

## Operator Manual

### NB380 Walk-Behind Floor Scrubber

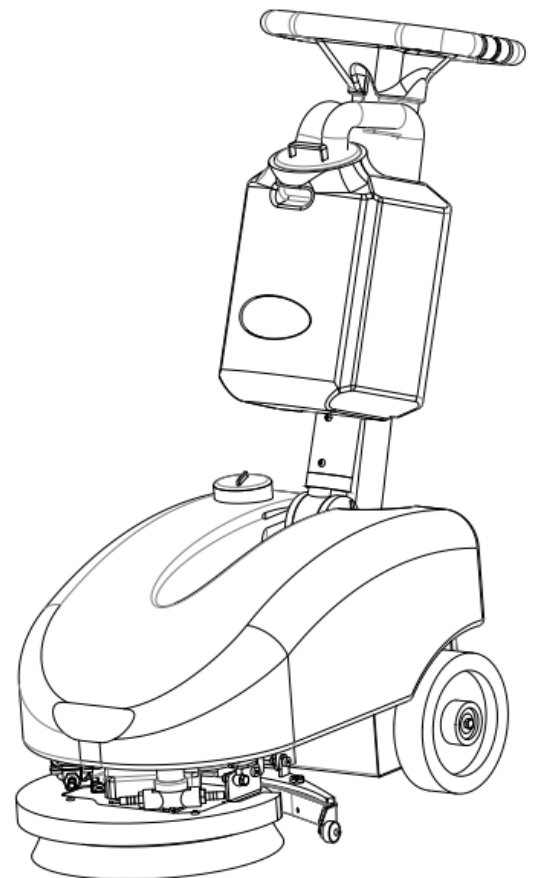


#### WARNING

Do not use the scrubber before reading and understanding these operating instructions.

#### NOTE:

- Please check the designation of your present type at the last page of this document as well as on the ID-plate.
- Keep this manual for future reference.



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# INTRODUCTION



## NOTE

The code of related components in ( ) can be found in the chapter of machine description.

## MANUAL PURPOSE AND CONTENT

- This manual is to provide the operator with the necessary information for the correct and safe use of the machine, which includes the technical data, safety, operation, storage, maintenance, accessories and dispose of the machine.
- Before performing any operation or maintenance on this machine, the operator and the qualified technicians must read this manual carefully.
- If you have any questions about the explanation of this manual or want more related information, please contact our after-sales or agency.
- The operator is not allowed to perform the steps that must be completed by the technicians. All instructions in this manual should be seriously followed, otherwise our company shall not be liable for any losses arising therefrom.

## HOW TO KEEP THIS MANUAL

- The Manual must be kept near the machine, inside an adequate case or bag, away from liquids and other substances that can cause any damage to it.

## DECLARATION OF CONFORMITY

- The declaration of conformity is provided with the machine to prove that the machine complies with relevant criteria and regulations.



## NOTE

The copy of the original declaration of conformity is provided together the machine documentation.

## ACCESSORIES AND MAINTENANCE

- All necessary operation, maintenance and repair procedures must be performed by qualified personnel or the maintenance center designated by our company. Only original spare parts and accessories are allowed to be used on the machine.
- If you need service or want to order spare parts or accessories, please contact our company's after-sales service department or the agent, and provide the model and serial number of the machine.

## CHANGE AND IMPROVEMENT

- Our company is committed to the continuous improvement of the products and reserves the right to notify the improvements and changes of the products that have been sold.

## INTENDED USE

- This scrubber can be used in commercial and industrial environments, and it is suitable for cleaning smooth and hard floors (washing and sewage collecting). It must be used in a safe environment by a qualified operator. This scrubber is not suitable for cleaning outdoors floors, carpets or rough floors.

## MACHINE IDENTIFICATION

- The model and serial number of this machine are marked on the identification label. The information on this label is very important, which is required to be provided when you order the accessories for the machine.

## TRANSPORT AND UNCRATING

- Carefully check machine for signs of damage. Report damages at once to carrier. Record the damages on paper to reserve the right for compensation.

