

Laser Robot Vacuum Cleaner Series Models

Repair Manual V1.0

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Precautions for maintenance operations:

1. Electrostatic discharge is the main reason for damage to sensitive electronic components, please wear wired electrostatic bracelets when repairing, maintenance tools such as soldering irons, electric screwdrivers are required to be grounded and installed, anti-static mats are required to be placed on the maintenance table, all contact with the machine need electrostatic protective measures.

2. When disassembling the machine, pay attention to turning off the robot, do not operate with electricity, otherwise, it is easy to cause the machine to short-circuit and burn out the internal circuit; when assembling, pay attention not to leave other objects inside the machine.

3. The machine is assembled by various specifications of screws, please use the corresponding specifications of the screwdriver to disassemble the machine to prevent slipping screws.

4. There are precision infrared sensor switches and motor magnetic rings inside the machine, which cannot be dropped or impacted, and should be handled with care when disassembling and assembling.

Chapter I Whole Machine Awareness

— (1) Machine disassembly and assembly steps:

1.1 Open the machine cover (as shown in Figure 1) and take out the dust box and water tank components.



Figure 1



Dust Box

Water Tank

1.2 Remove the roller brush cover components and remove the roller brush shaft components. As shown in Figure 2 below:



Roller brush cover components

Roller brush shaft components

Figure 2

1.3 As shown in Figure 3 below, 8pcs of 3.0*8 screws (red), 8pcs of 2.6*6 screws (yellow), two specifications of screwdriver tools are required;

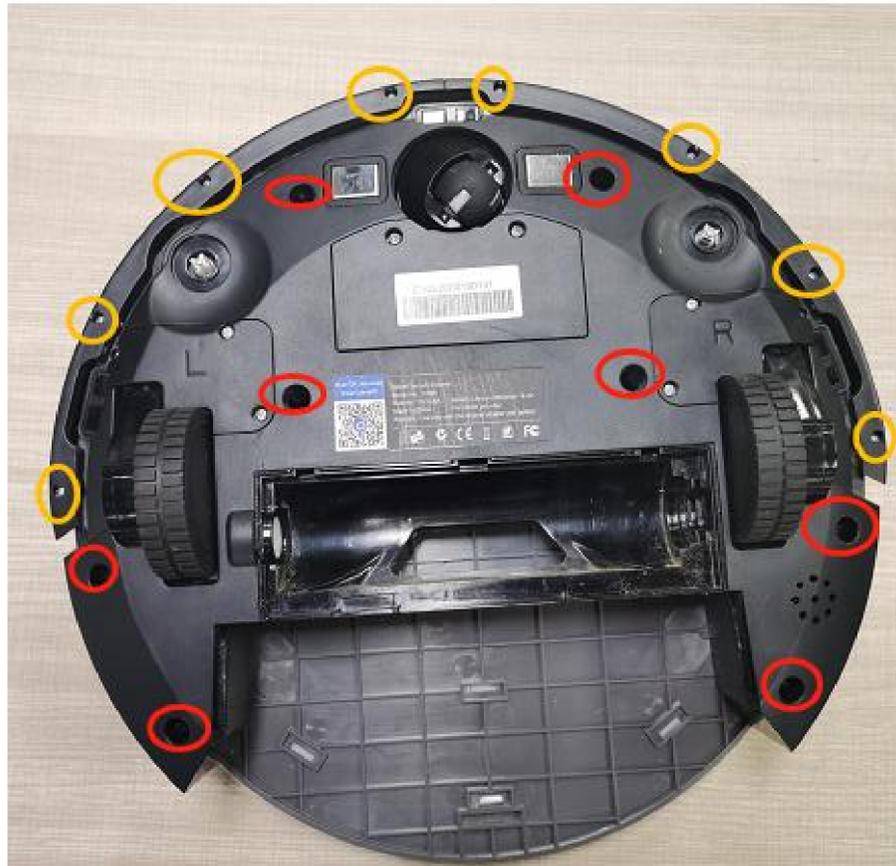


Figure 3

1.4 As shown in Figure 4, remove the bumper and cover parts and pay attention to removing the front shell connection line.



Figure 4

1.5 As shown in Figure 5 below, remove the face shell part.



Figure 5

1.6 Explosion diagram, as shown in the following figure.

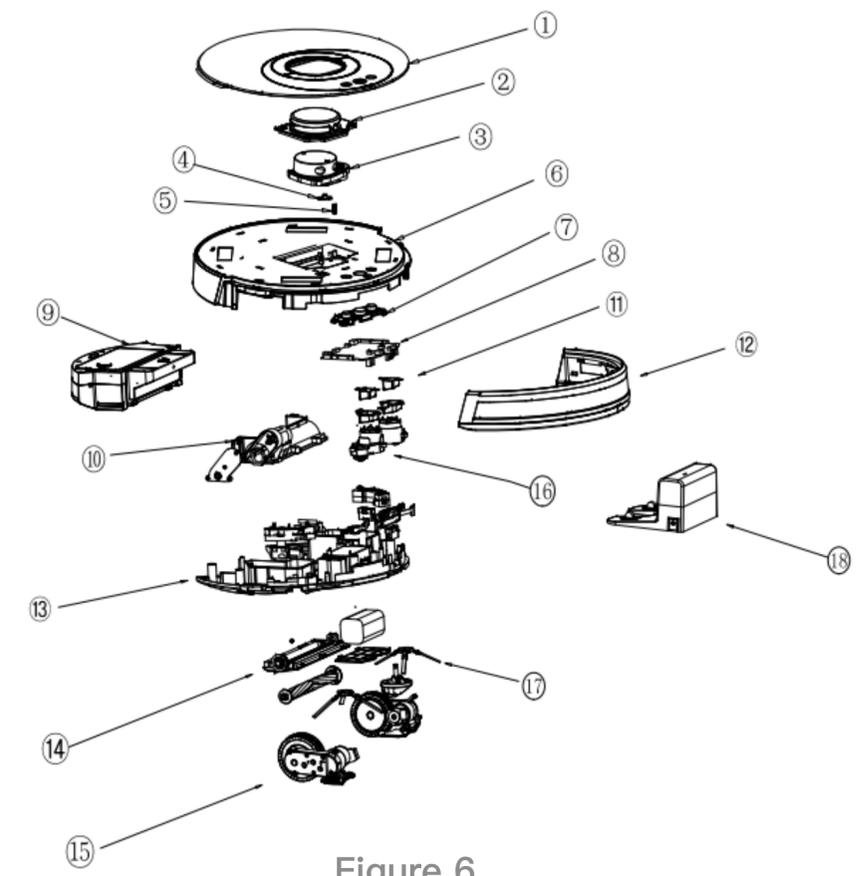
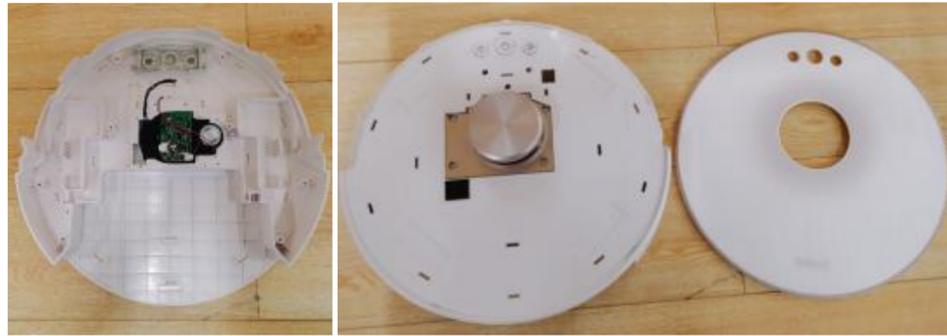


