual" carefully before start-up and use or before performing maintenance or any other work on the machine.

The manufacturer declines all liability for damage to people or things resulting from failure to observe the instructions.

The appliance must be used exclusively by persons trained in its use and/or who have demonstrated their ability and have been expressly instructed to use the appliance.

The machine must not be used by minors.

The machine must not be used for purposes other than those for which it was expressly designed.

Do not use the machine in places with inadequate lighting or explosive atmospheres, on public roads, in the presence of dirt hazardous to health (dust, gas, etc.) and in unsuitable environments.

The machine is designed for indoor use only.

The machine is designed for temperatures of between +4°C and +35°C when in use and between +0°C and + 50°C when not in use.

The machine is designed to work in a humidity of between 30 % and 95 %.

Never use or pick up flammable liquids or explosives (e.g. petrol, fuel oil, etc.), flammable gases, dry dusts, acids and solvents (e.g. paint solvents, acetone etc.) even if diluted.

Never pick up flaming or incandescent objects.

Never use the machine on slopes or ramps of more than 2 %. In case of slight slopes, do not use the machine transversally, always manoeuvre with care and do not reverse.

When transporting the machine on steeper ramps or slopes, take the utmost care to avoid tipping up and/or uncontrolled acceleration. Tackle ramps and/or steps with the front of the machine raised only.

Never park the machine on a slope!

The machine must never be left unattended with the motor or engine on.

Before leaving it:
- turn the motor or engine off
- power supply interrupted
- machine is no longer mobile

Always pay attention to other people, children in particular, present in the place where you are working!
The appliance must only be used exclusively by persons **trained** in its use.

Never use the machine to transport people or things or to tow things. Do not tow the machine.

Never rest objects of any weight on the machine for any reason.
Never obstruct ventilation and heat dispersion slits.

Never remove, modify or circumvent safety devices.

The operator must 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 the hands away from moving parts.

Never use detergents other than those specified. Follow the instructions on the relative safety sheet.

We recommend keeping detergents out of reach of children.
In the event of contact with the eyes, wash immediately with abundant water.
If ingested, consult a doctor immediately.

Make sure the power sockets used for the models with cable or battery charger are connected to a suitable earth system and protected by differential thermal solenoid switches.

Make sure the electrical characteristics of the machine (voltage, frequency, absorbed power) given on the rating plate are the same as those of the mains electricity supply.

The earth wire is yellow and green. Never connect this wire to anything other than the earth contact of the socket.

It is indispensable to respect the battery manufacturer's instructions and current 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 this could cause short circuit and explosion.

When using battery acid, always follow the relative safety instructions scrupulously.

When using cable models, take care not to crush or pull the power supply cable.

While using the machine, make sure the rotating brush does not come in contact with the power cable (cable powered version).

Check the power cable regularly. If damaged, do not under any circumstances use the machine. Replace it with one of the same type.

In the presence of particularly strong magnetic fields, assess the possible effect on the control electronics.

Never wash the machine with water jets.

The fluids collected contain detergent, disinfectant, water and organic and inorganic material. They must be disposed off in accordance with current legislation.

In case of malfunction and/or faulty operation, turn the machine off immediately (disconnecting it from the mains power supply or removing the fuse from the battery bridge). Do not tamper with it otherwise. Contact a service centre authorised by the Manufacturer.

All maintenance operations must be performed in an adequately lit place and only after disconnecting the machine from the power supply (in cable models, unplug the machine from the mains power socket, in battery models, remove the fuse from the battery bridge).

In cable models, the operator must always be in a position to verify that the plug remains unplugged from the mains power socket throughout maintenance operations.
If the power cable, plug or terminals require replacing, make sure the electrical connections and cable grip are tightly fastened to guarantee the resistance of the cable if pulled. (fig. L)

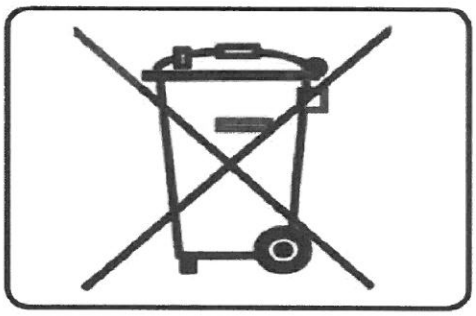
All work on the electrical system and all maintenance and repair operations other than those explicitly described in this manual must be performed by specialised peronnel expert in the sector only.

Only original accessories and spare parts supplied by the Manufacturer may be used in order to guarantee safe problem-free operation of the machine.

Never use parts removed from the other machines or from other kits.

If the machine is to be disposed of due to age or wear, this must be done according to the current legislation in the country in which it is used.

Special waste!!!!
Do not dispose of with ordinary waste!!!



If you decide to stop using the machine, you are recommended to remove the batteries and dispose them at an authorised collection centre.

You should also make sure that all parts of the appliance which could represent a hazard, particularly to children, are made safe.

4. Handling and installation

4.1 Lifting and transporting the packaged machine

During all lifting operations, make sure the packaged machine is firmly anchored to avoid it tipping up or being accidentally dropped.

Always load/unload lorries in adequately lit areas.

Unpack the machine as follows:

- cut and remove the plastic straps using scissors or nippers;
- remove the bags included in the packaging and check the contents:
  guarantee slip
  use and maintenance manual
  battery bridges with terminals (battery model only)
- remove the machine from its packaging.
- after unpacking the machine, install the batteries (battery models) or connect the electrical connections (cable models). See relevant sections.

The packaging may be kept as it can be reused to protect the machine if it is moved to another site.

Otherwise it must be disposed off in compliance with current legislation.

4.2 Electrical connections and earth (cable models)

The electrical characteristics of the machine are given on the rating plate. Make sure the frequency and voltage correspond to those of the mains supply where the machine will be operated.

Make sure the mains circuit is suitable earthed and that the sockets ensure the continuity of the earth conductors.

Failure to observe these instructions could cause possibly serious damage to people and things and invalidates the guarantee.

4.3 Power supply batteries (battery models)

Two different types of battery may be installed on these machines:

Tubular leak-proof batteries:

The electrolyte level must be checked regularly. When necessary, top up with distilled water until the plates are covered. Do not over fill (5 mm max. above the plates).

Gel batteries:

This type of battery requires no maintenance.

The technical characteristics must correspond to those indicated in the paragraph on the technical specification of the machine.

The use of heavier batteries could seriously jeoparadise manoeuvrability and lead to the brush motor overheating. Batteries with a lower capacity and weight will require charging more frequently.

They must be kept charged, dry and clean and the connections must be tight.

4.3.1 Batteries: preparation

During installation of the batteries or 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 accident. Keep away from naked flames, avoid short circuiting the battery poles, avoid sparks and do not smoke.

a) The batteries are normally supplied filled with acid and ready for use.
(Wet batteries only, for gel batteries see point b.)

If the batteries are dry, before mounting them on the machine, proceed as follows:

- remove the caps and fill all elements with specific sulphuric acid solution until the plates are entirely covered (this requires at least a couple of passes for each element);
- leave for 4-5 hours to allow the 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;

b)

- mount the batteries on the machine (following the procedure described below).

Before starting up the machine for the first time, charge the batteries as follows.

4.3.2 Batteries: installation and connection

Check that all switches on the control panel are in the "O" (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.

- Make sure the dirty water tank is empty and empty if necessary
- Remove the dirty water tank off the detergent tank by pulling it upwards, making sure you have previously removed the suction hose and dirty water tank drain hose from their housings.
- Place the batteries in the battery compartment.

