



JVC40SWEEP

ENGLISH



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Introduction

This manual shall be equipped with each new machine, so as to provide necessary instruction for operation and maintenance.

Please completely read this manual and get well known about the machine before the operation or maintenance of machine.

Excellent service will be supplied by such machine. However, it will be half the work with double results if you pay attention to the following items in daily operation:

- Operate machine carefully;
- Maintain the machine in regular time according to the provided maintenance instruction;
- Maintain the machine by using the accessories provided JOHNNY VAC.

Protect environment	Machine data
Please dispose assembled materials, old machine components and batteries according to local waste disposal regulations with environmental protection method.	Please fill the following information for future reference when install the machine:
Remember to recycle items as many as possible all the time.	Model- _____
	Series No.- _____
	Installation date- _____

Usage

With mini profile, wide sweeping width, excellent maneuvering capability and enough power, this machine is convenient to be operated, which can sweep the floor rapidly and efficiently. It is suitable for workshop, warehouse, shipping area, parking lot, outdoor parking and road.

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Precautions

The following safety warning signs are used with title “For the sake of safety” throughout this manual, which have several functions as below:

-----Both warning signs and nameplates provide important information of safe operation.

-----Except information in operation manual, all other rules about universal safety information and accident prevention regulated by laws shall be obeyed as well.



Warning: used for warning that serious personal injury, death or unsafe operation maybe caused.

For the sake of safety: point out the items must be obeyed for safe operation.

The following safe prevention symbol point out situations that may lead to potential danger to operator or machine. All operators must read, understand and implement following safety precautions:



Warning: fire disaster or blast

----Flammable liquid is not allowed to be used; Do not operate machine in the site near or in the place of flammable liquid, gas or dust.

Flame-proof motor is not equipped with this machine. During the start and operation of machine, spark will be caused by electronic motor, which may result in flash fire or blast if the machine is operated in the place with flammable gas, liquid or dust.

-----Do not sweep flammable material or active metal.



Warning: Electrical shock.

-----Disconnect the wire of battery and plug of charger before the maintenance of machine.

-----Do not use damaged wire to charge battery or refit plug.

The wire of charger must be changed by manufacturer, maintenance agency or other person with similar qualification if it is damaged or broken, in order to avoid the occurrence of danger.



Warning: The rotary brush is running. Do not close it by hands. Please switch off the power before maintenance of machine.

Warning: used for warning that serious personal injury, death or unsafe operation may be caused.

For the sake of safety: point out matters must be obeyed when use this machine, in order to guarantee the safety.

The following signs may result in danger to operator, so it is necessary to understand when these situations maybe occurred, find all safety risks of machine and report the situation in case there is damage or fault operation of machine.



Warning: Hydrogen will be released from battery, which may lead to fire disaster or blast.
Please be far away from spark or open fire.



Warning: Flammable substance may result in blast or fire, do not use flammable substance in the groove!



Warning: Flammable substance or active metal may result in blast or fire, do not clean it!

For the sake of safety:

Please carefully read operation manual before the formal use of equipment, especially safety information.

1. Do not operate machine in case of following situations:

- Contact with flammable liquid or close to flammable gas may lead to blast or flash fire;
- Unless being trained and offered with authority;
- Unless have read and understood the operation manual;
- Without normal operating condition.

2. Before starting the machine:

- Make sure all safety devices are in place and working normally.

3. When use machine:

- Walk slowly on slope or sliding surface;
- Wear antiskid shoe;
- Slow down when make turning;
- Report once the machine is damaged or operation is failed.
- Children are not allowed to play on or near the machine.
- Comply with mixing ratio and processing instruction on chemical containers.
- Do not operate on slope with a gradient more than 7%.

4. Before leaving or maintaining the machine:

- Park machine on stable ground.
- Switch off the machine;
- Take out the key.

5. When maintaining the machine:

- Do not move components. Do not wear loose tops, shirts or sleeves.
- Disconnect the wiring of battery before operating the machine.
- Please wear protective gloves and eye protection equipment when deal with battery or battery wiring.
- Do not wash this machine by high-voltage spray and water pipe, otherwise it may result in failure of electrical system.
- Use replacement parts provided or recognized by manufacture.
- All maintenance shall be conducted by qualified maintenance personnel.
- Do not change the original design of machine.

6. When transfer machine by truck or trailer:

- Empty the garbage before shipment;
- Use suggested apron for loading and unloading machine from truck or trailer;
- Take battery out before transferring machine;
- Transfer machine under the assistance of others;
- Close machine;
- Locate machine with ropes.

For the sake of safety: wear dustproof mask.