Figure 6

- | | | |
|---------------------|--|---------------------------------|
| ① Laser IML Cover | ⑦ Button | ⑬ Bottom shell components |
| ② Radome | ⑧ Mainboard PCBA | ⑭ Roller brush cover components |
| ③ Laser head module | ⑨ Dust box components | ⑮ Side wheel assembly |
| ④ Button pad PCBA | ⑩ Roller brush components | ⑯ Side brush assembly |
| ⑤ Spring | ⑪ Left and right robot charging shrapnel | ⑰ Left and the right side brush |
| ⑥ Face shell | ⑫ Bumper components | ⑱ Charging station components |

(2) Awareness of functional machine parts



Illustrations

Parts Name

Cover

Contains a middle cover, face shell , buttons



Illustrations

Bottom Shell

Main structural components, bottom shell (fig. 1)

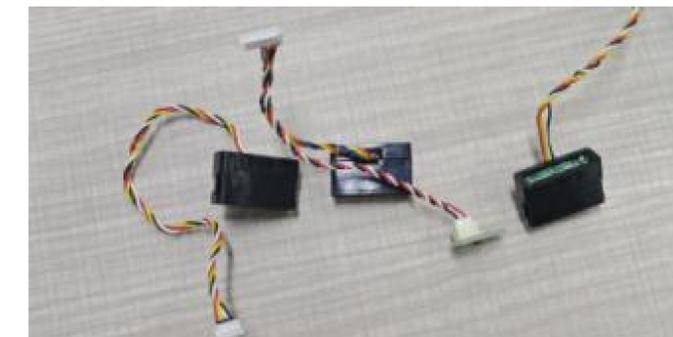


Illustrations

Parts Name

Charging Electrode and Charging Station

The two charging electrodes are charged in conjunction with the charging station, requiring no dirt, no oxidation, and no pasted other subjects on the surface.



Illustrations

Ground Detection Sensor Component

The ground detection sensors include three groups of left, middle, and right ground detection sensors. Each group of ground detection sensors is composed of a pair of infrared emitting and receiving tubes.



Illustrations

Parts Name

Left and Right Wheels

The wheels include drive motors, tires, and rolling tooth box structural parts.



Illustrations

Parts Name

Front Wheel

Universal wheel structure, the machine adjusts the direction.



Illustrations

Side Brush Motor

Side sweep drive motor, as well as internal two-stage drive turbine gearbox construction.



Illustrations

Bumper Components

The bumper components adopts an infrared sensor structure to cooperate with the collision.



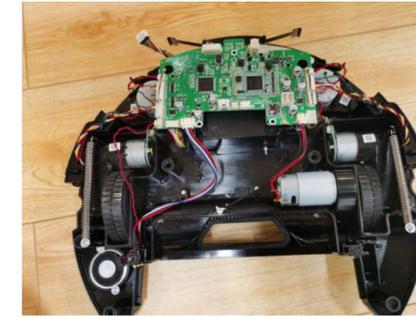
Illustrations

Parts Name

Mainboard

The core component of the machine includes both hardware and software.

The information data from each sensor is input, integrated, calculated, and processed; various machine action instructions are output, such as motor rotation instructions for each component; hardware drive circuit for each component motor; charging circuit; power circuit, etc.



Illustrations

Mainframe Semi-former

The core part of the whole machine:

Including mainboard, side-wheel motor, side brush motor, roller brush motor, speaker, ground detection sensor, wall sensor, WIFI module, universal wheel, geomagnetic detection board, pin fixing module;



Illustrations

Parts Name

Roller Brush Components

Including roller brush motor, gears, rolling tooth box plastic parts.



Illustrations

Fan

Including fan motor, and air duct structure parts. Suction gears can be divided into low, medium, and high, Short press to cycle switching, and the switching sequence is the same as APP. The suction values of the three gears are as follows:

Eco: 350Pa;

Standard : 650 Pa (default file);

Strong: 1000Pa;



Illustrations

Parts Name

Geomagnetic PCB

The geomagnetic PCB detects the magnetic stripe, and the magnetic strip (virtual wall) prevents the machine from crossing.



Figure 1

Figure 2

Illustrations

Dust Box, Water Tank

1. Dust box capacity 600ml: filter, primary filter, HEPA, fan, and other parts (Figure 1)
2. 350ml micro-sensory electronically controlled water tank: water injection port, rubber plug, solenoid valve, and other parts (Figure 2)
3. It is strictly forbidden to wash the dust box and water tank with water.



Illustrations

Parts Name

Battery Components

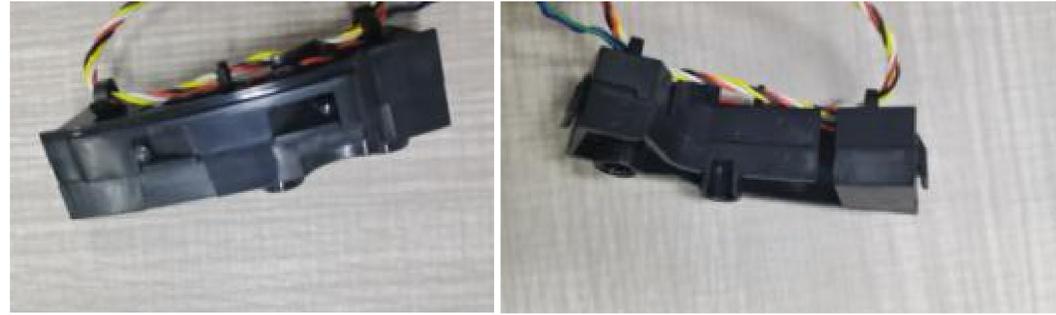
Lithium battery, 2500mAh/3000mAh, voltage 14.4V, 36Wh, 4 cells in 1 pack (4 in1).



Illustrations

WIFI

WIFI small board, transmitting WIFI signal.



Illustrations

Parts Name

Wall Sensors

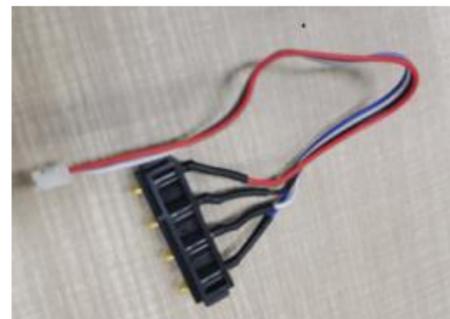
Wall Sensors, each group consists of a pair of infrared transmitting and receiving tubes for better obstacle avoidance.



Illustrations

Charging station and Adapter

Charging station and adapter
Dimensions: 130mm*130mm.*74mm
Rated power: 11.4W
Rated input: 19V-0.6A
Rated output: 19V-0.6A
Rated frequency: 50/60Hz



Illustrations

Parts Name

Pins

The pin fixing module contacts the dust cartridge shrapnel to transmit information to the mainboard, further identifying whether the water tank or dust box is installed.



Illustrations

Laser Components

Laser components are positioning navigation, mainly by emitting laser signals to the target.

Chapter II: Confirmation and Elimination of Common Faults

Reminder: If you find that the new machine cannot be turned on after unpacking, please put the machine on the charging station to charge, and the center of the machine is required to correspond to the center of the charging station and keep a distance of 1cm from the charging station.

