



20" Battery Operated Auto Scrubber

Product Manual



This manual contains important safety precautions and instructions on the correct operation of product. Please read this carefully before using the product.

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PACKING LIST

Standard configuration

No.	Name	Unit	Quantity
1	Main unit	Piece	1
2	Buffer pad	Piece	4
3	Squeegee assembly	Set	1
4	Suction hose	Piece	1
5	Conformity certificate	Piece	1
6	Product manual	Copy	1



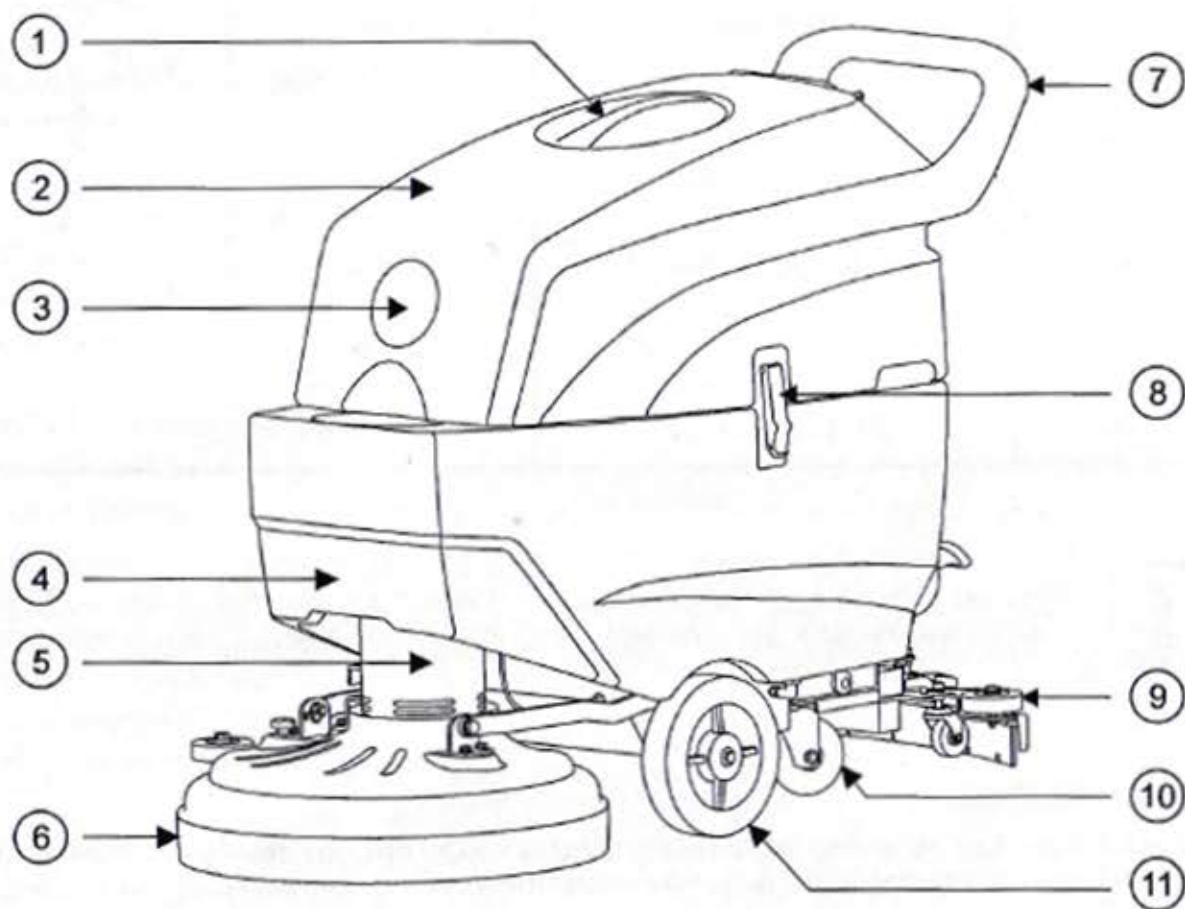
Batteries and chargers are not included in standard configuration. Optional batteries and chargers will be packed in separate cases if purchased.

•Unpacking check

Check the product receiving immediately. If there will be obvious damages on the product, please keep the packing materials and contact the local distributor.

OPERATION INSTRUCTION

Key components



① Recovery tank lid

② Recovery tank

③ LOGO

④ Solution tank

⑤ Brush motor

⑥ Brush assembly

⑦ Handle

⑧ Buckles assembly

⑨ Bumper wheel

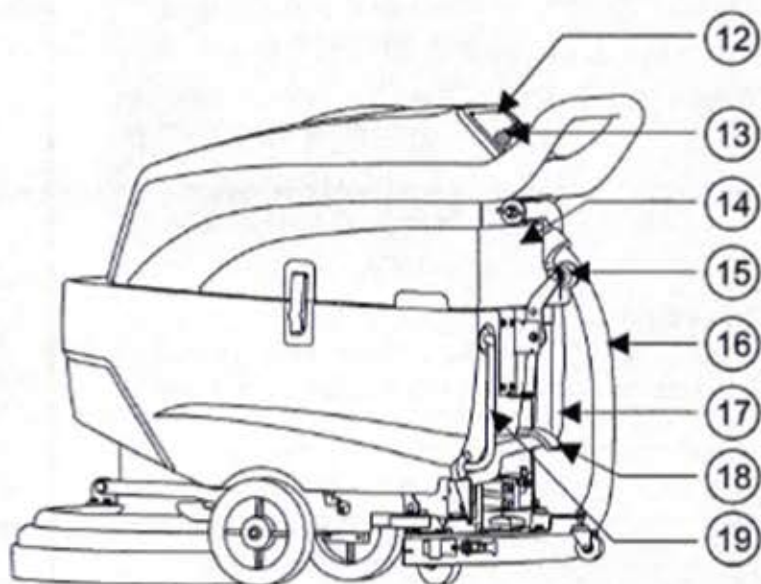
⑩ Universal wheel

⑪ Front wheel

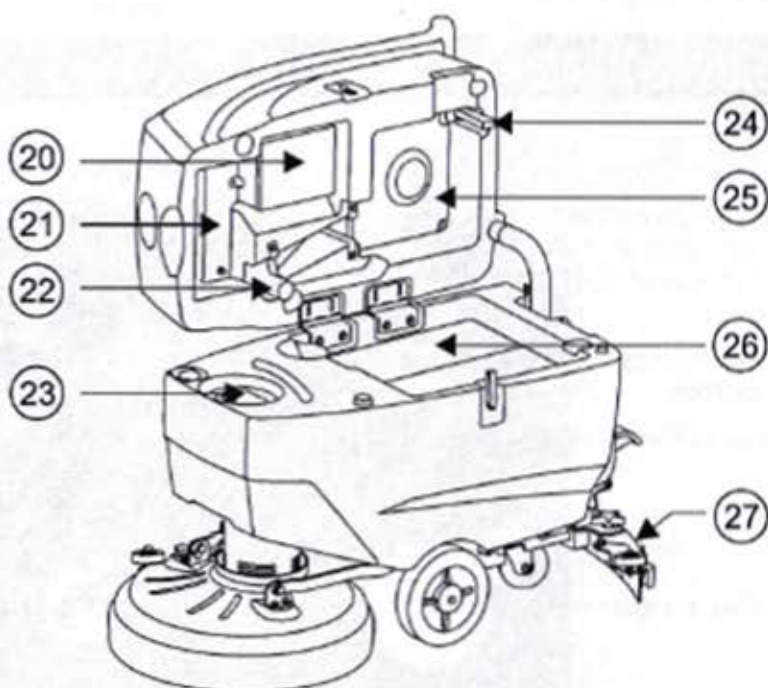
OPERATION INSTRUCTIONS

Key components

- ⑫ Control panel
- ⑬ Key switch
- ⑭ Serial number
- ⑮ Squeegee lever
- ⑯ Suction hose
- ⑰ Drain hose
- ⑱ Pedal
- ⑲ Solution gauge



