

Manual Book



BRMHK1850

Hand Push Floor Scrubber

Please read this manual carefully before operation/please properly keep it.

All models are enclosed with this manual. This manual provides necessary instructions for machine operation and maintenance.

Please read and understand this manual carefully before operating or using this machine.

This machine can provide efficient service. Following these instructions, the machine can achieve the best results at the lowest cost:

- Operate the machine carefully.
- Maintain the machine regularly according to the maintenance instructions provided in the operation manual.
- Use parts manufactured by the original factory or of the same grade for maintenance.

Spare-Parts can be ordered online, by telephone, fax or e-mail.

★ The clean water tank must be kept at a certain level. The machine must not be operated without water to prevent it from sucking in dry dust, which could damage or soiling the vacuum motor.

★ Due to the characteristics of lead-acid batteries, prolonged low battery levels or failure to recharge in time can cause irreparable damage to the battery.

★ For safer transportation: The manufacturer will disconnect the battery cable before the machine leaves the factory. Consumers should reconnect the battery themselves. The battery cable is placed in the bag (as shown in the picture below).



The seller shall not be held responsible for the resulting consequences by incorrect usage.

Environmental protection

Please discard the packaging materials, old machine components such as batteries, antifreeze, oil and other toxic liquids under the premise of maintaining environmental safety according to your local waste disposal regulations.

Please do a proper recycling.

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Safety precautions

This machine is a commercial product. It is specially used for cleaning indoor hard floor and must not be used for other purposes. Please be sure to use the recommended polish pad, brush and neutral detergent suitable for this machine.

The following safety warnings and the heading "For Safety Consideration" are used throughout this manual and, according to their descriptions, their functions are:

Warning: warn of serious personal injury or death risks or unsafe operations.

For Safety Consideration: matters that must be observed when using the machine safely.

The following safety precautions indicate situations that may cause potential hazards to the operators or equipment. All operators must read, understand and follow the following safety precautions.

Warning: fire or explosion hazard.

- Do not use flammable liquids; Do not operate the machine near or in places with flammable liquids, gases or flammable dust.

This machine is not equipped with an explosion-proof motor. During start-up and operation, the electric motor of this machine will generate sparks. If this machine is used in places with flammable gases, liquids or flammable dust, it may cause flash fire or explosion.

- Do not pick up flammable materials or reactive metals.

Warning: danger of electric shock.

- Disconnect the battery wiring and charger plug before repairing the machine.

- Do not use a damaged power cord to charge the battery. Do not modify the plug.

- If the charger's power cord is damaged or broken, it must be replaced by the manufacturer or its maintenance agent or similar qualified personnel with qualification so as to avoid dangers.

Warning: The rotating brush is running. Keep your hands away. Please turn off the power before repairing the machine.

For Safety Consideration:

1. Do not operate the machine in the following cases:

- Contact with flammable liquids or close to flammable gases, otherwise it may cause explosion or flash fire.
- Unless trained and authorized.
- Unless the operation manual is read and understood.
- Do not have normal operating conditions.

2. Before starting the machine:

- Ensure all safety devices are in place and operating normally.

3. When using the machine:

- The clean water tank must be kept at a certain level. The machine must not be operated without water to prevent it from sucking in dry dust, which could damage or soiling the vacuum motor.
- Please walk slowly in case of slopes or slippery surfaces.
- Wear non-slip shoes.
- Please slow down when turning.
- Report immediately when the machine is damaged or the operation fails.
- Do not allow children to play on or near the machine.
- Observe the mixing ratios and handling instructions on the chemical containers.
- Do not operate on slopes with a gradient exceeding 5% (3°).

4. Before leaving or repairing the machine:

- Park the machine on a smooth floor.
- Turn off the machine.
- Take out the key.

5. When repairing the machine:

- Do not move parts. Do not wear loose tops, shirts or sleeves.
- Disconnect the battery wiring before operating the machine.

- Wear protective gloves and eye protection equipment when handling the battery or wiring.
- Do not flush the machine with high pressure spray or water pipes. That may lead to electrical system failure.
- Use replacing parts provided or approved by the manufacturer.
- All maintenance operations must be done by qualified maintenance personnel.
- Do not modify the original design of the machine.