二. (1) Alarm and error code prompts

The vacuum cleaner will stop working or fail to start in some abnormal situations, and the machine will automatically report an error message. The error prompt is distinguished by the two methods of voice broadcast and APP prompt display to distinguish what kind of fault the machine has. Please refer to the following description for the fault identification table.

Trigger Scenarios	Lighting Effects	Voice Contents	APP	Notes
Power on (the power switch is on)	Green/red/yellow light flashes, the power button (green) is always on	Welcome to use robot vacuum cleaner, the robot is ready	No prompt	Long press the power button for 3s to turn on, long press for 5–8s to turn off
When the network connection is successful and the App enters the binding success interface.	The recharge button (yellow) flashes quickly, and the power button (green) is always on when the network is successfully connected.	Network connection succeeded	Connection successful interface	
Reset wifi	The recharge button (yellow) flashes quickly	Connecting network	No prompt	Long press the recharge button for 3 seconds to enter the connection network
Press the cleaning button on the robot, press the cleaning button on the remote control, or click on the App to clean	The power button (green) is always on	Start Cleaning	No prompt	

Press the main unit cleaning button again, press the cleaning button on the remote control, or click on the App to clean	The power button (green) is always on after breathing	Pause beep	No prompt	Ding dong...
Before 10 minutes of standby, press the cleaning button on the main unit again, press the cleaning button on the remote control again or the APP to continue	The power button (green) is always on after breathing	/	No prompt	
Press the edge cleaning button or APP to start edge mode	The power button (green) is always on	Connecting network	No prompt	
The robot completes the cleaning task and automatically recharges	The recharge button (yellow) is always on	Cleaning has been completed	No prompt	
When the power is lower than 20%, the recharge is triggered	The power button (green) is always on, and the recharge button (yellow) is always on	Low battery, please charge	No prompt	
During cleaning, the recharge button on the remote control or the APP triggers the recharge	The recharge button (yellow) is always on	Start recharging/enter recharge mode	No prompt	
When the robot stops, the recharge button on the remote control or the APP triggers the recharge.	After the power button (green) flashes, the recharge button (yellow) is always on	Returning to charging station	No prompt	

During recharging, the recharge button on the remote control or the APP triggers a pause	The recharge button (yellow) is always on, after a pause, the power button (green) flashes	Pause beep	No prompt	
Charging at the charging station	Recharge button (green) breathing	Start charging	No prompt	
Press the edge cleaning button or APP to start edge mode	The power button (green) is always on	Connecting network	No prompt	
Fully charged	The recharge button (green) breathing becomes always on	Charging is completed	No prompt	
Start the firmware upgrade	/	/	Upgrading interface	APP interface prompt
Firmware upgrade completed	/	/	Upgrade completed interface	APP interface prompt
Turn off	The power button (green) is always on until it turns off after a successful shutdown	/	No prompt	Press and hold the power button for 5–8 seconds to turn off
Trigger cleaning when dust box is removed	The power button (red) light is always on	Dust box is not installed	Prompts Voice contents	APP interface prompt
Robot suspended	The power button (red) light is always on	Machine off the ground/wheel off the ground	Prompts Voice contents	APP interface prompt

The anti-fall sensor is blocked or placed in a high place	The power button (red) light is always on	Machine off the ground/wheel off the ground	Prompts Voice contents	APP interface prompt
The bumper bar or bumper sensor is jammed	The power button (red) light is always on	Please check whether the bumper is stuck	Prompts Voice contents	APP interface prompt
The main wheel is stuck or entangled	The power button (red) light is always on	Please check if the wheels are stuck	Prompts Voice contents	APP interface prompt
The main brush is entangled or stuck	The power button (red) light is always on	Please check if the roller brush is stuck	Prompts Voice contents	APP interface prompt
Side brush is entangled or stuck	The power button (red) light is always on	Please check if the side brush is tangled or stuck	Prompts Voice contents	APP interface prompt
Time for scheduled cleaning is now	The power button is always on	Start Cleaning	No prompt	
When the device is bound to WiFi, it will broadcast when the APP is connected to the machine.	The recharge button (yellow) flashes quickly, and the power button (green) is always on when the network is successfully connected.	Connecting network	Prompts for progress	
Press the cleaning button when the robot enters sleep mode	Lights from dark or off to bright to wake up	Wake Up Beep	No prompt	Ding dong...
Take out the water tank and start it when not working	The power button (red) light is always on	The water tank is not installed	No prompt	APP interface prompt

Option 1: Trigger work when the water tank is taken out or take out the water tank during work. Option 2: In the mopping mode, start the work when the water tank is taken out or take out the water tank during work (the water tank can be omitted in the mopping mode).	The power button (red) light is always on	The dust box is not installed	Prompts Voice contents	Suspend work
Press the edge cleaning button or APP to start edge cleaning.	The power button (green) is always on	Edge cleaning	No prompt	
APP remotely start target area cleaning.	The power button (green) is always on	Partial area cleaning	No prompt	
APP remotely start Quiet mode	Power button (green) is always on	Quiet mode	No prompt	
APP remotely start Standard mode	The power button (green) is always on	Standard mode	No prompt	
APP remotely start Turbo mode	The power button (green) is always on	Turbo mode	No prompt	
APP remotely start mopping	The power button (green) is always on	Mopping mode	No prompt	
Remote control set scheduled cleaning	The power button (green) is always on	Schedule cleaning settings	No prompt	
Set up scheduled cleaning successfully	The power button (green) is always on	Scheduled cleaning setting succeed	No prompt	
Long press the remote control to cancel a scheduled cleaning	The power button (green) is always on	Cancel a scheduled cleaning	No prompt	

二. (2) Fault reporting error handling

2.1 The machine reported wrong dust box or not installed

If the dust box of the machine is not installed or installed in place, the machine contacts the dust box through the pin to receive signal feedback. Start the machine without recognizing the dust box to trigger a tone: the dust box is not installed. As shown below:

1. For example, the back of the red arrow in the left figure is a pin fixing module;
2. The machine is determined by the contact between the pin and the dust box or the water tank;