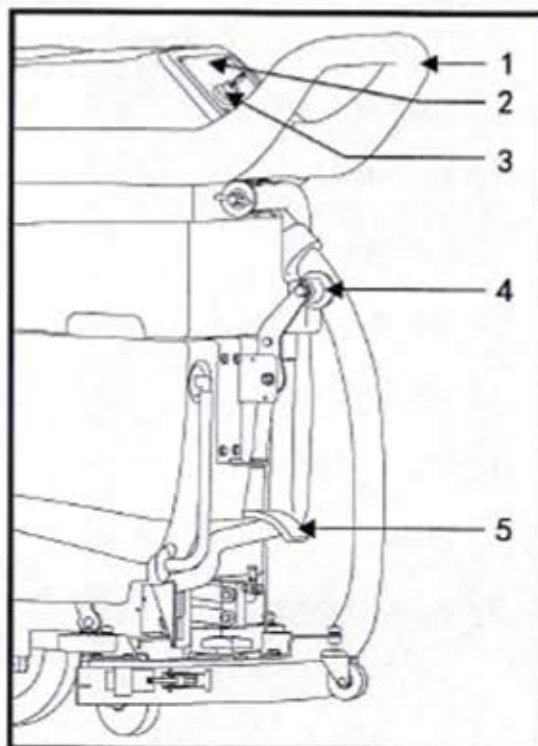
- ⑳ PCB case
- ㉑ Charger(Optional)
- ㉒ Air-discharge hose
- ㉓ Solution tank inlet
- ㉔ Supporting rod assembly
- ㉕ Silencer
- ㉖ Battery assembly(Optional)
- ㉗ Squeegee assembly



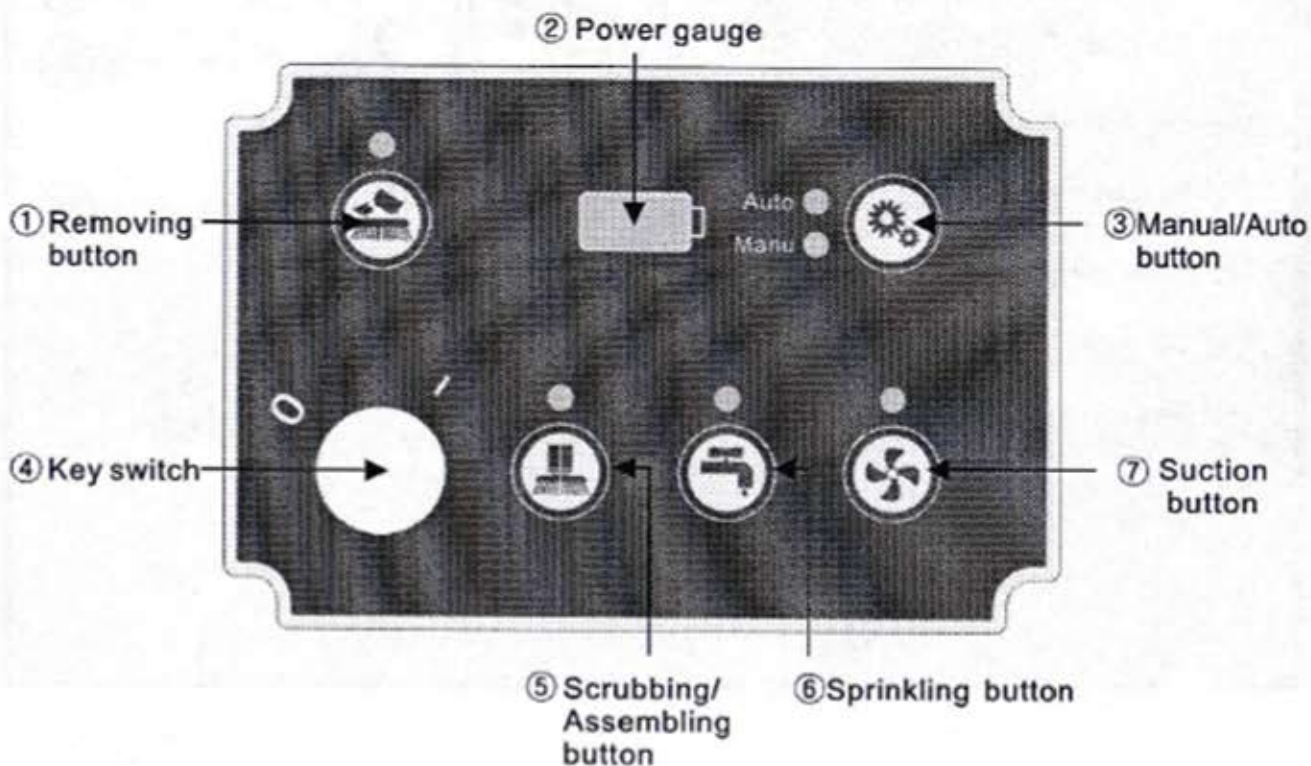
OPERATION INSTRUCTIONS

Description of control components

1. Handle — Control the direction of the machine.
2. Control panel — Operation control buttons and indicator lights display.
3. Key switch — The whole power switch. Control all the function buttons.
4. Squeegee lever — Lift up it to ascend the squeegee; release it to descend the squeegee.
5. Pedal — Step on it rightward to descend the brush; step on it leftward and release it to raise the brush.



Control panel



OPERATION INSTRUCTIONS

Control panel

① Removing button

Press this button to remove the brush.

Attention: In automatic mode, this button can not be used. If pressed, there will be no reaction.

② Power gauge

This power indicator displays battery level. The indicator lights will diminish while the battery level declines.

③ Manual/Automatic button

The machine will in manual state when turn on the power. Press this button to change into automatic state, the automatic indicator light becomes bright. Meanwhile, the automatic program will run, the machine works in the automatic mode.

④ Key switch

None of the function can works after turn off it. Switch it on, the power will display and the machine is in the manual state.

⑤ Scrubbing/Assembling button

Press this button to make the brush indicator light bright. At same time, step on the pedal, the brush falls down and starts to circle. Press this button again, the brush motor slow down and stop abruptly, the brush indicator light goes out.

Assembling button: Push the brush under the brush cover(seen on the instruction of brush assembling on Page7), and then step on the pedal. Turn on the power, it will work by pressing the assembling button.

⑥ Sprinkling button

Press this button, the sprinkling indicator light brights and the solenoid valve begins to work. 0.5 second later, the sprinkling motor starts to work. Press this button again, the sprinkling indicator light goes out, and the sprinkling motor stops working. 2 seconds later, the sprinkling motor stops working.

⑦ Suction button

Press this button, the suction indicator light blinks and place the squeegee down to suck soiled water.

OPERATION INSTRUCTIONS

Assembling parts

1. Squeegee assembling

Turn the star nuts anticlockwise to unfasten them. Then slide the bolts of the star screws into the slots of the squeegee lifting plate and use the star nuts to fasten the assembly by turning them clockwise. After that, connect the suction hose with the suction inlet on the squeegee.

