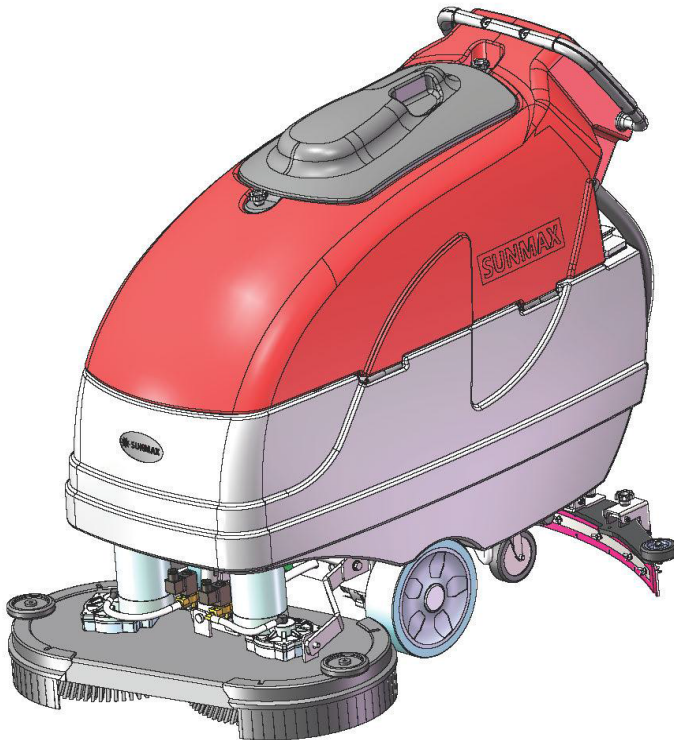




RT-120 Product Use and Maintenance Instructions



SUNMAX Hand Washing Machine

Symbols used in this manual:



Symbol "i" on the Opening Page

This symbol represents that you need to see this instruction manual.



Opening Book Symbol

This symbol represents that the operator needs to read this instruction manual before using the machine.



Warning Sign

For the safety of the operator and the machine, please read the instruction of the parts marked with this sign carefully.



Warning Sign

This symbol represents the danger of gas or liquid leakage.



Warning Sign

This symbol represents that the operator should take protective measures to avoid limb injury.



Warning Sign

This symbol represents that there is a danger of fire and keep away from open flames.



Warning Sign

This symbol represents that the packaged products need to be lifted by standardized means.



Processing Sign

Please read the parts marked with this symbol carefully.

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Shipping Instruction for the Machine

When the cleaning equipment is delivered to the customer, it must be inspected immediately to ensure that all equipment mentioned in the shipping documents have been received, and to see if the machine is damaged during transportation. In the event of an appeal, the receiving party should determine the extent of the machine damage and promptly notify our customer service department to ensure that we can resend you with the missing equipment and compensate for the losses caused by our fault.

Main Introduction

This machine is a kind of floor cleaning equipment, which can clean any form of floors through the high-speed rotation of the rotary brush and the detergent solution with high decontamination ability. Its advantage lies in that it can collect all the dirt produced after cleaning, so that you do not worry about the damage caused by the detergent solution when using it.

This machine can only be used for cleaning the floor. It is recommended to use it normally under good working order, so as to keep the machine in the best condition. Therefore, we suggest that you should read this manual carefully, and refer to it if you encounter difficulties during use. If you really need help, you can contact our customer service hotline or dealer for consultation.

Applicable Ambient

This machine is specially used for cleaning indoor surfaces and floors of industrial, commercial and public buildings.

This machine is not suitable for rain or underwater operation. It is forbidden to use this machine to absorb dangerous dust.

Technical Instructions

Technical Description	Unit Of Measure	machine Standard
Brush Tray Motor	V/W	2x(24/500)
Push Rod Lifting Motor	V/W	1x24/15)
Driving Motor	V/W	1x24/500)
Vacuum Cleaner Motor	V/W	1x(24/1000)
Rotation Speed of Brush Tray	RPM	170
Outside Diameter of Brush Tray	inch	2x17 "
Pressure of Brush Tray	LBS	110
Width of Suction Scraper	inch	38.8
Work Efficiency	SQ.ft	75000
Maximum Forward Speed	Km/h	5.5
Maximum Inclination at Full Load	%	10
Solution Tank	gal	31.7
Recycling Bin	gal	33
Rated Voltage of Batteries	V/Ah	12/120
Charging Time of Lithium Batteries	h	3~4
Charging Time of Lead-acid Batteries	h	8~10
Battery Lifetime	h	3.5~4
Net Battery Weight (Maximum)	LBS	176
Net Machine Weight (Excluding Batteries)	LBS	379
Net Machine Weight (Including the Machine and Batteries)	LBS	556
Total Weight of the Machine (Including the Machine, Batteries and Packing Box)	LBS	666
Overall Dimensions of the Machine (Length x Width x Height)	inch	59.1x38.8x44.5
Dimensions of Packing Box (Length x Width x Height)	inch	61.8x36.0x50.6

Symbol Instructions Involved in the Machine



Symbol of Main Switch or Key Switch

This symbol is displayed on the dashboard, which is used to represent whether the machine is on (ON-)or off (OFF-0).



Symbol of Audible Alarm

This symbol is used to represent an audible alarm button.



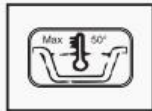
Symbol of Reverse Movement

This symbol is used to represent an operation of reverse gear button.



Symbol of Connected or Unconnected Brush Tray

This symbol is used to represent whether the brush tray is connected or not.



This symbol is used to represent the highest temperature of the filled water tank.



This symbol is used to represent the position of the drain pipe of the solution tank.



This symbol is used to represent the position of the drain pipe of the recycling bin.



This symbol is used to represent the maximum inclination.

Safety Precautions

In order to avoid injury to the operator or damage to the machine, please observe the following regulations carefully.

Precautions:

- Please read the label on the machine carefully. If there is any abnormality, please replace it immediately.
- The machine must be used by authorized and trained personnel. Do not make the inclination of the machine exceed the allowable angle on the display screen.
- This machine is not suitable for cleaning rough or uneven floor. Do not use the machine on slopes.
- If the power cord of the battery charger is damaged, please contact our authorized service center immediately.
- In case of danger, please press panic button on the command panel quickly.
- During maintenance, please turn off the machine and disconnect the power cable.
- Do not place the machine within the range where children can operate and play.
- Please pay attention to the safety of other people around you, especially children, when using the machine.
- Please use the brush provided by this machine or the brush selected in the "Selection and Use of Brush" in the operation manual. Do not use other brushes to avoid accidents.

Precautions:

- This machine is not suitable for children, disabled people, mental patients or people who lack knowledge and experience.
- This machine must not be used outdoors or in a humid environment, and direct exposure to rain is strictly prohibited.
- The storage temperature of this machine is between -25°C and 55°C. Do not store it outdoors in humid environment for a long time.
- The use conditions are room temperature 0°C-40°C and relative humidity 30%-90%.
- The power cord socket (plug-in version) of this machine or the power cord for battery charger (rechargeable version) must be floored correctly.
- Please operate this machine at an appropriate speed.
- Do not use this machine as a means of transportation.
- This machine will not produce harmful vibration.
- Do not use the machine in flammable and explosive environment.
- Do not use this machine to collect flammable liquids.
- Do not use this machine to collect dangerous powder.
- Do not mix different types of detergents, which may react to produce harmful gases.
- This machine is not suitable for cleaning carpets.
- Do not put any liquid containers on the machine.
- When the machine is stationary, do not use brushes to avoid damage to the floor.
- In case of fire, please use powder fire extinguisher and never use water to put out the fire.
- Do not knock against the scaffold, and lest it fall. Operators must always be equipped with corresponding safety measures (including gloves, shoes, helmets, goggles, etc.) during use.