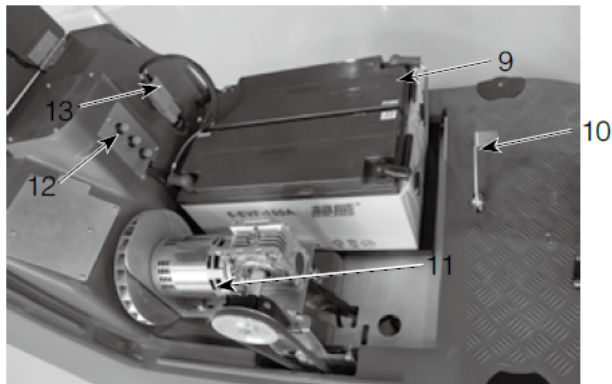
7. When load the machine to truck or trailer or unload it from truck or trailer:

- Empty the garbage when load machine;
- Pack up side brush and rolling brush at first when switch off the machine;
- Switch off the machine and take key out;
- Use slope, truck or trailer that can support the weight of machine and operator;
- Use capstan. Unless the loading height is small than 380 mm (15 in.), do not push the machine under truck or trailer or push the machine from truck or trailer.
- Seize up the tire of machine;
- Locate the machine on truck or trailer.

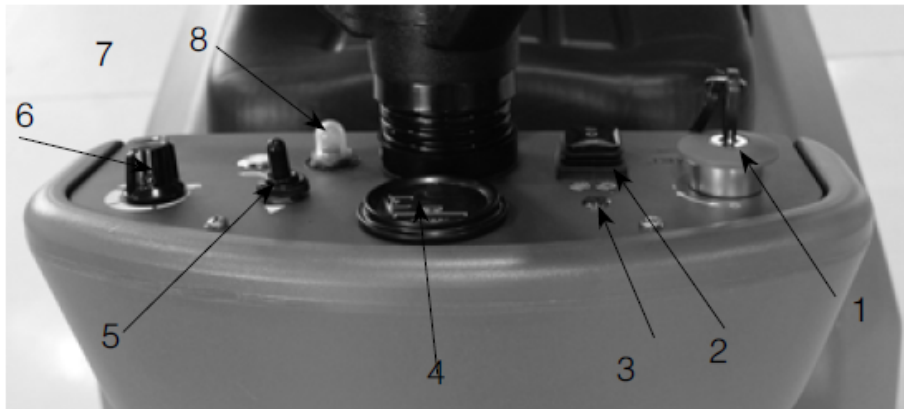
Components of machine



1. Seat
2. Steering wheel
3. Control panel
4. Water tank
5. Driven pedal
6. Side brush
7. Rolling brush
8. Rear wheel
9. Battery position
10. Sealing strip pedal
11. Rolling brush vacuum motor
12. Reset insurance
13. Battery charge interface
14. Life handle of side brush
15. Adjusting knob of side brush
16. Garbage can



Control box instrument



- | | |
|---|--------------------------------|
| 1. Main power switch | 5. Forward and backward switch |
| 2. Switch of side brush, rolling brush and dust vibration | 6. Speed control switch |
| 3. Failure indicator | 7. Horn button |
| 4. Battery power meter | 8. Overload circuit breaker |

Control panel symbol



Main power switch



Side brush and rolling brush button



Dust vibration button



Horn button



Forward and backward button



Speed control switch

Working principle of machine



Sweep parts: a garbage can, a rolling brush and two side brushes.

The button on control panel is able to control the sweeping and brushing of machine. Open the switch of side brush and rolling brush, and put down the handle of side brush at first,, then move the forward and backward switch on the position of “Forward”, adjust the speed switch (adjust proper height according to different ground.) and finally step on the pedal to start cleaning.

There are two available side brushes and one rolling brush, the diameter of side brush is 380 mm and the length of rolling brush is 600 mm.

Sweeping method

First, collect garbage on both sides of driving route to the bottom through side brush, and the garbage will enter into rolling brush box when the machine move forward. Second, the garbage will be swept to garbage can at the back of machine by rotating rolling brush, then dust in garbage can will be absorbed into filter by the vane wheel on rolling brush motor. When the sweeping is end, the dust collected by filter screen will be dropped into garbage can after pressing vibration button. Finally, take the garbage can out and empty the garbage at designated place.

Accessory installation

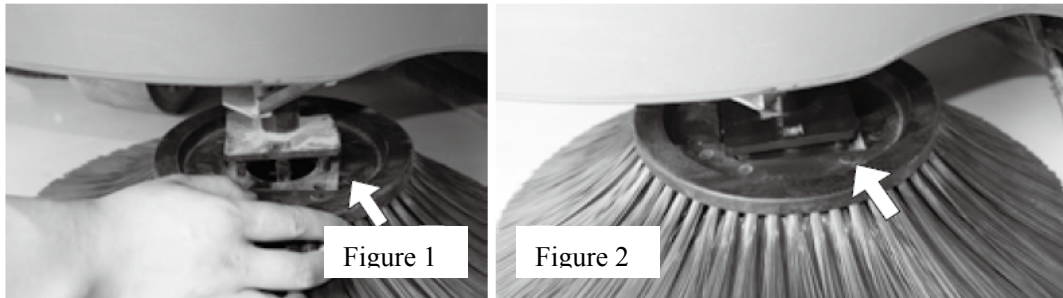
Install side brush

1. Park machine on a stable ground;
2. Turn off the key switch of machine;

For the sake of safety: Please park machine on horizontal surface, power off the machine and take the key out when you leave or maintain the machine.