After uncrating, check if the machine is equipped with the following items:

1. Technical documents, including operation manual;
2. Battery connecting cable.

## SAFETY

- The following symbols indicate potential dangers. In any case, please read this information carefully and take necessary precautions to avoid possible injury and property loss.

## VISIBLE SYMBOLS ON THE MACHINE



### **WARNING!**

**Read all the instructions carefully before performing any operation on the machine.**

## SYMBOLS THAT APPEAR IN THIS INSTRUCTION MANUAL



### **DANGER!**

It indicates the danger that may cause death of the operator.



### **WARNING!**

It indicates a potential hazard of injury to people and objects.



### **CAUTION!**

It indicates a caution related to important or useful functions.  
Pay attention to the paragraphs marked by this symbol.



### **NOTE**

It indicates notes on important matters and useful functions.



### **CONSULTATION**

It indicates the necessity to refer to the instructions of this manual before performing any procedures.

## GENERAL SAFETY INSTRUCTION

Specific warnings and cautions for potential damages to personnel and machine are notified as follows:



### **DANGER !**

- This machine must be operated by trained and authorized personnel according to guidance of the manual.
- Before performing any cleaning, maintenance, repair or replacement procedure, read all the instructions carefully, ensure to turn the machine OFF and disconnect the battery connector.
- Do not operate the machine near toxic, dangerous, flammable and/or explosive powders, liquids or vapors. This machine is not suitable for collecting dangerous powders.
- Do not wear jewels when working near electrical components.
- Do not work under the lifted machine without supporting it with safety stands.
  - x When using lead (WET) batteries, they may emit inflammable gas under normal use, must keep sparks, flames, smoking materials and radiating, illuminating and burning items away from the batteries.
- x When charging lead (WET) batteries, they may emit hydrogen gas which may cause explosive. Must ensure the charging environment is well ventilated and away from naked flames.

