

Instruction Manual



Product model: KR-XJ60D

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



KR-XJ60D Ride-on Floor Scrubber

Introduction

Each new model is provided with this manual, so as to provide necessary operation and maintenance instructions.

When operating or repairing the machine, please read this manual completely and understand the machine well.

This machine will provide excellent service. However, if you pay attention to the following points in daily operations, you can get twice the result with half the effort.

- Be very careful when operating the machine.
- Regular maintenance of the machines - according to the maintenance instructions provided by each machine.
- Use supplied components or similar components when maintaining the machine.

Please complete the following at the time of installation for future reference.

Model number-
Machine serial number-
Machine option-
Sales representative- _____
Sales representative's Tel- _____
-Customer number- _____
-Installation date- _____

Use _____

KR-XJ60D is a ride-on industrial and commercial machine that can scrub rough and smooth hard surfaces such as concrete, ceramic tiles, stone and synthetic materials. Typical applications include schools, hospitals, health care facilities, office buildings and shopping malls. It is forbidden to use this machine on soil, grassland, artificial turf or carpeted ground. This machine can only be used indoors. This machine cannot be used on highways. Please do not do anything other than the instructions in this operator's manual.

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Important safety instructions - Keep these instructions properly!

The following are symbols used in this manual and related descriptions:

Warning: warn of risks or unsafe operations that may result in serious personal injury or death.

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For Safety Consideration: matters that must be observed when using the machine so as to ensure health and safety.



The following information signs may pose a danger to the operators, so please know when these situations may occur, find out all potential safety hazards on the machine, and immediately report the damage or faulty operation of the machine.

Warning: flammable substances may cause explosion or fire. Please do not use flammable substances in the tank.



Warning: Flammable substances or active metals may cause explosion or fire. Please do not pick them up.



出于安全考虑:

For safety considerations:

1. Do not operate the machine under the following circumstances:
 - Without training and authorization.
 - Do not read and understand the operator manual.
 - After taking alcohol or drugs.
 - When using mobile phones or other types of electronic equipment.
 - Not in proper working condition.
 - It is located in an area with flammable vapor, liquid or flammable dust.
 - It is located in a dark area where the control device or operating machine cannot be viewed safely, unless the illuminating lamp is being operated or has been turned on.
 - Areas where objects may fall, unless there is a shed.

2. When operating the machine:
 - Check the machine for liquid leakage.
 - Keep sparks and open flames away from refueling areas.
 - Ensure all safety equipment is in place and working properly.

3. When using the machine:

- Use the machine only according to the instructions in this manual.
- Walk slowly on slopes and smooth surfaces.
- Slow down when making a turn.
- When the machine is running, make sure the whole body of the operator is within the operation table.
- Be especially careful when reversing the machine.
- Children are forbidden to play on or near machine.
- Do not allow the machine to carry passengers.
- Always observe safety and traffic regulations.
- Immediately report machine damage or faulty operation.
- Observe the mixing, handling and disposal instructions on chemical containers.
- Observe safety guidelines for wet floors.
- Observe the site safety guidelines for wet floors.

4. When leaving or repairing the machine:

- Park the machine on a horizontal surface.
- Turn off the machine and remove the key.

5. When repairing the machine

- All work must be carried out in an environment with good lighting condition and high visibility.
- Avoid moving parts, do not wear loose clothes or jewelry, and tie up your long hair.
- Do not energize the spray or flush the machine with water pipes near electrical components.
- Disconnect the battery connector when operating the machine.
- The battery must be installed by trained personnel.
- All maintenance work must be carried out by trained service technicians.
- Do not modify the machine in any way different from the original design.
- Use replacing parts provided or approved.
- Wear the personal protective equipment required and recommended in this manual.

For safety consideration: wear hearing protection devices.

For safety consideration: wear protective gloves.