- This machine can be cleaned and dried at the same time. Do not let other people near it during the operation. If the floor is still wet, relevant signs should be placed for reminding.
- If the machine does not work properly, please check whether it is caused by failure to carry out routine maintenance. Otherwise, please contact the technical assistance center for helping.
- If you need to replace any parts, please buy original parts from our authorized dealers or retailers.
- After carrying out the maintenance, please connect the relevant power supply equipment.
- Before using this machine, please check whether all the covers identified in the operation and maintenance instructions are normal.
- Do not take out the relevant protective device unless it is necessary for maintenance (please refer to relevant paragraphs).
- Do not spray water or high-pressure water gun directly to clean this machine, and cleaning with corrosive liquid is strictly prohibited.
- In order to prevent scaling in the filter of the solution tank, it takes several hours to use the machine after adding the cleaner into the tank.
- Do not use acidic or alkaline liquids, because it may damage the machine or hurt others.
- Please ensure that the machine is maintained by professionals every year.
- Please strictly abide by local laws and regulations when dealing with the waste generated by the machine.
- When your machine has reached its service lifetime, please dispose of its materials (especially oil, batteries and electronic components) in an appropriate way, and please consider that the materials of this machine are made of 100% recyclable materials.
- Please remove batteries before handling the machine, and handle the batteries safely according to local laws and regulations.

Preparation for Machine Use

1. Preparation before Unpacking the Machine

The machine is packed in a special wooden box (Fig.1) for forklift loading and unloading.

The package cannot be placed on the top of the forklift.

The total weight of the machine and package is 666LBS.

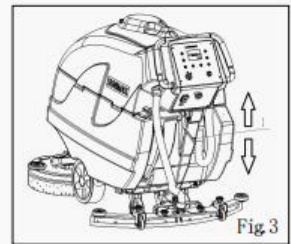
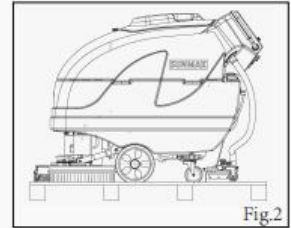
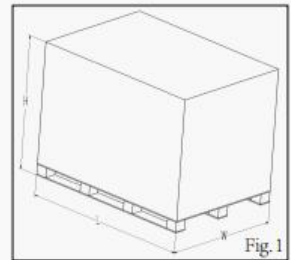
The size of the package in LxWxH is as follows:

L: 61.8"

W: 36.0"

H: 50.6"

1. The outer package must be removed.
2. The floor washer (Fig.2) has been fixed on the tray for the wooden box, and the tray for the wooden box contains wedges to prevent the machine from moving.
3. Wedges must be removed.
4. The machine must be removed from the tray for the wooden box by using the unloading rack and pushed back. Before taking down the machine, the suction scraper must be lifted (Fig.3), and then the handle (1) must be lifted upward.
5. Shelves of containers shall be reserved for later transportation.



Note: If the products are transported in cardboard boxes, handling the packaged products with proper lifting means meeting the legal requirements.



Note: During the operation of the machine, please ensure that there are no people and other objects around the machine.

2. Methods for Moving the Machine (Fig. 4)

1. Check that the recycling bin is empty, and empty it if necessary.
2. Check that the brush head and suction scraper are in the lifting position.
3. Place it on the container rack by using the chute.
4. Check that the key switch is "OFF" and then remove the key.
5. Use wooden wedges to fix the machine on the container rack.
6. Use electronic brake.

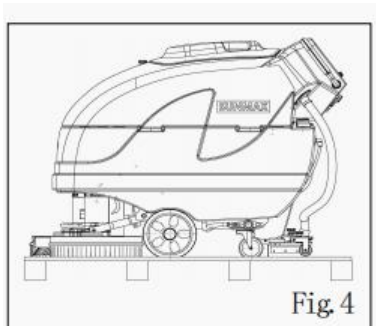


Fig. 4

3. Upper Control Panel Parts of the Machine (Fig. 5)

1. Driving Button
2. Liquid Crystal Display Of Batteries
3. Start
4. Dust Absorption
5. Water Quantity Plus
6. Forward / Backward
7. Water Quantity Minus
8. Downloading and Unloading Brush
9. Electric Lock OFF/ON
10. Speed Regulating Knob
11. ECO
12. Uploading and Unloading Brush

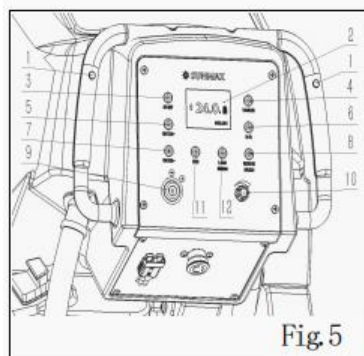


Fig. 5

4. Lower Control Panel Parts of the Machine (Fig. 6)

13. Emergency Button
14. Charging Plug
15. Handle Rod of Suction Scraper

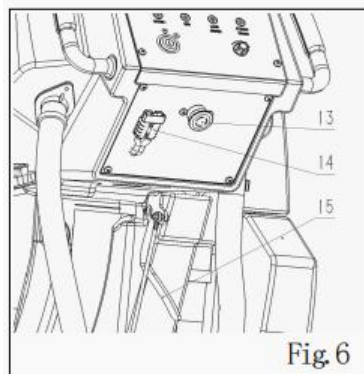
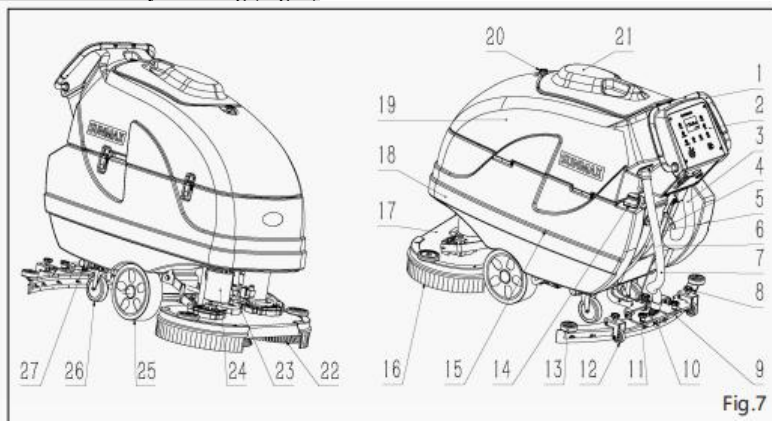


Fig. 6

5. Machine Assembly Drawing (Fig. 7)



- | | | |
|--|--|-----------------------------------|
| 1. Handle | 11. Installation Handle of Suction Scraper | 21. Sewage Tank Cover |
| 2. Control Panel | 12. Supporting Wheel | 22. Brush Tray |
| 3. Drain Pipe of Sewage Tank | 13. Anti-collision Wheel | 23. Electromagnetic Control Valve |
| 4. Handle Rod of Suction Scraper | 14. Water Injection Port of Clean Water Tank | 24. Brush Tray Motor |
| 5. Pull Rope of Suction Scraper | 15. Batteries | 25. Driving Wheel |
| 6. Water Level Pipe of Clear Water Tank | 16. Brushes | 26. Auxiliary Wheel |
| 7. Sewage Suction Pipe | 17. Shield | 27. Filter |
| 8. Height Adjustment Handle of Suction Scraper | 18. Clean Water Tank | |
| 9. Suction Scraper | 19. Sewage Tank | |
| 10. Angle Adjustment Handle of Suction Scraper | 20. Handle of Tank Cover | |

6. Battery Models

1. To start the machine, you must use maintenance-free batteries, sealed batteries with gel technology, and other types of batteries are not allowed.
2. The battery must meet the following models and standards such as CEI EN 60254-1: 2005-12 (CEI 21-5) and CEI EN 60254-2: 2008-06 (CEI 21-7).
3. In order to obtain good performance of the machine, we recommend using the batteries in 12V-120Ah/C5.