3. Place the side brush on ground horizontally and make it vertical to the four holes of buckle

(Figure 1-2).



Install rolling brush

1. Park machine on a stable ground;
2. Turn off the key switch of machine;

For the sake of safety: Please park machine on horizontal surface, power off the machine and take the key out when you leave or maintain the machine.

3. Turn on the button of rolling brush as shown in below picture (Figure 3).



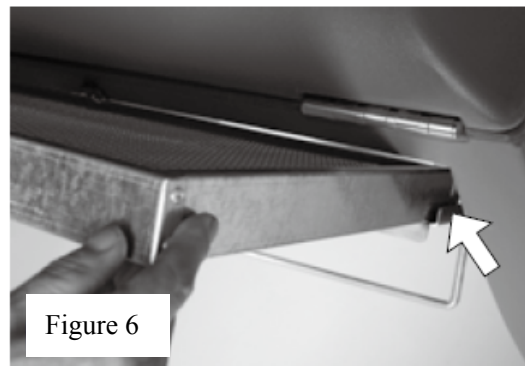
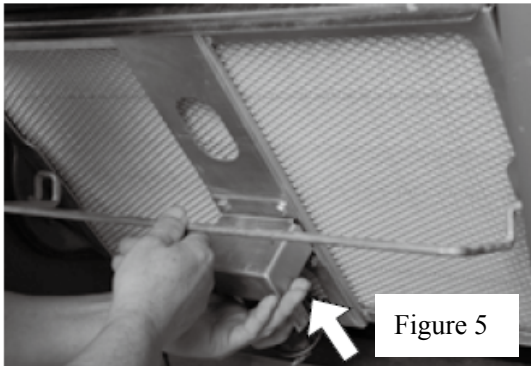
4. Place the rolling brush into lower barrel as shown in above figure (Figure 4).

Install filter

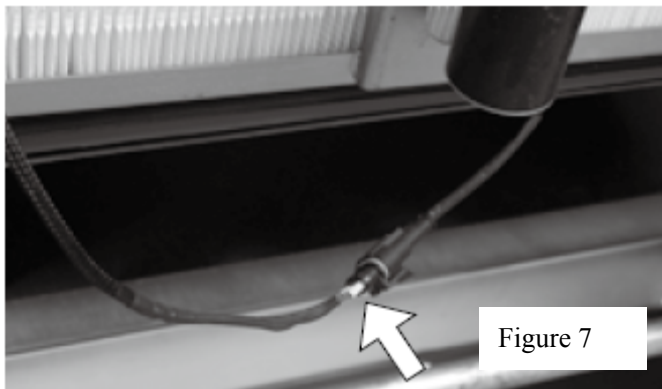
1. Park machine on a stable ground;
2. Turn off the key switch of machine;

For the sake of safety: Please park machine on horizontal surface, power off the machine and take the key out when you leave or maintain the machine.

3. Open the garbage can and remove it, throw down fixed rod and take filter out along the rail. Finally, throw up the fixed rod. (Figure 5-6)



4. Connect the wire of dust vibration motor for filter. (Figure 7)



Machine operation

Inspection before operation

- Check if there is dust leakage;
- Check whether the dust in filter has been shaken off;
- Check the situation of brush and remove the coil, bandage, iron wire, plastic package or other chippings around the brush;
- Empty the garbage can;
- Check whether the brake and steering wheel work normally;
- Check whether the horn and reverse ring are normal;
- Check maintenance record to decide whether it is necessary to maintain the machine.

Before operation

Before sweeping, please take out large chippings and other things that may wrapped on brush at first, such as, metal wire, coil , string and so on.

Cleaning method shall be made in advance, please try to make a long term arrangement and minimize the times of stopping and starting machine. Do not clean the whole floor or area one-time.

Gravity sensor of sweeper seat:

If the seat is idle without supporting any weight after starting the sweeper, the machine can not move forward even you step on the pedal, and it can work normally as long as the operator sit on the seat or add pressure on it, which have a function of safety protection to avoid the occurrence of accident (Figure 8).



Figure 8

Electromagnetic brake device of sweeper:

1) When the machine is placed or parked in a fixed place in the transportation, the electromagnetic switch shall be started to avoid unexpected sliding, which is located in front wheel. The steering wheel is required to be rotate to the right side completely after parking the machine stably, or it is feasible to adjust the front wheel by manual. (As shown in Figure 9).

2) Electromagnetic brake status of sweeper: the fault indicator on control panel flash three times first, and then flash twice; Pull the electromagnetic brake handle backward once, then the automatic brake will be recovered, and the machine can work normally as well. (As shown in Figure 10).