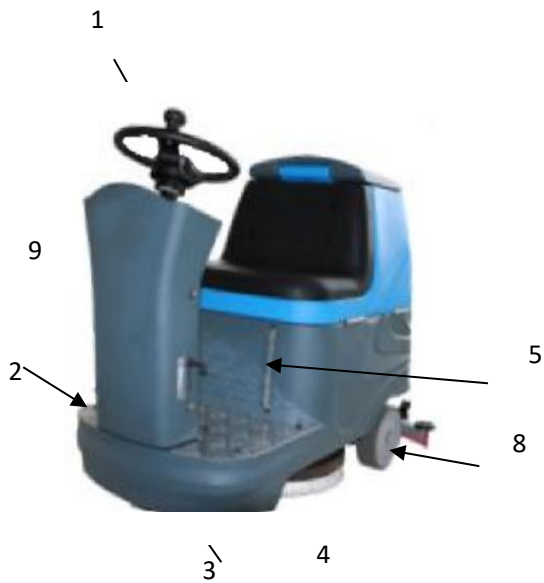
For safety consideration: wear eye protection device.

6. When loading or unloading the machine to or from a truck or trailer:

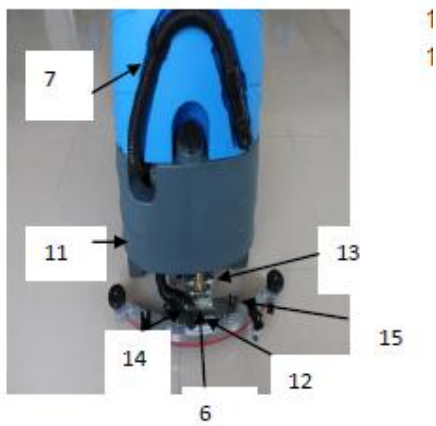
- Drain the water tank when loading the machine.
- When shutting down the machine, put away the floor washing brush disc and suction rake first.
- Turn off the machine and remove the key.

- Use slopes, trucks or trailers that can support the weight of the machine and the operator.
- Use pallets. Do not push the machine to or from the truck or trailer unless the loading height is less than 380mm(15in.) from the ground.
- Lock the tire of the machine.
- Fix the machine on a truck or trailer

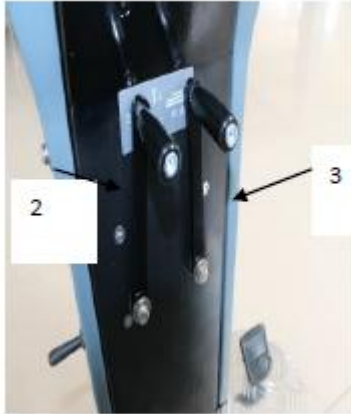
Machine components



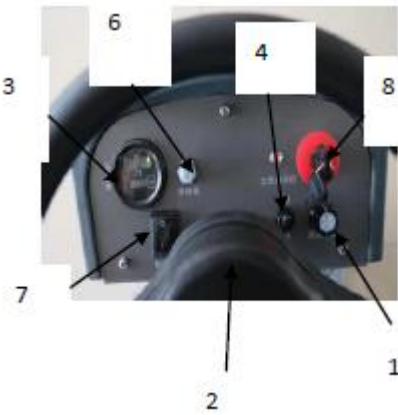
- 1. Steering wheel
- 2. Foot switch
- 3. Front caster
- 4. Brush disc
- 5. Water level viewing tube
- 6. Suction rake assembly
- 7. Blow-off pipe



- 8. Big caster
- 9. Water valve switch
- 10. Seat
- 11. Drive motor
- 12. Soil pick-up port
- 13. Suction rake lifting chain
- 14. Suction rake bracket
- 15. Suction rake assembly fixing bolt



- 1. Suction rake lifting pull rod
- 2. Brush disc lifting pull rod



- 1. Speed-regulating switch
- 2. Horn button
- 3. Battery meter
- 4. Forward and backward switch
- 5. Fault indicator lamp
- 6. Overload reset switch
- 7. Dismantling/mounting brush disc switch
- 8. Main power switch

Working principle of machine



The cleaning components of the machine comprise a clean water tank, a sewage tank, a brush disc, a needle holder or a scouring pad, a suction rake assembly, a suction motor and a driving motor.

The button on the control panel can control the brushing function of the machine. Lower down the rocker arm of the brush disc and the rocker arm of the suction rake, place the forward/backward switch in the "Forward" position, adjust the speed switch (to the appropriate speed and water output according to different floors), press the foot switch and start cleaning.