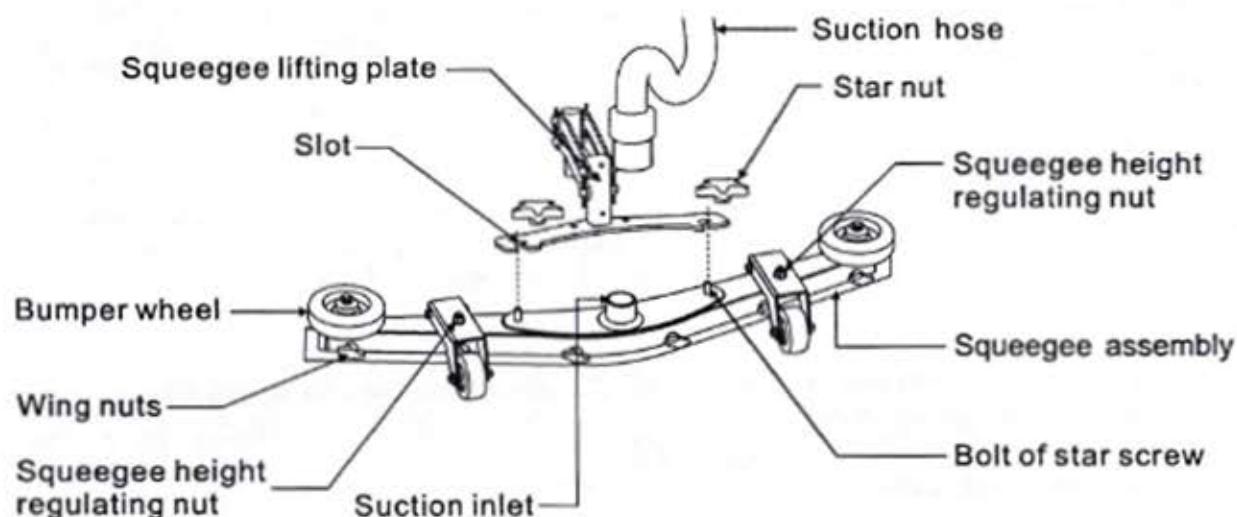


fig.1

2. Battery assembling

(Battery is not included in standard configuration.)

! Attention

1. The batteries can be dangerous if not connected or assembled correctly, so let trained personnel help.
2. It is necessary to tilt open the tank to reach the batteries. Drain all the soiled water and solution in the tank before turning it.
3. To prevent dangers, check the batteries and accessories before assembling them.
4. Make sure the machine is in switched off mode.
5. Stay away from fire.
6. Assemble the batteries in ventilated place.
7. Put the batteries in position with care, and connect them correctly with suitable cables.

Steps:

1. Unpack the batteries and check to confirm they are in good order.
2. Turn the tank to the floor as shown and put the batteries on top of the assembly plate (fig.2 & fig.3).
3. Connect the batteries with suitable cable (fig.4): connect the cathode to the anode as shown. And the left two cables connect to the battery socket.
4. Put the battery socket to the machine socket (fig.5).

OPERATION INSTRUCTIONS

Assembling parts

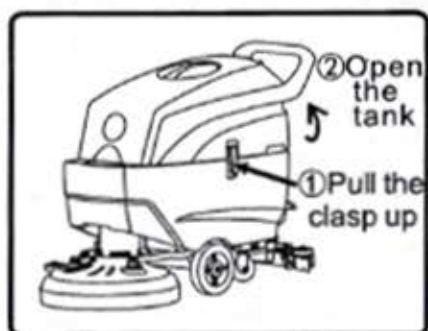


fig.2

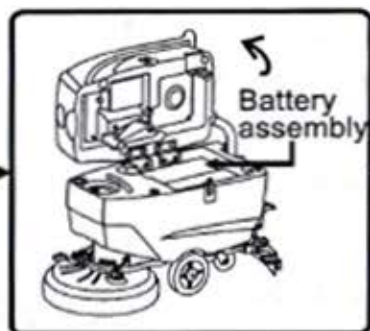


fig.3

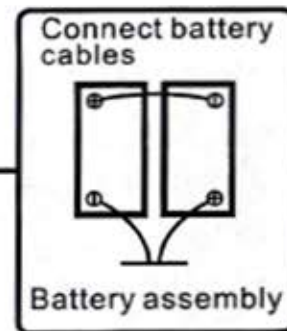


fig.4

3. Brush assembling

⚠ Attention

- Do not operate any function button while hands are touching the brush, in case of injuries.
- Make sure the scrub pad is placed with the center of the pad driver and screw the pad driver buckle. Afterwards, you can work as follows.

1. Lift up the brush limit plate and push the brushes under the brush cover to keep proper distance between them. Then, move on the brush to make the brush holder under the center of brush cover. After that, put down the brush on the floor vertically (fig.5).
2. Step on the pedal rightly to lower the brush (fig.6). After that, switch on the key switch and press the scrubbing/assembling button to assemble the brush (fig.7).

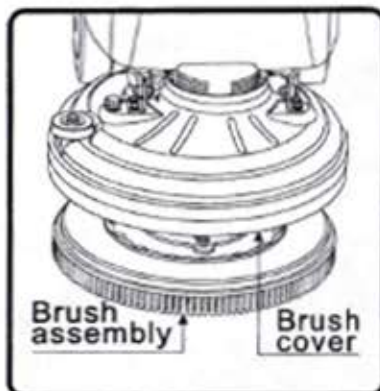


fig.5

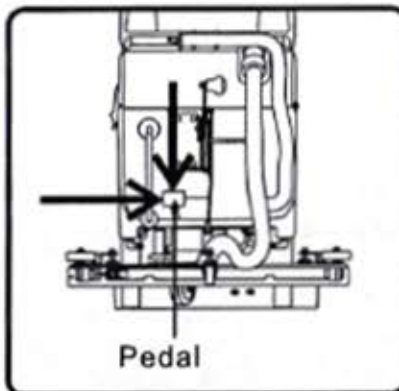


fig.6

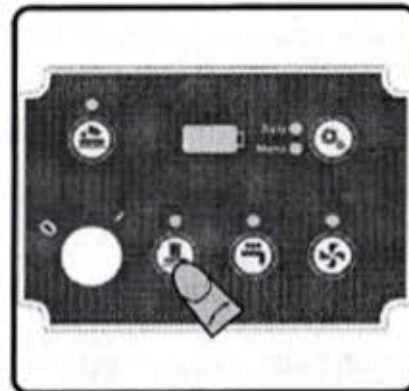


fig.7 Control panel

OPERATION INSTRUCTIONS

Preparation before working

1. Fill the solution water

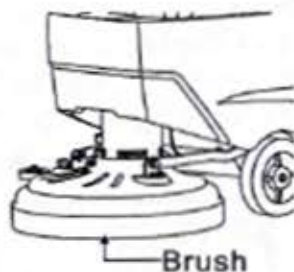
- (1) Open the lid of the solution tank, then fill water or dilute neutral detergent into it.
- (2) Observe the solution gauge to see whether the amount of the solution is enough for the cleaning work. (Do not over-fill the tank.)
- (3) The temperature of water filled into tank should be not be higher than 50°C.



! Attention

To avoid shortening the service life of the machine, detergents added into the solution tank should be less foamy and less volatile neutral detergents with a PH of 5-9. When using detergents, defoamer should be added into the recovery tank to prevent the foamy with dirt flowing into the vacuum motor to damage the motor. Manufacturer shall not responsible for the damage of the vacuum motor due to the absence of the defoamer.

- ### 2. Check whether the brush is assembled well. If not, assemble them according to the instruction of "Brush assembling" on Page 7.