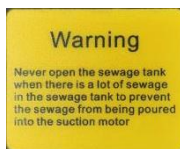
6. When using trucks or trailers for carrying machines:

- Drain the water tank before shipment.
- Use the recommended loading/unloading dock ground when loading and unloading machines from trucks or trailers.
- Remove the battery before handling the machine.
- Please carry the machine with the assistance of others.
- Turn off the machine.
- Lower the brush disc motor to the lowered position.
- Secure the machine with ropes.

Security labels

The safety labels will be marked on the machine according to the indicated positions. If a label is missing, damaged or difficult to identify, please replace that label.

Warning: The label is in the sewage tank cover.

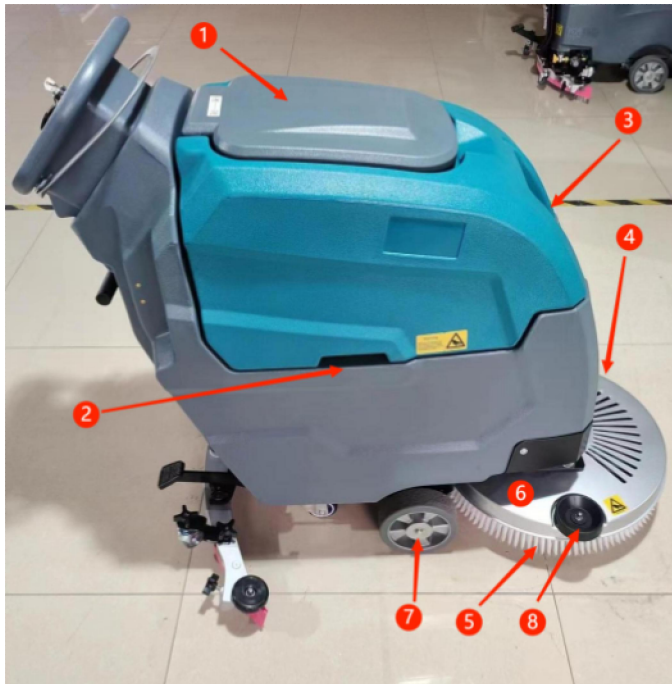


The rotating brush label is on the brush head.

Warning: The rotating brush is running.

Keep your hands away. Please turn off the power before repairing the machine.

Machine components



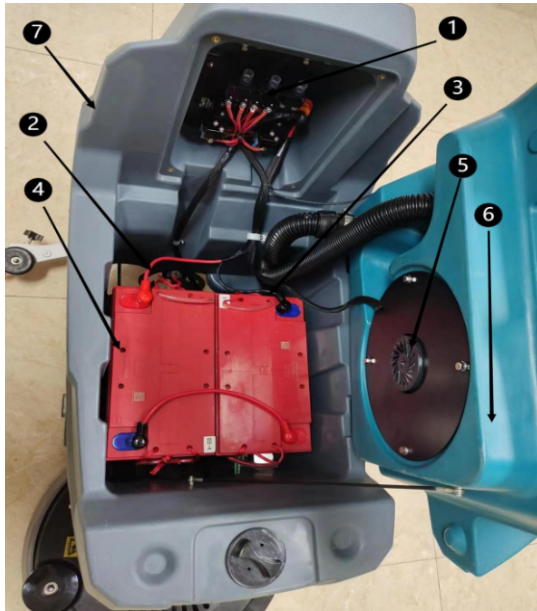
1. Sewage tank cover
2. Sewage tank cover handle
3. Clean water inlet
4. Brush disc cover
5. Brush disc
6. Brush water splash protector
7. Drive wheel
8. Guide wheel



1. Squeegee assembly handle
2. Charging port
3. Clean water filter
4. Brush disc lifting pedal
5. Squeegee assembly
6. Suction pipe
7. Drainage pipe
8. Water level transparent pipe
9. Clean water drainage outlet
10. None



1. Main power switch
2. Battery volume meter
3. Brush disc motor switch
4. Vacuum motor switch
5. Fault Indicator Light
6. None



1. Electronic control board
2. Power positive wire (red)
3. Power negative wire (black)
4. Battery
5. Vacuum motor
6. Sewage tanks
7. Clear water tank

Machine checking

Unpack the machine

1. Carefully check whether there is any damage on the packing box of the machine. Please report any damage to the carrier immediately.
2. Check the list of freight contents. If there are any missing items, please contact the distributors.