Mount the batteries on the machine using lifting means suitable for their weight.

The positive and negative poles have different diameters.

- Connect the battery wiring and bridge terminals to the battery poles.
- Tighten the terminals on the poles and cover with Vaseline.
- Put the dirty water tank back on the detergent tank.
- When using the machine, follow the instructions below.

4.3.3 Batteries: removal

When removing the batteries, make sure the switches on the control panel are in the "O" (off) position and the machine is turned off.

- Do not short circuit the battery poles.
- Keep away from naked flames.
- Do not smoke.
- Do not cause sparks.

Proceed as follows:

- Disconnect the battery wiring 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.

5. Battery charger

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

If the machine has an ON-BOARD battery charger it will already be ready for use.

5.1 Choosing a battery charger (machines without ON-BOARD battery charger)

Make sure the battery charger is compatible with the batteries to be charged.

- Tubular lead acid batteries:

  An automatic battery charger is recommended, 24 V - 5 A.

- Gel batteries:

  Use a charger specific for this type of battery.

5.2 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.

To install the connector, proceed as follows:

- Remove about 13 mm of protective sheath from the red and black wires 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.

6. Practical guide for the operator

6.1 With reference to fig. C, the machine has the following controls and indicator lights:

- Power on light (cable model only) : green

  indicates that the machine's power cable is connected to the mains. (fig. C, ref. 7)

- Battery charge light (battery models only) :

  3 LED's red, yellow and green

  which indicate the level of battery charge (fig. C, ref. 2)

  There may be:

  a) red, yellow, green LEDs on: battery voltage > 24 V

  b) red, yellow LED on: battery voltage < 24 V

  c) red LED on: battery voltage < 23 V

  d) red LED flashing: battery voltage < 21,5 V
  batteries completely discharged

  after a few seconds the brush and suction motor shut down

- Instrument panel main switch: (fig. C, ref. 3)

  connects (LED on) and disconnects (LED off) power to all the machine's functions (to turn the machine off, hold the button down for at least 4 seconds).

- Brush button with light: (fig. C, ref. 4)

  enables (LED on) and disables (LED off) the "brush" function. The brush does not start rotating until the brush lever is operated.

  When the brush button is pressed, suction and detergent delivery are also enabled automatically.

- Suction button with light: (fig. C, ref. 5)

  switches on ("LED on") and off ("LED off") the suction motor to dry the floor being washed. The light is on when there is power to the suction motor.

- Detergent button: (fig. C, ref. 6)

  enables ("LED on") and disables ("LED off") detergent delivery. Detergent is only delivered when the brush is rotating.

- Brush lever: (fig. D, ref. 1)

  enables brush rotation.

- Squeegee lever: (fig. D, ref. 2)

  raises (if lowered) or lowers (if raised) the squeegee.

- Handle regulation lever: (fig. D, ref. 3)

  allows the angle of the handle to be adjusted.

6.2 Mounting and adjusting the squeegee (fig. D, ref. 5)

The squeegee is responsible for the first phase of drying.

Depending on the type of squeegee mounted on the machine, follow the instructions below to install.

Parabolic squeegee: (fig. E, ref. 1)

- check that the squeegee mount (fig. E, ref. 1) is lowered, otherwise lower it by means of squeegee lever (fig. D, ref. 2).
- rotate the machine backwards and rest the handle on the floor.
- insert the two threaded pins (fig. E, ref. 12) on the squeegee into the slots on the support (fig. E, ref. 1).
- fix the squeegee by tightening the two knobs (fig. E, ref. 2).
- insert the sleeve of the suction hose (fig. E, ref. 4) fully into the squeegee.

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. Adjust the height of the blade during operation by regulating the height of the wheels positioned behind and alongside the squeegee (fig. E, ref. 3).

"V" squeegee:

- check that the squeegee mount (fig. E, ref. 6) is lowered, otherwise lower it by means of squeegee lever (fig. D, ref. 2).
- insert the two threaded pins (fig. E, ref. 13) on the squeegee into the slots on the support (fig. E, ref. 6).
- fix the squeegee by tightening the two knobs (fig. E, ref. 7)
- insert the sleeve of the suction hose (fig. E, ref. 8) fully into the squeegee.

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. Adjust the height of the blade during operation by regulating the height of the wheels positioned on the squeegee (fig. E, ref. 9). The slope of the squeegee can also be varied by tightening or loosening the screw (fig. E, ref. 10).

6.3 To move the machine

Proceed as follows:

- lift the squeegee using the lever provided (fig. D, ref. 2).
- raise the front of the machine off the floor using the handle, then move it to the destination
- on arrival, lower the front of the machine.

6.4 Mounting and changing the brush / drive disks

Never work without the brushes and drive disks correctly installed.

Brush / drive disk **attachment**

Turn the machine on by pressing the main switch (fig. C, ref. 3) (LED on), then press the brush button (fig. C, ref. 4) (LED on). Rest the brush on the floor in front of the machine. Raise the front of the machine by levering on the handle, then lower it onto the brush, centring it with the brush cover.

Operate the brush lever (fig. D, ref. 1) repeatedly until the brush automatically engages on the flange hub. If the manoeuvre is not successful, press on the handle again and repeat the centring and repeated operation of the brush lever.

Brush / drive disk **release**

Turn the machine on by pressing the main switch (fig. C, ref. 3) (LED on), then press the brush button (fig. C, ref. 4) (LED on).

Raise the front of the machine by levering on the handle, then operate the brush lever (fig. D, ref. 1) repeatedly. After a few pulses, the brush (or drive disk) is released and falls to the ground.

6.5 Detergents - Instructions

- always dilute the detergent according to the maufacturer's instructions.
- do not use sodium hypochlorite (bleach) or other oxidants, particularly in strong concentrations.
- do not use solvents or hydrocarbons.
- the temperature of the water and detergent must not exceed the maximum indicated in the technical specification.
- 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 dryers.

Use products suitable for the floor and dirt to be removed only.

6.6 Preparing the machine for work

Before starting work, put on appropriate protective clothing and proceed as follows:

- **Battery models:** Check the battery charge.
- make sure the dirty water tank (fig. A, ref. 2) is empty. If necessary, empty it.
- via the opening at the front, fill the detergent tank (fig. A, ref. 8) with a suitable concentration of clean water and low-foam detergent. Leave at least 5 cm between the surface of the liquid and the opening of the tank.
- mount the most suitable brushes or drive disks for the floor and work to be performed.
- make sure that the squeegee (fig. A, ref. 5) is securely attached, connected to the suction hose; make sure that the front and rear blades are not worn.

If you are using the machine for the first time, we recommend trying it on a large obstacle-free surface first to acquire the necessary familiarity.

Always empty the dirt water tank before filling the detergent tank again.

For effective cleaning and to extend the working life of the machine, follow a few simple rules:

- prepare the work area by removing all possible obstacles.
- begin working from the furthermost point to avoid walking on the area you have just cleaned.
- choose the straightest possible working routes.
- divide large floors into parallel rectangular sections.
- if necessary, finish off by passing a mop or rag rapidly over parts inaccessible to the srubber dryer.

6.7 Working

After setting up the machine, proceed as follows:

- connect the machine as follows:

  Cable model: plug the machine into the mains power socket.

- lower the squeegee using the lever provided (fig. D, ref. 2).
- press the main switch (fig. C, ref. 3) (LED on).
- press the brush button (fig. C, ref. 4) "LED on", this will also automatically activate suction and solution flow.

- press the brush lever (fig. D, ref. 1).
- check regularly that detergent is reaching the brushes and top up if necessary.
- while working, check the quality of washing and adjust the flow of detergent to the brushes using the detergent tap (fig. G, ref. 2).