Note: The amount and type of dirt will determine the type of brush head or scouring pad to be used. For special suggestions, please refer to the section "Brush and Scouring Pad Information" in this manual, or contact after sales service.

Floor washing method

The water and detergent in the clean water tank will flow to the brush disc and the floor through the solenoid valve, and the mixed solution of the detergent and the water will be used for scrubbing the floor by rotating the brush disc. While the machine is moving forward, the suction rake will suck the sewage on the floor into the sewage tank through the suction pipe with the help of the suction motor .

Brush and scouring pad information

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

The recommended brushes and scouring pads are as follows:

Needle holder: 530mm 21" needle holder

Brush disc: 560mm 21" floor brush

Polishing pad (white) - used for maintaining a highly slippery or polished floor; water the floor first, then clean, so as to prevent the floor from being scratched.

Cushion pad (red) - used for cleaning off slight dirt without damaging the floor.

Scrubbing pad (blue) - used for scrubbing off moderate to severe dirt. Wipe off dirt, stains and grinding marks to clean the floor surface for recoating.

Folding pad (brown) - used for removing the coating from the ground surface for recoating.

Gravity folding pad (black) - used for removing heavy coating or substrate or scrubbing with strong force.

Machine settings

Installation of suction rake assembly

1. **Park the machine on a smooth floor.**
2. **Please turn off the machine's key switch. For safety consideration: when leaving or repairing the machine, or parking the machine on a horizontal surface, shut down the machine and pull out the key.**
3. **Install the suction rake onto the suction rake bracket and tighten the two nuts to connect the sewage suction pipe and suction rake.**



Injection of clean water into clean water tank

For safety consideration: when leaving or repairing the machine, or parking the machine on a horizontal surface, shut down the machine and pull out the key.

There is a clean water injection hole for the clean water tank behind the machine.



Warning: Flammable substances may cause explosion or fire. Please do not use flammable substances in the water tank.

Washing method: open the injection hole of the clean water tank and feed warm water (which shall not exceed 60 °C). According to the description of the mixing ratio of detergent, pour the required detergent into the clean water tank, and then feed warm water into the clean water tank. At the same time, a defoaming agent shall be added into the sewage tank (refer to the description of defoaming agent for the ratio).



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

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

Note: Please always use the recommended detergent, and always remember that the clean water tank cannot accept granular detergent so as to prevent blocking the clean water filter screen and the clean water pipe, such as washing powder. If the machine is damaged due to improper use of detergent, the manufacturer is not responsible for warranty.

Machine operation

Pre-operation check

- Check the machine for liquid leakage.
- Check whether the sealing ring of the sewage tank cover is damaged or sees foreign matters.
- Check whether the sewage filter screen is blocked.

- Check the condition of the brush and remove the clews, binding bands, iron wires, plastic packaging or other debris around the brush.
- Check whether the suction rake is worn or dirty, or the angle of the suction rake needed.
- Check whether the suction ports of the sewage suction pipe and suction rake are blocked with dirt or whether the sewage pipes are broken.
- Drain and clean the sewage tank.
- Check whether the electromagnetic brake and steering wheel can operate normally.
- Check whether the horn and back-up light are normal.
- Check the maintenance records to determine whether maintenance of machine is needed.

Before operation

Before cleaning, remove large debris and wires, clews, strings, etc. that may be wound around the brush.

Please plan the cleaning method in advance and make long-term planning insofar as possible to minimize the number of downtime and startup. Wipe the machine clean in advance to prevent speckle growth.

Washing the floor

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

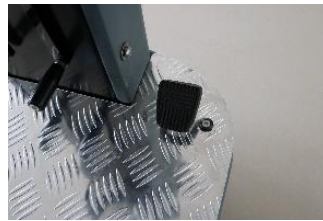
1. Please turn on the switch key.
2. Please set the direction switch (forward or backward) by moving the machine as required.

Note 1: When the forward/backward switch of the machine is set in the "Forward" direction, it is for normal floor washing.



Note 2: When the forward/backward switch of the machine is set in the "Backward" direction, the suction rake shall be lifted by the suction rake rocker arm, and the suction motor will automatically turn off; at the same time, the brush disc shall be lifted by the brush disc rocker arm, and the manual back-up light will be lit to give a warning.