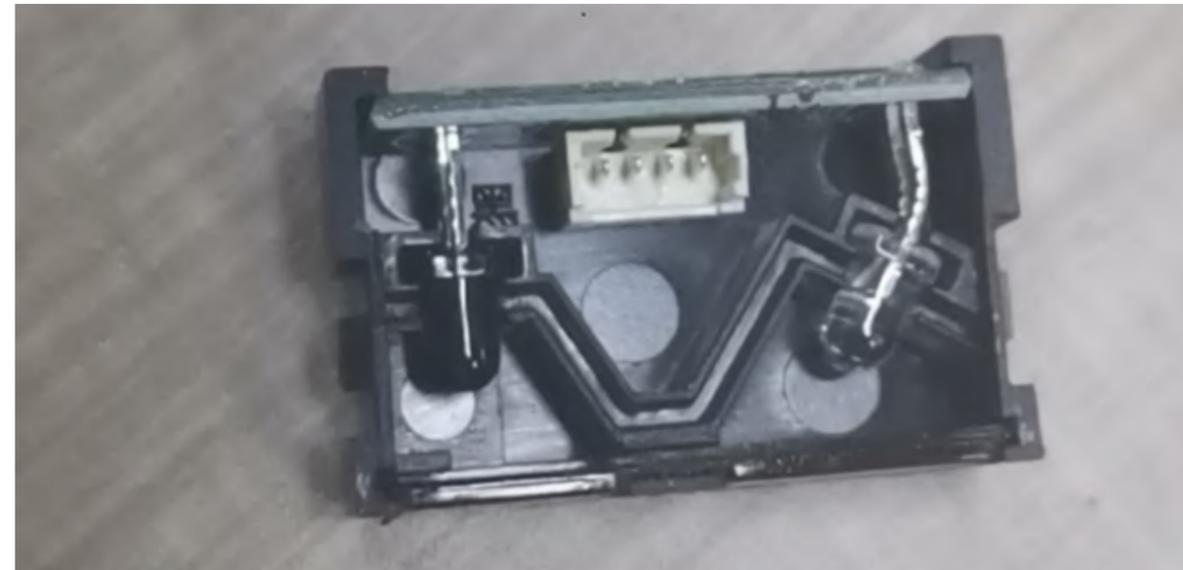
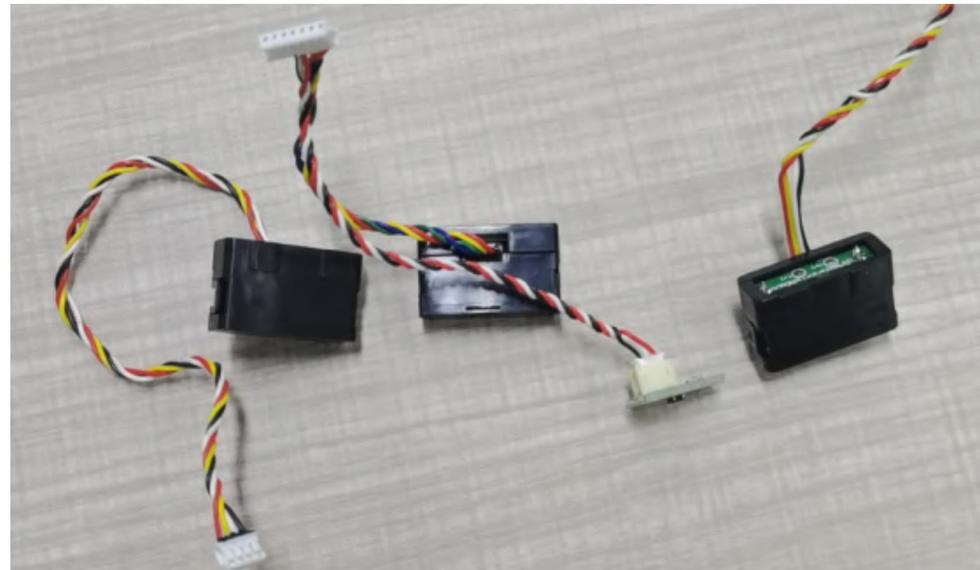
Exclusion steps:

1. The dust box is not installed in place, and the dust box is required to be flush with the panel;
2. Whether the contact plate of the dust box and the pin of the machine tail rebound smoothly;
3. If the water outlet of the water tank is normal and can be identified normally, it is recommended to replace the dust box assembly;
4. The sagging of the pin fixing module cannot rebound normally, and the dust box water tank cannot be recognized;
5. The PCB and wire connection line inside the dust box is loose and not plugged in, and the connection line is damaged;

If the dust box is not cleaned for a week, the dust removal effect is not obvious, and the user needs to clean up the garbage regularly, clean the brush, clean the dust box filter, maintain the machine, and improve the cleaning efficiency of the machine.

2.2. Ground detection abnormal protection function

The machine ground detection sensor is blocked or placed at a high place, the anti-fall sensor reports a fault, and the ground detection sensor is triggered. The ground detection sensor is composed of a pair of infrared tubes. As shown below, when the infrared signal emitted by the transmitting lamp is reflected on the ground, it is received by the receiving lamp, and the distance from the ground is determined by identifying the strength of the signal; if the receiving lamp does not receive the transmitting lamp the signal reflected from the ground will report an error: the machine is off the ground;



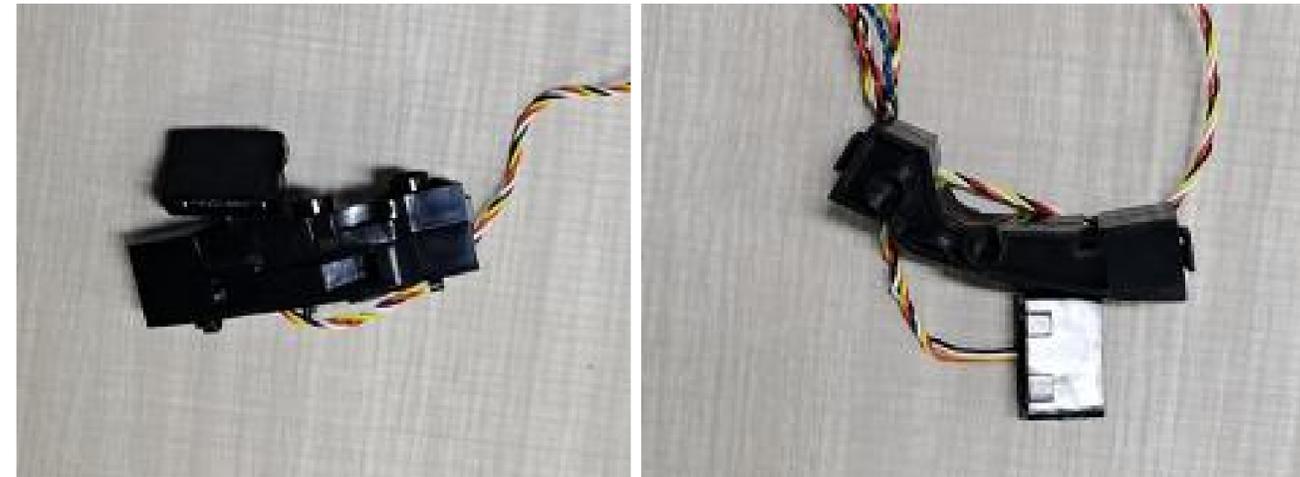
Exclusion steps:

1. If you encounter more than a 10cm cliff, the machine ground detection sensor can not receive the reflected signal, the machine will report an error: the machine is off the ground; the floor is a black and dark color blanket environment, the black material will absorb infrared, the ground detection sensor will not receive the signal; there is a situation, the floor is a rough environment, infrared light will produce slow reflection or absorbing light is not reflected, etc., can reflect the receiving tube of the light will be very little, etc. The machine will report the error: the machine is off the ground;
2. The ground inspection cover is dirty, will block the infrared light emission and reception, but also easy to report errors, please guide the user to wipe the clean inspection cover with a rag;

3. Excluding the above two situations, it is necessary to replace the ground detection components, as shown in the following figure:



Location of ground detection sensor components



Left collision component + Ground detection sensor components
Right collision component + Ground detection sensor components

If the ground detection sensor is not dirty, it means that the ground detection sensor itself and the mainboard are defective and need to be disassembled for maintenance.



2.3. Bumper abnormal protection function

The collision sensor is stuck, the machine bumper alarm, the bumper is stuck and there is no rebound, the machine will always straight into the wall or have been backing and reporting an error "Please check whether the bumper is stuck";

First of all, please instruct the user to use a rag to clean the bumper lens and the bumper component, and start running after cleaning the machine to observe whether the voice "Please check whether the bumper is stuck" disappears;

If it does not disappear, please instruct the user to use his hand to check whether the collision function is normal, such as the following technique, requiring the machine to easily press in, release the hand, and the rear middle frame will bounce off about 0.5S;

If the bumper rebound is not smooth and stuck, it is necessary to rule out whether the bumper is subject to structural friction and interference.