IMPORTANT

Empty the dirty water tank each time you fill the detergent tank.

- The float switch in the dirty water tank (fig. I, ref. 1) turns suction off when the tank is full. If the switch trips, stop work and empty the tank.

Battery models: If the red LED (fig. C, ref. 2) starts flashing, the batteries are nearly flat. After a few seconds, the brush and suction motor shut down to prevent draining the batteries excessively. Charge the batteries.

At the end of work:

- release the brush lever (fig. D, ref. 1).
- turn the machine off by pressing the button (fig. C, ref. 3) for at least 4 seconds.
- remove the brush (or drive disk) to prevent it from warping permanently.
- depending on the model, unplug from the mains socket or disconnect the batteries.
- empty and clean the dirty water tank.

6.8 Some useful tips to get the most from your scrubber dryer

In the event of particularly stubborn dirt on the floor, washing and drying can be performed in two separate operations.

6.8.1 Prewashing with brushes or pads

- press the main switch (fig. C, ref. 3) (LED on).
- press the brush button (fig. C, ref. 4) (LED on).
- press the suction button (fig. C, ref. 5) (LED off) to turn suction off.
- operate the brush lever (fig. D, ref. 1) to enable brush rotation.
- make sure the suction motor is off and the squeegee is raised.

- begin washing.

- adjust the flow of detergent to the brush by means of the detergent tap. Flow speed must be regulated according to the operator's chosen advance speed. The slower the machine moves forwards, the less water is needed.

  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.

6.8.2 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.

To wash and dry at the same time, operate the brush, detergent flow, squeegee and suction motor simultaneously.

6.9 Draining the dirty water

DANGER!

- Use suitable personal protection devices.

- Drain the water with the machine disconnected from the power supply.

  The dirty water tank drain hose (fig. A, ref. 7) is at the back of the machine on the right.

To empty the tank:

- move the machine near a drain.

- detach the drain hose from its seat by holding it near the fixing spring and pulling horizontally.

- keep the end of the hose as high as possible and remove the cap.

- lower the end of the hose gradually, controlling the intensity of the flow of water by adjusting the height from the ground

- check the amount of dirt left in the dirty water tank and if necessary wash it out.

- close the drain hose with the cap. Check that it is tightly closed and replace the hose in its housing.

- you are ready to wash and dry again.

Draining the clear water

- Use suitable personal protection devices.
- Drain the water with the machine disconnected from the power supply.

To empty the tank:

- move the machine near a drain.
- unscrew the cap (fig. G, ref. 1)
- when the detergent tank is completely empty, screw the cap back on (fig. G, ref. 1).

6.10 Infomation

The water and detergent solution can also be used to wash the dirty water tank.

7. Periods of inactivity

If the machine is not used for some time, remove the squeege and brush (or drive disk), 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; unplug from the mains or disconnect the connector from the battery wiring.

Battery models:

Charge the batteries completely before storing them. During long periods of inactivity, you should charge the batteries regularly (at least once every two months) to keep them constantly at maximum charge.

Important!

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

8. Battery maintenance and charging

- 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 batteries.
- perform the operations described above in a ventilated room.

To avoid permanent damage to the batteries, do not run them down completely. Remember that when the corresponding red light flashes on the control panel, you must charge the batteries.

8.1 Charging procedure

- if the machine does not have an on-board charger, connect the external battery charger connector to the battery wiring connector.

- if the machine has an on-board battery charger, connect the on-board battery charger power cable (fig. H, ref. 1).

Important!

In the case of gel batteries, use a charger specific for gel batteries only.

- charge the batteries as described in the battery charger manual.

- at the end of charging, disconnect the connectors.

- reconnect the battery wiring connector to the machine connector (machine with external battery charger).

9. Maintenance instructions

IMPORTANT

Never perform any maintenance operations without first unplugging the machine from the mains (cable version) or disconnecting the fuse on the battery bridge (battery version).

In cable models, the operator must be able to verify from any position that the machine remains unplugged from the mains socket while maintenance is being carried out.

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.

9.1 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, respect the following:

- avoid the use of high pressure washers. Water could penetrate the electrical compartment or motors leading to damage or the risk of short circuit.

- do not use steam to avoid the heat warping plastic parts.

- do not use hydrocarbons or solvents as they could damage the cowling and rubber parts.

9.2 Routine maintenance

9.2.1 Float switch and detergent tank filter: Cleaning

- remove the dirty water tank cap and clean the float switch (fig. I, ref. 1). Make sure it runs freely on the pin.

- clean the detergent tank (fig. N) by unscrewing the cap and extracting the filter assembly.

9.2.2 Squeegee blades: Replacing

The squeegee blades collect the film of water and detergent from the floor and prepare the way of 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.

Turning or replacing the blades:

Parabolic squeegee:

- lower the squeegee by means of the squeegee lever (fig. D, ref. 2).

- tip the machine backwards and rest the handle on the floor.

- remove the suction hose sleeve (fig. E, ref. 4) from the squeegee.

- remove the squeegee (fig. E, ref. 1) from its mount by completely unscrewing the two knobs (fig. E, ref. 2).

- remove the blade retainers and blades by unscrewing the knobs (fig. E, ref. 5).

- 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.

- replace the two blade retainers and the blades and screw up the knobs unscrewed previously.

- replace the squeegee in its support following the instructions in the section 6.2 "Mounting and adjusting the squeegee".

"V" squeegee:

- lower the squeegee by means of the squeegee lever (fig. D, ref. 2).

- remove the suction hose sleeve (fig. E, ref. 8) from the squeegee.

- remove the squeegee from its mount (fig. E, ref. 6) by completely unscrewing the two knobs (fig. E, ref. 7).

- remove the blade pressing devices by opening the catch (fig. E, ref. 11).

- 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 and the blades, closing the catch.

- replace the squeegee in its support following the instructions in the section 6.2 "Mounting and adjusting the squeegee".

9.2.3 Fuses: Replacement (battery models)(fig. L)

The fuses protecting the electrical circuit are located in the battery compartment.

Proceed as follows:

- empty the dirty water tank.

- remove the dirty water tank.

- open the lid of the fuse socket - (fig. L), remove the fuse.

- insert the new fuse - close the lid of the fuse socket.

- put the dirty water tank back into position.

9.2.4 Fuses: Replacement (cable models) (fig. M)

The fuses protecting the electrical components are on the electrical components box.

Proceed as follows:

- empty the dirty water tank.

- remove the dirty water tank.

- open the lid of the fuse socket, which is located in the housing of the electrical system (fig. M), remove the fuse.

- insert the new fuse - close the lid of the fuse socket.

- put the dirty water tank back into position.

IMPORTANT

Never use a fuse with a higher amperage than specified.

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.

9.3 Routine maintenance

9.3.1 Daily operations

After each day's work, proceed as follows:

- disconnect the machine from the power supply.
- empty the dirty water tank and clean if necessary.
- clean the squeegee blades and check for wear. If necessary, replace.
- check that the suction hole in the squeegee is not blocked, if necessary remove encrusted dirt.

Battery model:

charge the batteries according to the procedure described.

9.3.2 Weekly operations

- clean the dirty water tank float switch and make sure it is working correctly.
- clean the suction hose.
- clean the dirty water tank and detergent tank.

Battery model: (Wet batteries)

Check the level of battery electrolyte and top up with distilled water if necessary.

9.3.3 Six monthly operations

Have the electrical circuit checked by qualified personnel.