3. Manually lower down the suction rake assembly and the brush disc assembly, open the water valve switch, adjust the water output, adjust to an appropriate speed, and press the pedal to start washing the floor.



Warning: Flammable substances or active metals may cause explosion or fire. Please do not pick them up.



4. Release the pedal switch, the machine will automatically brake; lift the suction rake with the suction rake rocker arm, lift the brush disc with the brush disc rocker arm, and turn off the power to stop washing.



5. Power-off automatic braking function: release the foot switch, the machine will automatically brake, which is more convenient than other machines and will reduce the operation steps.
6. If you want to move the machine, push the electromagnetic brake handle upwards to release the electromagnetic braking function; actually, it can be easily pushed, as shown in the following figure. (If the power supply is turned on, the panel fault indicator will flash for three times, then stop for a while, and then flash twice. If the machine still cannot walk, this indicates that the automatic brake has not been reset; pulled down the electromagnetic brake handle once, the automatic brake will be reset and the machine will be able to work normally).



7. This machine is small and exquisite, with a low chassis and a strong climbing performance, i.e., 15%. Its single brush disc can serve a large floor-washing area.

During operation of the machine

Please move straight forward insofar as possible to avoid bumping into pillars or scraping both sides of the machine, and please overlap the cleaning routes by 5cm.

During cleaning, please adjust the machine speed and clean water flow as required, using medium speed and minimum

clean water flow insofar as possible.

Keep the machine moving so as not to damage the floor.

If it is found that the cleaning effect is not good, please stop cleaning and refer to the "Machine Troubleshooting".

Floor washing method

If there is too much foam, it is recommended to feed defoamer into the sewage tank, otherwise foam will be sucked into the suction motor and damage the suction motor.

Replace the needle holder or scouring pad as required in cleaning.

Please pay attention to the battery level indicator to ensure that there is enough power to operate the machine.

Please pay attention to the clean water tank's viewing tube to ensure that the clean water tank is not empty.

Please remove the key before leaving the machine.

After cleaning, please follow the daily maintenance procedures. (See the Maintenance Table)

Driving the machine slowly on a slope: use the speed control switch to slow down the speed of the machine when going downslope, and wash the floor when the machine goes upslope instead of downslope.

For safety consideration: when using the machine, walk slowly on slopes and smooth surfaces.

Do not operate the machine in an area where the ambient temperature exceeds 43°C (110 F). Do not turn on the floor washing function in areas where the ambient temperature is lower than 0°C (32 F).

Water level transparent pipe

The water level tube of the clean water tank can simply and clearly indicate the real-time water level, which is convenient for machine operation and can ensure that the machine is in good condition.

(it is recommended that the water level in the clean water tank is above half of the viewing tube so as to maintain the water pressure and ensure the water yield at the same time).



Water level transparent pipe

Sewage tank's sewage sensor

When the sewage tank is full, the sewage sensor of the sewage tank will cut off the power supply of the suction motor, but will not stop other functions. Please discharge the sewage of the sewage tank in time so as to continue to use it normally.



Sewage sensor cover



Sewage tank's sewage sensor

Battery meter

The battery meter shows the level of electricity in the battery. When the battery is fully charged, all indicator lights are on. As the power is consumed, the indicator lights will turn 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 consumption reaches the first yellow indicator, please stop cleaning work and charge the battery. If the machine continues to operate exceeding the first yellow indicator, the cleaning function will be automatically turned off when the last yellow indicator starts flashing, which can prevent the battery from completely running out. Please immediately push the machine to the charging area for charging the battery.



Overload reset switch

This machine is equipped with a resettable overload reset switch to prevent damage to the electric door lock. The overload reset switch's button is located on the control panel.

There is a reset switch on the control panel of this machine, which is used to avoid damage to the brush disc 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.



 Overload reset switch

Timer

The timer will records the total number of hours of the machine operation. Please use the timer to determine when the recommended maintenance procedure should be performed and record the maintenance history.


Drain and clean the sewage tank

Please drain and clean the sewage tank after cleaning work is completed or when the sewage sensor of the sewage tank cuts off the power supply of the suction motor. Then fill the clean water tank and then start the cleaning work.