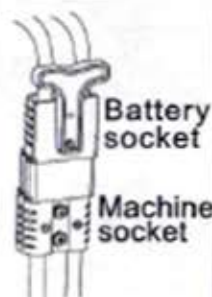


- ### 3. Check whether the squeegee is assembled well. If not, assemble the squeegee assembly according to the instructions of "Squeegee assembling" on Page 6.

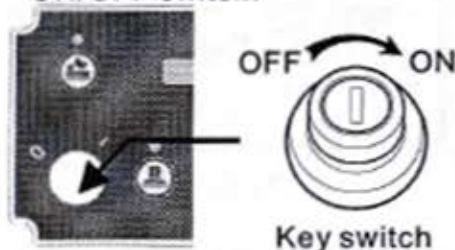


- ### 4. Connect the battery socket well with the charger socket. If not, the batteries will not charge.

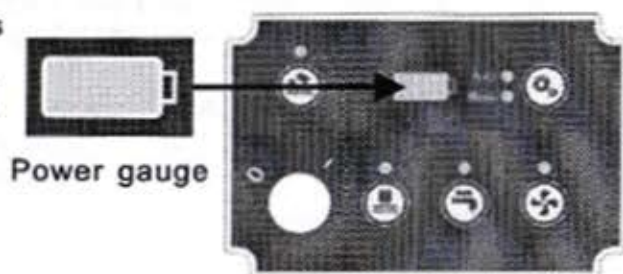
Disconnect them after the battery is full. Connect the machine socket well with battery socket, then the battery can supply power for the machine.



- ### 5. Use the key to turn on the ON/OFF switch.



- ### 6. Check whether the power in the batteries is enough for the cleaning work. Then press the function buttons on the control panel to make sure the brushes, the squeegee assembly, the suction pump and the sprinkling pump are ready for work.



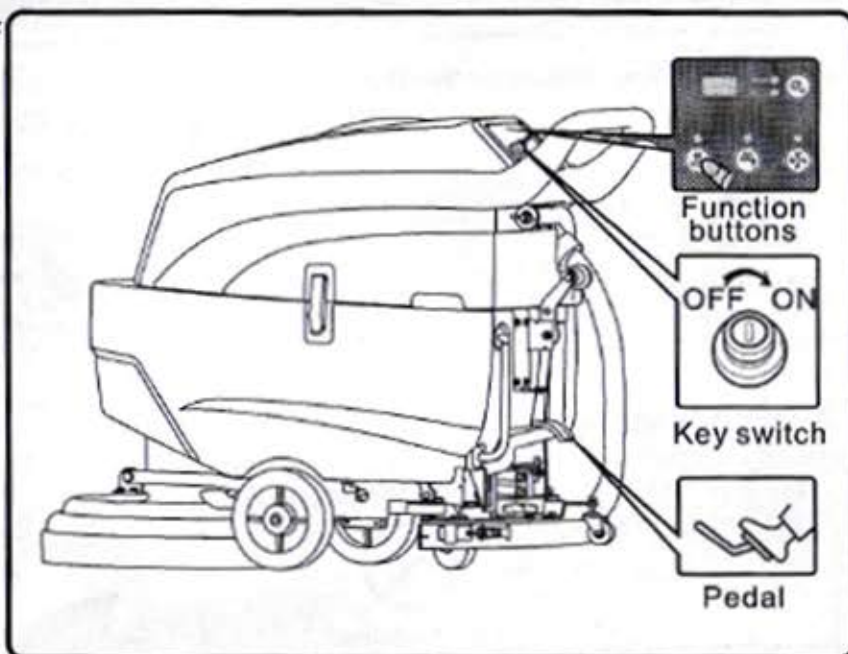
OPERATION INSTRUCTIONS

Operation steps

After preparation work, the operator can ride on the machine and begin the cleaning work.

1. Firstly, switch on the ON/OFF switch. After this, the power indicator becomes bright.

2. Press the function buttons on the control panel to start the functions of sprinkling, scrubbing/assembling button (step on the pedal rightly to the slot and lower the brush first), vacuuming (place the squeegee lever down first) according to the cleaning work.



3. Drain the soiled water and clean the recovery tank after the cleaning work or filling water into the solution tank right before. After cleaning work, switch off the ON/OFF switch to cut off the power.



Note:

During the cleaning work, please check and guarantee that the ball is near the top of the strainer after hearing the dull sound. It indicates that the soiled water has reached to the safety level. If that, turn off the scrubbing/assembling button, sprinkling button, suction button. Then drain all the soiled water in the drainage system with the following steps:

- a. Take down the discharge hose;
- b. Bend the hose as shown in the picture;
- c. Open the cover of the hose;
- d. After discharging soiled water, fill the solution water and continue the cleaning work.



SAFETY PRECAUTIONS



This chapter contains important information about safe use of the machine. Please read it carefully.

Don'ts

1. Do not put anything on the machine;



Forbidden



2. Do not put hands into the spinning parts while the machine is operating;

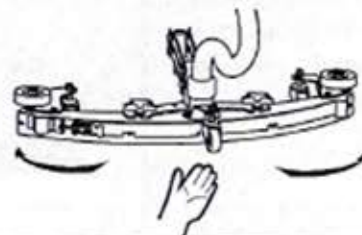


Forbidden

3. Do not block the air-discharge hose or the air ventilation area;
Do not move, change or cover the safety information sign;



Forbidden



Forbidden

5. To ensure personal safety, the machine must be operated by a trained technician. (New users can be trained the basic operation skills in the field by sales agent or distributor.)

Notes before using

1. The machine is designed for medium or smaller area floor cleaning indoor. Please read this manual thoroughly and carefully before starting the machine.
2. Do not disassemble or refit the machine without permission. There is an engineering design product and is tested in production. Manufacturer takes no responsibility for accidents or damage as a result of unauthorized disassembling or refitting the machine.
3. Contact the dealer or manufacturer immediately in case of any breakage or failure in starting the machine upon unpacking the product.
4. Make sure the voltage of power supply accords with the voltage on the nameplate of the machine. Manufacturer takes no responsibility for damage or human injuries caused by using wrong power supply.
5. Do not overload the machine. Manufacturer takes no responsibility for damage to any components as a result of overloading.
6. Do not use the machine under adverse condition, such as acid/alkaline rich area, working temperature lower than 10°C or above 35°C. Manufacturer takes no responsibility for damage, accidents or injuries caused by operating the machine under adverse conditions.
7. In case of any abnormalities, please contact authorized after-sales service center immediately.

SAFETY PRECAUTIONS

Warning

Safety precautions

1. If the problem happens while the machine is operating, cut off the power first. After having inspected and solved the problems, restart the machine.
2. The end of the battery cable should connect to the terminal holders of the battery directly to ensure safety. If there is metal pad between them, the temperature of the battery and the cable may become too high and, even worse, the battery and the cable may fuse or damaged.
3. Tilt open the tank when charging batteries to achieve better heat ventilation(fig.8).(Empty the tank and remove tools left on the cover before tilting.)
4. Water pills should be avoid when cleaning the machine itself. Electronic parts inside the control panel are sensitive to water spills and may cause damage in water ingress(fig.9&10).