10. Malfunctions / Troubleshooting

B = battery machines

C = cable machines

Problem	Cause	Remedy
The machine does not function.	**B** = Battery connector disconnected.	Connect the batteries to the machine.
	B = The batteries are flat.	Charge the batteries.
	B = Fuse blown.	Replace the fuse.
	B = Temperature power board > 85 °C.	Stop the machine. Leave it to cool down for at least 45 min.
	B = Temperature MOSFET > 150 °C.	Stop the machine. Leave it to cool down for at least 45 min.
	C = The machine is not plugged into the mains socket.	Plug into the mains socket.
The brush motor has trouble in starting (cable models only).	You are working with a dry brush on a very rough floor.	Open the detergent tap.
	You are working with power cable extensions with an inadequate section, or the voltage is considerably lower than the rated value for the scrubber dryer as shown on the rating plate (15 % less).	Avoid the use of inappropriate extensions. Increase the cross-section of electric wires and locate sockets with a higher voltage.
	The motor is faulty.	Have the motor replaced.

Problem	Cause	Remedy
The brush doesn't rotate.	The brush button LED is off.	Press the brush button.
	The LED in the brush button is flashing.	Reduce the pressure of the microfibre on the work surface.
	The brush lever has not been pressed.	Press the brush lever.
	B/C = The brush motor thermal cutout has tripped; the motor has overheated.	**B/C** = Release the brush lever, press the brush button (LED off), leave the machine to cool down for at least 45 min.
	B = Temperature MOSFET > 150 °C.	**B** = Stop the machine. Leave it to cool down for at least 45 min.
	B = Excessive power consumption of the motor > 30 A per second.	**B** = Stop the machine. Check the motor.
	The power supply or motor thermal cutout connectors are disconnected	Reconnect the power supply or motor thermal cutout connectors.
	C = Fuse blown.	**C** = Replace fuse.
	B = The batteries are flat.	**B** = Charge the batteries.
	The reduction unit is faulty.	Have the reduction unit replaced.
	The motor is faulty.	Have the motor replaced.
The machine does not clean evenly.	The brush or disk is worn.	Replace.

Problem	Cause	Remedy
No detergent is delivered.	The detergent button LED is off.	Press the detergent button.
	The detergent tank is empty.	Fill the detergent tank.
	The brush motor is off.	Turn the motor on by operating the brush lever.
	The hose delivering the detergent to the brush is blocked.	Unblock and open the circuit.
	The tap is dirty or faulty.	Have the tap cleaned or replaced.
	The solenoid valve is faulty.	Replace the solenoid valve.
	The filter is dirty.	Clean the filter.
The detergent flow does not stop.	The solenoid valve is faulty.	Replace the solenoid valve.
The suction motor does not start.	The suction button LED is off.	Press the suction button.
	There is no power to the suction motor or the motor is faulty.	Check that the motor power connector is correctly connected to the main wiring; if it is correctly connected, have the motor replaced.
	B = Temperature MOSFET > 150 °C.	**B** = Stop the machine. Leave it to cool down for at least 45 min.
	B = Excessive power consumption of the motor > 30 A every 2 seconds.	**B** = Stop the machine. Leave it to cool down for at least 45 min.

Problem	Cause	Remedy
The squeegee does not clean or suction is ineffective.	The edge of the rubber blades in contact with the floor is worn.	Replace the rubber blade.
	The squeegee or hose is blocked or damaged.	Unblock and repair the damage.
	The float switch has tripped (dirty water tank), is clogged by dirt or broken.	Empty the dirty water tank or reset the float switch.
	The suction hose is blocked.	Unblock the hose.
	The suction hose is not connected to the squeegee or is damaged.	Connect or repair the hose.
	There is no power to the suction motor or the motor is faulty.	see: "The suction motor does not start".
The batteries do not provide the normal work time (battery models only).	The battery poles and charging terminals are dirty and oxidised.	Clean and grease the poles and terminals, charge the batteries.
	The electrolyte level is low.	Top up all the elements with distilled water as described in the instructions.
	The battery charger does not work or is unsuitable.	See battery charger instructions.
	There are considerable differences in density between the various elements of the battery.	Replace the damaged battery.
The battery discharges too fast during use, even though it has been charged correctly (battery models only).	The battery is new and does not deliver 100 % of its expected capacity.	The battery must be "run-in" by performing 20-30 charges and discharges to obtain maximum performance.
	The machine is being used at maximum capacity for continuous periods and the working time is not sufficient.	If possible, use batteries with a higher capacity or replace the batteries with others charged previously.

Problem	Cause	Remedy
The battery discharges too fast during use, even though it has been charged correctly (battery models only).	The electrolyte has evaporated and does not cover the plates completely.	Top up all elements with distilled water until the plates are covered then charge the battery.
The battery discharges too fast during use, recharging with an electronic battery charger is too fast and after recharging the battery supplies the right voltage (about 2.14V for each element without load), but when tested with a hydrometer is found not to be uniformly charged (**battery models only**).	The battery supplied filled with acid by the Manufacturer has been stored for too long before being charged and used for the first time.	If recharging with a normal battery charger is not effective, you must use a double recharging cycle: Charge it slowly over a 10 hour period at a current of 1/10 the nominal capacity for 5 hours (e.g. for a 100Ah(5) battery the current must be set at 10A, using a manual battery charger). Rest for one hour. Charge it with the normal battery charger.
At the end of charging with the electronic battery charger, the battery does not provide the correct voltage (about 2.14V per element without load) and appears to be uniformly not charged when tested with a hydrometer (battery models only).	The battery has not been connected to the battery charger.	Connect the battery charger to the battery connector.
	The battery charger and power socket to which the battery is connected are not compatible.	Check that the power supply characteristics indicated on the battery charger rating plate comply with those of the mains power supply.
	The battery charger has not been installed correctly.	Make sure that the connections of the primary of the transformer inside the battery charger are correct.

Problem	Cause	Remedy
At the end of charging with the electronic battery charger, the battery does not provide the correct voltage (about 2.14V per element without load) and appears to be uniformly not charged when tested with a hydrometer (battery models only).	The battery charger is not working.	<u>Make sure:</u> There is voltage to the battery charger? That the fuses are not blown? That the current reaches the battery? If the battery charger is not working, contact the technical service centre.
At the end of charging with the electronic battery charger, the battery does not provide the correct voltage (about 2.14V per element without load) and only one or a few elements are found to be discharged when tested with a hydrometer (battery models only).	One or more elements are damaged.	Replace the damaged elements, if possible. For 6 or 12 V single block batteries, replace the entire battery.
The electrolyte in the battery is turbid (battery models only).	The battery has reached the end of the charging / discharging cycles declared by the Manufacturer.	Replace the battery.
	The battery has been charged with too high a current.	Replace the battery.
	The battery has been charged beyond the limit suggested by the Manufacturer.	Replace the battery.

Short instructions

This guide is intended for quick consultation only and does not replace the user and maintenance manual.

Before using the machine, read the user and maintenance manual contained in the machine's packaging thoroughly and strictly follow all the instructions.

Preparation / Operation:

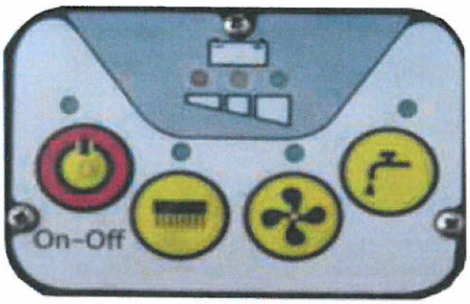
1. Fill the detergent tank.