Freight contents:

- 2 sets of 12V Battery
 - 24V, 15A Intelligent charger
 - $\phi 10$ wires, 30cm long battery connection
 - 4 plastic sleeves for battery connection
 - One Squeegee assembly
 - One brush disc
-
3. Please remove the iron sheet fixing parts on the big casters. Carefully remove the machine from the pallet with the help of others.

Installation of battery

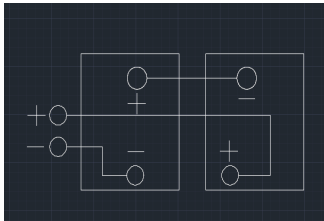
For Safety Consideration: when repairing the machine, please wear protective gloves and eye protection equipment when handling the battery and battery wiring.

Recommended battery specifications:

Two 12V, 100Ah maintenance-free batteries

Maximum size of battery: 345 mm x 168 mm x 216 mm

1. Park the machine on the horizontal ground, turn off all power switches, and take out the key.
 2. Lift the sewage tank so that you can reach the battery compartment.
 3. Carefully install the battery in the battery compartment and arrange the battery terminals as shown in the following figure.
 4. Connect the battery wires to the battery terminals as shown in the figure
- Red is connected to the positive (+) and black to the negative (-).



Working mode of machine

Cleaning method:

Water and detergent flow to the brush disc and the ground through water valves and solenoid valves. Clean the floor with detergent and water by rotating the brush disc. For the sewage produced, when the machine goes forward, the sewage on the floor will be sucked into the sewage tank through the squeegee assembly and the vacuum motor.

Brush and polish pad information

In order to ensure the best efficiency, please use a brush of the appropriate type when cleaning.

The recommended brushes and polish pads are as follows:

1) Brush disc: **510mm 19"**

(Top Plastic diameter is 19", and bottom Brush diameter is 510mm)

2) The needle holder is for pads (Not necessary for machine, need to be purchased separately):

Needle holder: **480mm 19"**

3) Pads (Not necessary for machine, need to be purchased separately)

In general, the different pad colors signify a different cleaning application. For example, darker colors like black, brown, maroon are the most aggressive pads and used in stripping. Colors like blue or green are less aggressive and common scrubbing pads. Light colors, such as white, pink, red, are used for polishing.



PAD HOLDER

Allow for use pads on disc machines



WHITE

Soft pad for finishing wax/oiled surfaces and fine polishing



RED

Medium-soft pad for daily maintenance of any type of flooring



GREEN

Medium-hard pad for maintenance and heavy duty cleaning of resistant floors



BROWN

Heavy duty pad for wet and dry scraping



BLACK

Hard pad for heavy duty cleaning of resistant floors with stubborn dirt

Machine installation

Connect the squeegee assembly

1. Park the machine on the horizontal ground, turn off all power switches and take out the key.

2. Pull up the lifting rod of the squeegee assembly to the upper position.



3. Mount the squeegee assembly onto the bracket, as shown in the figure . Be sure to fully place the fastening knob in the slot and then tighten the knob.



4. Connect the vacuum pipe to the squeegee assembly, as shown in the figure .



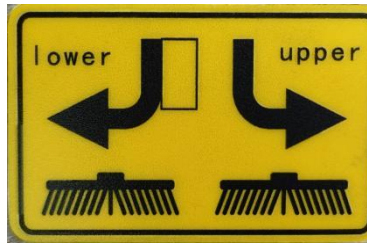
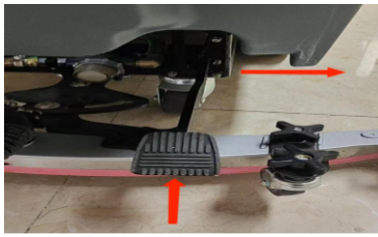
5. Check the squeegee blade strip and make appropriate adjustment (see "Squeegee assembly Adjustment")

Brush disc installation

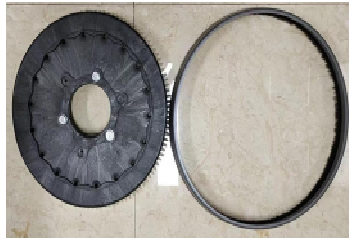
For Safety Consideration: before installing the brush disc or needle holder, please place the machine on the horizontal floor and turn off all power switches and take out the key.

1. Park the machine on the horizontal ground, turn off all power, and take out the key.

2. Press down the brush disc lifting pedal and move it to the right (as shown by the arrow) so as to raise the brush disc motor .