1. Check whether the gap in the edge of the bumper is stuck with other objects, as shown in Figure 1, clean the other objects, if the other objects are stuck and can't be cleaned, you need to disassemble the bumper; remove the 8pcs 2.6 * 7 screws on the bumper bottom cover, as shown in Figure 2, open the bumper panel (pay attention to the connection line) to check whether the bumper is stuck. After cleaning the other objects, if it returns to normal, re-install the bumper;

2.If there are no other objects stuck in the bumper, please check whether the rebound of the front casing is flexible. If it is stuck, replace the bumper component;

3. Remove the bottom strip of the bumper assembly, the bumper of the machine will rebound flexibly, the machine fault is eliminated, re-install the bottom strip, loosen the 8pcs 2.6*6 screws at the bottom by half a turn, tap the bumper sensor to check the rebound is it smooth. (Pay attention to the movable limit slot corresponding to the bottom cover and the machine station, as shown in Figure 3 below);

If there is no limit stuck between the bumper and the station, or the card, then use a screwdriver to install the 8pcs 3.0 * 8 screws of the station, if you have eliminated the above several abnormal situations, please return to our after-sales service to let professionals deal with them.

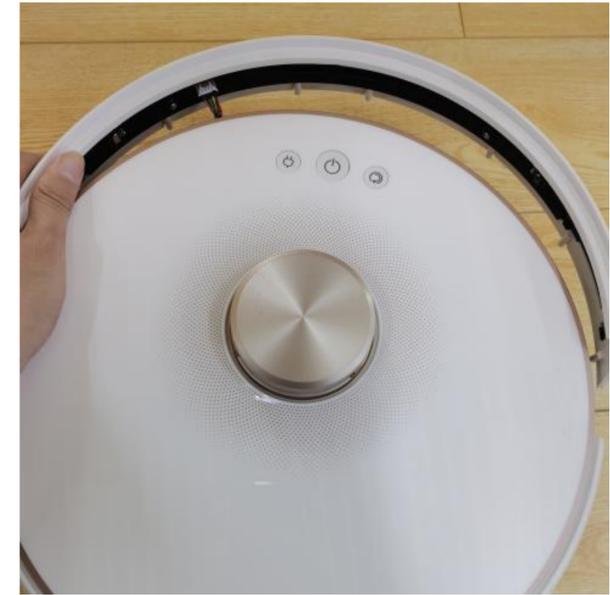


Figure 1



Figure 2



Figure 3



2.4 The machine is trapped:

The machine reports that it is trapped, the machine has been stuck somewhere, and there are two undesirable reasons.

Situation 1: The machine with wet drag on the too-smooth floor can not move, wet drag and the ground form a water film tension, the machine can not move, the tires skid in place, the machine will report an error: please move the machine to an open area, the map will see the trajectory of the machine in a circle;

Situation 2: The machine has not run out in a very small space, and it will be trapped by error reporting, prompting people to help it move away from this place.

2.5 Abnormal protection function of side brush

1. During the cleaning process of the side brush at the bottom of the machine, some hairs and other objects are easily wound, which will cause abnormal power of the side brush motor. It is recommended to clean the side brush regularly.

2. Abnormal motor triggers the side brush protection to check whether it can rotate normally; If it cannot be rotated, or if there is a clear abnormal sound when it is manually rotated, it proves that the motor of the side brush group is badly worn, as shown in the following figure.

3. There is solidification on the brush and the brush is overloaded, and the brush can be used to remove the solids of the brush;

4. Take out the side brush, you can use tweezers to clean up the hair and other entanglements, and use the cleaning brush to clean up some dust;



2.6 Abnormal protection function of the roller brush

- 1.The roller brush is easy to be stuck by entangled objects such as thread, solid, hair, paper, cloth, etc. If the hair and entanglement on the roller brush are not cleaned for a long time, it will cause overload and burn out the roller brush motor;
- 2.For the abnormal noise of the roller brush, you can remove the roller brush shaft and run it to confirm whether the abnormal noise is eliminated, clean the other objects on the roller brush shaft assembly and then install the dust box back to see if the abnormal noise is eliminated. To eliminate it, please replace the rolling tooth box assembly;
- 3.Serious damage or damage to the roller brush shaft will also cause the abnormal sound in the machine, remove the roller brush shaft to confirm whether the abnormal noise is eliminated, to eliminate please replace the roller brush shaft.



2.7 Side wheel abnormal protection function

- 1.The wheel group is overloaded with the other objects, check the two sides of the wheels and rotate the side wheels, check whether they are stuck to the other objects, and clean the side wheels;
- 2.The wheel connection line is not inserted, broken, out, remove the wheel group to re-install the wheel group, and check the two sides of the wheel connection line, replace the side wheel wire;
- 3.The wheel group is aging, whether the manual rotation is a little stuck or cannot move, check whether the wheels on both sides are tight, and replace the wheel group.



2.8 Universal wheel

Reasons for triggering the anomaly detection of the universal wheel signal:

- 1.The universal wheel is stuck and cannot rotate, and the universal wheel is stuck by the other objects such as hair and thread; remove the universal wheel to clean, as shown in the following figure;



Chapter III Common Maintenance of Customer Return Machines

三.(1) Common machine alarms and problem fault maintenance

Undesirable phenomenons	Causes Analysis	Repair methods
The machine alarmed, and the bumper stuck	The bumper is dirty, the bumper has other objects, the bumper rebound is not smooth, the bumper is deformed, the bumper and the station are misaligned and stuck, and the bumper connection line is damaged and broken.	<ol style="list-style-type: none"> 1. Slap the bumper to check whether the bumper is stuck, clean the bumper, remove and reinstall the bumper; 2. After reinstalling it, loosen the screws of the bumper bottom strip; 3. Check if the bump trigger switch of the mainboard is stuck, and check if wall components are stuck.
No water from the tank	The contact shrapnel of the water tank is oxidized, the solenoid valve of the water tank is short-circuited, the water tank has been added with detergent, and the air hole of the battery valve of the water tank is blocked	<ol style="list-style-type: none"> 1. Wipe the water tank contact shrapnel 2. Replace the solenoid valve of the water tank 3. Clean the water leakage cloth at the outlet hole of the water tank 4. Check the ventilation holes
Machine runs long distance backward 15cm	The universal wheel is stuck and cannot be rotated. The PCB signal of the universal wheel is blocked and it loses effectiveness. The connecting line is not plugged in properly.	<ol style="list-style-type: none"> 1. Clean the universal wheel 2. The cleaning of the universal wheel is invalid, and the PCB connection line of the universal wheel needs to be checked 3. Replacement parts
The machine alarm is moved to an open area	The universal wheel of the machine is dirty, or stuck causing the machine to alarm; the geomagnetic PCB fails, and the APP prompts "virtual wall failure"	<ol style="list-style-type: none"> 1. Check the front wheel and turn the front wheel to ensure that the front wheel (universal wheel) rotates smoothly, remove the front wheel to clean 2. Make sure that there are no other objects inside to block the signal light 3. Universal wheel PCB, geomagnetic PCB failure