7. Maintenance and Disposal of Batteries

1. Please refer to the instructions of the battery supplier to keep and charge the batteries. The new batteries should be fully charged before being used for the first time. The new batteries can be deeply charged and discharged for 5 times.
2. Please pay attention to the choice of battery charger, because the model and capacity of battery charger are different, please choose a professional charger.

3. When the batteries are close to their service lifetime, it must be taken out of the battery room by specialized personnel with the help of professional equipment. Discarded batteries are classified as dangerous discarded items, so we must choose a suitable way to dispose of them!




Warning: It is recommended that you use protective gloves to avoid serious injuries to your hands.





Warning: It is recommended to use a load tool that is suitable for the dimensions and weight of the instrument to take out the batteries.

8. Loading and Unloading of Batteries

The batteries should be installed in a special container under the seat. They need to use lifting tools with suitable load and volume for loading and unloading. These batteries must also meet the CEI 21-5 standard. The dimensions of the batteries are 340mmx175mmx290.

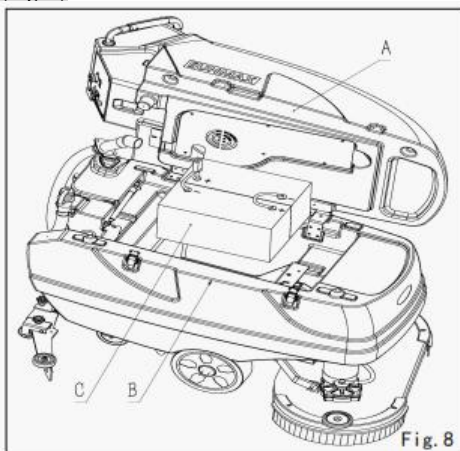
 Warning: Regarding the storage and daily charging of the batteries, the instructions of the battery supplier must be carefully followed. All installation and storage operations shall be carried out by relevant technicians.

 Warning: It is recommended to use sealed batteries to prevent acid leakage!

 Warning: It is recommended to always use protective gloves to avoid serious injuries to your hands.

9. Operating Steps for Loading Batteries (Fig. 8)

1. Ensure that the sewage tank (A) has been emptied.
2. Open the sewage tank (A).
3. Place the batteries (C) in the battery room of the clean water tank (B), and place the positive and negative poles of "+" and "-" oppositely.



 Notes:

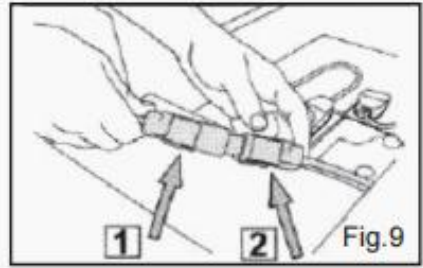
1. Please ensure that the red terminal (+) is connected to the positive terminal (+) and the black terminal (-) is connected to the negative terminal (-). If the connection is not correct, the machine will run incorrectly.
2. If the above operations are not followed, the batteries will be damaged and may explode.
3. It is necessary to spray protective lubricant on battery terminals, and put cord terminal protective sleeves on all terminals.




Note: It is recommended to use lifting tools with suitable load and volume for loading and unloading.

10. Battery Connector and Battery Connection Methods (Fig. 9)

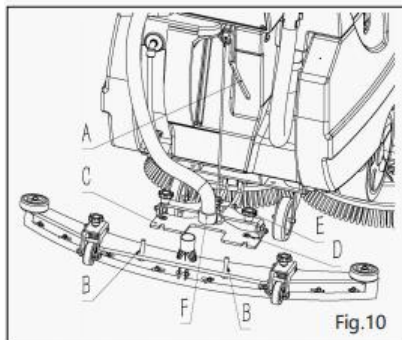
1. Connect the positive and negative poles of the batteries in series with the jumper cord provided.
2. Connect the connector of the batteries to the positive and negative poles to obtain a voltage of 24V.
3. Connect the connector cord of the batteries (1) to the machine connector (2).
4. Rotate the seat bracket to its working position.



 Warning: All installation and maintenance operations must be carried out by professionally trained professionals.

11. Installation of Suction Scraper (Fig. 10)

1. Lift the handle rod (A) of the suction scraper and move it upward.
2. Place the suction scraper (B) under the suction scraper mounting seat (C) and align it with the two mounting holes of the mounting seat.
3. Place two 10 flat pads (D) on the suction scraper mounting seat (C) and align them with the two mounting holes of the mounting seat.
4. Place two M10 star handles (E) on the flat pad (D) and align them with the mounting holes of the two mounting seats, then align them with the two threaded holes of the suction scraper, and finally tighten the star handles.
5. Insert the sewage suction pipe (F) into the connector in the middle of the suction scraper.



12. Angle Adjustment of Suction Scraper (Fig. 11)

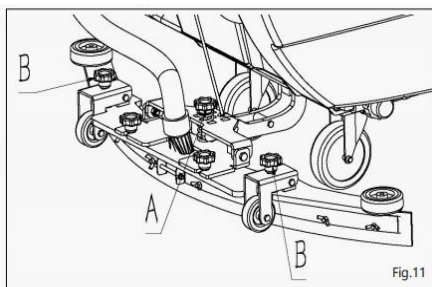
In the process of operation, the rubber scraper behind the suction scraper must be slightly tilted backwards (about 5mm) to ensure the overall length to be uniform. If it is necessary to bend the middle rubber scraper, the suction scraper must be tilted as follows:

1. Turn a star handle (A) clockwise to make the rubber scraper of the suction scraper in the middle part bend continuously, and adjust it until the rubber scraper leans back slightly (about 5mm).

13. Height Adjustment of Suction Scraper (Fig. 11)

The height of the scraper must be adjusted according to the wear state of rubber, which mainly includes the following steps:

1. Rotate two star handles (B) clockwise or counterclockwise to adjust the height of the rubber scraper of the water suction scraper. When rotating clockwise, the rubber scraper will rise, and when rotating counterclockwise, the rubber scraper will fall. If the rubber scraper is worn, rotate counterclockwise to adjust the two star handles (B).



 Note: It is necessary to use protective gloves for these operations to avoid touching sharp edges or tips of metal objects.

14. Disassembly and Installation of Brush Tray (Fig. 12, 13)

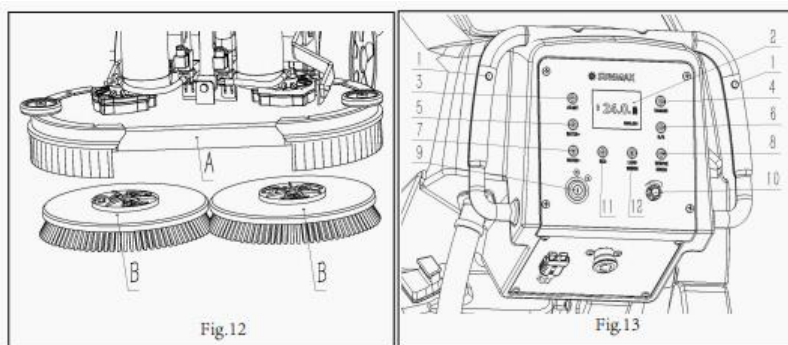
1. Please check that the key switch (9) of the machine control panel is in the "ON" state.

2. The speed regulating knob (10) must be set to the lowest gear counterclockwise.

Note: This speed regulating knob must be turned to the lowest position, otherwise the action of loading and unloading the brush tray will not be performed.

3. If you want to remove the brush tray from the brush tray cover (A), please just press the brush unloading button (8) on the control panel (the green light is on), and the brush tray will be automatically removed without manual disassembly.

