



User Manual

C70R

Ride-On Sweeper, 70" Cleaning Path

Model 641820



AVAILABLE EXCLUSIVELY AT GLOBAL INDUSTRIAL
GLOBALINDUSTRIAL.COM

US: 1-800-645-2986

Canada: 888-645-2986

WARNINGS

PLEASE READ THE INSTRUCTIONS CAREFULLY PRIOR TO USING THIS PRODUCT.

⚠ WARNING - to reduce the risk of fire, electrical shock, and/or injury/damage to persons or property:

- DO NOT use flammable liquids. DO NOT operate the sweeper near or in a place with flammable liquid, gas, or combustible dust. This sweeper is not equipped with an explosion-proof motor. During start-up and operation, the electric motor of this sweeper will generate sparks. If this sweeper is used in a place with flammable gas, liquid, or combustible dust, it may cause flash fire or explosion.
- DO NOT clean flammable materials or reactive metals. Flammable substances or reactive metals may cause explosion or fire.
- Unplug the battery wiring and charger plug before repairing the sweeper.
- DO NOT use damaged power cord to charge the battery, and do not modify the plug. To avoid danger, if the power cord of the charger is damaged or broken, it must be replaced by qualified people from the manufacturer or other maintenance agents.
- When the revolving brush is running, keep your hands away. Please turn off the power before servicing the sweeper.
- The battery may release hydrogen, which may cause fire or explosion. Please stay away from sparks or open fire sources.
- Flammable substances may cause explosion or fire. Do not use flammable substances in the tank.

OPERATING INSTRUCTIONS

Do not operate the sweeper when:

- contacting with flammable liquid or being close to flammable gas; otherwise it may cause explosion or flash fire.
- unless you are trained and authorized.
- unless you have read and understood the operation manual.
- not under normal operating conditions.

1. Before starting the sweeper, ensure all safety devices are in place and in normal operation.

2. When using the sweeper

- Drive slowly when encountering slopes or slippery surfaces.
- Slow down around turns.
- Wear non-slip shoes.
- Never let children play on or near the sweeper

3. Before leaving or servicing the sweeper:

- Park the sweeper on level ground.
- Turn off the sweeper.
- Remove the key.

4. When servicing the sweeper:

- Do not move its parts, and do not wear any loose clothing.
- Disconnect the charging cord before operating the sweeper.
- Wear protective gloves and eye protection equipment when handling the battery or battery cord.
- Do not rinse this sweeper with high pressure spraying or water hose. It may cause electrical system failure.
- Use the replacement parts provided or approved by the manufacturer.
- All maintenance operations must be carried out by qualified maintenance personnel.
- Do not modify the original design of the sweeper.

5. When using a truck or trailer to move the sweeper or unloading/loading the sweeper onto a truck or trailer:
- Empty garbage before loading.
 - Used the recommended loading platform.
 - Carry the sweeper with the help of others.
 - Turn off the sweeper. Turn off the sweeper and remove the key.
 - Put away the sweeping side brush and roller brush before turning off the sweeper.
 - Use ramps, trucks, or trailers that can support the weight of the sweeper and the operator.
 - Secure the sweeper with ropes.
 - Use a winch. Unless the loading height is less than 15in. above the ground. Do not push the sweeper on/off the truck or trailer.
 - For your safety, wear a dust mask.