1. Please push the machine to the drain immediately.
2. Please turn off the machine's key switch. For safety consideration: when leaving or repairing the machine, or parking the machine on a horizontal surface, shut down the machine and pull out the key.
3. Remove the drain pipe of the sewage tank . Hold the drain pipe upward, open the upper cover of the drain pipe, place both hands in the position shown in the figure, bend the drain pipe, move the drain pipe to a container such as a sewer or a sink, then slowly loosen the right hand so that the drain pipe will not bend any more and begin to drain the sewage.



4. After the sewage in the tank is completely drained, lift the sewage tank cover and flush the inside of the sewage tank with clean water.

Warning: Flammable substances may cause explosion or fire. Please do not use flammable substances in the water tank.



Please do not use steam to clean the water tank, because the high heat will damage the water tank and components.

5. Flush the sewage sensing cover inside the sewage tank with clean water.
6. After the sewage tank is completely drained, cover the drain pipe and put the drain pipe back in place.



7. Unscrew the sewage filter counterclockwise. If it becomes dirty, please use wet cloth or brush to clean it gently. Please wait until the filter screen is dry before putting it back into the machine. Do not flush the filter screen with a water gun, as shown by the arrow.



8. Cover the sewage tank to ensure that there are no other foreign matters around, as shown in the following figure.



9. Open the clean water tank cover from the back and feed clean water to clean the water tank.



Machine troubleshooting

Problem	Cause	Solution
Suction is insufficient.	The suction motor has been turned off.	Turn on the suction motor.
	Wear of suction rake strip	Turn the direction or replace the suction rake strip.
	The suction rake is displaced.	Adjust the suction rake.
	The suction rake is blocked.	Remove the blockage.
	The sewage filter becomes dirty.	Clean the filter.
	Debris on the suction rake	Remove the garbage.
	The sewage suction pipe connected to the suction rake is not connected or is damaged.	Reconnect or replace the suction pipe.
	The sewage tank cover or the sewage pipe cover is not tightened.	Check for obstructions and close the cover.
The suction motor does not work.	The suction motor switch has been turned off.	Turn on the suction motor switch.
	Sewage tank is full.	Drain the sewage tank.
	Sewage tank is filled with foam.	Empty the sewage tank.
		Reduce the use of detergent or add a proper amount of defoaming agent into the sewage tank.
	The sewage tank sensor becomes dirty, damaged or blocked.	Clean or replace the sensor.
The brush disc sees little or no water yield.	The clean water tank is empty.	Fill up the clean water tank.
	The water valve is closed.	Open the water valve.
	Solenoid valve is damaged.	Replace the solenoid valve.
	The filter screen of the clean water tank is blocked.	Drain the clean water tank, take out the filter screen of the clean water tank for cleaning and then put it back.
The floor washing effect is not good.	Inappropriate detergents or brushes are used.	Contact the maintenance personnel.
	Sewage tank is full.	Empty the sewage tank.
	The clean water tank is empty.	Add water to the clean water tank.
	Debris on the needle holder or the scouring pad.	Remove the garbage.
	The floor-washing brush is worn out.	Replace the brush.

	Low battery	Charge the battery until the charger is turned off.
When the machine is stopped, the drain valve is in an open position, and the water flow does not stop.	Impurities in the solenoid valve.	Fill the clean water tank is with water, open the water valve to the maximum, the start the machine, and flush off the impurities in the solenoid valve by water pressure [this step can be repeated for several times]
	Solenoid valve is damaged.	Replace the solenoid valve.

Maintenance Table

The following table indicates who is responsible for each procedure.

O = operator

T = specially trained personnel

Interval period	Responsible person	Description	Procedure
Daily	O	Brush disc/needle holder scouring pad	Check the height of brush disc/needle holder
	O	Sewage tank	Check for damage and wear or debris.
100 hours	T	Sealing ring of the sewage tank	Check for damage and wear.
200 hours	T	Maintenance-free battery electrode and wiring	Check and clean
500 hours	T	Vacuum motor	Check the motor brush (check every 100 hours after the first 500-hour check)
	T	Brush disc motor	Check the motor brush (check every 100 hours after the first 500-hour check)
	T	Drive motor	Check the motor brush (check every 100 hours after the first 500-hour check)
	T	Big caster	Check for damage and wear.