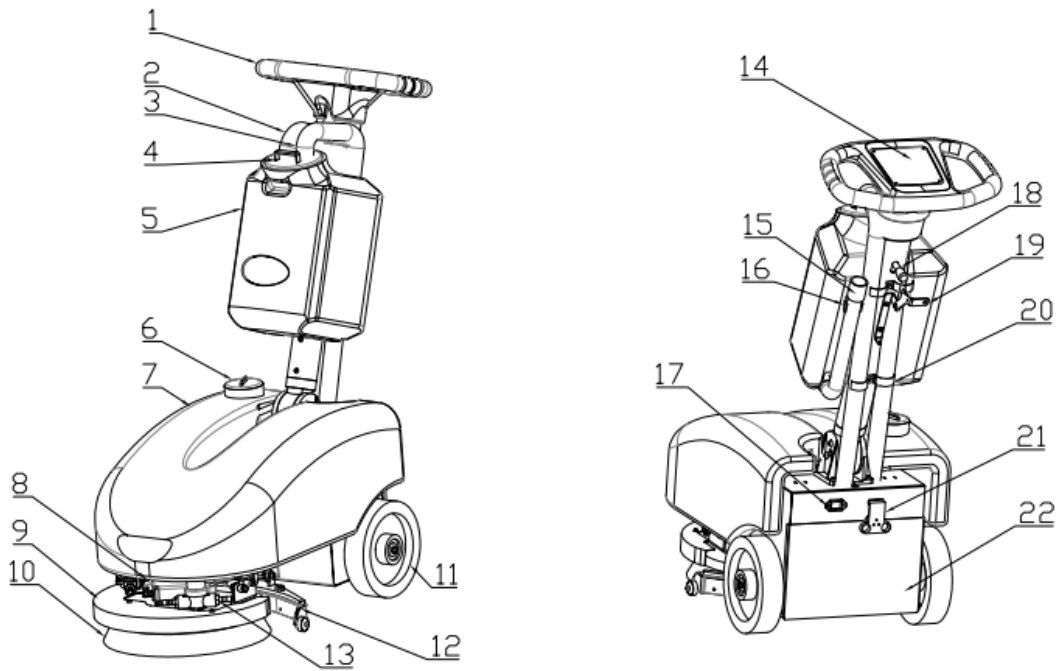


## **WARNING !**

- This machine is intended for **COMMERCIAL USE**, for example in hotels, schools, hospitals, factories, shops, offices and rental businesses.
- Machines left unattended shall be secured against unintentional movement.
- In order to prevent unauthorized use of the machine, the power source shall be switched off or locked, for example by removing the key of the main switch or the ignition key.
- Check the machine carefully before each use. Ensure that all the components have been well assembled before use. Or it may cause damages to people and properties.
- Before using the battery charger, ensure that the values of frequency and voltage indicated on the machine serial number label match those of mains.
- Never move the machine by pulling the battery charger cable. Do not let the cable through a closed door, or winding on sharp edges or corners.
- Do not run the machine on the battery charger cable.
- Keep the battery charger cable away from heated surfaces.
- Do not charge the batteries if the battery charger cable or the plug are damaged.
- To reduce the risk of fire, electric shock, or injury, make sure machine is off before leaving.
- Use or store the machine indoors in dry conditions, it is not allowed for outdoor use.
- The machine both storage and working temperature must be between 0 °C and +40 °C, the humidity of air must be between 30% - 95%.
- Do not use the machine on slopes with a gradient exceeding as specification show.
- When using and handling floor cleaning detergents, follow the instructions on the labels of the detergent bottles and wear suitable gloves and protections.
- Use brushes and pads supplied with the machine or defined in the manual. Using other brushes or pads could reduce safety.
- In case of machine malfunctions, ensure that these are not due to lack of maintenance. If necessary, request assistance from the authorized personnel or from an authorized Service Center.
- Take all necessary precautions to prevent hair, jewels and loose clothes from being caught by the machine moving parts.
- Do not use the machine in particularly dusty areas.
- Do not wash the machine with direct or pressured water jets, or with corrosive substances.
- Do not bump into shelves or scaffoldings, especially where there is a risk of falling objects.
- Do not lean liquid containers on the machine, use the relevant can holder.
- To avoid damaging the floor, do not allow the brush/pad to operate while the machine is stationary.
- In case of fire, use a dry powder fire extinguisher. Do not use liquid fire extinguishers.
- Do not remove or modify the machine stickers.
- Do not tamper with the machine safety guards and follow the ordinary maintenance instructions scrupulously.
- Pay attention during machine transportation when temperature is below freezing point. The water in the recovery tank and in the hoses could freeze and cause seriously damage to the machine.
- If spare parts need be replaced, order **ORIGINAL** spare parts from an Authorized Dealers or Retailers.
- Return the machine to the Service Center if it doesn't work as usual or is in condition such as damaged, placed outdoors, dropped into water.

- To ensure machine proper and safe operation, the scheduled maintenance shown in the relevant chapter of this Manual, must be performed by the authorized personnel or an authorized Service Center.
- The machine must be properly disposed of, because the presence of toxic-harmful materials (batteries, etc.), which are subject to standards that require disposal in special centers (see Scrapping chapter).
- This machine as a cleaning tool only, not for any other purpose use.
- Always keep the openings free from dust, hairs and any other foreign material which could reduce the air flow. Do not use the machine if the openings are clogged.
- Use the machine only where a proper lighting is provided.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.
- Close attention is necessary when used near children.
- Children should be supervised to ensure that they do not play with the machine.
- While using this machine, take care not to cause damage to people or objects.