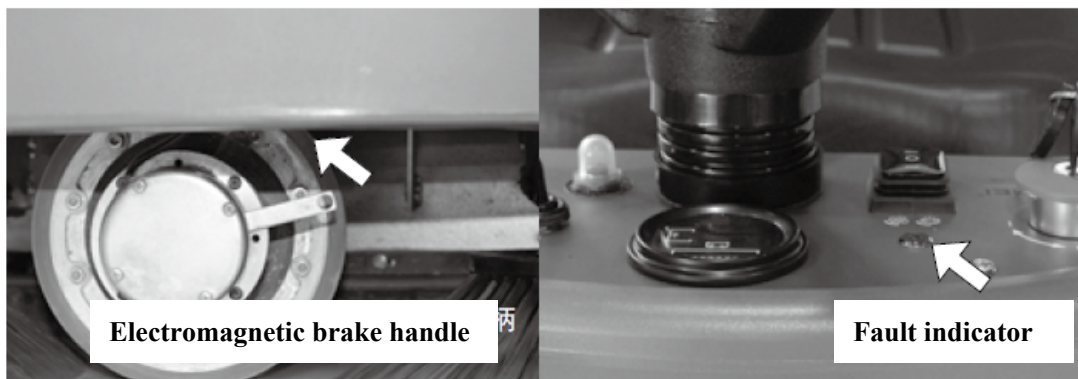


Figure 9

Figure 10

Adjust the height of side brush:

When the side brush is worn and shortened after long time use, it is available to adjust the height of it. First, park the machine and put down the side brush, then rotate the adjusting knob of side brush and adjust it to the right position after observation. (As shown in Figure 11)

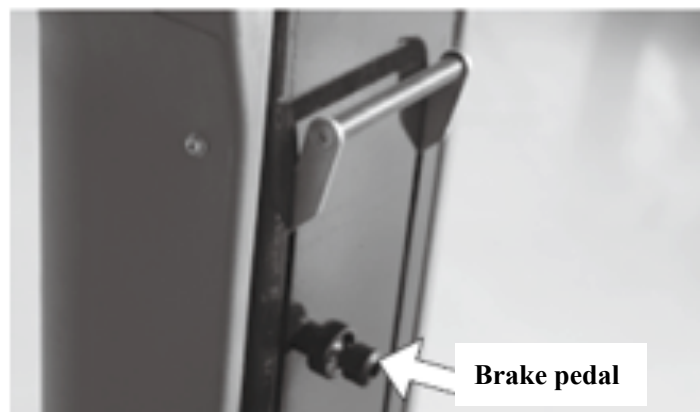


Figure 11

Adjust the height of rolling brush

As shown in below figures, first, install two adjusting knobs on the baffle of each side of rolling brush, unscrew the knob by taking the dot as central shaft of rolling brush, and then increase the height of rolling brush in the counter clockwise direction or reduce the position of rolling brush in clockwise direction, so that the worn rolling brush is able to work at proper height. Please observe the height of rolling brush by referring the circular symbol on baffle.(Figure 12-13)

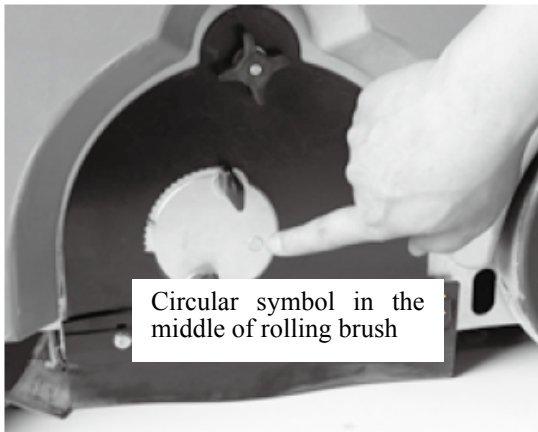


Figure 12

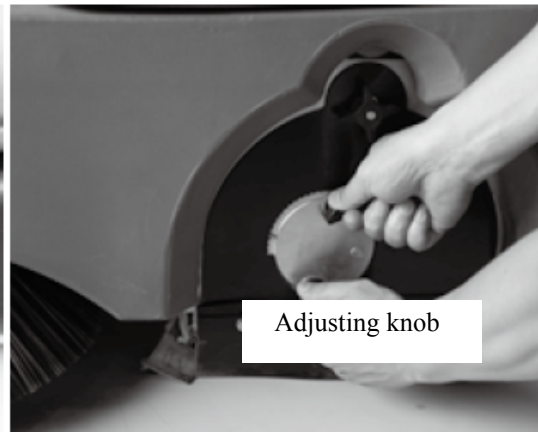


Figure 13

Adjustable seat:

After sitting on the seat, pull the adjusting rod out on the right side to move the seat forward or backward, then loose the rod when the seat is on proper position. Pull the adjusting device on the left of seat to adjust the corner of seat backrest as shown as below. (Figure 14-15)

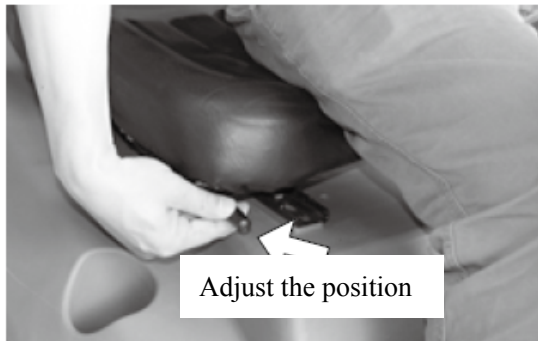


Figure 14



Figure 15

Sweep the floor

For the sake of safety: Do not operate the machine before reading and understanding this manual.