4. If you want to install or replace the brush tray, firstly, the brush tray cover (A) is in a raised state, then manually place the two brush trays (B) in the center position corresponding to the rotating shaft of the brush tray cover (approximately in the center position, but not too far away from the center position of the rotating shaft), and then press the brush button (12) on the control panel (the green light is on), so that the brush tray cover (A) will brush. Then please visually check whether the brush tray is completely covered in the brush tray cover (A). If the brush tray is not covered in the brush tray cover (A), you can use auxiliary tools to move the brush tray to be completely covered by the brush tray cover (A). If the brush tray cannot be adjusted, you can press the brush button (12) again until the brush tray cover (A) will automatically rise after the brush installation program is automatically executed. After the brush tray is successfully installed, the brush tray will be automatically installed and raised without manual installation and lifting.



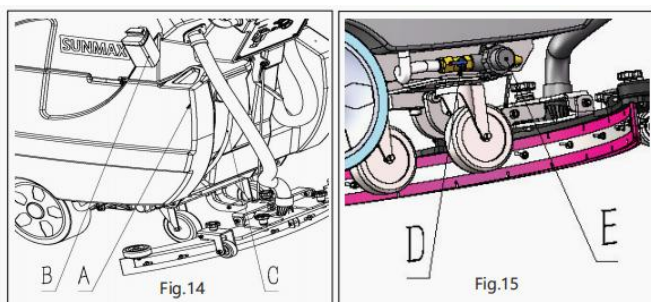
Warning: Do not let people or things near the brush during operation.

Note: Please pay attention to whether the brush is inserted normally. Otherwise, the machine will suddenly move irregularly during operation.

Caution: Protective gloves must be used for these operations to avoid contact with sharp edges or tips of metal objects.

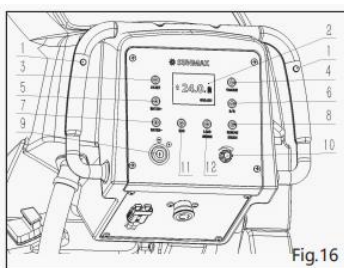
15. Clear Water Tank for Water Injection (Fig. 14, 15)


1. Please check whether the valves (D) of the water pipes on both sides of the water tank have been closed, and if the handle of the valve is in the vertical direction, it will be closed.
2. Then you should open the cover (B) on the clean water tank (A).
3. The maximum capacity of clean water added to the clean water tank is 120 liters, and the temperature of the added clean water cannot exceed 50°C.
4. Please add the liquid detergent according to the concentration and method shown on the label by the manufacturer. In order to avoid the possibility that excessive foam may damage the vacuum cleaner motor, please add it according to the minimum amount required by the detergent. The amount of detergent can also be measured by the cover that comes with the clean water tank, and the cover can also be used as a measuring cup.
5. Cleaning chemicals, acidic or alkaline cleaners can be added, but it is required not to contain oxidants, chlorine or bromine, formaldehyde and mineral solvents.



16. Water Flow Setting of Clean Water Tank, and Cleaning and Replacement of Clean Water Filter (Fig. 16)

1. Adjust the fresh water flow according to the floor condition, and the buttons on the control panel need to be adjusted as water quantity plus (5) and water quantity minus (7).
2. Regularly clean the dirt in the filter (E) under the clean water tank according to the frequency of use (it is recommended to clean it once a week).



 **Warning:** Every time the clean water tank solution is filled, the clean water tank must be completely emptied.



Warning: Please determine whether the detergent is suitable for this machine according to the label instructions of the detergent manufacturer. Do not choose products or solvents without acidity and alkalinity labels. This machine can use acidic or alkaline cleaners with PH value between 4 and 10, but it is required not to contain oxidant, chlorine or bromine, formaldehyde and mineral flux.



Note: Please be sure to use low-foam detergent. In order to avoid a lot of foam, please inject a little defoaming solvent into the recycling bin before cleaning. Never use pure acid.



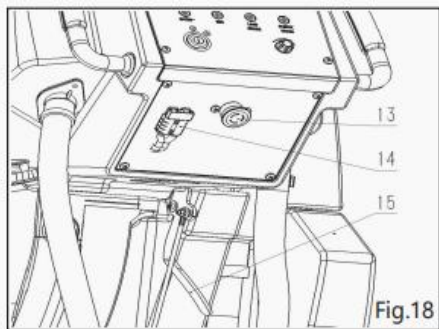
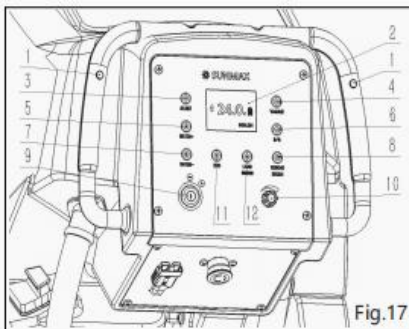
Warning: When handling acidic or alkaline detergents, please wear protective gloves to avoid serious injury to your hands.


Machine Running


17. Running Process (Fig. 17. 18. 19)

Before starting the work, the following preparations must be made:


1. Please check whether the sewage tank is empty, and if not, you should empty it.
2. Please check whether the sewage pipe has been hung in the buckle at the upper end of the sewage tank.
3. Please turn the speed regulating knob (10) to the lowest state.
4. Please check whether the battery connector is connected to the batteries.
5. Please check whether there is a brush tray on the machine. If not, you should start the machine before installing it.
6. Please check whether the emergency stop button switch (13) is turned on, if not, it needs to be turned on.
7. Please turn the key switch (9) to the position “ON” on the machine control panel, and the display screen on the instrument panel will be displayed immediately.
8. Please check whether the electronic brake is available.
9. Please check whether the valves (D) on both sides under the clean water tank have been opened. If the handle of the valve is horizontal, it will be open.
10. Please turn the speed knob (10) higher.
11. Please hold the handle of the suction scraper with your hand and move it down, so that the suction scraper will fall down.
12. Please press the start button (3) once (the green light is on), and the dust suction button (4) will automatically activate (the green light is on), and then press the two driving buttons (1) on the handle with both hands, and the machine will start to move forward. The solenoid valve will start to work and start to distribute detergent solution. If you press any driving button (1) on the handle, the speed will be reduced by 50% to drive. If you want to save a little electricity, ECO(11) mode can be used.
13. If you want the machine to run in the reverse direction, you must lift the suction scraper, and then press the reverse button (6) on the control panel. Other operations are consistent with the forward operation.

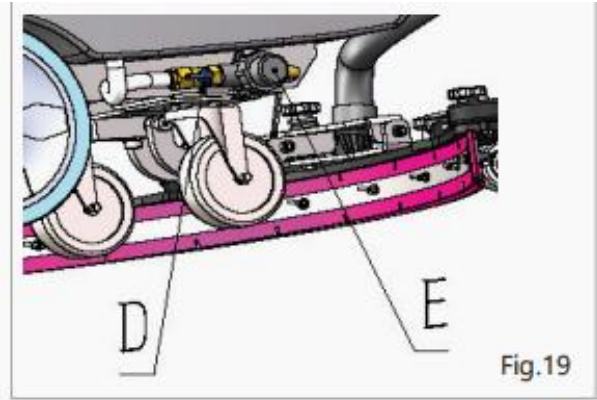


 Warning: If you want to stop the machine, you can just remove your hands.

 Warning: After the start button (3) is pressed, the brush tray will be automatically put down. After both hands hold down the driving button (1), the solenoid valve will start to work and start

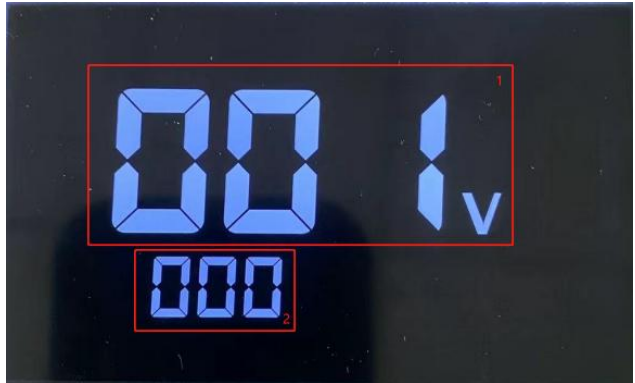
to distribute detergent solution. When the suction scraper is in the working position, the vacuum cleaner motor will start to operate.