# DESCRIPTION OF THE SCRUBBER

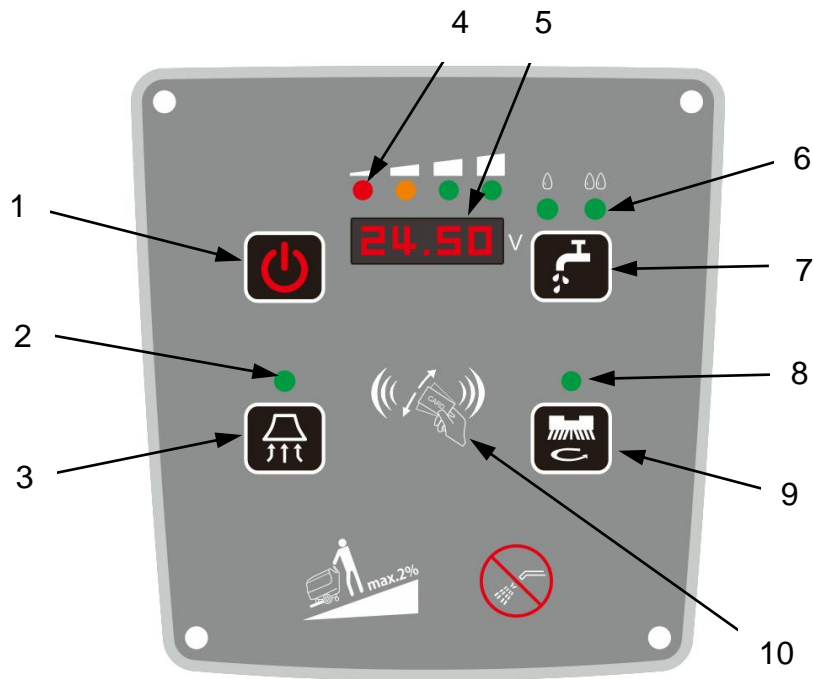


## Overview of the main components

- |    |                      |    |                                |
|----|----------------------|----|--------------------------------|
| 1  | Steering wheel       | 12 | Squeegee assembly              |
| 2  | Air-suction hose     | 13 | Filter                         |
| 3  | Squeegee vacuum hose | 14 | Control panel                  |
| 4  | Recovery tank lid    | 15 | Recovery tank drain hose       |
| 5  | Recovery tank        | 16 | Recovery tank drain hose clamp |
| 6  | Solution tank lid    | 17 | Charging port                  |
| 7  | Solution tank        | 18 | Lever                          |
| 8  | Water tap            | 19 | Squeegee fixing grip           |
| 9  | Brush disc cover     | 20 | Squeegee vacuum hose clamp     |
| 10 | Brush disc           | 21 | Battery compartment buckle     |
| 11 | Rear wheel           | 22 | Battery compartment            |