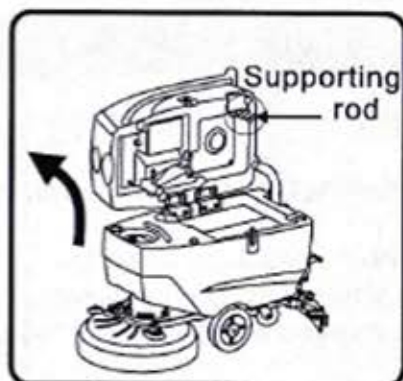


fig.8

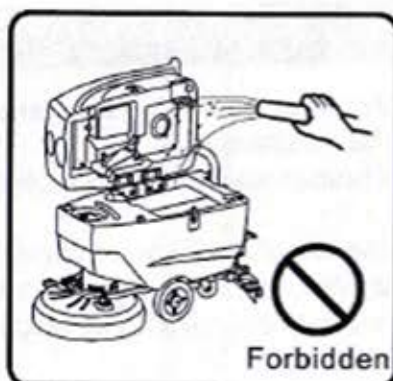


fig.9

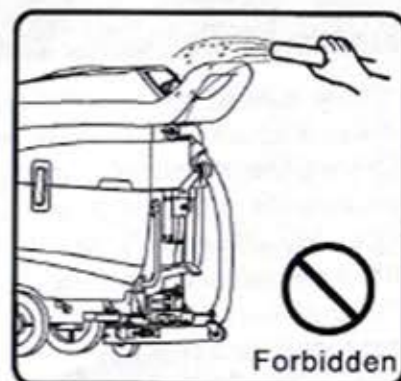


fig.10

5. Do not inhale the exhausted gas or use the machine near flammable liquids, gas or suspended particles.
6. Keep the machine from any heat source and make sure it is ventilated.
7. Disconnect the battery socket from the machine socket and disconnect the battery socket from the charger socket.
8. This machine can only be assembled with brushes of the designated size. Being assembled with brushes of other sizes may result in damage to the machine.
9. Be careful and move the machine at the low speed when it is working on the slopes or sliding floor, especially when it is moving backward.
10. Do not let the machine keep on scrubbing the same place, otherwise, the area/floor may be damaged.
11. To prevent the machine from unauthorized operating, turn off the power and pull out the key from the ON/OFF switch.
12. Make sure the machine will not move accidentally when it is left unattended.
13. If the user uses the non-original batteries or chargers, please contact the manufacturers in advance in order to avoid accidents.

IMPORTANT PRECAUTIONS

Working conditions

1. Working conditions

- The machine can only work in the 10°C–35°C indoor environment.

2. Sensibility to strong acid and strong alkali

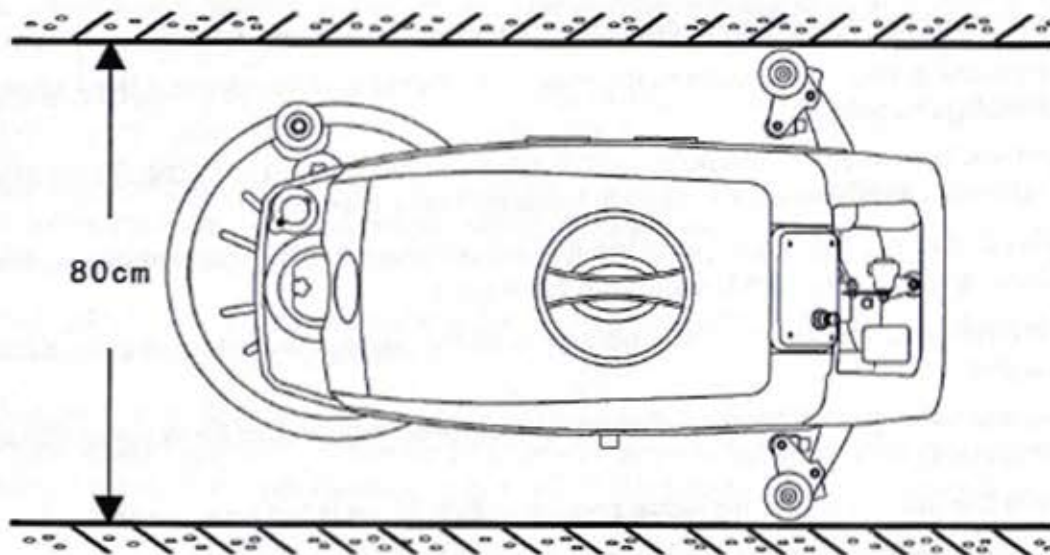
- Do not put strong acid or strong alkali liquids into the tank to deal with stubborn dirt, in case those liquids damage the components of the solution channel. If those liquids are needed, they can be sprinkled on the floor directly.
- The detergents put into the solution tank should be neutral detergents with a PH of 5-9.

3. Cleaning areas

- If there are too much dirt or big rubbish on the floor, such as wastepaper, plastic bags, fruit peel, fruit seeds and so on, it is recommended to sweep the floor first and then use the machine to clean the floor, in order to avoid big foreign objects block the suction hose.

Notes on ridding

1. While driving, prevent the machine from bumping with other objects. Before entering into a narrow space, check whether the machine is fit.
2. Driving the machine over rough places may cause mechanic damage, which will shorten the service life of the machine.
3. The vertical height of the machine should be at most 20mm with the machine to get through. If the barrier height is over 20mm, drive slowly and push extra strength to let the machine get through. Do not force the machine to get through. The slope is needed when the machine can not move because the barrier is too high.
4. The width of the aisle should be at least 80cm. If the width of the passage is less than 80cm, remove the squeegee, otherwise it may cause mechanic problem. In order to ensure its service life, lift up the squeegee lever when the machine moves back.



MAINTENANCE GUIDE

Daily maintenance



Attention

When the cleaning work is over:

1. Disconnect the machine socket from the battery socket.
2. Drain the soiled water from the recovery tank and wash it with clean water.
3. Check and make sure the suction hose is clear.
4. Wash the brushes and squeegee and air-dry them.

1. Maintain the recovery tank

- Clean the recovery tank every time the cleaning work is finished. Drain all the soiled water in the recovery tank. After that, use clean water to wash the recovery tank, and air-dry it. Keeping the recovery tank clean can prevent sludge or foreign objects from blocking the tank(fig.11).
- Clean the strainer periodically(fig.12).



fig.11

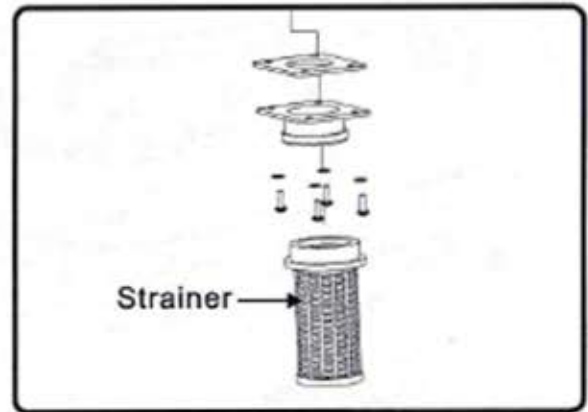


fig.12

2. Maintain the solution tank

- If the machine will not be used for long time or will be stored or in transit under the temperature below 4°C, take out all solution gauge to drain all the solution water in the solution tank, in order to prevent solution from changing state. After this, take out the filter lid, and then press the sprinkling button to drain all the solution stayed in the sprinkling system and clean the filter if necessary. Otherwise, the sprinkling motor, the solenoid valve, or the hoses will be damaged because of frozen water in the sprinkling system(fig.13&14).