 After the machine starts to work, please test run for several meters to check whether the detergent is enough and whether the suction scraper can suck it dry. The machine will work fully until the batteries or detergents are used up.



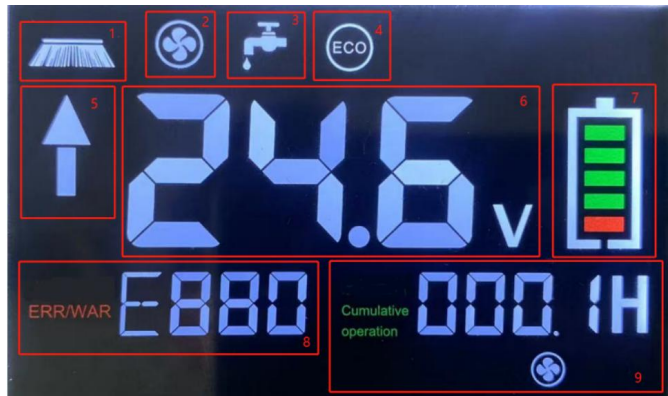
Operating Instruction of Operation Panel

18. Boot Interface



1. Software version display
2. Battery type (000 stands for lead-acid battery,001 indicates lithium battery,It can be modified by the key combination 'ECO' and 'Install Brush')

19. Operation Interface

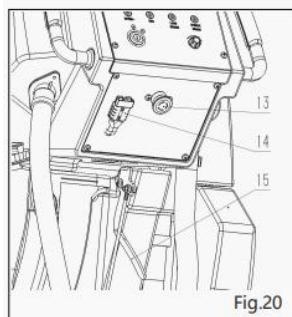


1. Working state of the brushing motor: it is displayed when the brushing motor is working, blinks when it is ready, and does not display when it is not working.

2. Working state of the suction motor: when the suction motor is working, it flashes when it is ready, and it does not show when it is not working.
3. Water gear: The number of drops ranges from 0 to 3 respectively represent different water gear; By the water gear button control.
4. ECO switch: The ECO mode is displayed when the ECO mode is enabled, but is not displayed when the ECO mode is disabled.
5. Walking direction: When the device is powered on, the forward direction is displayed by default, and the downward arrow is displayed when the device is powered back.
6. Battery voltage: Displays the current battery voltage.
7. Battery power: Displays the current battery power.
8. Fault code: When there is a fault, the current fault will be displayed reincarnation, and when there is no fault, it will not be displayed.
9. Working time: Display the operating time of walking motor,brushing motor, suction motor and startup in turn.

20. Emergency Button Machine (Fig. 20)

If the machine encounters any emergency problems during operation, you can press the emergency button switch (13), which will cut off the circuit between the batteries and the machine system and stop the machine. If you want to resume operation, you can just pull up the emergency button switch.

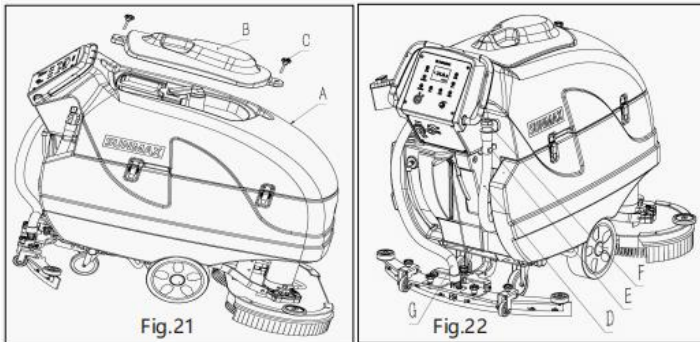


End of Machine Running

21. End of Machine Running (Fig. 21, 22)

At the end of the machine running, please do the following operations for any type of maintenance:

1. Move the machine to a place convenient for sewage discharge.
2. Turn the key switch (9) on the machine control panel to the OFF position.
3. Pull out the drain pipe (D) from the buckle (E), aim the pipe end at the drain outlet, and unscrew the drain pipe cover (F) to drain the sewage, and always empty the sewage tank.
4. Open the cover (B) on the sewage tank (A) and unscrew the two star handles (C) to see if there are impurities and foreign bodies in it. If there are any, clean them with clean water or a spray gun.
5. Unplug the sewage suction pipe (G) on the suction scraper and check whether there are impurities and foreign objects in it. If there are any, it can be cleaned with clean water or a water jet gun. If there are too many impurities or foreign objects in the suction scraper, it is difficult to clean them. Please remove the suction scraper assembly and clean it. For details, please see the chapter "Installation of Suction Scraper" above.
6. Finally, turn the key switch (9) on the machine control panel to the OFF position, and the emergency button is in the OFF state, and then close the valves of the water pipes on both sides under the clean water tank.



Warning: Please disconnect the power supply and pull out the starting key during maintenance.



Warning: It is necessary to use protective gloves for this operation to avoid direct contact with dangerous liquids.

Machine Maintenance

22. Daily Maintenance

At the end of the machine running, please do the following operations for any type of maintenance:

1. Clean the sewage tank and sewage. For details, please refer to the related contents in the chapter "End of Machine Running" above for specific operations.
2. Check whether there are impurities and foreign bodies in the float device in the sewage tank that affect the operation of the equipment, and clean it up if necessary.
3. Check whether there are impurities and foreign objects in the sewage suction pipe and suction scraper that affect the operation of the equipment. For details, please refer to the related contents in the chapter "End of Equipment Work" above.
4. Check whether there are impurities and foreign bodies on the brush tray that affect the operation of the machine, and clean them up if necessary.

23. Weekly Maintenance

At the end of the machine running, please do the following operations for any type of maintenance:

1. Check the inside of the sewage tank to see if there are impurities and foreign bodies that affect the operation of the machine. If there are, please refer to the relevant contents in the chapter "End of Machine Running" above for specific operations.
2. Check the filter screen inside the filter on the water pipes on both sides of the clean water tank. If there are impurities and foreign objects, it needs to be cleaned. For details, please refer to the related contents in the chapter "Water Flow Setting of Clean Water Tank, and Cleaning and Replacement of Clean Water Filter" above.

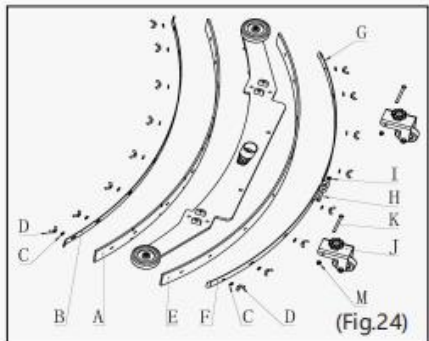
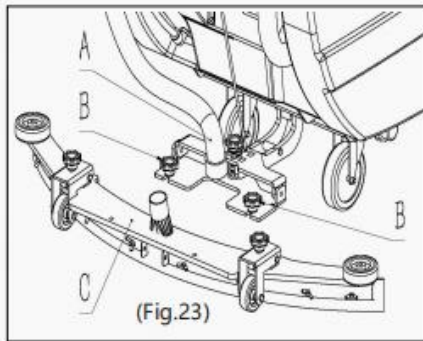
24. Special Maintenance (Fig. 23. 24)

If the suction scraper is seriously worn, the water absorption effect will be worse and the floor cannot be sucked dry. Please replace it in the following operations:

1. Remove the suction scraper (refer to Fig. 1)
 - (1) Check that the key switch of the control panel is in the "OFF" position and remove the key.
 - (2) Pull out the sewage suction pipe (A) and loosen the two star-shaped handles (B).
 - (3) Move the suction scraper (C) outward to remove it.
 - (4) Replace the suction scraper in a horizontal position.
2. Replace the rubber scraper of the front suction scraper (refer to Fig. 2).
 - (1) Remove the butterfly nut (D), flat pad (C) and pressing strip (B) at the front end of the suction scraper.
 - (2) Remove the rubber scraper (A) and replace it.
3. Replace the rubber scraper of rear suction scraper (refer to Fig. 2).
 - (1) Remove the two brackets (J).
 - (2) Remove another bolt (H).
 - (3) Remove the butterfly nut (D), flat pad (C) and pressing strips (F) and (G) at the rear end of the suction scraper.