# CONTROL PANEL

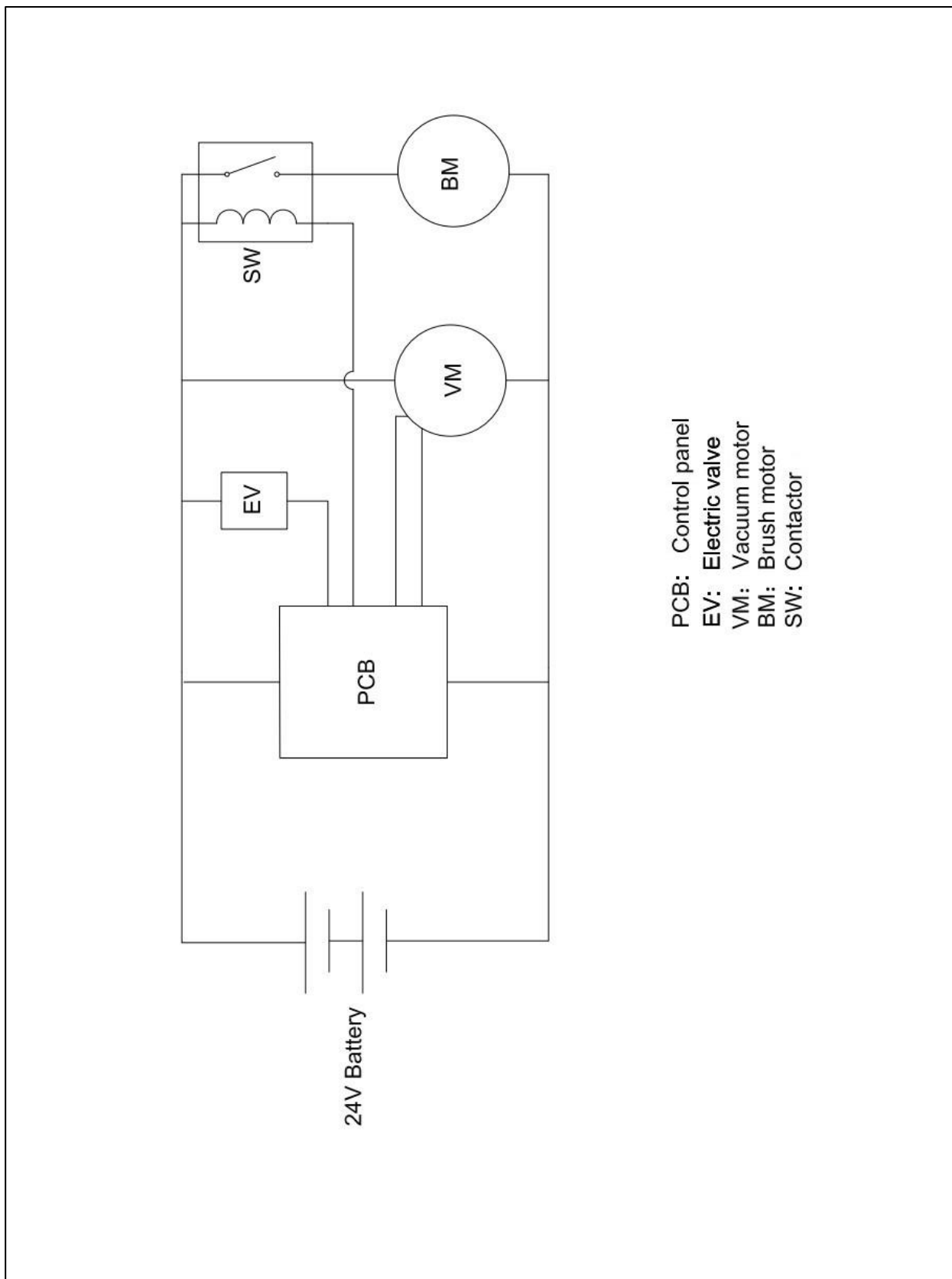


Item	Description	Function
1	Power key	Turn off the power of the scrubber.
2	Brush disc motor indicator	It is on when the brush disc motor is working.
3	Brush disc motor key	Turn the brush disc motor on/off.
4	Battery indicator indicator	It is green when the state of charge (SOC) of the battery is high, and it is red when SOC of the battery is low and needs to be charged in time.
5	Voltage value/working hours display	Indicates real-time voltage values. When the scrubber is turned on and the card is placed on the card reader, the display will indicate the working hours.
6	Solution flow indicator	Displays the solution flows, one drop indicates small flow and two drops indicate big flow.
7	Solution flow key	Adjust the flow of detergent/water supplied to the brush.
8	Vacuum motor indicator	It is on when the vacuum motor is working.
9	Vacuum motor key	Turn the brush disc motor on/off.
10	Card reader	Place the card on the card reader and turn on the scrubber.

## TECHNICAL DATA

Model		NB380
Rated power	W	530
Brush motor rated power	W	380
Vacuum motor rated power	W	150
Vacuum capacity	kPa	>10
Voltage (DC)	V	24
Sound pressure level	dB	65±3
Dimensions (L*W*H)	mm	700*430*1200
Brush speed	RPM	180
Solution/ Recovery tank capacity	L	10L/10L
Cleaning path	mm	380
Clean productivity	m <sup>2</sup> /h	1140
Brush/ Pad diameter	mm	380/380
Continuous working time (12V32AH*2)	h	1.5-2h
Battery compartment size (L*W*H)	mm	290*185*190
Gross weight (with batteries, empty tank)	Kg	58.5
Brush disc quantity		1 Disc

# CIRCUIT DIAGRAM



## OPERATION INSTRUCTIONS



### WARNING!

If the battery is installed or wired incorrectly, the electrical components of the machine may be seriously damaged. The battery must be installed by qualified personnel. Equip the machine with correct charger according to the battery. Please check if the battery is damaged before assembling. Disconnect the battery connector and charger plug. Handle the batteries with great care.