1. Start the switch key;
2. The indicator is normally on.
3. Set direction switch according to the direction of moving machine(forward or backward).

Note 1: Turn the forward and backward switch on the direction of “Forward” (Figure 16) for normal sweeping. Pull down the lift handle of side brush (Figure 17) and step on the pedal to start sweeping. (Figure 18)



Figure 16



Figure 17

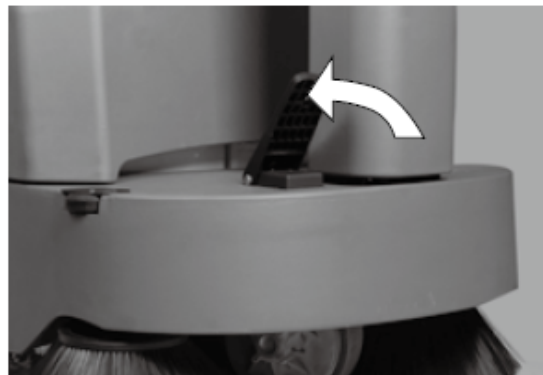


Figure 18

Note 2:

Turn the forward and backward switch on the direction of “Backward”(Figure 19) when reverse the machine, the alarm of reverse ring is used for warning, at this time, pull up lift handle of side brush and step on driving pedal. (As shown in Figure 21)



Figure 19



Figure 20

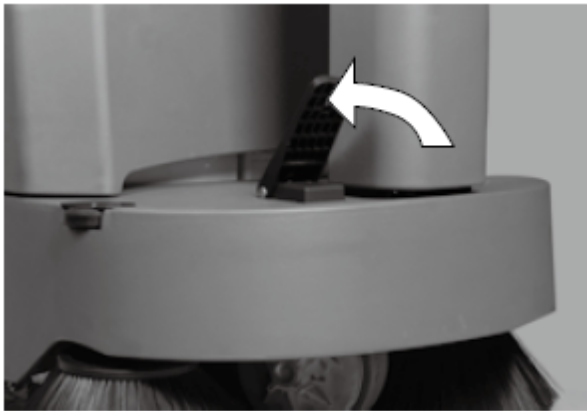


Figure 21

During the operation of machine

Please go straight ahead to avoid hitting the post or scraping to both sides of machine. Several centimeters (or inches) of overlap shall be made for sweeping route.

When the machine is moving forward, do not rotate the steering wheel substantially. As this machine is very sensitive to the rotation of steering wheel, sharp turn must be avoided except the emergency situation.

When arrives to the bottom of corridor, please sweep from the bottom toward opening of corridor.

Keep moving on to prevent damage to the ground.

If you find the sweeping efficiency is not good, please stop cleaning and read “Troubleshooting” of machine carefully.

Sweeping method

Adjust the height of side brush and rolling brush to sweep floor according to the field situation.

Please pay attention to the indicator of battery level, in order to make sure there is enough power for the operation of machine.

Before leaving the machine, please take the key out at first.

Daily maintenance shall be conducted after sweeping. (Please refer to “Machine maintenance”)

Drive slowly on slope: adjust the speed slower, and sweep the floor when the machine is uphill, not downhill.

For the sake of safety: Drive the machine slowly on slope or smooth surface.

Do not operate machine under the area if the ambient temperature beyond 43°C (110°F).

Do not start sweeping under the area if the ambient temperature is lower than 0°C(32°F).

The maximum rated slope during the process of sweeping and transferring machine is 7% and 19.25% respectively.

Battery consumption indicator

The battery consumption indicator will display the level of battery.

All (10) indicators will be light on when the battery is fully charged. With the consumption of power, indicators will be light off from right to left, until only the indicators in left side are twinkling (red).

The sweeping function will be closed to remind the operator about the status of battery if the left indicator is flashing. When the indicators start to flash, the machine will stop moving, and the battery shall be charged at this time.

Note: Do not charge the battery frequently! Please charge it if it is necessary. Overcharge may shorten the lifetime of battery, do not charge the battery until it is reminded by left indicators. The battery consumption indicator will stop flashing after the battery is fully charged.



Overload reset switch

This machine is equipped with a overload reset switch, which can avoid the damage of brush motor. This kind of switch is located on the control panel.

In case power outage is triggered on the overload reset switch, please determine the cause first, and then press the “Overload reset switch” button by manual after the motor is cooled down.

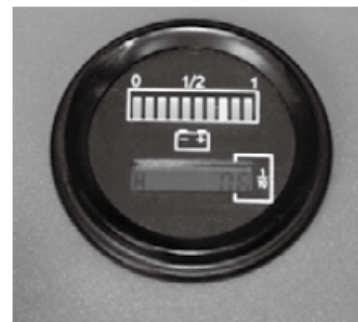
Please contact the authorized service center if the machine is required to be maintained.



Overload reset switch

Timer

The timer will record the total working hours of brush motor. Please use timer to determine when it is necessary to conduct the suggested maintaining procedure and record the history of maintenance.