<p>The machine alarms and the wheels leave the ground</p>	<p>The three ground detection sensors are dirty, the machine is picked up, and the ground detection sensor is blocked or placed at a high place.</p>	<ol style="list-style-type: none"> 1. Check whether the three ground detection sensors are dirty, wipe the ground detection sensor; re-install the ground detection sensor connection line terminals on both sides, check whether the ground detection sensor is oxidized, replace the ground check; check whether the ground detection sensor connection line is broken, replace the connection line. 2. The terminals on both sides of the geodetic cable are not installed in place.
<p>Can't charge</p>	<p>The robot has no power, does not turn on, and the customer does not know how to align back to the charging station to charge.</p> <p>Battery failure, short runtime, or automatic shutdown with more than 30% power.</p> <p>The adapter has no output</p>	<p>The mainboard has a problem, replace the mainboard</p> <p>Replace the battery</p> <p>Replace the adapter</p>
<p>The machine is running slowly</p>	<p>The bumper is dirty or the wheelset is abnormal</p>	<p>The bumper is dirty. It is recommended that the user clean the bumper to eliminate the wheelset and abnormal wires. If the problem is not solved, please replace the mainboard.</p>
<p>The water tank outlet is large</p>	<p>The soft rubber cover of the water tank is not covered properly, the airtightness of the water tank is problematic, and the water tank is cracked</p>	<ol style="list-style-type: none"> 1. Please check whether the soft rubber cover of the water tank is installed in place, and there is a problem with the airtightness of the water tank 2. Please let the user fill the water tank with water and then cover the soft glue cover for one night to see if there will be water leakage, which requires the replacement of the water tank; 3. APP adjusts the water tank water output to a low level

The fan does not work	Fan motor failure, fan does not turn and is stuck	<ol style="list-style-type: none"> 1. Clean whether there are other objects stuck in the air duct and whether the fan blade is stuck 2. The fan PCB cable is not plugged in 3. Replace the fan assembly
The robot runs in circles	The machine slipped, and the side wheels were stuck by other objects, causing the machine to circle	<ol style="list-style-type: none"> 1. The side wheels are stuck, clean and turn the wheelset; 2. Side wheel wire problem, please reinstall the side wheel, check the side wheel wire, it is recommended to replace the side wheel wire 3. Eliminate the wheelset and wires without abnormalities and need to replace the mainboard
Roller brush stuck	The end cover of roller brush has hair and dirt stuck on the shaft, and the roller brush is stuck in the rotation.	<ol style="list-style-type: none"> 1. Regularly clean the roller brush end cover inside, remove the shaft, and clean up the dirt inside. 2. There are other objects inside the rolling tooth box, clean the inside of the rolling tooth box 3. Replace the rolling tooth box assembly
The dust box is not installed	The dust box and filter are not placed well, resulting in the air duct being blocked, the air duct blocked, and the dust box cannot be snapped; the dust box has not been cleaned for a long time	<ol style="list-style-type: none"> 1. Check whether the dust box is installed, please take the dust box out again, install it back into the machine and press the cleaning button again 2. The pins are sunken, the contact is poor, and the pins need to be replaced 3. Check the internal PCB and wire of the dust box, and reinsert the cable
Misuse	The machine was soaked, broken, collapsed, and so on	Follow the after-sales policy

The ability of cleaning and vacuuming decreases	Too much dust has accumulated on the filter wool in the dust box, and there is no dirt blockage at the suction port of the roller brush	Cleaning the roller brush and dust box
Abnormal noise	Machine roller brushes, side brushes, universal wheels, dust boxes caused by entanglement of the other objects	Please confirm whether the motor components are stuck, check the smoothness of the rotation of the universal wheel, and remove the small wheel for cleaning.

(2) Maintenance of various parts of the machine

Abnormal parts	Representations	Possible causes	Maintenance methods
Mainboard	The machine cannot start or pause / can not start/press the button or the remote control does not respond / brick machine / other functional abnormalities	<ol style="list-style-type: none"> 1. The electronic components of the motherboard are burned out 2. Mainboard water ingress 3. Some of the seats on the motherboard are not plugged in 	<ol style="list-style-type: none"> 1. Check that the mainboard terminals are installed in place 2. Replace the mainboard
Side wheel	Spin in place / do not take a straight line / to take an arc-type route/stand-still/buzzer alarm stoplight red light/voice prompt side wheel stuck stoplight red light/mopping slip	<ol style="list-style-type: none"> 1. The side wheel is stuck to other objects 2. The side wheel component (motor or rolling tooth box) is abnormal 3. The side wheel wire (connection wire) is broken or not plugged in 4. Serious wear of side wheels leads to slippage 5. Mainboard problem 	<ol style="list-style-type: none"> 1. Clean up the side wheels 2. Replace the new side wheel connector 3. Replace the side wheel component 4. Replace the mainboard

Side brush	Side brush does not turn / sometimes turns and sometimes doesn't/turns slowly / buzzer alarm shutdown light red light/voice alarm shutdown light red light/can't sweep clean / can not climb the charging station/side brush has a different sound	<ol style="list-style-type: none"> 1. Side brush tangled hair 2. Left and right side brush (brush) installed in reverse 3. Side brush motor damage 4. Mainboard problem 	<ol style="list-style-type: none"> 1. Remove the side brush and clean it 2. Reinstall the side brush (L/R) 3. Replace the side brush motor 4. Replace the mainboard
Roller brush	The roller brush does not turn / sometimes turns and sometimes doesn't / there is a strange sound/machine shutdown buzzer beep alarm red light/machine voice prompt roller brush stuck	<ol style="list-style-type: none"> 1. Roller brush tangled hair or other objects stuck 2. Roller brush motor damage 3. Rolling tooth box into other objects 4. Mainboard problem 	<ol style="list-style-type: none"> 1. Clean up and check the roller brush 2. Replace the roller brush motor 3. Replace the roller brush component 4. Replace the mainboard
Dustbox / Dustbin	Doesn't vacuum/machine shutdown buzzer beep alarm red light/machine voice prompt dust box is not installed	<ol style="list-style-type: none"> 1. The dust box is not installed in place 2. Detect that the pin is damaged or the rebound is not smooth 3. The dust box and fan are damaged 4. The dust box pin is stained with contact with shrapnel 5. Mainboard problem 	<ol style="list-style-type: none"> 1. Press the dust box and install it in place 2. Replace the detection pin 3. Replace the dust box assembly 4. Clean the pin in contact with the shrapnel 5. Replace the mainboard
Water tank	Does not leak/leaks too fast / leaks slowly / can not identify the water tank	<ol style="list-style-type: none"> 1. Water tank rupture / poor airtightness 2. The air pump is damaged 3. The water tank is not installed in place / the soft glue at the inlet is not installed with air leakage 4. The mop cloth is not installed in place/or not installed 5. Detect that the pin is damaged or does not rebound smoothly 6. The tank pin is stained with contact with shrapnel 7. Mainboard problem 	<ol style="list-style-type: none"> 1. Replace the new water tank 2. Press the water tank to make sure it is installed in place 3. Reinstall the mop cloth and install it in place 4. Replace the detection pin 5. Clean the pin contact shrapnel on the dust box 6. Replace the mainboard