2. Operate the drive lever; release the button to turn the machine on.

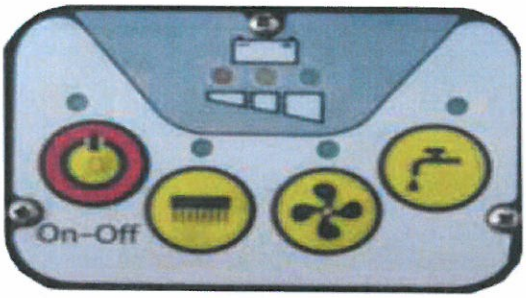
3. Lower the squeegee using the lever.

4. Open the tap on the detergent tank.

5. Press the power button.



6. Press the brush button; the suction and the water supply switch on.



7. Operate the drive lever.

8. Begin working.

9. When you have finished cleaning, proceed as follows:

   Press the brush button.

   Turn the machine off = Press the power button for at least 4 seconds.

   Raise the squeegee.

   Close the tap of the detergent tank.

   If necessary, charge the batteries (battery models only).

Daily maintenance

Empty the dirty water tank.

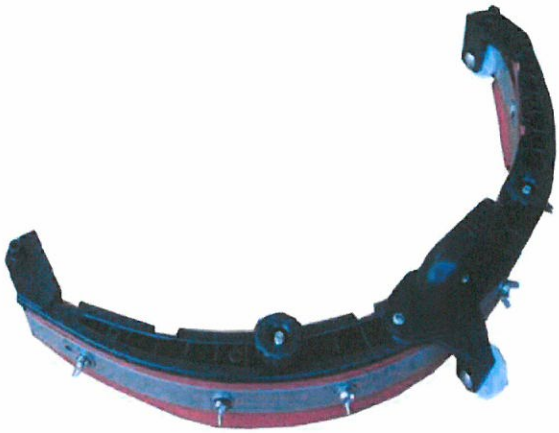
Clean the dirty water tank.

Check that the suction filter is undamaged and clean.

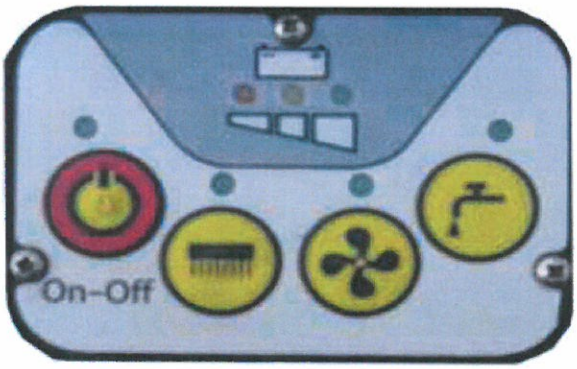
Check the float of the dirty water tank for perfect condition and cleanliness; must slide freely on the pin.

Clean the brush/es.

Check that the squeegee is clean and the blades are not damaged.



Check the battery charge (battery model only).



To charge the batteries, supply the battery charger with voltage using the extension cable included in the scope of delivery.

Replacing the squeegee blades

- Unscrew the nuts fixing the blade retainers.
- Remove the two blade retainers.
- Remove the blade.
- Put the same blade back, reversing the edge in contact with the floor until all four edges are worn, or replace with a new one.
- Put the two blade retainers back on the squeegee and screw up the nuts again.

Attaching / Removing the brush

Attaching the brush:

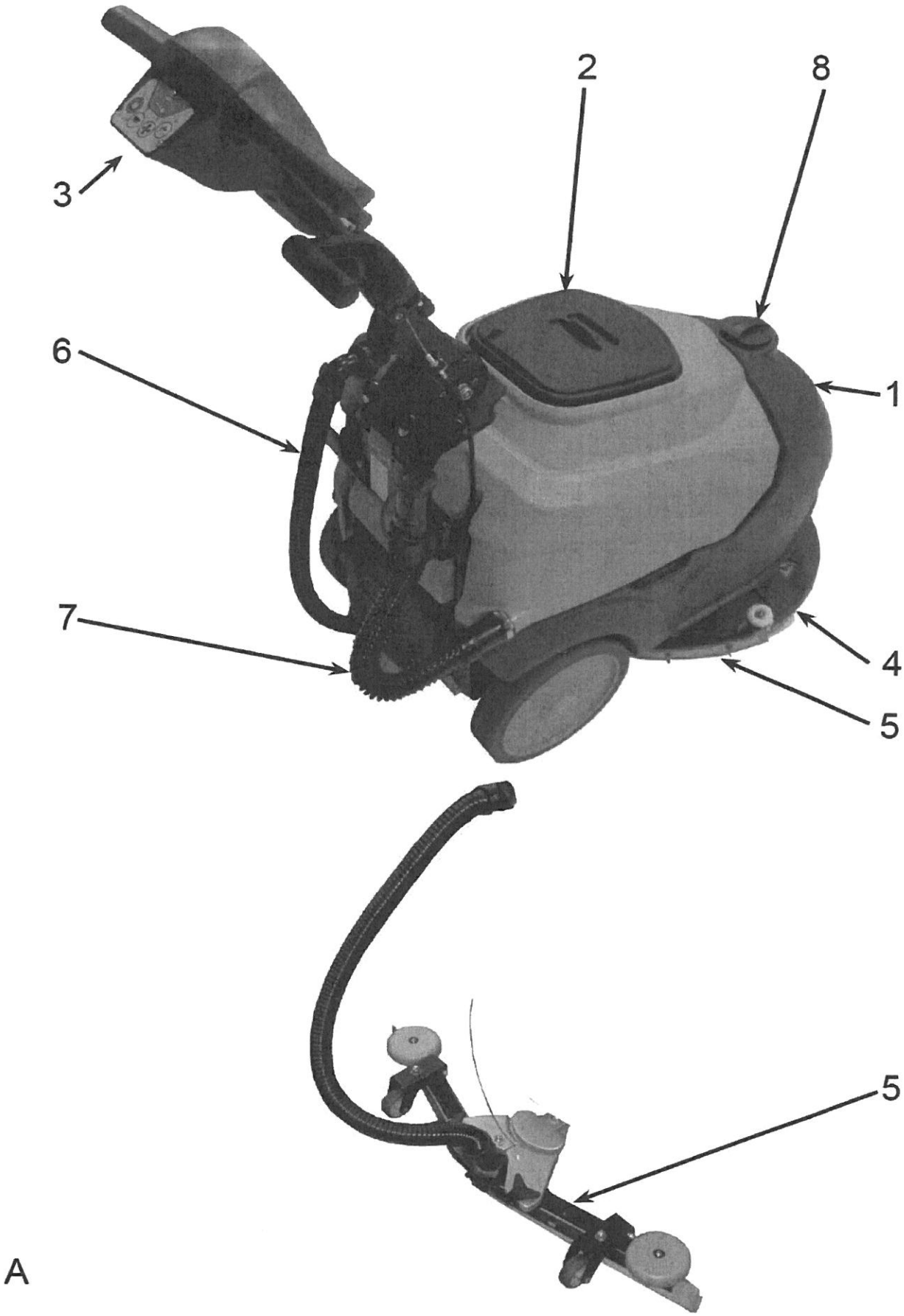
Rest the brush on the floor in front of the machine. Raise the front of the machine by levering on the handle, then lower it onto the brush. centring it with the brush cover. Action the drive lever repeatedly until the brush engages.