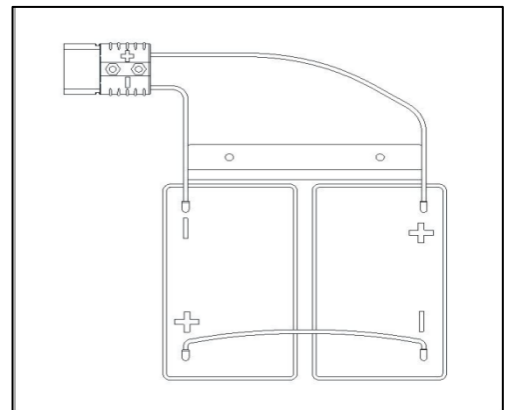


### NOTE

The machine requires 6pcs 6V batteries or one 36V lithium battery.

## INSTALLING BATTERY

1. Unlock the battery compartment.
2. Connect the battery cable correctly as shown in the right figure and lock it on the battery with screws.
3. Push the battery into the compartment.
4. Connect the battery cable connector to the battery connector of the scrubber.
5. Close the compartment and lock the latch.



## BATTERY SETTINGS

1. Press the fan and brush disc buttons at the same time for 2 seconds. The current battery type can be indicated (Pb is for lead-acid battery, Li is for lithium battery battery).
2. Press the fan and brush disc buttons for 5 seconds, and the battery type is switched (e.g. the current lead-acid (Pb) is switched to lithium battery (Li)).

## BATTERY UNDERVOLTAGE PROTETION

1. Lead-acid battery: when the voltage is lower than 20.5V, the battery indicator flashes red, and when it is lower than 19V, turn off the fan and brush disc.
2. Lithium battery: when the voltage is lower than 22V, the battery indicator red light flashes, and when it is lower than 21V, turn off the fan and brush disc.
3. When the battery voltage is lower than 17V, the panel enters the sleep mode (can not be turned on), no longer consumes battery; when the battery is fully charged, activate the panel to continue to work.

## INSTALLING AND REMOVING THE disc BRUSHES/PADS



### NOTE

According to the conditions of the floor to choose the appropriate brush disc or pad driver for cleaning.



### CAUTION

Before manually installing or uninstalling the brush disc or pad driver, ensure that all switches of the machine are off. Protective gloves must be worn during operation to avoid injury by debris.

1. Turn the scrubber over.
2. Align the brush disc/pad holder with the central axis, rotate the brush plate/pad holder counterclockwise by hand to install it, and rotate it in the opposite direction to remove it.



### WARNING

Do not operate the scrubber until the brush disc/pad is installed.

## ATTACHING THE SQUEEGEE ASSEMBLY

1. Unscrew the two knobs on the squeegee assembly and lock it into the groove on the squeegee holder.
2. Tighten the knobs on the squeegee assembly and connect the vacuum hose (8, Fig. 1) to the squeegee assembly.

## FILLING THE SOLUTION TANK

1. Open the fill-port lid in the front of the machine.
2. Fill the cleaning water or suitable detergent with hose. The solution tank water level can be checked by the indicator pipe on the side. When the float ball reaches "F" position, indicating that the solution water tank is full. The temperature of the filling water or detergent shall not exceed +104F (+40°C).



### WARNING

Use only low-foam and non-flammable detergent, which should be applicable to the scrubber.