Bumper	Straight into the wall / encounter obstacles do not evade/rebound is not smooth/continuous back/buzzer alarm shutdown red light/voice alarm shutdown red light	<ol style="list-style-type: none"> 1. Bumper stuck to the other objects 2. The bumper lens is scratched seriously 3. Bumper PCB damage/water ingress 4. The connector cable of the bumper component is disconnected 5. The photo interrupter is damaged 6. Mainboard problem 	<ol style="list-style-type: none"> 1. Slap the bumper and remove the other objects 2. Wipe the bumper lens 3. Replace the bumper PCB 4. Replace/install the bumper cable 5. Replace the bumper assembly 6. Replace the mainboard
Ground detection sensor	Backsliding in open space without reason/falling from high/machine shutdown Buzzer beep alarm red light/machine voice prompts the machine to get off the ground	<ol style="list-style-type: none"> 1. The ground detection sensor is stained or covered 2. The ground detection sensor is damaged/water enters 3. The cable is loose 4. Mainboard problem 	<ol style="list-style-type: none"> 1. Wipe all ground detection sensors 2. Replace the ground detection sensor 3. Reinstall the ground detection sensor 4. Replace the mainboard
Universal Wheel	Unexplained backward (backward distance of about 8cm)/heterodyne	<ol style="list-style-type: none"> 1. Universal wheel is stuck by the other objects or structure damage 2. Universal wheel detection signal lamp is covered with dust or damaged 3. Universal wheel PCB board is damaged 4. Mainboard problem 	<ol style="list-style-type: none"> 1. Clean and check the rotation of the universal wheel, the rotation needs to be smooth 2. Pull out the rotation wheel to clean the signal light 3. Replace the universal wheel PCB board 4. Replace the motherboard
Speaker	No voice function/speaker is hoarse	<ol style="list-style-type: none"> 1. Turn off the voice function on APP or mute the mode 2. Water or damage to the speaker 3. Mainboard problems 	<ol style="list-style-type: none"> 1. Connect the APP and turn on the voice function 2. Replace the speaker assembly 3. Replace the mainboard

Button	Pressing the button the machine does not respond / the key light does not turn on / long-press the button will not power on	<ol style="list-style-type: none"> 1. Key long trigger/key structure sinking 2. Water in the key PCB 3. Key PCB connection line problem 4. Mainboard problems 	<ol style="list-style-type: none"> 1. Replace the buttons 2. Replace the button PBC 3. Check/replace the key PCB cable 4. Replace the motherboard
Charging station	Unable to charge/charging alarm/can't return to charging station/doesn't return to charging station/can't charge	<ol style="list-style-type: none"> 1. The charging station is damaged 2. Charging shrapnel of the charging station or robot charging shrapnel has stains 3. The adapter is damaged/the model is wrong 4. The home socket is not energized 5. The adapter is not plugged in 	<ol style="list-style-type: none"> 1. Wipe the charging station shrapnel or robot charging shrapnel 2. Check whether the socket at home is energized and check whether the adapter is in place 3. Replace the charging station
Adapter	Unable to charge/charging alarm/can't return to charging station/doesn't return to charging station/can't charge	<ol style="list-style-type: none"> 1. The adapter is damaged 2. No power at the home socket 3. Wrong adapter model 	<ol style="list-style-type: none"> 1. Replace other sockets 2. Replace the adapter
Battery	Unable to charge/short working time/undercharged/unable to start (button light not on)	<ol style="list-style-type: none"> 1. The adapter is bad and cannot be charged 2. The charging stand is poor and cannot be charged 3. The battery enters a protected state 4. Poor battery 5. The mainboard is bad 	<ol style="list-style-type: none"> 1. Ensure that the home socket is energized 2. Ensure the adapter is normal 3. Ensure that the charging station is normal 4. Reinstall the battery and manually place it on the charging station to charge 5. Replace the mainboard

Chapter IV Answers to Frequently Asked Questions in Use (FAQ)

1. Can't turn on

- 1.The robot is placed for too long, the battery is out of power, and it needs to be charged with a charging station and adapter.
- 2.Please check whether the connection between the battery cable and the mainboard is loose or falls off.
3. If the machine is turned on and off frequently, please check whether the key switch is damaged.
- 4.If none of the above causes exist, replace the battery first and then the mainboard.

2. Can't turn off

1. If the machine is turned on and off frequently, please check whether the key switch is damaged.
- 2.Unplug the battery and then put it back in, and start the robot to see if it returns to normal.
3. If the above inspection fails, the mainboard needs to be replaced.

3. Pause while cleaning

- 1.Please make sure that the robot does not receive the remote control or APP turn-off command.
2. Check that the machine does not alarm. If an alarm occurs, you need to deal with the fault according to the prompts.
3. Check whether the machine wheelset is normal, and turn the wheelset to check the status.

4. The remote control is not sensitive

- 1.Check whether the voltage of the remote control battery is too low;
2. The machine cannot be placed near the charging station that has been turned on, please unplug the power supply of the charging station and then execute the remote control;
3. Aim the remote control signal emission light at the machine and then execute the remote control function;

5. The robot suddenly stops working during the operation

1. Check whether the robot runs out of power, whether automatically shut down due to running out of battery, then you need to manually charge.
2. Check whether the robot is working in spot and edge mode, and the machine will automatically stop after the work is completed;
3. Check whether the robot stops due to triggering an alarm;
4. Check whether the robot stops after receiving the remote control or APP command.

6. The left/right wheel does not rotate, and the side wheel alarm is stuck

1. Check whether the left and right wheels are stuck by the other objects and clear them in time;
2. Check whether the side wheel motor wire is loose, check and re-install the side wheel to ensure that the wire is not damaged or broken, and the terminals are inserted in place;
3. Rotate the wheel group by hand, the normal wheel group rotates without any sound, the wheels on both sides rotate smoothly, do not get stuck, the force required to rotate the wheel is the same, and the wheel that usually rotates tightly is a defective product;
4. If the above is confirmed to be no problem, consider replacing the mainboard.

7. Side brush does not turn, side brush alarm stuck

1. Check whether the left and right side brushes are stuck by the other objects, and clean up the objects in time;
2. Disassemble the machine to check whether the connection between the side brush motor wire and the terminal is normal;
3. Replace the side brush motor.
4. Replace the main board after the above troubleshooting is invalid.

8. The roller brush does not turn or alarms jammed

1. Please remind the user to check whether there is hair or debris stuck in the roller brush or the bearings at both ends.
2. Please check whether there are any other objects in the rolling tooth box and clean them up in time.
3. Disassemble the robot to confirm the connection status between the mainboard and the roller brush.
4. Replace the rolling tooth box assembly.

9. Abnormal sound of the roller brush

1. Please remind the user to clean the other objects of the brush roller assembly.
2. The roller brush cover is not buckled.
3. The roller brush is entangled with debris, causing abnormal noise.
4. The gears inside the rolling tooth box are damaged or the other objects enter, and the rolling tooth box needs to be cleaned.
5. Replace the rolling tooth box assembly.

10. Radar malfunction(ignorable for non-radar models)

1. Please remind the user to check the radar position for debris stuck.
2. Remind the user to keep the surrounding area of the radar protective cover clean.

11. Charging failure

1. Please check whether the adapter plug, with the socket and the back of the charging station, is in good contact.
2. Please check whether the metal shrapnel at the bottom of the charging station and the shrapnel at the bottom of the device are dirty, resulting in poor recharging contact.
3. Please communicate with the user if the robot is manually placed on the charging station and is not aligned.
4. Please remind the user to check whether the height of the shrapnel of the charging station is consistent and whether the rebound is smooth.
5. The position of the charging station is too remote and the space is not enough, which causes the automatic recharge to fail.
6. Reinstall the battery and make sure the mainboard is in good contact with the battery.

12. Bumper crash failure

1. Please remind the user to check whether there are any other objects stuck in the bumper.
2. Please slap the bumper with your hand to check whether the rebound of the bumper is good.
3. Please check whether the bumper and the robot are not installed in place, whether there is a gap.
4. After loosening the bumper screw, observe whether it returns to normal;
5. Reinstall the bumper, and check whether the bumper trigger switch is triggered normally.