Note: More frequent maintenance may be required under extremely dusty conditions.

Battery charging

Important information: When charging the battery, please ensure that the charger is properly set up according to the battery type.

1. Push the machine to a flat and dry ground.

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

2. When leaving or repairing the machine for safety consideration, park the machine on a horizontal surface, turn off the machine and pull out the key.
3. Insert the charger connector into the battery's charging interface.

Note: During charging of the charger, do not pull the DC line of the charger out of the socket on the machine so as 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 all batteries are installed, check whether the connection parts are loose, and tighten them as required. Avoid excessive force that may damage the poles. Generally, the torque force shall not be more than 15N·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 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 3 months), it shall be recharged 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 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. (If you don't follow this instruction, you will be responsible for the consequences of battery damage thus caused.)

Installation of brush disc and scouring pad

Replacement of brush disc, needle holder and scouring pad

1. Park the machine on a flat surface and make sure the brush disc motor is in the raised position.
2. Turn on the key switch of the machine, press the switch for dismantling/mounting the brush disc, and remove the brush disc.

For safety consideration: when leaving or repairing the machine, or parking the machine on a horizontal surface, shut down the machine and pull out the key.



3. Check whether the brush disc and the drive wheel are wrapped with clews every day. In addition, the brush disc shall also be checked for damage and wear.

Installation of brush disc and scouring pad

For safety consideration: when leaving or repairing the machine, or parking the machine on a horizontal surface, shut down the machine and pull out the key. If much bristle on the brush disc is missing or less than 10 mm (0.38 inch) in length, please replace the brush disc.

Please install the scouring pad on the needle holder before use.

Immediately after use, soap and clear water shall be used for cleaning the scouring pad. Do not use high-pressure clean water for cleaning the scouring pad. Hang the scouring pad or lay it flat to dry.

In order to install the brush disc and the scouring pad, first place the brush disc in the middle of the brush disc motor (as shown in Fig. 1), and lower the brush disc rocker arm; the brush disc motor will sink to the brush disc and needle holder (as shown in Fig. 2), press the switch for dismantling/mounting the brush disc, and the brush disc motor will rotate; at this time, the brush disc is successfully installed (as shown in Figs. 3 and 4).





Suction rake strip

The suction rake strip is used for introducing sewage and allowing the suction motor to suck sewage into the sewage tank through the suction pipe.

Check the wear of the suction rake strip every day. If the suction rake strip is half worn, please turn the direction or replace the strip.

The suction rake assembly can be removed from the suction rake bracket when transporting the machine so as to prevent damage.



Pull off the suction pipe



Unscrew the fixing nut counterclockwise

6. When installing the suction rake, check whether the suction rake strip is worn. If one side is worn, please change to the other side. If both sides are worn, please replace it with a new suction rake strip. When replacing with a new strip, the strip with a notch on the edge will be placed in front of the suction rake assembly, and the strip without a notch will be placed behind the suction rake assembly. First place the front strip, install the bottom plate of the suction rake assembly, and then place the strip. Note that the holes on the rear suction rake strip are aligned with the flange on the suction rake strip assembly, place the suction rake's pressing piece, tighten the buckle, and then tighten the bottom plate nut of the suction strip assembly.
7. Install the suction rake back to the suction rake bracket and install the suction pipe.

Push or drag the machine

If the machine is turned off, you can push it forward or backward, but you cannot drag it from the side.

For safety consideration: do not operate the machine when braking is disabled.

Only push or drag the machine on a flat surface. Do not exceed 3.2kph(2mph). Do not attempt to push or drag the machine at a high speed.

Push or haul the machine immediately. Please push the manual brake handle to release the electromagnetic brake, and then the machine can be easily moved.

Transportation of machine

When using a truck or trailer to transport machines, be sure to observe the following procedures:

1. Raise the suction rake assembly and brush disc motor.

For safety consideration: when loading or unloading the machine on or from a truck or trailer, the water tank must be emptied before loading the machine.