Process garbage and clean up the garbage can

1. After sweeping the floor, please press the dust vibrating switch on control panel to drop the dust accumulated on filter screen before processing the garbage.
2. Please pull up the handle of side brush, turn off the power, open the buckle of garbage can to remove the garbage can and dispose all garbage. (As shown in Figure 22-23)



Figure 22



Figure 23

* The filter can be taken out in regular time to dispose dust.

Troubleshooting of machine

Problem	Troubleshooting
After starting the switch, the machine doesn't work, and the fault indicators are off all the time.	Check whether the power plug is inserted tightly.
	Make sure the upper cover of machine is closed.
	Check if the insurance button on control panel jumped out, and press down the reset insurance to reset it.
The machine can not move after connecting the power.	Check whether the fault indicator is flashing, and see if "3+2" frequency flash is occurred, please shift the electromagnetic brake shift on precursor motor to the side.
	Make sure the driving pedal has not been stepped during the process of starting machine. In additional, the machine can move normally only after the operator sit on the seat.
Side brush doesn't work	Check if the reset insurance button is jumped out.
Poor sweeping	Contact maintaining staff of JohnnyVac
	Empty the garbage can.
	Replace side brush and rolling brush.
	Check if the filter has been blocked
	Check if the rolling brush has been adjusted to the proper position.
	Charge battery until the charger is turned off.

Maintenance list

The following table points out the responsible person for each program.

O : operator T : Staff who have been trained specifically

Interval period	Responsible person	Instruction	Procedure
Everyday	O	Rolling brush	Check the height of rolling brush
	O	Side brush	Check the height of side brush
	O	Filter	Check if the filter is damaged and inspect the cleanness.
50 hours	O	Brush waterproof tape	Check whether it is damaged or worn.
50 hours	O	Front sealant tape	Check whether it is damaged or worn.
50 hours	O	Rear sealant tape	Check whether it is damaged or worn.
50 hours	O	Side sealant tape	Check whether it is damaged or worn.
100 hours	T	Seal ring of garbage can	Check whether it is damaged or worn.
200 hours	T	Maintenance-free battery electrode and wiring	Check if the connected wire is loose and clean the surface of battery.
500 hours	T	Dust collecting motor	Inspect motor brush (The first inspection shall be done after 500 hours, then inspect once every 100 hours.)
	T	Side brush motor	Inspect motor brush (The first inspection shall be done after 500 hours, then inspect once every 100 hours.)
	T	Drive assembly	Inspect motor brush (The first inspection shall be done after 500 hours, then inspect once every 100 hours.)
	T	Transmission belt	Check whether it is damaged or worn.

Note: More frequent maintenance may be required under dusty circumstance.

Battery charging

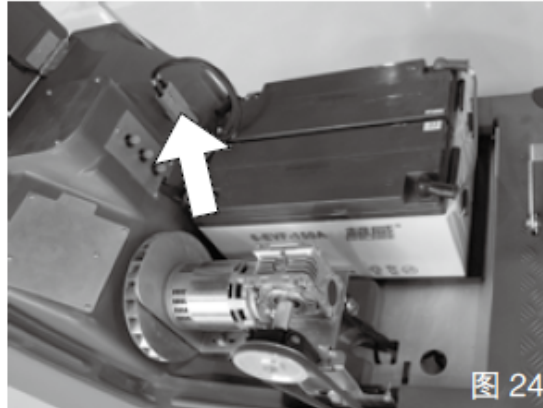
Important information: Make sure the charger has been properly set according to the type of battery when it is necessary to charge the battery.

1. Push machine to the flat and dry ground.

Note: Please make sure the ventilation situation in this area is good.

2. Turn off the key switch of machine.

For the sake of safety: park the machine on horizontal surface, switch off the machine and take the key out when you leave or maintain the machine.



3. Plug the charger connector into the charging connector of battery as shown in Figure 24.

The battery installation and precautions for use

1. Check whether the battery is damaged and cleaned with clear mark before use, and clean the surface of battery by a dry cloth; Check if the open circuit voltage, positive & negative terminals have been remarked obviously and see if the terminals are reversed.
2. Install the battery vertically according to the drawing, do not place it upside down. The clearance between two adjacent batteries shall be more than 5 mm at least. After installation, please check the requirement on installation drawing, and see if the positive and negative terminal of each battery is correct or not, and then connect all batteries together by wire.
3. After the installation of battery, it is necessary to check whether the connection part is loose, and tighten it if available. Take care not to force too much, so as not to damage the terminal. Generally speaking, the torque shall not be more than 15 N.M.
4. When install the battery for overall machine, the blocks between batteries shall be adjusted. Moreover, batteries must be upright and fixed in order to avoid shaking and collision.
5. Accessories, such as, key, insurance holder and other part that maybe easy to occur spark, must be isolated from battery.
6. In general, the battery leaves factory under the state of charge, users can assemble it into machine directly. If the back-out time is too long (beyond 3 months), it is necessary to charge as per method mentioned above.