13. The dust box/water tank is malfunctioning

1. Wipe the dust box contact piece and install the dust box tightly;
2. Check whether the rebound of the pin fixing module is smooth, and wipe the pin fixing module.
3. Check whether the line sequence of the water tank/dust box is correct.
4. Replace the dust box/water tank assembly.

14. Mopping malfunction

1. Please remind the user to check whether the water tank and mopping cloth are installed in place.
2. Please remind the user to check whether the robot is running normally after removing the water tank cloth.
3. Please prompt the user to check whether the robot is running normally after the water tank is removed.
4. Please remind the user to check the thresholds, blankets, floor mats, and other areas when mopping. It is recommended to separate them with magnetic strips.
5. Please remind customers to replace different floor tile environments.

15. Fan failure

1. Please remind the user to restart the robot to check and install the dust box tightly;
2. Please remind the user to check whether Hepa is blocked by garbage or the dust box is full so that it cannot continue to suck dust.

16. Battery failure

1. Please remind the user to confirm that the robot is in good contact when charging.
2. Please remind the user to check the charging time and running time of the device again.
3. Please remind the user to check the power of the device after connecting to the APP and attempt a cleaning.
4. Please remind the user to observe the status after charging for several hours.

17. Device connecting network is abnormal

1. Please remind the user to check whether the device is too far away from the router and mobile phone.
2. Please remind the user to check whether the permission to use the mobile APP network is enabled.
3. Please remind the user to check if it is a 2.4G network.
4. Please remind the user to check whether the WIFI password and account are entered correctly.
5. Please remind the user to use another mobile phone as a hotspot to verify whether the network configuration fails due to the router network exception .

18. APP buttons respond slowly

1. Please remind the user to check whether the network is normal. You can suggest the user disconnect the home WI-FI from the mobile phone, open the APP with 4G data on the mobile phone, and try again.
2. Please remind the user to clean up the background application of the mobile phone and try to enter the APP operation again.
3. Please remind the user to restart the device and try to control the cleaning button again.
4. Please remind the user to refresh the device list and enter the operation interface.

19. The APP map is displayed abnormally and skewed

1. Please remind the user in frequent extrication mode will affect the device to build a map, and you can sort out the obstacles or environment that affect the equipment.
2. Please remind the user that the device at the bottom of the bed or sofa is blocked by sheets or sofa covers, which will cause the radar to be blocked and cause map distortion.
3. Please remind the user that moving the position of the robot during its operation will cause the positioning dislocation of the robot and lead to the deformation of the map.
4. Please pay attention to check whether the network signal is normal.

20. APP map displays missed scanning abnormality

1. Please remind the user to check whether the robot cannot reach the cleaning area due to obstacle blockage.
2. Please remind the user to check whether the cleaning is incomplete due to changes in the environment in which the items are placed in the cleaning area.
3. Please remind the user to check if the virtual wall (magnetic stripe) setting has changed, resulting in some areas not being cleaned.
4. Please remind the user to check the battery power status after cleaning, and eliminate the leakage cleaning caused by lack of power.

21. Cleaning is noisy

1. Please remind the user that the device is available for network use.
2. Please remind the user to adjust the cleaning mode in the APP according to family needs.
3. Please remind the user to clean the roller brush, side brush, universal wheel, dustbin, and other parts in time.

22. Robot cleaning suggestions

1. Customers who purchase and use the robot vacuum cleaner for the first time can perform the cleaning mode first.
2. If there is a lot of dust in the family and you need to clean in the mopping mode, try to complete a whole-house cleaning mode first.
3. Please tidy up the furnishings before cleaning. Pack up cords, curtains, socks, and lights.

23. There is sticky dust around the robot when the robot is cleaning

1. Please remind the user to regularly clean the surrounding of the device with a damp cloth.
2. Regularly clean the side brush, roller brush, universal wheel, side wheel, and other parts of the machine that are easy to be wound.

24. App or device is slow to respond

1. Check whether there are other things around the radar, or other objects placed to block the radar scan and cause poor operation of the device, and remind the user to clean up and try; (Products with the laser).
2. Please remind the user to check whether the WIFI network at home is unobstructed. For example, if there is a network delay during peak hours, the APP of the device is slow.
3. Please remind the user to restart the robot and then start the whole house cleaning again.

25. The device ID cannot be found

1. Please remind the user to refer to the instruction manual to confirm whether the robot has entered the network connection mode.
2. Please remind the user to check whether the device light is in the network configuration state.
3. You can remind the user to restart the robot and enter the network configuration mode again.

26. Failed to get out of trouble at the bottom of the sofa

1. Please remind the user to check whether there is other debris at the bottom of the sofa blocking the normal cleaning of the device, and you can attempt a cleaning again.
2. Please remind the user to check whether there is any collapse in the middle of the sofa. The equipment can progress normally. When cleaning, the sofa collapsed area jams the main equipment and the equipment cannot get out of trouble. You can remind the user to use the electronic virtual wall in the APP to deal with it.
3. Please remind the user to check whether there is any confusion in the cleaning and map construction, and remind the user to reset the map in the APP and try the whole house cleaning again.
4. It is recommended that users raise the sofa to ensure that the machine can enter and clean normally without getting stuck.

27. The cleaning power of the equipment is insufficient

1. Remind the user to check the cleaning power status of the device in the APP after the device is connected to the Internet.
2. Remind the user to check whether the power of the device is sufficient at the beginning of the device cleaning task, and can remind the customer that the charging time of the device is generally about 3h.
3. Remind the user not to remove the battery for a long time and place the machine in a dry area for preservation.

28. The cleaning path is chaotic (repeated cleaning in some areas)

1. Remind the user that no other objects can interfere with the machine in the normal cleaning state, and do not move it at will or affect the operation of the machine.
2. Remind the user to tidy up the home environment before cleaning, simply tidy up the home environment to ensure that the machine runs more smoothly.

29. Device APP click software update failed

1. Please remind the user whether the home network is normal.
2. When the device firmware is upgraded, the machine needs to be placed on the charging station to complete.

Chapter V Daily Maintenance and Precautions

- (1) Use original accessories, especially the robot's battery, and charger.
- (2) It is forbidden for non-technical personnel to disassemble the robot without permission to avoid personal injury.
- (3) When charging the machine, the customer should ensure that the hands are dry to prevent electric shock.
- (4) Do not use your feet to step on the robot to avoid human damage.
- (5) Do not let children sit on the robot to avoid falling and injuring them.
- (6) This machine should be used in a dry environment, and it is forbidden to use it in the kitchen and bathroom to prevent damage to the robot.
- (7) Do not use the product outdoors as it is an indoor home appliance.
- (8) This robot should be kept away from fire or flammable sources during use.
- (9) The robot should be turned off when not in use. If it is determined that it will not be used for more than a week, it is recommended that the battery be fully charged and placed separately in a ventilated and dry place to avoid affecting the battery life.
- (10) The front shell of the machine should be scrubbed frequently (with alcohol, do not use water) so as not to affect the cleaning and charging effect.
- (11) The dust box of the machine and the filter cotton on the dust box should be cleaned regularly to ensure good cleaning efficiency.
- (12) If there is hair and other objects wrapped around the brush of the robot please remove it in time.
- (13) Regularly clean the lens, ground-penetrating lens, and universal wheel detection information light of the machine's bumper sensor to ensure the normal operation of the machine.

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Web: www.freedynamics.com

Add: Room 1201, South Block, Yuanxing Technology Building, No. 1, Songpingshan Road, Songpingshan Community, Xili Street, Nanshan District, Shenzhen, Guangdong 518000, China