2. Use the suggested loading/unloading platform for loading and unloading machine. For safety consideration: when transporting the machine, please use the recommended loading/unloading ground to load and unload the machine from truck or trailer.
3. Place the front of the machine close to the front of the truck or trailer.
4. Place an obstacle behind each drive wheel to prevent the machine from sliding.
5. Tie the machine's shelf with ropes and then tie it to the trailer or truck so as to prevent the machine from tilting.

For safety consideration: when transporting the machine, use ropes to fix the machine to the vehicle deck.

Machine storage

When storing the machine for a long time, please take the following steps:

1. Drain and clean the clean water tank and sewage tank, and open the sewage tank for ventilation.
2. Park the machine in a cool and dry area. Do not expose the machine to rain. Store the machine indoors.
3. Take out the battery or charge the battery once every 3 months (be sure to have it fully charged).

Anti-freezing protection

For safety consideration: when leaving or repairing the machine, park the machine on a horizontal surface, and turn off the machine.

1. Drain the water from the clean water tank and sewage tank.
2. Pour 2 gallons (8 liters) of antifreezing agent into the water tank without dilution.
3. Power on the machine, then operate the solution flow system, and turn off the machine when the antifreezing agent appears on the scrubbing head.

Battery charger fault codes

Code	Fault	Solution
	The battery voltage is lower than 22V.	Charge for half an hour at 24V, 15-25AH, and

LED2 green light on and blinks	The battery level is inverted and cannot reach 22.4V.	then use the intelligent charger for daily charging.
LED2 red light on.	The battery voltage is lower than 22V.	The battery connector is not connected properly; The battery circuit fails.
Remarks	1.	The charger of liquid adding type cannot charge maintenance-free batteries, which may easily burn out the charger.
	2.	Maintenance-free chargers can charge the batteries of liquid adding type, but the batteries cannot be fully charged.
	3.	If the voltage is lower than 22V, the intelligent charger cannot work.
	4.	If the battery voltage is lower than 23V, the battery will give a warning for charging. Please charge it in time.
	5.	The above faults are all from new batteries. For old batteries, they need to be maintained and replaced.
	6.	Under normal circumstances, when the battery level is low, the power indicator on the machine operation interface will give a warning. Please charge it in time. If it is not charged for a long time, the above-mentioned faults will occur.

Working status of LED indicator of intelligent charger

LED lamp	Indication status	Working state
LED1.LED2	Twinkling, fan not turning	Pre-charging status [charging time: 3 hours]
LED1LED2	Red light on, fan turning	Constant current status [charging time: 7-8 hours]
LED1.LED2	Red light on, fan turning	Constant voltage status [charging time: 4.5 hours]
LED1.LED2	LED1 red light on, LED2 green light on, fan not turning.	Small constant current status [charging time: 4.5 hours]
LED1.LED2	LED1 light off, LED2 green light on, fan not turning.	Charging completed
Remarks		
Several cases of LED2 red light on	1.	Short circuit of load
	2.	The wires are connected reversely.
	3.	Short circuit of battery wire
	4.	Overtemperature - LED2 orange light on

General machine dimensions/capacity

Item	Dimensions/capacity
Model	KR-XJ60D
Length	1200mm
Height	1000mm
Width/frame	560mm
Width/rear suction rake (from guide wheel to guide wheel)	800mm
Brush diameter	550mm
Brushed path width	560mm
Clean water tank capacity	60L
Sewage tank capacity	65L
Weight/No battery	137KG
重量 / 含标准电池组件 Weight/Standard battery pack included	210KG

类型

Type

类型 Type	数量 Quantity	电压 Voltage	额定电流 Rated current	重量 (每个) Weight (each)
电池 (标准) Battery (standard)	2	12V 12V	120Ah 5hr	36.5Kg

类型 Type	用途 Use	VDC VDC	KW (hp) KW (hp)
电动马达 Electric motor	吸盘电机 Suction disc motor	24	0.50
	驱动电机 Drive motor	24	0.50
	吸水马达 Suction motor	24	0.40

类型 Type	VDC VDC	安培 Ampere	赫兹 Hertz	VAC VAC
充电器 (智能型) Charger (Intelligent type)	24	15	50	220

大脚轮

Big caster

位置 Location	类型 Type	尺寸 Size
前轮 (1) Front wheel (1)	实心 Solid	170mm*60mm 宽 170mm*60mm wide
后轮 Rear wheel	实心 Solid	220mm*80mm 宽 220mm*80mm wide

产品保修证 (主卡)

Product Warranty Certificate (Main Card)

(本保修卡为保修服务的主要凭证, 请妥善保管)

(This warranty card is the main certificate of warranty service, please keep it properly.)