## START AND STOP OF SCRUBBER

1. Prepare the scrubber as described previously. Place the card on the card reader, and the scrubber is turned on. If the battery indicator is green, the battery is fully charged and ready for use; If the battery indicator is red, the battery needs to be charged. Press the power button to power off the scrubber and fully charge the battery. (See Maintenance chapter).
2. When the vacuum motor and brush disc are not working, the panel will automatically shut down after 10 minutes of continuous standby status.
3. The water flow can be adjusted through the "solution flow key" on the panel according to the cleaning needs. There are two different flows for adjustment, and the flow status can be checked by the solution flow indicator. When the indicator is fully lit, the solution flow is maximum flow. There is a water tap at the front of the solution tank, which can stop or adjust the solution flow.
4. Press the "brush disc motor key" and "vacuum motor key", the indicator light is on, and the vacuum motor and brush disc motor turn on. Release the squeegee fixing grip to lower the squeegee to the ground. Start cleaning work.
5. After cleaning work is completed, press the "brush disc motor key" and "vacuum motor key" again, the brush disc motor turns off, and the vacuum motor turns off after a few seconds. Hold the squeegee fixing grip and lift the squeegee.
6. After making sure that the scrubber has stopped running, press the power button to turn off the power of the scrubber.



### CAUTION!

**To avoid any damage to the floor surface, turn off the brush/pad driver when the machine stops in an area.**



### CAUTION!

**Do not use the machine when the battery charge is low, to avoid damaging the batteries and reducing the battery life.**

## DRAINING THE TANKS

1. When the recovery tank is full, the floating ball of the recovery tank will block the vacuum motor port. Therefore, the ground cannot be drained and stop operation in time.
2. Close the brush disc and vacuum motor, and lift the squeegee.
3. Unscrew the cover of the recovery tank counterclockwise, remove the recovery tank from the aluminum rod, and drain the recovery tank directly.
4. Or directly drain the recovery tank through the drain hose, and then rinse the inside of the recovery tank with clean water.



### **WARNING!**

**When the recovery tank is full, please stop working immediately to avoid the sewage entering the vacuum motor.**

### **CAUTION!**



**The two vacuum hoses to the recovery tank lid should not be connected incorrectly. The vacuum hose to the vacuum motor should be connected to the float shut-off screen and the squeegee.**

## **AFTER USE**

After working, complete the following steps before leaving the machine:

1. Remove the brush disc/pad driver according to the procedures shown in previous chapter.
2. Drain the solution tank and recovery tank according to the procedures described above.
3. Perform the daily maintenance procedures (see the maintenance chapter).
4. Lift or remove the brush disc/ pad driver and the squeegee assembly, and store the machine in a clean and dry area.

## **LONG-TERM INACTIVITY**

If the machine is not going to be used for more than 30 days, proceed as follows:

1. Perform the procedures shown in chapter of After Use.
2. Disconnect the battery and the machine.

## **USING THE MACHINE FOR THE FIRST TIME**

After using this machine for 8 hours for the first time, check if the fixing and connecting parts of the machine are loose, and check for visible damage and leakage.

## **MAINTENANCE**



### **WARNING!**

**The procedures must be carried out after the machine is turned off and the battery charging cable is disconnected. Moreover, carefully read the instructions of Safety Chapter in this manual before performing any maintenance procedures.**

## REGULAR MAINTENANCE CHECKLIST



### CAUTION!

The check items marked with (1) must be performed when the machine is used for 8 hours for the first time.

Check Item	Daily(after use)	Each-week	Semi-yearly
Charge the battery			
Clean the squeegee			
Clean the brush/pad			
Clean the solution tank and recovery tank			
Check the seal of tanks			
Check the squeegee, replace if necessary			
Clean the solution tank filter			
Check the brush/ pad driver, replace if necessary			
Check if all screws and nuts are tightened			1

## CHARGING THE BATTERY



### CAUTION

When the battery indicator on LCD screen is red, it is necessary to charge the battery, or charge it at the end of work.



### CAUTION

Keep the battery fully charged to extend the service life of the battery.



### CAUTION

Charge the battery as soon as possible when the battery is low, otherwise the service life of the battery will be reduced. Check the battery charge at least once a week.

1. According to the type of the battery, choose the appropriate charger for charging.
2. Connect the charger connector to the socket under the seat of the machine, and then connect the charger plug to the power supply.
3. After charging the battery, disconnect the charger plug from the power supply, and then disconnect the connector from the machine.