(4) Remove the rubber scraper (E) and replace it.

4. Adjust the height of the suction scraper depending on the rubber scrapers (adjust according to items 21 and 22).



Warning: Please disconnect the power supply and pull out the starting key during maintenance.



Note: It is necessary to use gloves for this operation to avoid direct contact with dangerous liquids.

Fault Handling

25. Machine that Cannot be Started

1. Check whether the batteries are fully charged.
2. Confirm whether the power system connector is connected to the batteries.
3. Check whether the main switch is turned ON (in the ON position).

26. Brush with Insufficient Water Supply (Fig. 25)

1. It is necessary to check whether there is water in the clean water tank, and visually check the water level of the water level pipe of the clean water tank.
2. It is necessary to check whether the valves (D) of the water pipes on both sides under the clean water tank are closed, and if they are closed, they need to be unscrewed.
3. If the above two items do not solve the water supply shortage, it is necessary to check whether the filter screen of the filter (E) of the water pipes on both sides under the clean water tank is blocked, and if it is blocked, it needs to be cleaned up.
4. If the shortage of water supply is not solved in the above three items, it is necessary to check whether the electromagnetic control valve and pipeline connectors of the water pipes on both sides under the clean water tank are blocked by scale, and if so, please replace relevant parts.

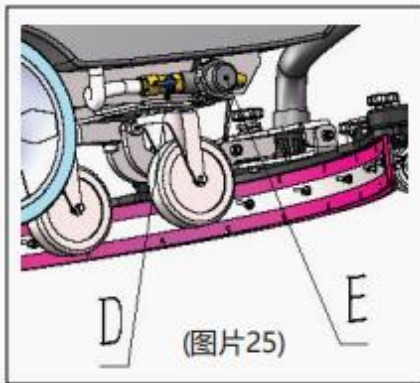


fig25

27. Suction Scraper that Cannot be Completely Sucked Dry

1. Please check whether the suction scraper is clean.
2. The setting of the suction scraper must be checked (see "Preparation for Machine Use" for details).
3. The whole sewage tank must be cleaned (see "Weekly Maintenance" for details).
4. If the rubber scraper is worn, please replace it (see "Special Maintenance" for details).

28. Machine that Cannot be Cleaned

1. Please check the wear condition of the brush tray and replace it if necessary. If the bristles are shorter than 15mm, they need to be replaced. For replacing the brush, please refer to the chapter "Disassembly and Installation of Brush Tray". If the brush is excessively worn, it may cause damage to the floor.
2. It is necessary to use different kinds of brushes as standard equipment. If it is particularly difficult to clean the dirt on the floor, we suggest that you use a special brush according to your needs and our requirements. (See "Selection and Use of Brush" for details).

29. Generation of Excessive Foam

1. Please check whether low-foam detergent is used. If necessary, add a small amount of defoaming liquid into the recycling bin.
2. It should be noted that when the floor is not very dirty, the machine will produce more foam. In this case, a thinner detergent should be prepared.

30. Vacuum Cleaner that does not Work

1. Please check whether the sewage tank is empty, if not, please empty it.
2. Please check the float device in the sewage tank for impurities and foreign objects (see "Daily Maintenance" for details).

31. Brush Motor that does not Work

1. Please check whether the brush is too low during start-up.
2. Please check whether the thermal protection device has been started.
3. Please check whether the motor is correctly connected to the terminals under the pedal.

Warning: To avoid damaging the floor, please turn on the brush motor when the machine moves forward.

32. Fault Code

Fault Codes	LED flashing	Fault Content
E[01]	Flash 1 time	Pre-charge fault 1
E[03]	Flash 3 times	PVDD1 over-voltage fault
E[04]	Flash 4 times	PVDD1 undervoltage fault
E[07]	Flash 7 times	12V-CPU overvoltage fault
E[08]	Flash 8 times	12V-CPU undervoltage fault
E[12]	1 slow and 2 fast	Key switch overvoltage fault
E[13]	1 slow and 3 fast	Key switch undervoltage fault
E[14]	1 slow and 4 fast	Battery undervoltage fault
E[15]	1 slow and 5 fast	Battery overvoltage fault
E[16]	1 slow and 6 fast	Battery voltage limit low fault
E[17]	1 slow and 7 fast	Battery voltage limit high fault
E[25]	2 slow and 5 fast	UART overvoltage fault
E[26]	2 slow and 6 fast	UART undervoltage fault
E[29]	2 slow and 9 fast	Relay 1 connection fault
E[30]	Slow flash 3 times	Traction motor phase A NTC fault
E[31]	3 slow and 1 fast	Traction motor B-phase NTC fault
E[32]	3 slow and 2 fast	Brush motor NTC fault
E[33]	3 slow and 3 fast	Suction motor NTC fault
E[34]	3 slow and 4 fast	Traction motor A control temperature too high fault
E[35]	3 slow and 5 fast	Traction motor A control temperature limit high fault
E[36]	3 slow and 6 fast	Traction motor B control temperature too high fault
E[37]	3 slow and 7 fast	Traction motor B control temperature limit high fault
E[38]	3 slow and 8 fast	Brush motor control temperature too high fault
E[39]	3 slow and 9 fast	Brush motor control temperature limit high fault
E[3A]	3 slow and 10 fast	Suction motor control temperature too high fault
E[40]	Slow flash 4 times	Suction motor control temperature limit high fault
E[41]	4 slow and 1 fast	Traction motor A-phase MOS voltage high fault
E[42]	4 slow and 2 fast	Traction motor A-phase MOS voltage low fault

E[43]	4 slow and 3 fast	Traction motor B-phase MOS voltage high fault
E[44]	4 slow and 4 fast	Traction motor B-phase MOS voltage low fault
E[45]	4 slow and 5 fast	Brush motor MOS voltage high fault
E[46]	4 slow and 6 fast	Brush motor MOS voltage low fault
E[47]	4 slow and 7 fast	High MOS voltage fault in suction motor
E[48]	4 slow and 8 fast	Suction motor MOS low voltage fault
E[49]	4 slow and 9 fast	Brush plate lift MOS-A high voltage fault
E[4A]	4 slow and 10 fast	Brush plate lift MOS-A low voltage fault
E[50]	Slow flash 5 times	Brush plate lift MOS-B high voltage fault
E[51]	5 slow and 1 fast	Brush tray lift MOS-B low voltage fault
E[52]	5 slow and 2 fast	Water grate lift MOS-A high voltage fault
E[53]	5 slow and 3 fast	Water grate lift MOS-A low voltage fault
E[54]	5 slow and 4 fast	Water grub lift MOS-B high voltage fault
E[55]	5 slow and 5 fast	Low voltage fault on MOS-B
E[63]	6 slow and 3 fast	Traction motor open circuit fault
E[64]	6 slow and 4 fast	Traction motor MOS-A short-circuit fault
E[65]	6 slow and 5 fast	Traction motor MOS-B short-circuit fault
E[66]	6 slow and 6 fast	Traction motor overload fault
E[67]	6 slow and 7 fast	Brush motor open circuit fault
E[68]	6 slow and 8 fast	Brush motor short-circuit fault
E[69]	6 slow and 9 fast	Overload fault in brush motor
E[6A]	6 slow and 10 fast	Suction motor open circuit fault
E[70]	Slow flash 7 times	Suction air motor short circuit fault
E[71]	7 slow and 1 fast	Suction air motor overload fault
E[72]	7 slow and 2 fast	Brush lift motor open circuit fault
E[73]	7 slow and 3 fast	Brush lift motor short circuit fault
E[74]	7 slow and 4 fast	Brush lift motor overload fault
E[75]	7 slow and 5 fast	Open circuit fault in water pick lift motor
E[76]	7 slow and 6 fast	Water rake lift motor short circuit fault
E[77]	7 slow and 7 fast	Overload fault of water grill lift motor