Replace side brush

1. Park machine on flat surface, and make sure the brush motor is located on the lifting position.
 2. Turn off the key switch of machine.
- For the sake of safety: Park the machine on horizontal surface, switch off machine and take the key out when you leave or maintain the machine.
3. Put hands into brush plate, then the side brush can be disassembled after pressing the dark button. (Figure 25)

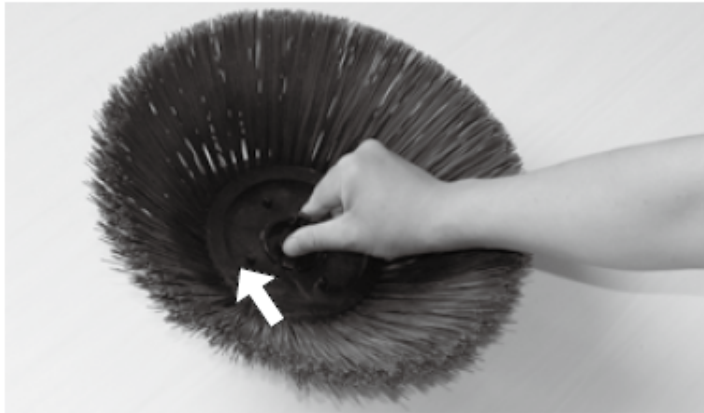


Figure 25

Replace rolling brush

1. Park the machine on flat surface, and make sure the brush motor is located on the lifting position.
 2. Turn off the key switch of machine.
- For the sake of safety: Park the machine on horizontal surface, switch off the machine and take the key out when you leave or maintain the machine.
3. Turn on the knob of rolling brush as shown in below figure (Figure 26).

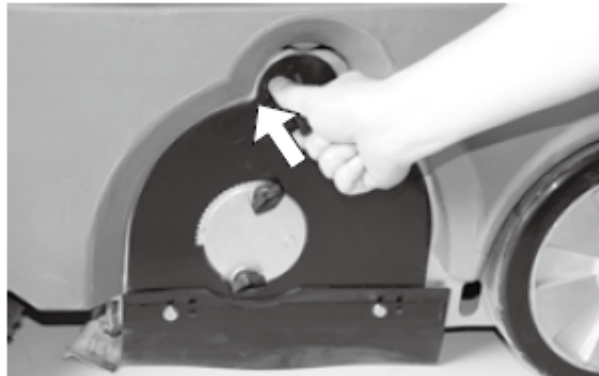


Figure 26

4. Remove the end cap of rolling brush, take out old rolling brush and replace it with a new one, then install the end cap. (As shown in Figure 27)



Figure 27

Install filter

1. Park the machine on stable ground.
2. Turn off the key switch of machine.

For the sake of safety: Park the machine on horizontal surface, switch off it and take the key out when you leave or maintain the machine.

3. Connect the wire of dust vibration motor of filter. (Figure 28)

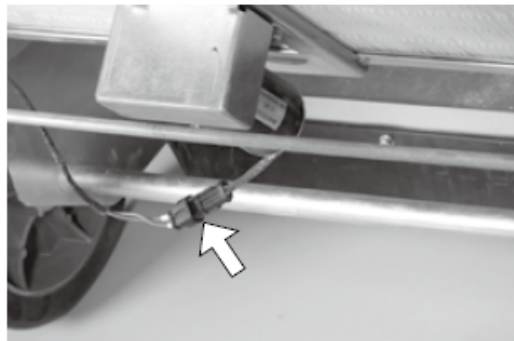


Figure 28

4. Open the garbage can and remove it at first, then pull down the fixed rod and take out filter along the rail, finally, pull up the fixed rod. (Figure 29-30)



Figure 29



Figure 30

Push, drag and delivery machine

Push or drag machine

In case the machine is turned off and electromagnetic brake of precursor motor is relieved, you can push it forward or backward, do not drag it from the front.

For the sake of safety: Do not operate machine when relieve the electromagnetic brake!

Machine can only be pushed or dragged on flat surface. The speed is not allowed to be more than 3.2k p/h (2 mph). Do not try to push or drag machine with high speed!

Transport machine

Please obey to the following procedures if the machine is transported by truck or trailer:

1. Lift rolling brush component

For the sake of safety: Empty garbage can first before loading the machine to truck or trailer or unload it from truck or trailer.

2. Use suggested device to load and unload machine

For the sake of safety: Please use suggested device to load and unload machine to (from) truck or trailer when transport machine.

3. Make the front of machine close to the front part of truck or trailer.

4. Place barrier at the back of each driving wheel to prevent the machine from sliding.

5. Fasten the goods shelf of machine by ropes, and then fasten it to the truck or trailer to avoid tilting.

For the sake of safety: Fix machine to the floor of truck by ropes during transportation.

Machine storage

The following steps shall be taken to store machine for a long time:

1. Clean filter screen and garbage can. Open the garbage can for good ventilation.
2. Park the machine under cool and dry area. Do not let the machine under rain! Keep it in the room.
3. Take the battery out, or fully charge it every 3 months.