## CLEANING THE BRUSH DISC/ PAD



### CAUTION!

**Wear protective gloves when cleaning the brush/pad in case of the injury caused by the sharp debris.**

1. Remove the brush disc/ pad driver from the machine, as shown in the previous chapter.
2. Clean the brush disc (pad driver) and brush (pad) with cleaning solution and water.
3. Check the condition of the brush/pad for wear, and replace it if necessary.

## CLEANING SOLUTION TANK FILTER

1. Close the inlet water tap at the front of the solution tank.
2. Unscrew the filter cover, remove the filter mesh for cleaning, and then install them back.
3. Open the inlet water tap and check whether the filter is properly installed.

## CLEANING AND STORING THE SQUEEGEE



### NOTE

**The squeegee must be clean and its strips must be in good conditions in order to have better scrubbing performance.**



### CAUTION

**It is advisable to wear protective gloves when cleaning the squeegee in case of the injury caused by the sharp debris.**

1. Loosen the knobs on the squeegee assembly and remove the vacuum hose from the squeegee.
2. Clean the aluminum squeegee bracket and the vacuum hose. Check the front strip and the rear strip for integrity, cuts and tears; replace them if necessary.
3. Assemble the squeegee in the reverse order of disassembly.

## SQUEEGEE STRIP CHECK AND REPLACEMENT

1. Check whether the front and rear squeegee strips are complete, and free of gaps and cracks. If it has been worn and the upper edge of the strip is complete, it can be installed upside down; If the upper edge is also worn, the strip needs to be replaced, see the instructions below for replacement.
2. Remove the screws and the clamps, and then replace or reverse the squeegee strip. Install the rear squeegee strip in the reverse order of removal.

## **CLEANING THE RECOVERY TANK, CHECKING THE TANK SEALING**

1. Drain the recovery tank through the drain hose.
2. Unscrew the recovery tank lid, remove the recovery tank from the aluminum rod, and rinse the tank lid and recovery tank with clean water.
3. Check whether the sealing ring on the recovery tank lid is complete and sealed sufficiently. Remove and replace the sealing ring if necessary.
4. Install the recovery tank to the aluminum rod and fix the recovery tank lid.

## TROUBLE SHOOTING

<b>Trouble</b>	<b>Possible Cause</b>	<b>Remedy</b>
Scrubber doesn't work and LCD display doesn't light up	Battery connector is disconnected	Connect the battery connector
	Battery is completely discharged	Charge the battery
Scrubber doesn't work, and the battery charge is displayed at 10%	Low battery	Charge the battery
Brush motor doesn't work	Control circuit board failure	Replace the control circuit board
	Brush motor overload	Replace the brush disc with soft brush to be applicable to the floor being cleaned
	Brush motor carbon brush is worn out	Contact after-sales service
	Obstacles prevent the brush rotating	Clean the brush holder
Vacuum motor doesn't work	Vacuum motor damage	Check and replace vacuum motor
	Control circuit board failure	Replace the control circuit board
Insufficient suction, sewage cannot be sucked in	Recovery tank is full	Empty the recovery tank
	Drain hose and squeegee are not well-connected	Connect the drain hose and squeegee correctly
	Squeegee is dirty or worn	Check and clean the squeegee
	Recovery tank lid is not closed properly, or the seal is damaged, or the hose is clogged	Close the lid correctly, or replace the seal or clean the hose.
Insufficient solution supply to brush disc	Solution filter is dirty	Clean the filter
	Dirty solution tank or a clogged pipeline	Clean the solution tank and pipeline
Squeegee leaves scratch on the floor	There are debris under the squeegee blade	Remove the debris
	Squeegee strip is worn, cracked, brittle	Replace the squeegee strips

## **SCRAPPING AND DISPOSING**

1. Have the machine scrapped by a qualified disposal institution.
2. Before scrapping the machine, remove and separate the following materials, which must be properly disposed of according to relevant laws and regulations:
  - Battery
  - Brush disc/pad driver
  - Plastic hoses and plastic components
  - Electrical and electronic components (\*)