3. Put the needle holder/brush disc in the middle of the brush disc cover.



Injection of solution into the clean water tank

The front of the machine is provided with a bucket water feed hole to allow injection of solution into the clean water tank .



For the floor washing: use hot water (up to 60°C). According to the mixing ratio instructions on the container, pour the recommended detergent into the clean water tank for mixing.

Note: If use a bucket to feed the solution into the clean water tank, make sure the bucket is clean. Do not use the same bucket to feed solution and discharge sewage.

Note: For cleaning method, please always use the recommended commercial detergent, Please add defoamer to the sewage tank to prevent foam from entering the vacuum motor and causing damage. If the machine is damaged due to improper use of detergent (remember not to use granular detergent, such as washing powder), the manufacturer will not be responsible for warranty.

Warning: Pay attention to the danger of fire or explosion hazard. Do not use flammable liquids.

For Safety Consideration: please observe the mixing ratio and handling instructions on the chemical container when using the machine.

Machine operation

For Safety Consideration: Do not operate the machine until you have read and understood the operation manual.

Warning: fire or explosion hazard. Never operate the machine near or in a location with flammable liquids, gases, or flammable dust.

Pre-operation check

- Clean up the dust on the floor.
- Check the scale of the battery meter (refer to "Battery Meter").
- Check the wear of the polish pad/brush.
- Check the wear of the squeegee blade and adjust the angle appropriately.
- Ensure that the sewage tank is empty and the sewage filter screen is installed and clean.

Turn on the machine

1. Turn on the power supply
2. Turn on the main power switch and press the brush disc motor button and the vacuum motor button, Shift to forward gear.
3. Press the pedal of the brush disc and move it to the left (as shown by arrow) so as to land the brush disc. Lower down the lifting handle of the squeegee assembly to lower the squeegee blade to the floor , the vacuum motor works.
4. For different floor cleaning requirements, the water output volume can be controlled by adjusting the water valve switch up and down .



5. To stop cleaning, please turn off the brush motor, the vacuum motor switch and the main power supply so as to raise the brush disc and squeegee assembly.

During operation of the machine

Warning: Do not pick up flammable materials or reactive metals so as to avoid fire or explosion.

For Safety Consideration: please walk slowly and wear non-slip shoes in case of slopes and sliding surfaces.

1. The cleaning paths shall overlap each other by 5cm.
2. Keep the machine moving so as not to damage the floor.
3. Clean the cleaning area in advance to avoid dragging marks. If there is a scratch on the floor following the moving squeegee blade, please wipe the strip with a cloth and remove the garbage.
4. Do not operate the machine on slopes with a gradient of more than 5% (3°).
5. If there is too much foam, please add the recommended commercial defoamer into the sewage tank.
6. Note: Do not allow foam to enter the sewage filter screen in the sewage tank so as to avoid damaging the vacuum motor.
7. **For extremely dirty areas, double cleaning is recommended. First raise the squeegee assembly for cleaning; after soaking in the solution for 3-5 minutes, lower the squeegee assembly and clean it again.**
8. When staff leaves the machine, please raise the squeegee assembly and the brush disc, turn off all power switches and remove the key.

Battery meter

The battery meter shows the level of electricity in the battery. When the battery is fully charged, The energy column will show full. As the power is consumed, the energy column will off from right to left.



Note: In order to prolong the service life of the battery, please charge the battery in time after use of the machine.

When the power level reaches the last scales, please stop cleaning. This can prevent the battery from completely running out. Please immediately push the machine to the charging area for battery charging.

Overload reset switch

The control panel of this machine is equipped with a re-settable overload switch to prevent damage to the electric door lock. A reset switch for the vacuum motor and another is for the brush motor.

When the overload reset switch triggers, please judge the cause of the trigger and let the motor cool down, then press the overload reset switch button manually.



If a machine needs repair, please contact the authorized service center.

Water tank drainage

The sewage tank shall be drained and cleaned after use each time.

For Safety Consideration: Please park the machine on a level ground before leaving or repairing it, then turn off the machine and take out the key.

Drain the sewage tank

1. Move the machine to the drainage location and turn off the power.
2. Hold the drain pipe with its mouth up, remove the pip cover and then lower the pipe for drainage.

Note: Do not use the same bucket to feed solution into the clean water tank when that bucket is used for receiving the sewage discharged from the sewage tank.



3. Remove and flush the sewage filter basket located in the sewage tank .

Drain the clean water tank

To drain the remaining water from the clean water tank, open the drain pipe cover of the clean water tank.