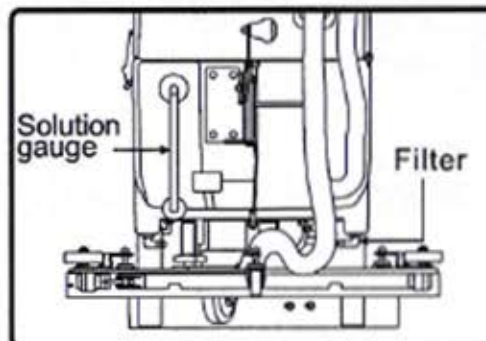


fig.13 (Back)

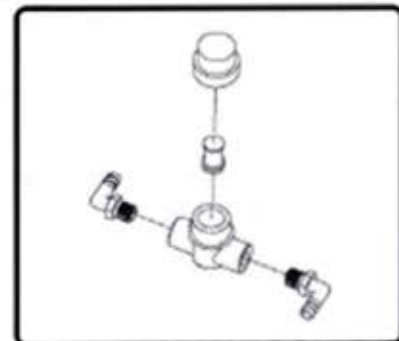


fig.14 Filter

MAINTENANCE GUIDE

Daily maintenance

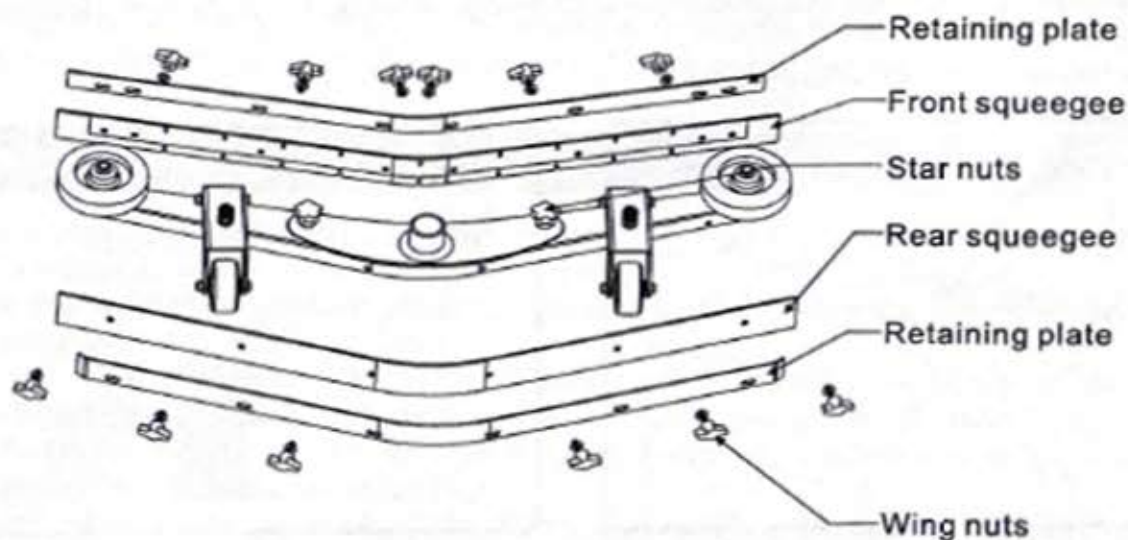
3. Maintain the squeegee assembly

Remove, clean and air-dry the squeegee regularly to prolong its service life. The whole squeegee assembly can be removed to be cleaned and air-dried.

❗ Attention: Don't dry the squeegee by exposing it to sunshine.

The procedure to remove the squeegee:

1. Turn the two star nuts anticlockwise to remove the squeegee assembly.
2. Release the wing nuts. Then the front and rear squeegee can be removed.



MAINTENANCE GUIDE

Daily maintenance

4.Brush assembling

Pressing the removing button on the control panel(fig.15) to remove the brushes(fig.16) (when the brushes are lifted up.) for cleaning. If the machine will stay idle for long time, the brush should be removed, cleaned and air-dried.(fig.17), else, the prolonged loading to the brush motors may cause failure or be unable to function properly.

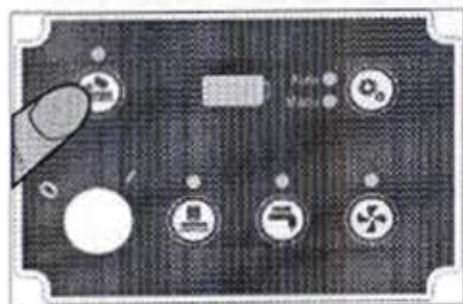


fig.15 control panel



fig.16

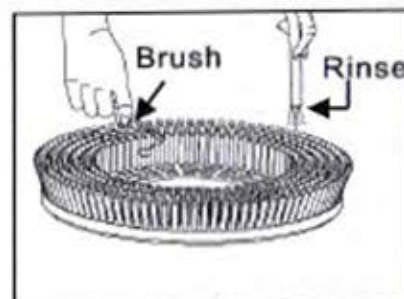
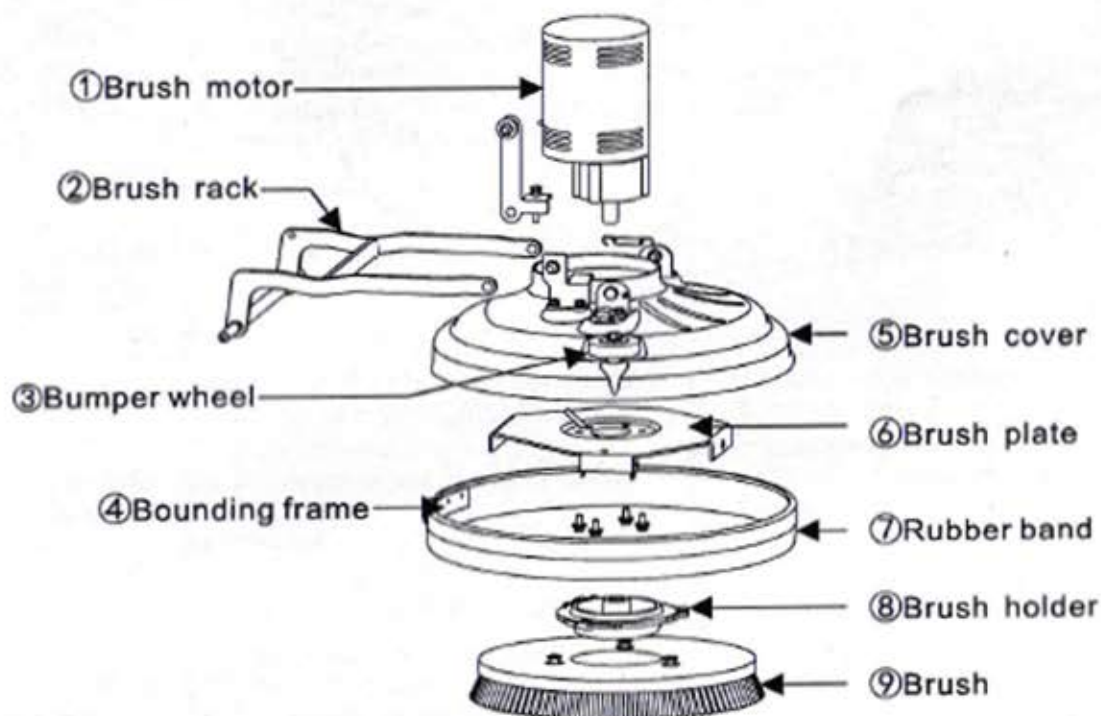