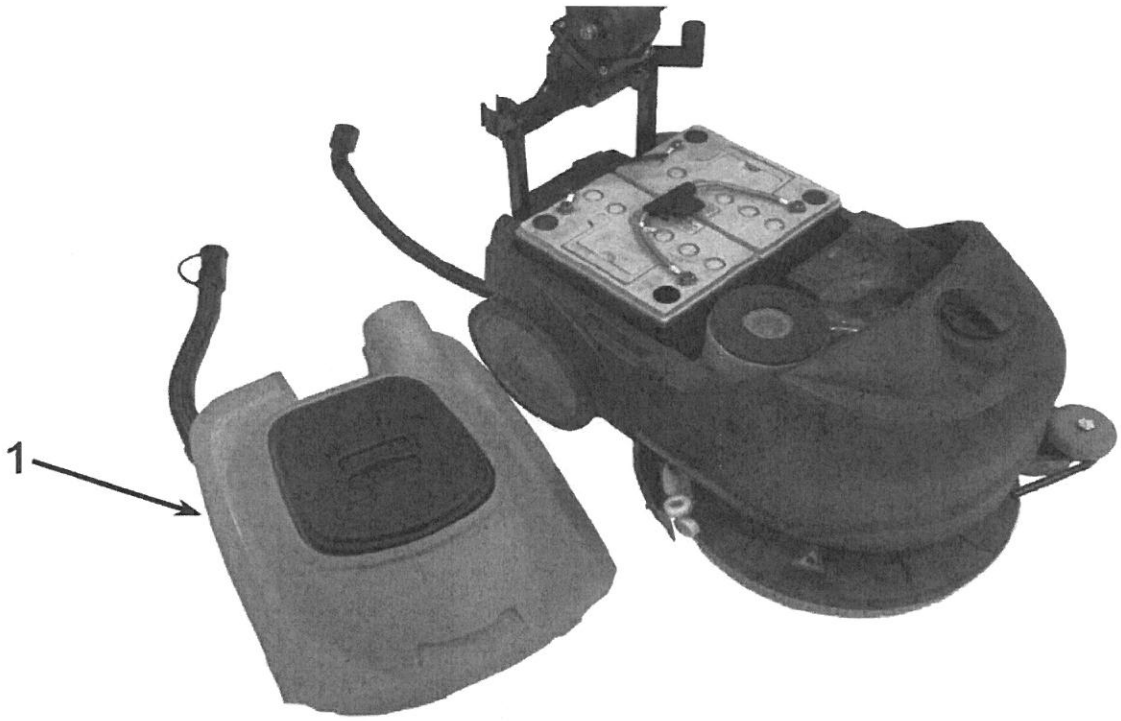
Removing the brush:

Raise the front of the machine by levering on the handle, then operate the brush lever repeatedly. After operating the lever a few times, the brush is released and falls to the ground.

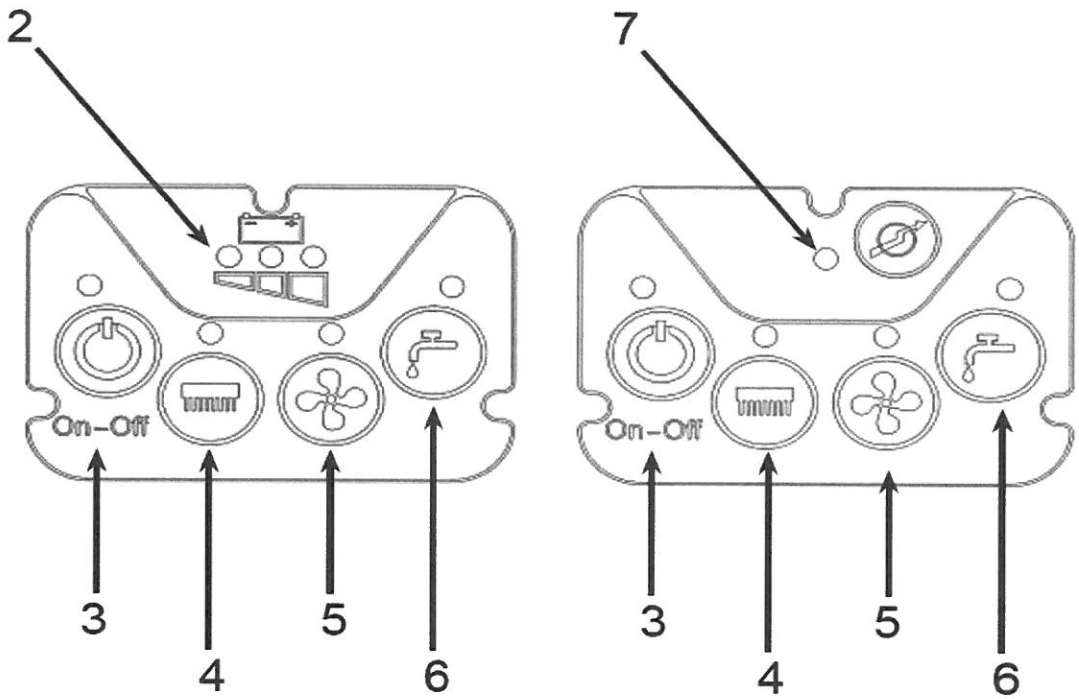
Malfunctions - Remedies

The machine does not come on - start up.	Check the battery charge (Battery models only). Check that the machine's power cord is plugged into a working power outlet (Cabel models only).
The machine leaves the floor wet.	Check the squeegee blades are not worn. Check there is no debris between the squeegee blades. Check there is no debris in the suction hose. Check the dirty water drum is not full. Check the detergent tank lid is closed correctly. Check the suction hose is correctly attached to the squeegee.
The machine leaves the floor dirty.	Check the type of brush/pad in use is suitable for the type of dirt and floor.
The machine leaves stripes of wet floor.	Check there is no debris between the squeegee blades. Check the squeegee blades are not worn. Check the squeegee is correctly adjusted.