Battery charging

The following charging instructions apply to the charger supplied together with this machine.

Note: In order to prolong the service life of the battery, please be sure to charge it in time after use of the machine so as to prevent the battery from being damaged due to long-term power loss.

Battery charger specifications

- Charger type: fully automatic intelligent charger
- Maintenance-free battery
- Output voltage-24V
- Output current-15A

Use of battery charger

For operating instructions of the battery charger, please refer to the battery charger manual provided together with the charger.

1.Move the machine to a well-ventilated place.

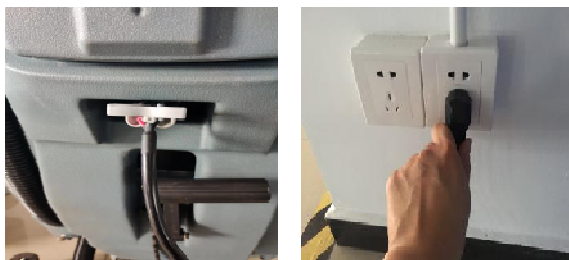
Warning: Pay attention to fire or explosion hazard. For safe use, please stay away from sparks or open fire sources.

2.Park the machine on a flat and dry floor, raise the squeegee assembly and brush disc, turn off all power switches and remove the key.

3.Insert the AC power cord of the electrical appliance into a well-grounded power socket.

4.Insert the DC line of the charger into the battery charging socket at the rear of the machine.

Note: Once the battery charger is connected, the machine will not work any more.



Note: Please do not unplug the DC line of the charger from the socket on the machine during charging. This is to avoid arc discharge. If charging must be suspended during the charging process, unplug the AC power cord first.

Precautions for installation and use of battery

1. Before using the battery, check whether each battery is damaged, clean and marked clearly, and clean the battery surface with dry cloth; Check the open-circuit voltage of the battery, whether the positive and negative poles are clearly marked, and whether there is any reversal.
2. The battery shall be installed upright according to the requirements of the drawings and shall not be inverted. The spacing between adjacent batteries shall be at least more than 5 mm. After the installation is completed, check whether the positive and negative poles of each battery are correct according to the requirements of the installation drawings, and then connect each battery as a whole group with wires.
3. After the battery is completely installed, check whether the connecting parts are loose. When tightening the connecting parts, remember not to use too much force which may damage the pole. Generally, the tightening force is not more than $15\text{N} \cdot \text{m}$.
4. When installing the batteries as a whole, adjust the pads between the batteries to make the batteries upright, and tighten the batteries to prevent the them from shaking and colliding.
5. Electric door locks, safety seats and other devices where sparks are easily to be produced must be isolated from the battery.
6. The batteries will leave factory in state-of-charge. Usually, the user can directly load the battery for use. For example, if the battery is left idle for a long time (more than 2 months), it shall be charged according to the charging method before use.
7. The battery shall not be close to fire sources or heat sources. Direct exposure in the sunlight is strictly prohibited in hot summer. Severe vibration, collision and short circuit of positive and negative poles of the battery shall be avoided.
8. The battery capacity is subject to an ambient temperature of 25°C . For every 1°C drop in temperature, the battery capacity will drop by about 1%. The influence factors of temperature shall be taken into account in use, and the use under -10°C environment

shall be avoided insofar as possible.

9. Batteries shall not be disassembled without authorization so as to avoid danger.
10. Waste batteries must be recycled and must not be discarded at will, which may affect the environment.
11. Pay attention to the battery temperature changes during charging so as to prevent overheating from damaging the battery and causing danger.
12. The machine is strictly prohibited in use with the battery of a long-time power loss. It must be fully charged at one time before use.
13. Always remember not to charge the machine frequently or let the machine work under the condition of frequent power loss, which is easy to damage the battery. The manufacturer is not responsible for the battery damage so caused.

Working status of LED indicator of intelligent charger

Indicator Light State

State	LED(Red light)	LED(Green light)
Standby	on	off
Charging 50% below	off	Slow Flashing (1S Flash One Time)
Completion 50%-100%	off	Quick Flashing (1S Flash TWO Time)
Completion 100%	off	on

Fault Mode Indication

Fault Name	Fault Description	Situation Display	
		LED(Red light)	LED(Green light)
Battery Failure	Battery voltage is too low (for example, 24V battery voltage is less than 8V)	Red, red, green and green flash alternately at 1Hz	
	Battery usage error(for example, 24V batteries use 48V batteries)		
Overheating Automatic Protection	The fan is damaged	Red, green, red and green flash alternately at 1Hz	
Charger Failure	Charger internal circuit failure	Slow Flashing (1S Flash One Time)	off

Machine maintenance

In order to keep the machine in the best working condition, daily, weekly and monthly maintenance procedures must be observed.