保修条例:

Warranty regulations:

在保修期间内, 按使用说明书进行正常使用的状况下产生的故障, 予以免费修理。请把修理商品听本保修证及发票拿到购买单位要求免费修理。

During the warranty period, faults arising from normal use according to the instruction manual will be repaired free of charge. Please send the product to be repaired with this warranty certificate and invoice to the seller for repair free of charge.

在保修期间, 如发生以下情况之一, 必须作为收费修理, 请多谅解。

Please kindly understand that, in any one of the following cases during the warranty period, the repair shall be a paid repair.

1、不能够提供本保修证原件以及有效发票。

1. The original warranty certificate and valid invoice cannot be provided.

2、错误的使用以及自行不当的修理或改造而产生的故障或损坏。

2. Faults or damages are caused by wrong use and improper repair or modification.

3、买入后由运送、搬运或跌落造成的故障损坏。

3. Failures or damages are caused by transportation, handling or falling after purchase.

4、使用指定以外的电源 (电压、频率等) 或不正常电压造成的故障或损坏。

4. Failures or damages are caused by using power sources other than those specified (voltage, frequency, etc.) or abnormal voltages.

5、机器外观、尘隔、滤芯、电线以及软管钢管等附件。

5. Machine appearance, or accessories such as dust-proof piece, filter element, electric wire, hose and steel pipe, etc.

在本保修规定期限内, 按以上约定条件进行免费修理, 由于故障所造成的其他损失, 概不承担相关责任。

During the period stipulated in this warranty, repair will be provided free of charge according to the above agreed conditions. The warranty does not extend to other losses caused by the failures.

用户名称：
 User's name:
 地址：
 Add:
 发票号码：
 Invoice number:
 购买日期：
 Date of purchase:
 售机单位：
 Seller:
 地 址： _____
 Address: _____

产品保修证（副卡）
Product Warranty Certificate (Secondary Card)

1、产品信息： _____

1. Product information:
 产品型号与名称： _____
 Product model and name: _____
 出厂编号： _____
 Factory number: _____

2、用户信息： _____

2. User information:
 最终用户单位： _____ 电话： _____
 End user: _____ Tel: _____
 地址： _____ 传真： _____
 Address: _____ Fax: _____
 E-mail: _____ 邮编： _____
 E-mail: _____ Postal code: _____

3、销售单位信息： _____

3. Seller information:
 销售单位名称：（盖章有效）
 Seller's name: (valid with seal) _____
 地址： _____
 Add: _____
 联系人： _____ 电话： _____
 Contact: _____ Tel: _____
 邮编： _____ 销售日期： _____
 Postal code: _____ Sale Date: _____

为了实现本公司的服务承诺，以优良的服务解除用户的后顾之忧，本公司将在客户服务电脑系统中

建立用户的信息档案。

In order to honor the Company's service commitments and relieve worries of users with excellent service, the Company will establish user information files in the Customer Service Computer System.

1、请用户务必把保修证主卡和副卡尽快填好，并于购机后 1 个月内交保修证副卡寄回公司客户服务部备案，通信地址如下：

1. Please be sure to complete the main card and the secondary card of the warranty certificate as soon as possible, ~~and return the secondary card to the~~ Customer Service Department of the Company for filing within 1 month of the purchase of the machine. The mailing address is as follows:

2、如保修证主卡或购机凭证遗失，可查询本公司用户信息档案以保证得到应有的服务。

2. If the main card of the warranty certificate or the voucher of purchase of the machine is lost, you may check the Company's User Information Files for all services available.

CONTACT US:**Hefei Kuer Environmental Protection Technology Co. LTD**

Address: No. 11, Cuizhu Road, Taohua Town, Feixi County, Hefei, Anhui Province

Website: <https://www.kuerclean.com>

TEL/Whatsapp: 8617352967132

E-mail: info@kuerclean.com