fig.17

●Brush assembly exploded diagram



MAINTENANCE GUIDE

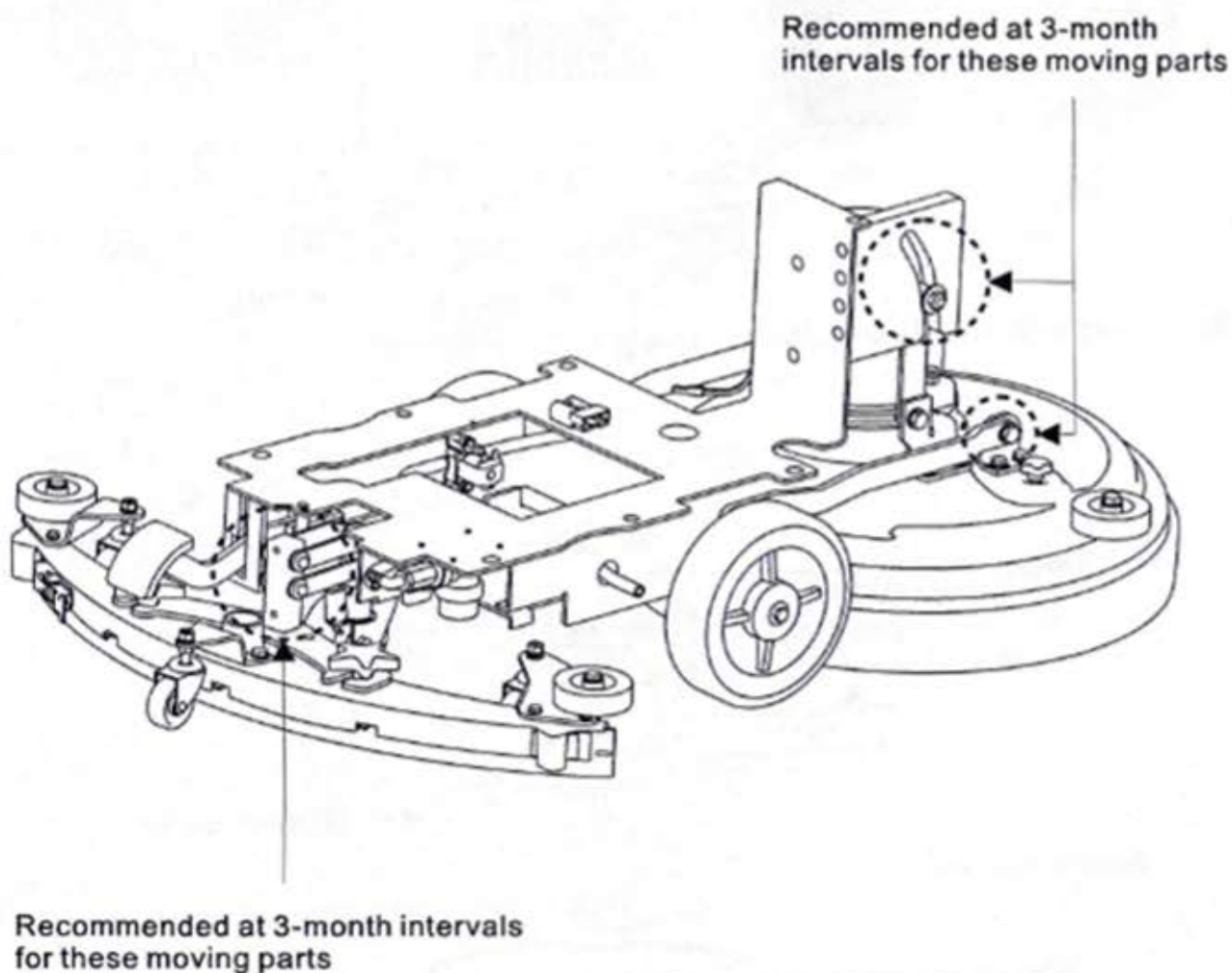
Periodic maintenance

1. Apply lubricating grease or oil to the moving components regularly.
2. Apply electrostatic oil or kerosene oil regularly to frequently used strong current sockets to prolong their service life.



Note

Apply lubricating grease to areas shown below at recommended intervals.



MAINTENANCE GUIDE

Trouble shooting



Note: Before contacting the repair agent or our customer service department, please check the followings for possible solutions.

Problem	Cause	Solution
The control panel's LED indicator light do not blink.	1. The machine socket has not been connected well with the battery socket.	1. Connect the machine socket well with the battery socket.
The motor does not run.	1. The related switch has not been turned on. 2. The voltage of the machine is not normal or stable. 3. The related indicator light flashes abnormal.	1. Switch on the related motor switch. 2. Make sure the machine is working with stable volatge. 3. Turn off the power, and then, turn it on again.
No water come out or the water flow is small.	1. The filter or connector is obstructed. 2. The floor being cleaned is too dry. Solution supply is insufficient when cleaning a new building for the first time. 3. The solenoid valve or the sprinkling motor is obstructed. The sprinkling indicator light blinks. 4. The solenoid valve or the sprinkling motor is too protective.	1. Remove the filter and the connector and clean them. 2. When the ground is too dry, sprinkle some water on it before cleaning water. 3. Clean the solenoid valve and the sprinkling motor. 4. Check whether the solenoid valve is short-circuited, the sprinkling motor is working.
Vacuuming is weak.	1. The seal ring of the recovery tank lid failed. 2. The hose clip loosened. 3. The vacuum motor loosened. 4. The suction hose is obstructed. 5. The suction hose is broken.	1. Attach the seal strip properly. 2. Check the hose clip and install it properly. 3. Open the silencer lid, make sure the motor is installed correctly and properly. 4. Clear out the air inlet and outlet. 5. Repair the suction hose.
The terminal poles of the batteries become hot or fused.	1. The cable are not tightly screwed.	1. Tighten the screw.
Water suction power is weak.	1. The suction hose is obstructed. 2. There are foreign objects in the squeegees. 3. The squeegee is excessively worn out. 4. The height of the squeegee is not suitable. 5. The vacuum motor does not run.	1. Remove the foreign objects. 2. Remove the foreign objects. 3. Use another side of the squeegee or replace the squeegee. 4. Adjust the height of the squeegee. 5. Check the motor.
The machine could not clean thoroughly.	1. The brush motor doesn't run. 2. The dirt is too stubborn. 3. The brush is excessively worn out. 4. The brush is obstructed by a foreign object.	1. Check the motor. 2. Use a special effect detergent and sprinkle it on the floor. 3. Replace the brush. 4. Remove the foreign object.

MAINTENANCE GUIDE

Description of indicator light flashing

State	Working indicator
Turn off the key switch	All the indicator lights fail to blink.
Turn on the key switch	The manual indicator light blinks for long time.
The machine is in the automatic state	The scrubbing, sprinkling, vacuuming, automatic indicator lights bright for long time.
The brush motor works	The scrubbing indicator light brights for long time.
The vacuum motor works	The suction indicator light brights for long time.
The machine removes the brush	The removing indicator blinks for a while and then goes off.
The sprinkling motor works	The sprinkling indicator light blinks for long time.
The brush motor is over current	The scrubbing indicator light blinks slowly.
The brush motor is short circuited	The scrubbing indicator light blinks fast.
The vacuum motor is over current	The suction indicator light blinks slowly.
The vacuum motor is short circuited	The suction indicator light blinks fast.
The soiled water is filled with the recovery tank	The suction indicator light blinks twice, then goes out for 2 seconds.
The solenoid valve is over current	The sprinkling indicator light blinks slowly.
The solenoid valve is short circuited.	The sprinkling indicator light blinks fast.