Warning: Pay attention to danger of electric shock. Please disconnect the battery wiring before maintaining the machine.

Daily maintenance (after each use)

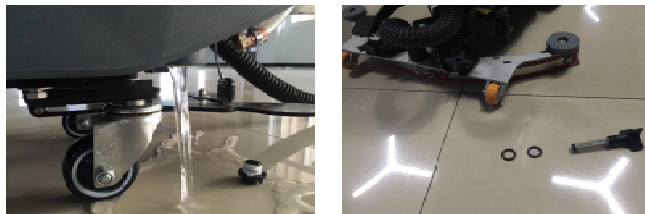
1.Drain and clean the sewage tank



2.Remove and flush the sewage filter screen located in the sewage tank.



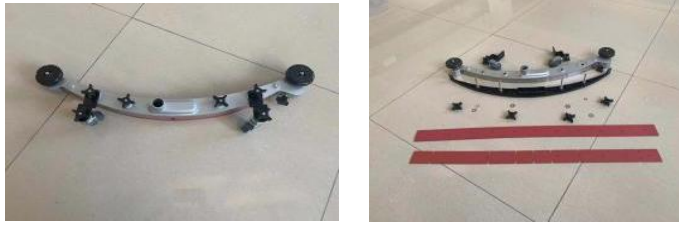
3.Drain the clean water tank, remove the clean water filter screen, clean it and then put it back



4.Ensure that when the brush disc motor is lifted, press the brush disc motor button; once the brush disc motor rotates, close the brush disc motor button; then remove the polish pad and brush and clean them. In case of wear, please turn over or replace the polish pad.



5.Clean the squeegee blade strip.Place the squeegee assembly in the raised position so as to prevent damage to the strip.



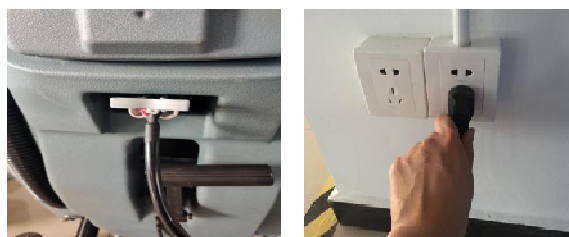
6. Check the wear condition of the edges of the squeegee blade strip. In case of wear, please change over the two ends of the strip. (Refer to "Replacement of squeegee blade Strip")



7. Wipe the machine with multi-purpose detergent and wet cloth. For Safety Consideration: when cleaning the machine, do not flush the machine with high-pressure spray or water pipe, which may cause electrical system failure.



8. In order to prolong the service life of the battery, please be sure to charge the battery in time after use of the machine so as to prevent the battery from being damaged due to power loss.



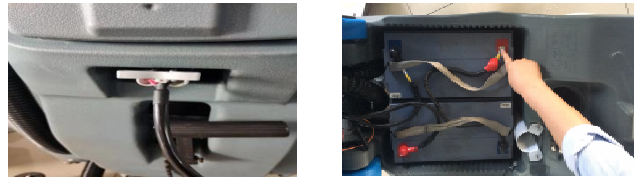
Weekly maintenance

1. Remove the clean water tank under the machine and clean the filter screen. Make sure to empty the clean water tank before removing the filter screen.



2. Clean the top of the battery to prevent electrode corrosion, and check whether the wire

connection is loose .



3. Check the sewage tank's cover seal for foreign matters or damage. In case of any damage, please replace it.



Machine transportation

When using a truck or trailer to transport the machine, be sure to follow the following banding procedures:

1. Raise the squeegee assembly and brush head.
2. Use the recommended loading/unloading ground for loading the machine.
3. Place the front of the machine close to the front of the truck or trailer. After the machine is stably placed, lower down the brush head and the squeegee assembly.
4. Place an obstacle behind each drive wheel to prevent the machine from sliding.
5. Use ropes to fix the top of the machine, thus preventing tilting. Brackets must be installed on the deck of the truck or trailer.