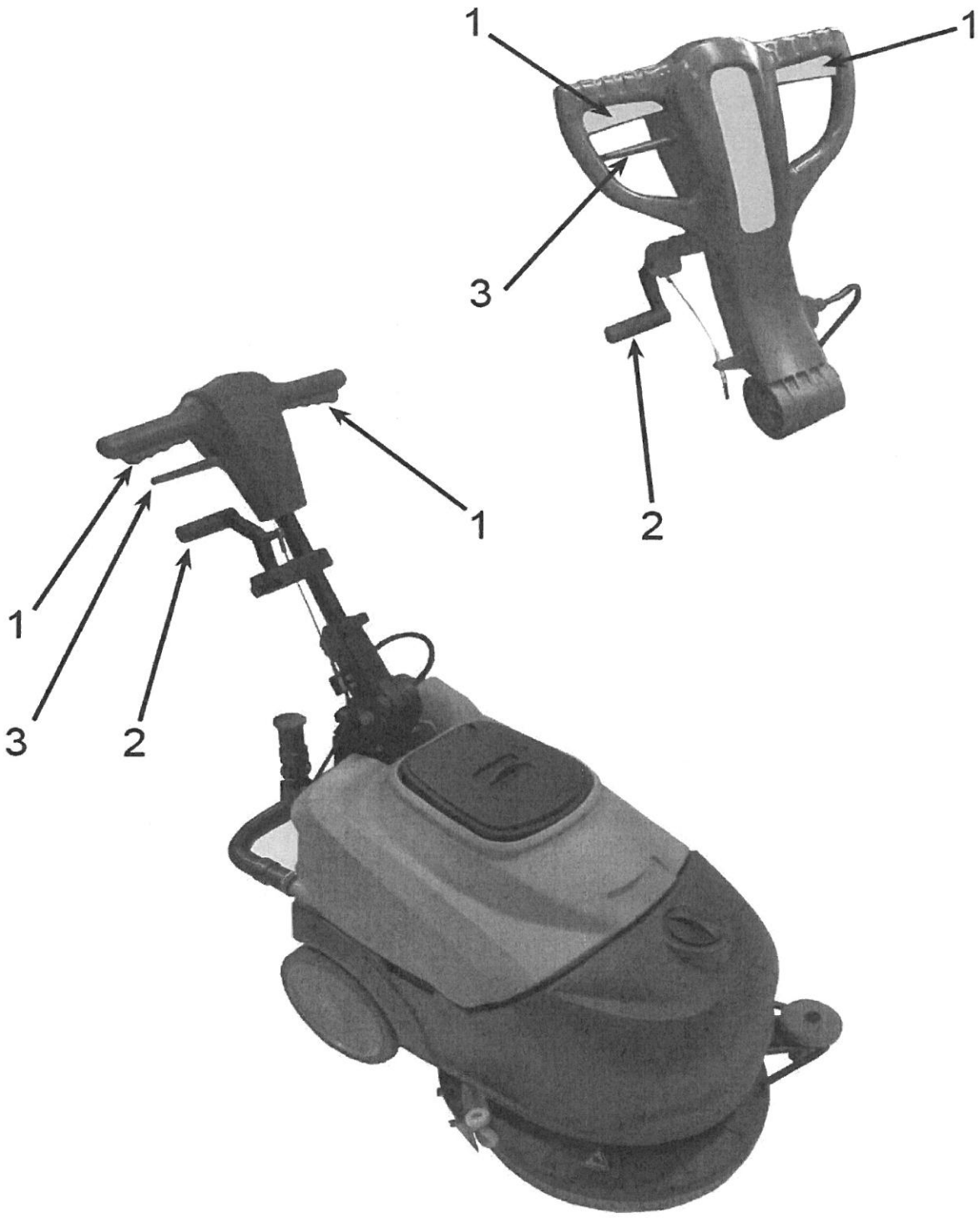

2
8
3
6
1
7
4
5
5
A



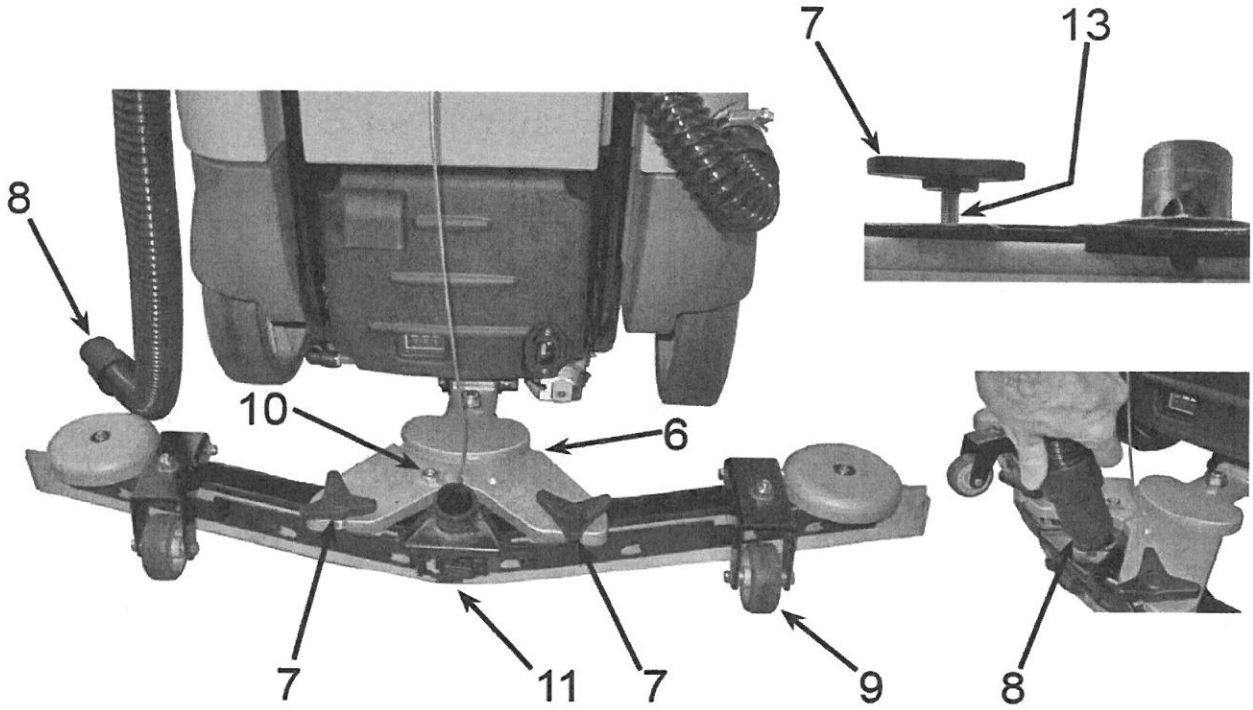
B

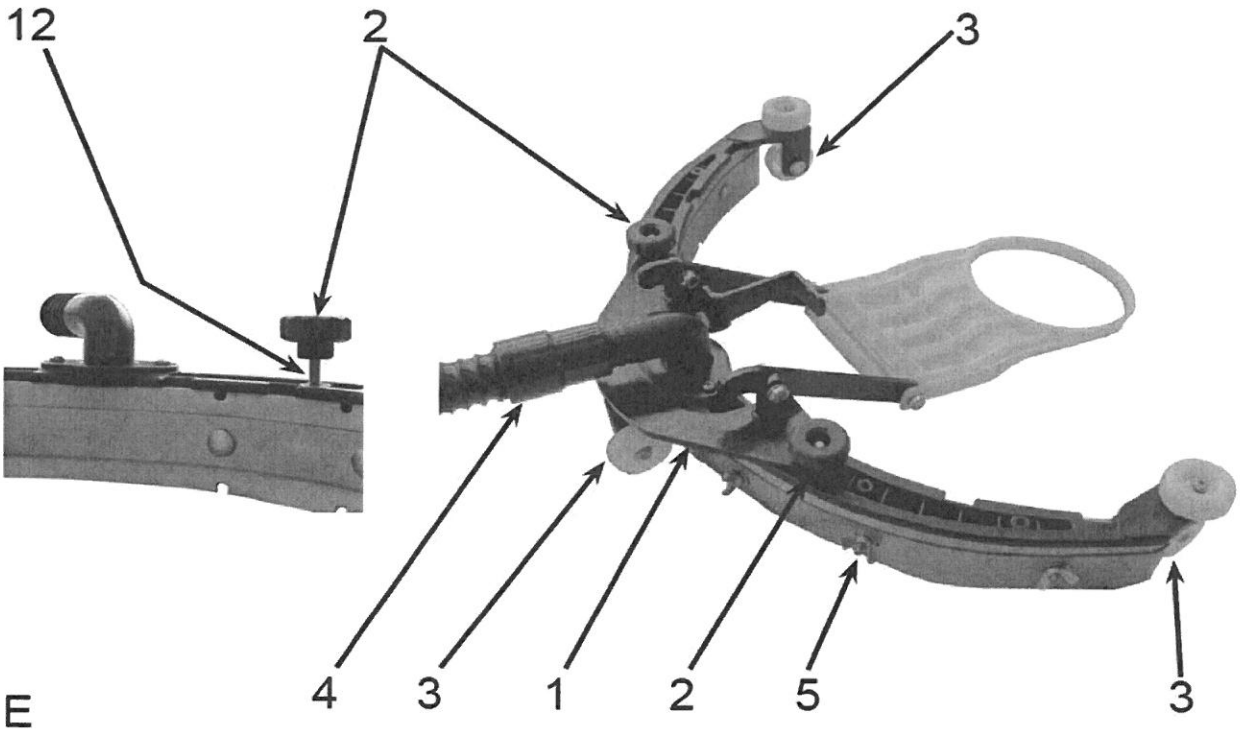


C

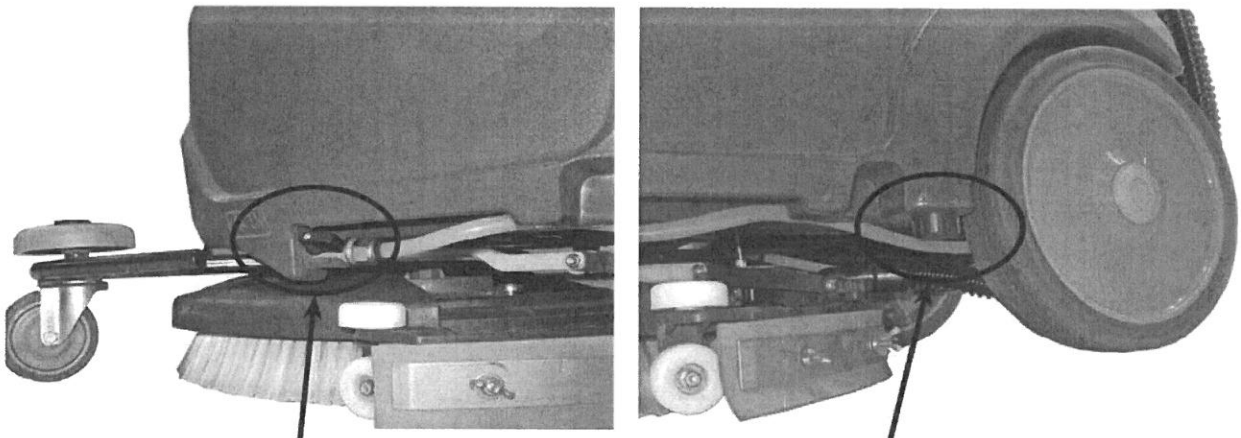