Working status of LED light of intelligent charger

LED light	Indicating status	Working status
LED 1, LED 2	Flash, the fan doesn't work.	Precharge (charging 3 hours)
LED 1, LED 2	Red light on, the fan is running.	Constant current (charging 7-8 hours)
LED 1, LED 2	Red light on, the fan is running.	Constant voltage (Charging 4.5 hours)
LED 1, LED 2	LED 1 red light on, LED 2 green light on, but the fan does not work.	Small constant current (Charging 4.5 hours)
LED 1, LED 2	LED 1 light off, LED 2 green light on, but the fan does not work.	Completed
Remark		
Circumstances when LED 2 is light on	1. Supported short circuit	
	2. Wire is connected reversely	
	3. Battery wire short circuit	
	4. Over temperature---orange light is on for LED 2	

General size / capacity of machine

Item	Size/Capacity
Length	1292 mm
Height	1200 mm
Width	790 mm
Sweeping width of rolling brush	600 mm
Diameter of side brush	380 mm x 2
Sweeping width (with/without side brush)	950 mm / 700 mm
Filter screen area	3m ²
Garbage can capacity	50L
Weight/without battery	170 Kg
Weight/ include standard battery component	223 Kg
Sound pressure level LPA	58 dB

Type

Type	Q'ty	Voltage	Rated current	Weight (per one)
Battery (standard)	2	12V	150 Ah 3hr	53 kg

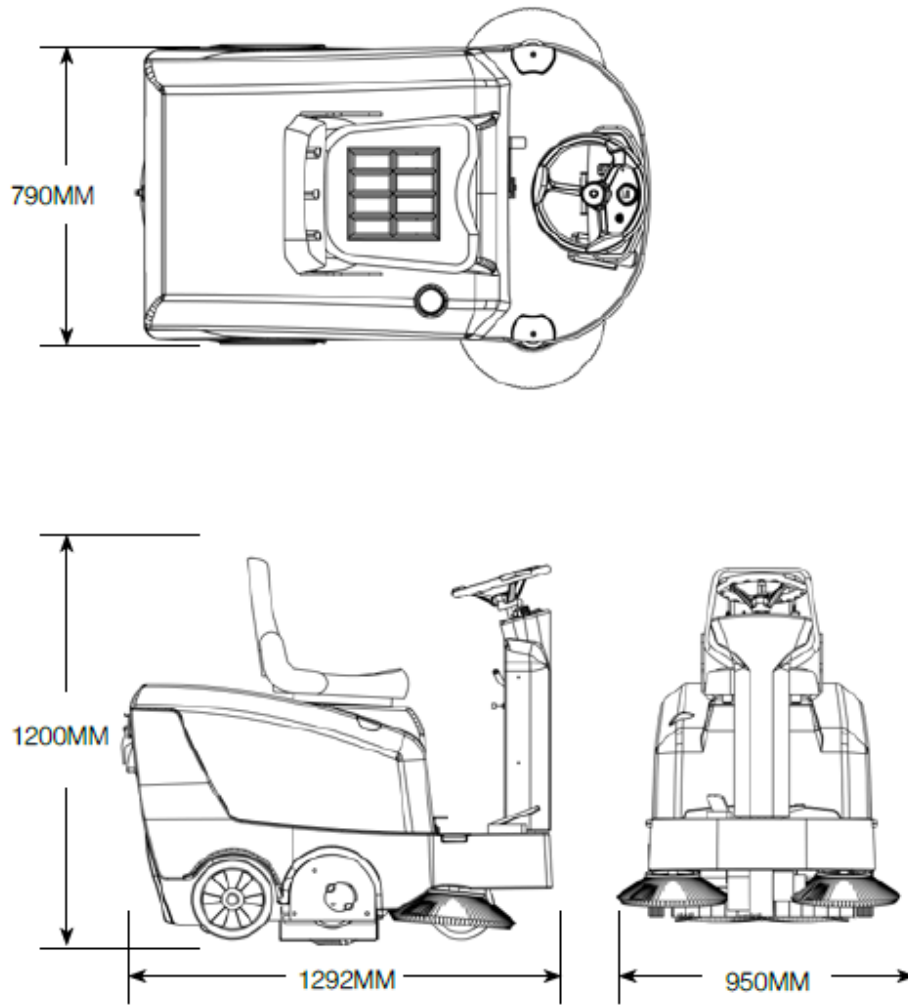
Type	Usage	VDC	KW (hp)
Electronic motor	Dust collecting rolling brush motor	24	0.60
	Side brush motor	24	0.08 X 2
	Dust vibration motor	24	0.03

Type	VDC	Ampere	Hertz	VAC
Charger (Intelligent)	24	25	50	220

Tire

Position	Type	Size
Front wheel (1)	Solid	230 mm(OD) X 80 mm (W)
Rear wheel	Solid	270 mm(OD) X 80 mm (W)

Machine size





INSPECTION CERTIFICATE

_____	_____
Model	Part No.
_____	_____
Side disk motor	Driving motor
_____	_____
Dust collecting rolling brush motor	Dust vibration motor

Housing	
_____	_____
Inspector	Date



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