Note:

1. Slow flash: bright for 1 second, go out for 1 second and recycle to flash.
2. Fast flash: bright for 0.1 second, go out for 0.1 second and recycle to flash.
3. The low power range: 21V-22V, the power-off range: <21V.
4. Removing operation can works only on the condition that the scrubbing indicator light goes off in manual mode.
 - A. When the scrubbing indicator light blinks, the brush will not work after pressing the removing button .
 - B. In automatic mode, the brush will not work after pressing the removing button .
5. The machine changes from the manual mode into the automatic mode by pressing the manual/auto button. Then it starts the functions of sprinkling, scrubbing, sucking step by step. Its time interval is about 0.5 second.
6. The machine changes from the automatic mode into the manual mode by pressing the manual/auto button. Then it stops the function of sprinkling, scrubbing, sucking step by step. Its time interval is about 0.5 second.
7. Press the suction button, the suction indicator light goes off. The vacuum motor still working and drain all the soiled water. 8 seconds later, the vacuum motor stops working.

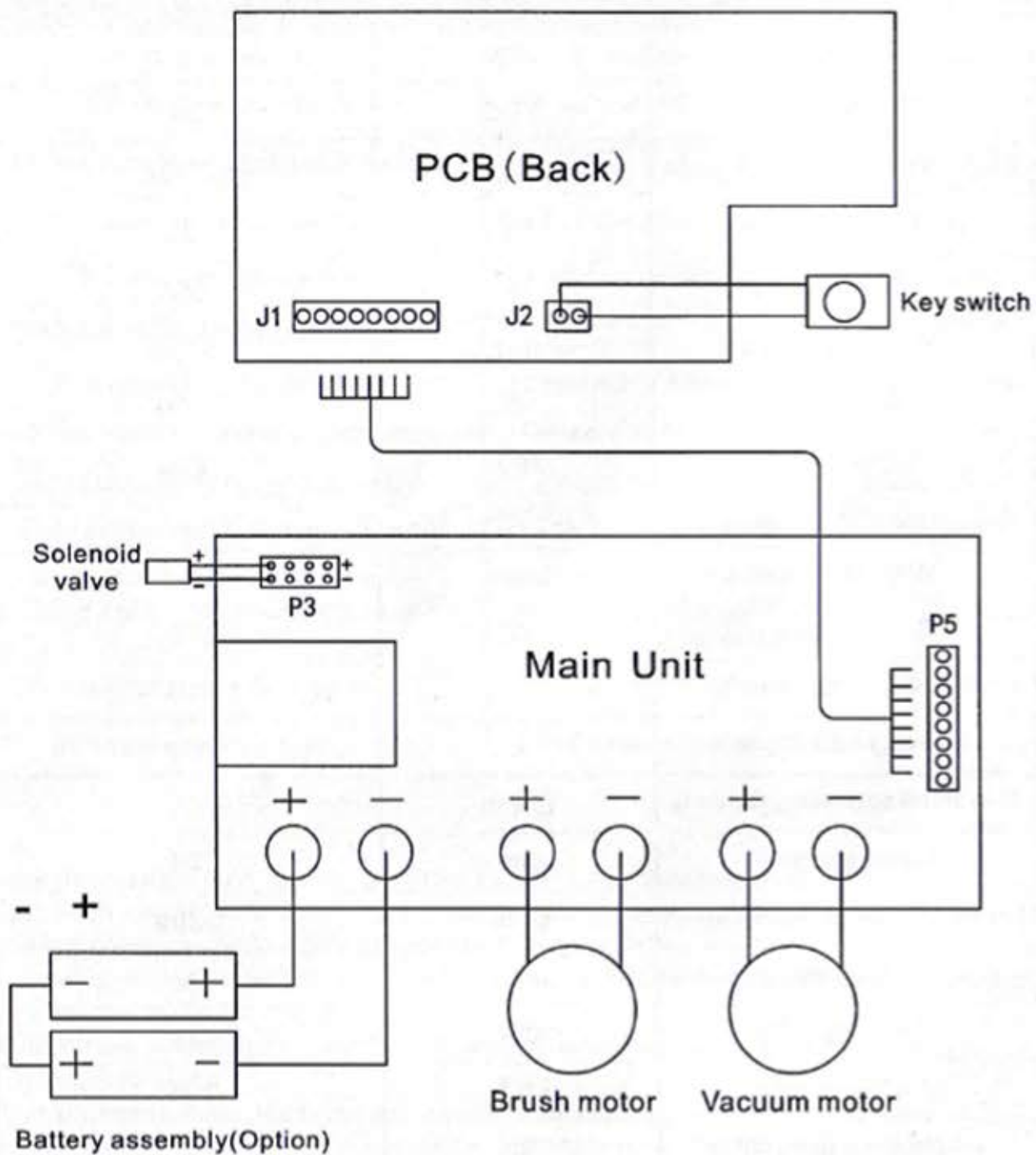
TECHNICAL DETAILS

Technical specifications

Description	Unit	Data
Protection level	IPX	2
Power tension	VDC	24
Efficient working voltage range	VDC	21-32
Water full detect time	s	30
Vacuum motor	W	550
Suction vacuum	mmH ₂ O	1720
Brush motor	W	550
Brush speed	rpm	200
Traction motor	W	/
Driving speed	km/h	0-4.5
Noise level	dB	≤78
Solution tank capacity	L	40
Recovery tank capacity	L	40
Maximum sprinkling capacity	L/min	2.6
Squeegee width	cm	75
Theoretical cleaning efficiency	m ² /h	2200
Brush diameter	inch	20
Cleaning width	cm	51
Brush pressure	kg.f	≥25
Maximum gradient	%	2
Minimum turning radius	cm	75
Machine dimensions (without squeegee)	cm	120x54x93

*Protection level: overload current protection, short circuit, power-down protection, reversed polarity protection.

Wiring diagram



AFTER-SALES SERVICE

After-sales service

If there are any questions, contact local after-sales service agent or manufacturer.

Warranty card	Fill out the warranty card after purchasing the product and store the warranty card for future use.
Under warranty	Provide the after-sales service agent with the warranty card, the invoice and the part that needs to be repaired.
Exceed warranty period	The after-sales service agent repairs the product and charge according to situations.

The product must be repaired by manufacture's approved after-sales service agents.

Limited warranty statement

1. Manufacturer's authorized distributors are responsible for the after-sales service of the product.
2. Recommended replacement intervals and duration of limited warranty of spares and consumables are as follows:

Name	Recommended replacement intervals	Name	Recommended replacement intervals
Brush motor	/	Filter	800hours
Vacuum motor	600hours	Wheel	1000hours
Sprinkling motor	/	Brush assembly	100hours
Traction motor	/	Plastic hoses	800hours
PCB	/	Bumper wheel	1000hours
Linear actuator	/	Squeegee	200hours
Controller	/	Pulling rope	/
Batteries	12months	Belts	800hours
Charger	/	Fuse	/
Solenoid vale/Switch/ Power adaptor	/	Other rubber components	/
Chain	1000hours		

WARRANTY INFORMATION

Disclaimer

Manufacturer takes no responsibility under the following cases:

1. Any damage due to inadequate use of power supply.
2. Any damage due to alteration by unauthorized agents.
3. Any damage of parts due to improper use, storage or handling of machine.
4. Any damage due to operating machine under adverse conditions.
5. Any damage due to overloading to machine.
6. Any damage due to unattended safety precautions before leaving the machine.
 - Stop on level surface.
 - Set parking brake.
 - Turn off machine and remove key.
7. Any machine damage or personal injury due to use other types of charger.
8. It is not intended for use by persons (including children) with reduced physical, sensory mental capacities, or lack of experience and knowledge. Children should be supervised to ensure that they do not play with the appliance.