For Safety Consideration: Please use a recommended loading ground to load and unload the machine with a truck or trailer. Use ropes to basically fix the machine on the truck or trailer.

Machine storage

1. Charge the battery before storage of the machine. Do not store the machine with a battery running out. If the storage period is long, please ensure that the battery is charged every 2-3 months so as to prevent long-term power loss and damage.
2. Drain the water from the water tank and rinse it thoroughly.
3. Store the machine in a dry place and keep the squeegee assembly and brush disc in the raised position.

4. Open the sewage cover to facilitate ventilation.

Note: Never expose the machine to rain. Store it indoors.

5. If the machine is stored at a freezing temperature, follow the antifreeze instructions below.

Antifreeze

Pour 1 gallon (4 liter) recreational vehicle (RV) anti-freezing agent into the clear water tank without dilution.

For Safety Consideration: Avoid contact between the anti-freezing agent and eyes. Wear protective glasses.

Important: Rinse the anti-freezing agent in the clean water tank before operating the machine.

Troubleshooting

Problem	Cause	Solution
The machine fails to work.	The switch is not turned on or is damaged.	Use the key to turn on the switch or replace the switch.
	The brush motor button is not turned on or is damaged.	Turn on the switch or replace the switch.
	The vacuum motor button is not turned on or is damaged.	Turn on the switch or replace the switch.
	The battery is dead or damaged.	Please charge or replace the battery.
	The overload reset switch trips off.	Remove short circuit fault and press down the overload reset switch.
The charger does not work.	The plug is not connected to the power supply.	Check the plug connection.
	The positive and negative connection wires are connected incorrectly.	Connect the positive and negative poles correctly.
	The charger fails.	Refer to charger's fault code.
The brush disc motor does not work.	The brush disc is lifted off the ground or the brush disc motor button is damaged.	Replace the microswitch of the brush disc motor.
	The motor switch is damaged	Replace the motor microswitch.
	The overload reset switch trips off.	Troubleshoot, and press down the overload reset switch.
	Wear of motor's carbon brush	Please contact the Service Center.
	The joint of brush disc motor is loose.	Fix the joint again.
	The brush disc motor is damaged.	Replace the motor.
The machine cannot move forward.	The steering wheel is damaged.	Replace the steering wheel.
	The large caster is damaged.	Replace the big caster.
	The adjusting nut of brush disc is loose.	Re-adjust the brush disc's adjusting nut.
	The vacuum motor is damaged.	Replace the vacuum motor.
	The sewage tank is full.	Discharge the sewage.
Little water or no water is flowing out.	Filter screen of the clean water tank	Clean the filter screen of the clean water tank.
	The water valve switch is broken.	Replace the water valve switch.
	The solenoid valve is broken.	Replace the solenoid valve.

Troubleshooting - continued

Problem	Cause	Solution
Vacuum power is insufficient.	The sewage tank is full or the suction pipe is damaged.	Drain the sewage tank or replace the suction pipe.
	The drain pipe cover is not sealed.	Re-cover the drain pipe cover.
	The sewage filter screen in the sewage tank is blocked.	Clean the sewage filter screen.
	Foreign matters at the seal of the sewage pipe cover.	Remove the foreign matters and re-cover the sewage pipe cover.
	Wear of squeegee blade strip	Replace the squeegee blade strip.
	The squeegee blade strip cannot be bent properly	Adjust the height of squeegee blade strip.
	The vacuum motor is damaged.	Replace the vacuum motor.
	Foreign matters at the sewage guide cover	Clean off the foreign matters in the sewage guide cover.
The running time is shortened.	The battery level is low.	Charge the battery.
	The battery level is low.	Please fully charge the battery.
	The battery fails.	Replace the battery.
	The battery needs maintenance.	Refer to the "Battery Maintenance".
	The battery charger fails.	Maintenance or replacement of battery charger

Specification

Item	Dimensions/capacity
Model	BRMHK1850
Length	1300mm
Width	570mm
Height	1125mm
Width/rear squeegee blade (from guide wheel to guide wheel)	830mm
Brush diameter	510mm
Brushed path width	510mm
Solution tank capacity	62L
Recovery tank capacity	67L

Type	Quantity	Voltage/each	Rated current	Weight (each)
Battery (standard)	2	12V	100Ah	32.5Kg

Type	Use	DC	W
Drive	Drive motor	/	/
Electric motor	Brush motor	24V	550
	Vacuum motor	24V	450



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