E[86]	8 slow and 6 fast	Output point 1 open circuit fault
E[87]	8 slow and 7 fast	Output point 1 short-circuit fault
E[88]	8 slow and 8 fast	Output point 2 open-circuit fault
E[89]	8 slow and 9 fast	Output point 2 short-circuit fault
E[8A]	8 slow and 10 fast	Output point 3 open-circuit fault
E[90]	Slow flash 9 times	Output point 3 short-circuit fault
E[91]	9 slow and 1 fast	Output point 4 open circuit fault
E[92]	9 slow and 2 fast	Output point 4 short-circuit fault
E[98]	9 slow and 8 fast	UART dropout fault
E[99]	9 slow and 9 fast	Throttle connection fault
E[A1]	10 slow and 1 fast	High pedal disable fault
E[A2]	10 slow and 2 fast	Brush function low voltage fault
E[A3]	10 slow and 3 fast	Suction function low voltage fault
E[A4]	10 slow and 4 fast	System time storage fault
E[A5]	10 slow and 5 fast	Parameter storage fault
E[A6]	10 slow and 6 fast	System information storage fault
E[A7]	10 slow and 7 fast	PFC file storage fault
E[A8]	10 slow and 8 fast	Program file fault
E[A9]	10 slow and 9 fast	Emergency stop fault
E[AA]	10 slow and 10 fast	Reverse lock fault
E[97]	9 slow and 7 fast	CAN drop fault

Machine Discarding

1. To discard the machine, please take it to the disassembly center or an authorized machine collection center.

2. Before scrapping the machine, the following materials must be disassembled and separated, and sent to the appropriate machine collection center according to the current environmental health regulations:

- (1) Brush
- (2) Filter
- (3) Electrical and Electronic Components and Parts (*)
- (4) Power Supply Equipment
- (5) Plastic Parts (Water Tank and Handle)
- (6) Metal Parts (Rod and Rack)

Note: (*) In particular, to discard electrical and electronic components and parts, please contact the dealer nearest.

Normal operation of the Machine

1. Make sure that the clean water tank is filled with enough water, the sewage tank is emptied and the battery is fully charged.

2. According to the road conditions, select the buttons for increasing and decreasing the cleaning intensity (ECO/ON or ECO/OFF) and water output and the driving speed regulating knob.

3. Press the start button, the brush tray will automatically fall, and the suction scraper needs to be put down manually.

4. Hold down the two buttons on the control handle with both hands, and the floor washer will start to move forward or backward. Hold down any button on the control handle, and the speed will be halved.

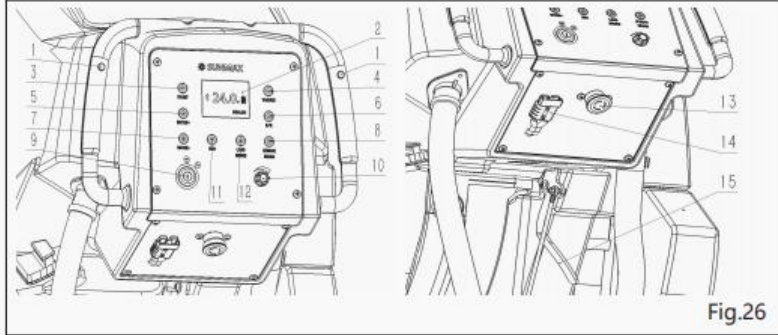
5. Choose the function of floor cleaning or vacuum cleaning separately.


6. In case of emergency, shoot the emergency button switch and stop the machine.


Instructions for Use and Maintenance of Charger


33. Use and Connection of Battery Charger(Fig. 26)


1. Move the machine near the battery charger.
2. Make sure the sewage tank is empty, if not, empty it.
3. Check that the key switch (9) of the machine control panel is in the OFF state.
4. Check whether the capacity and models of the battery charger are suitable for the batteries of this machine.
5. Connect the charger output connector to the machine charging socket (14) firstly, and then connect the charger input plug to the power supply.
6. The battery charger provided in the package with this instruction bag. Be sure to install the battery charger plug according to the instructions in the manual and insert it correctly with the machine charging plug (14).
7. Only use the battery charger designed by this machine, otherwise the battery may be damaged.





 Warning: Please read the instructions for the use and maintenance of the battery charger carefully.

 Warning: It is forbidden to completely discharge the battery, even if the machine is not in use, the battery cannot be left in a state of power loss.

 Warning: This process needs to be operated by professionals. Incorrect connection may affect the normal operation of the machine.

 Warning: Before connecting the battery charger power cord to the socket, please ensure that there is no condensate or other forms of liquid.

 Warning: Attention should be paid to the danger of gas release and corrosive liquid leakage.

 Warning: Attention should be paid to the fire danger, and please keep away from open flames.

Please read this manual carefully before using it.

The right of interpretation of this manual will be reserved by our company.

The exterior of the product is subject to material objects.

Additional notice will not be informed if there is a technical or software upgrade.

※Waste Recycling Treatment Instruction※

When the end-users no longer need this product, we will comply with relevant laws and regulations of the national waste recycling treatment of electrical and electronic products, and hand it over to the local manufacturers with any recycling management qualifications for recycling. The treatment measures should be in line with the comprehensive utilization of relevant national resources, environmental protection, labor safety, and the requirements to protect human health.

1 Safety Instructions

1 Notice for AC input, charging output and connecting wires .

1) The specification in line with safety standards of the three-hole socket should be selected as a Charger AC input socket. Choose the larger size fire retardant wire inline which fits safety standards and rules based on the overall line length.

2) The connecting wire from battery to charging socket should meet the safety requirements of the charger output current. The nominal diameter of the copper wire should be $\geq (\text{input current}/5) \text{ mm}^2$, otherwise they will affect the charging performance because of the line drop, or even fires can originate due to overheat.

3) AC plug and socket, DC charging plug and socket should be checked at a regular basis for any damage or defects. If damaged parts are discovered, they should be replaced in time. Using damaged/defects plugs or sockets will lead to abnormal working of the charger, even cause fire.

4) AC wire and DC charging cable should be always checked whether they are aging or damaged. They should be replaced if found, otherwise it can easily leads to electric shock, fire or other accidents.

5) If the power wire, plug or socket, etc have any damaged, to avoid any incident, they must be changed by manufacturers or approved maintenance personnel.

2 The charger as well as all cables, plugs and sockets must be far away from flammable items like clothing, paper, sofa, gasoline and explosive gas, otherwise it may cause fire due to overheat because plugs, sockets, or circuit is aging or contact poorly.

3 Without our permission, it is strictly prohibited for users to change

the wiring, function, etc.

4 The input of charger power must be installed over current thermistor. Do not replace it by any non professional personnel.

5 Do not detach the charger. There is high voltage inside the charger. Non-professionals are strictly prohibited to open the shell!

6 Users should remove the dust of the charger shell at least half a year.

2 Instruction

1) Match for the charger with AC power grid and the battery pack

Match for the charger and AC power grid: Before using the charger, please make sure AC power grid voltage and its frequency are in the range specified.

Match for the charger and battery pack: There is applied battery specification in the "Basic Parameters" label on the charger side. Please confirm whether battery type (flooded lead-acid batteries, sealed maintenance-free batteries, lithium batteries, nickel-metal hydride batteries, nickel-cadmium battery, etc.), the battery capacity (AH) and battery pack rated voltage (V) match those on the "Basic Parameters" label. If they do not match, it is likely to cause undercharge or overcharge, even results in

permanent damage to the battery pack, and brings serious economic losses.