D

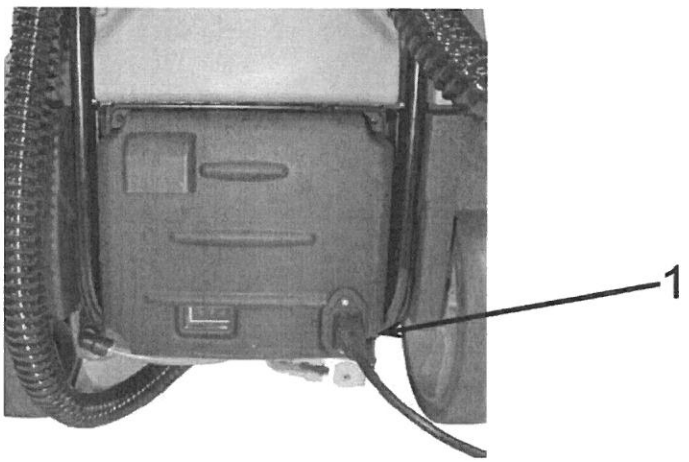




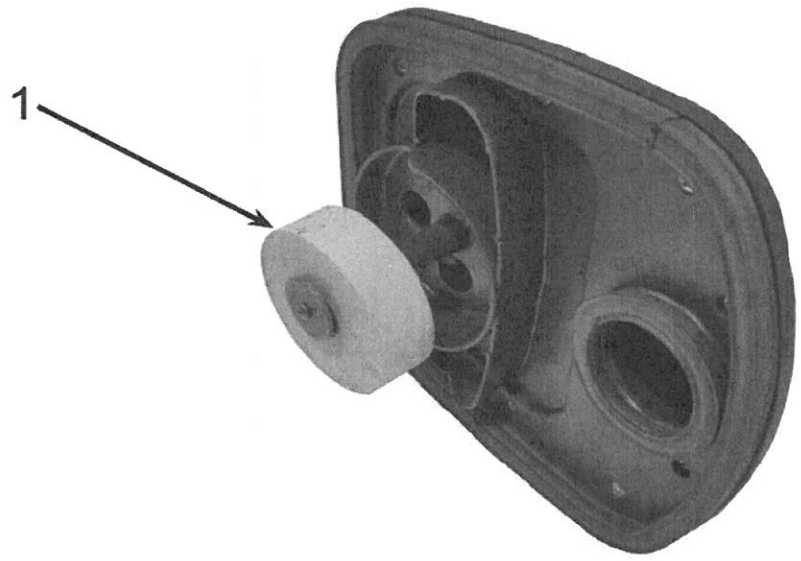
E



G

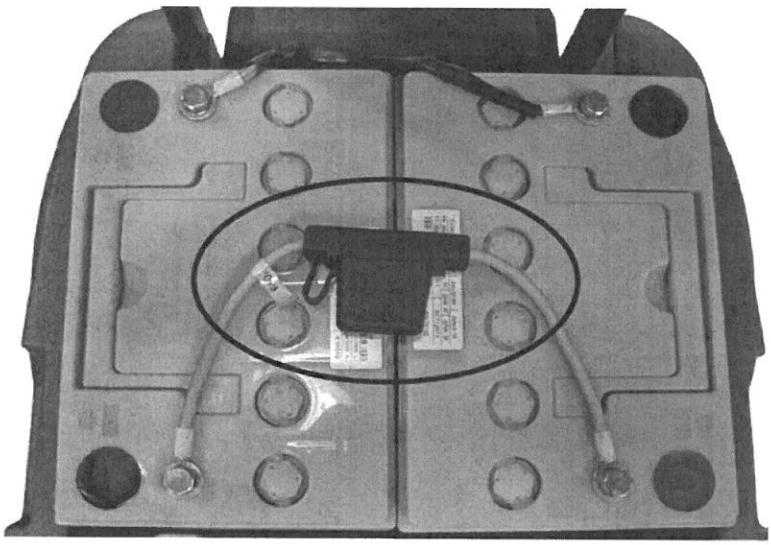


H

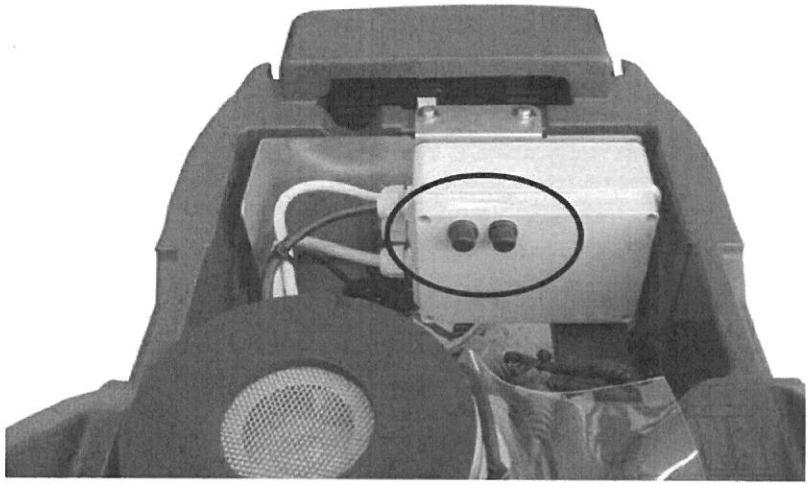


I

L



M



N