2)AC power wire, DC charging cable polarity and precautions

AC input wire is at the rear of the charger. L, N, and Earth are marked on the input line plug. Please distinguish correctly. L, N, Earth on AC plug should correspond with those of socket outlets. The Earth wire of the AC input socket should be connected firmly to the ground, otherwise, the shell leaks electricity or electrostatic and easily causes injury.

The charging output line is in front of the charger. You can distinguish the positive and negative of the output line by colors. Red or brown line is to connect battery "+" and blue or black to battery" - "(except special requirements of customers). Special connections of charging polarity with batteries polarity depend on special charging plugs, sockets, and user special requirements. The polarity of the charging socket should be consistent with the polarity of charging plug polarity, otherwise, it can not charge. Please check before using it.

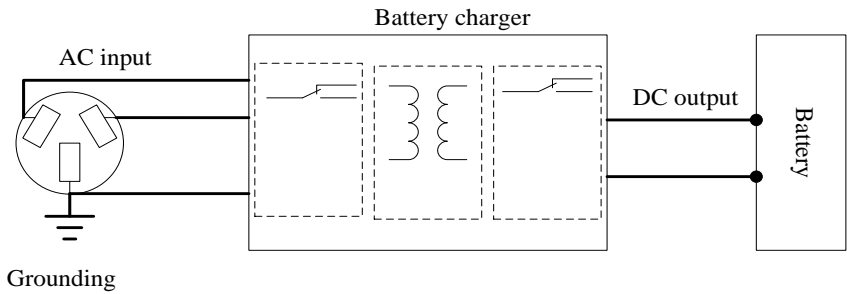
3)Instruction

First, please firmly connect the charger output plug with the battery pack then connect the AC plug with the AC outlet. After the correct connection, the current will be output from the charger, At the same time, the charger

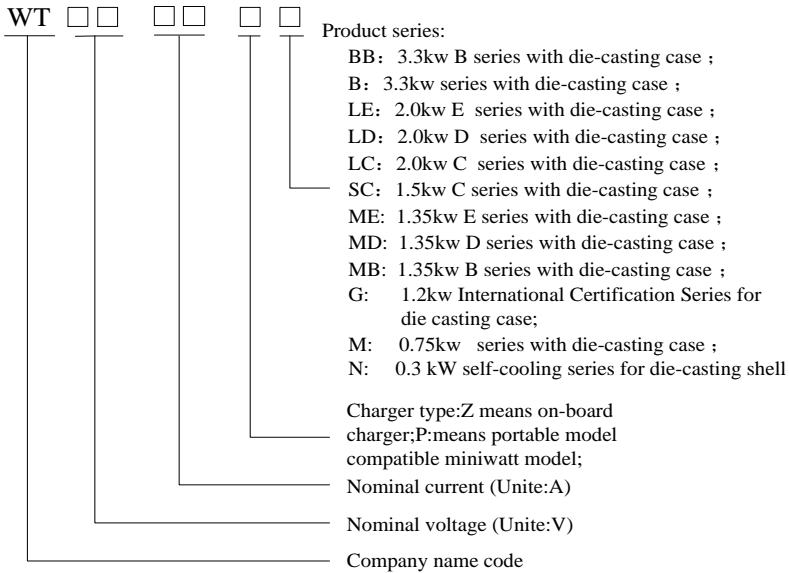
red light begins to glimmers. The green light turns on after finishing the charging. At this time, please disconnect the plug between the charger and alternating current.

3 Specifications and data

■ Schematic diagram of electrical principle



■ Product series



Product series:

- BB: 3.3kw B series with die-casting case ;
- B: 3.3kw series with die-casting case ;
- LE: 2.0kw E series with die-casting case ;
- LD: 2.0kw D series with die-casting case ;
- LC: 2.0kw C series with die-casting case ;
- SC: 1.5kw C series with die-casting case ;
- ME: 1.35kw E series with die-casting case ;
- MD: 1.35kw D series with die-casting case ;
- MB: 1.35kw B series with die-casting case ;
- G: 1.2kw International Certification Series for die casting case;
- M: 0.75kw series with die-casting case ;
- N: 0.3 kW self-cooling series for die-casting shell

Charger type:Z means on-board charger;P:means portable model compatible miniwatt model;

Nominal current (Unit:A)

Nominal voltage (Unit:V)



Company name code

Example: WT6018ZMB means 60V, 18A die-casting case of 1.35kw B series charger;

WT2430ZLC means 24V, 30A die-casting case of 2.0kw C series charger;

4 Troubleshooting

1) LED Indicator Status

Indicator label		
Battery Indicator	<p>Red light flashes every one seconds.Battery level <80% ;</p> <p>Yellow light flashes every one seconds.Battery level > 80% ;</p> <p>Green light flashes every one seconds.Battery level 100%</p>	<p>Charging: Red light flicker;</p> <p>Full: Green light is glowing;</p>
Empty load	Green and red light will be alternately flashes	
Fault indication (“-”: pause 1s)	Over voltage,Over current: Red Green Red - - -	
	Ambient temperature is too high or too low [*] :Red Green Red Green - -	
	Charger overheating: Green Red - - - -	
	Output Under- Voltage: Red Green - - - -	

	Input AC anomaly: Red Green Red Green Red -
	Integrated fault : Green Red Green - - -
Full	Green light was glowing

Notes:1."*":The fault of the charger with communication is "communication failure".

2.The status of the indicator in the upper table is the default status of our factory.If customer specifies the indicator status, the declaration that the indicator status is posted on the shell of the charger shall prevail.

2) Common fault and solution

Indicator State “-”show pause	Fault indication	Solution
Red Green	Without load	Check if these happen:the connection of battery and charger is loose, the battery reversed, or the battery voltage is too low.
Red-Green-Red - - -	Over voltage or over current	If the error opens again after restart ,return it to factory repair.
Red Green Red Green - -	The ambient temperature is too high or too low✘	Please check if the ambient temperature is too high and if ventilation is good and the position of battery temperature sensor.
Green Red - - - -	Charger overheating	Please check whether ambient temperature is too high and if ventilation is good.
Red Green - - - -	Output Under-Voltage	Please return it to the factory.
Red Green Red Green Red -	Input AC abnormality	Please check the input voltage and the plug poor contact.
Green Red Green- - - -	Anyone of the above-mentioned faults repeats five times, then it appears.	Re-up electricity, match the indicator state to the above-mentioned faults then get the corresponding solution.

Notes: “※”:The charger with communication needs to check the communication connection line.

5 After Sales Service

Warranty Description

Dear Users:

Thanks for using our power supply. Our company will provide you with quality service based on relevant regulations.

The following situations are within the warranty period:Within the warranty period, the damage caused by transportation or product quality. Within the warranty period, in the course of normal use, the damages not caused by misuse or vandalism.

Situations below are out of warranty range:Input wire, output wire or plug is damaged; Input wire or output wire is artificially cut; Open or take apart the charger without permission; The shell or the circuit board is damaged by users; The faulty charger is out of the warranty period.

User Notice

■ Tips

The relevant provisions in this manual must be followed throughout the entire process of operation, maintenance, and the repair of this product. The manufacturer state that they are not responsible for the results of the operation when the user is in violation of such requirements.

■ Safety Utilization of Electric Power

Our charger belongs to Class I electrical appliance, please be aware of safety issues while using it!

A reliable grounded power supply must be applied; the ground wire of the power supply should be buried in the ground, and it should not be connected to utilities such as water pipes; the ground and neutral wires of the power supply should be separated, and the two wires cannot be connected together.

Separate outlets must be applied and make sure they are certified products.

For the safety of you and your family, please improve as soon as possible if there is a place in your home that does not meet the above requirements.