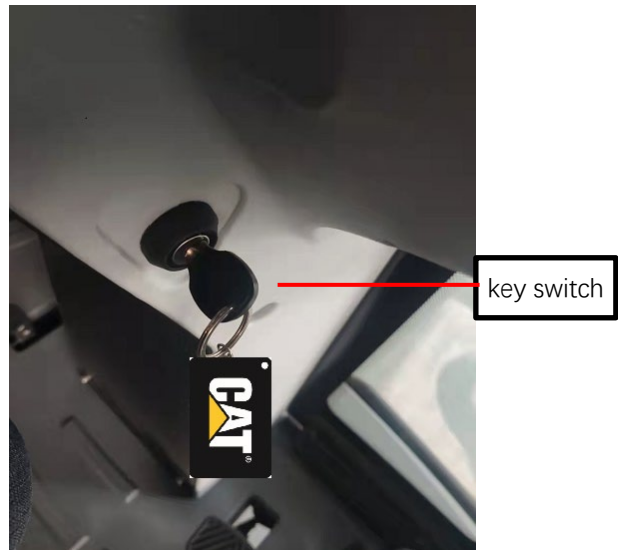
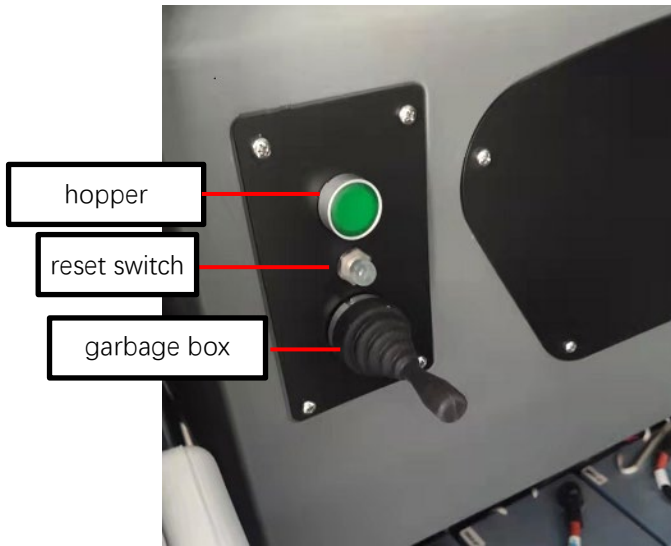
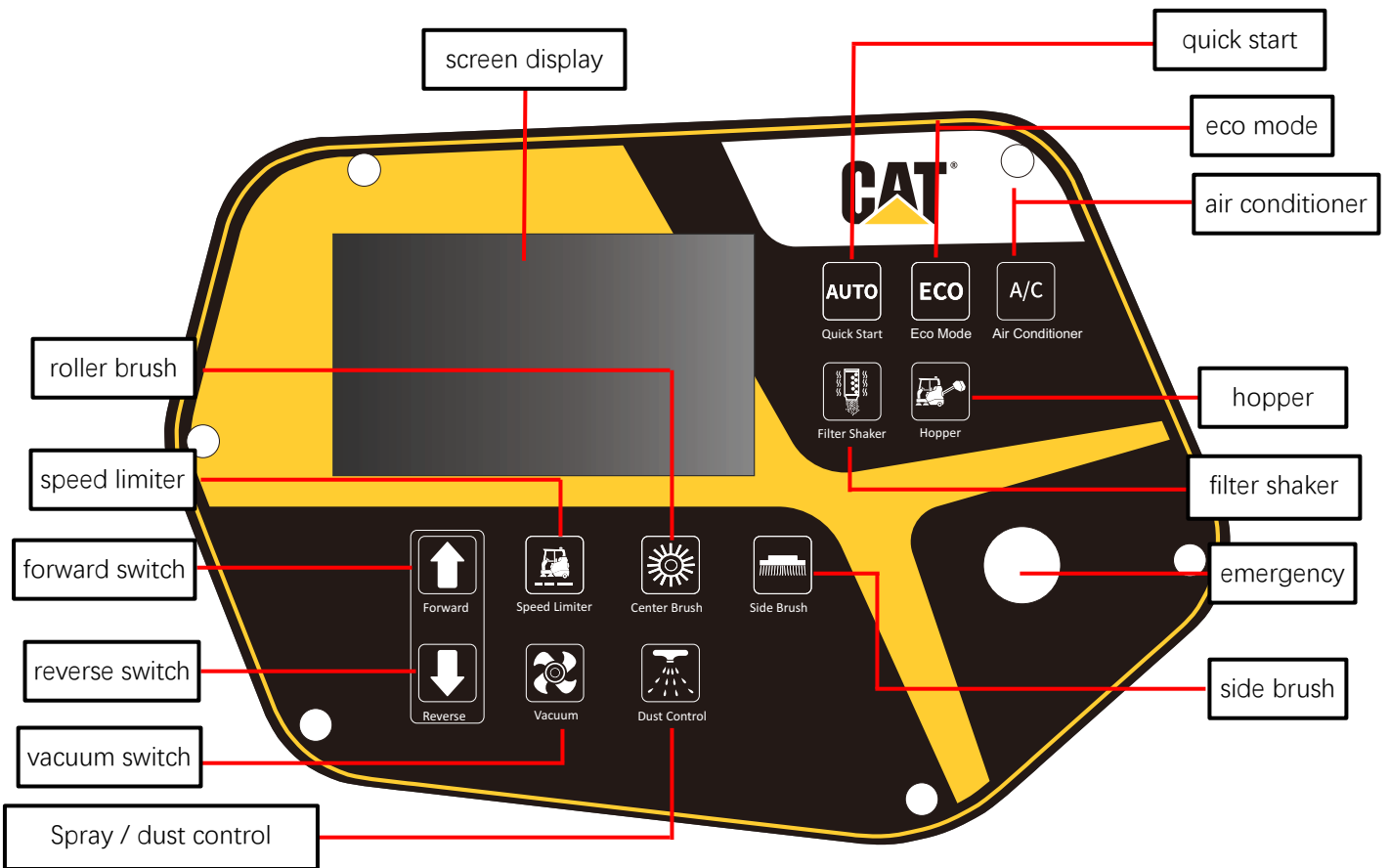
MACHINE COMPONENTS

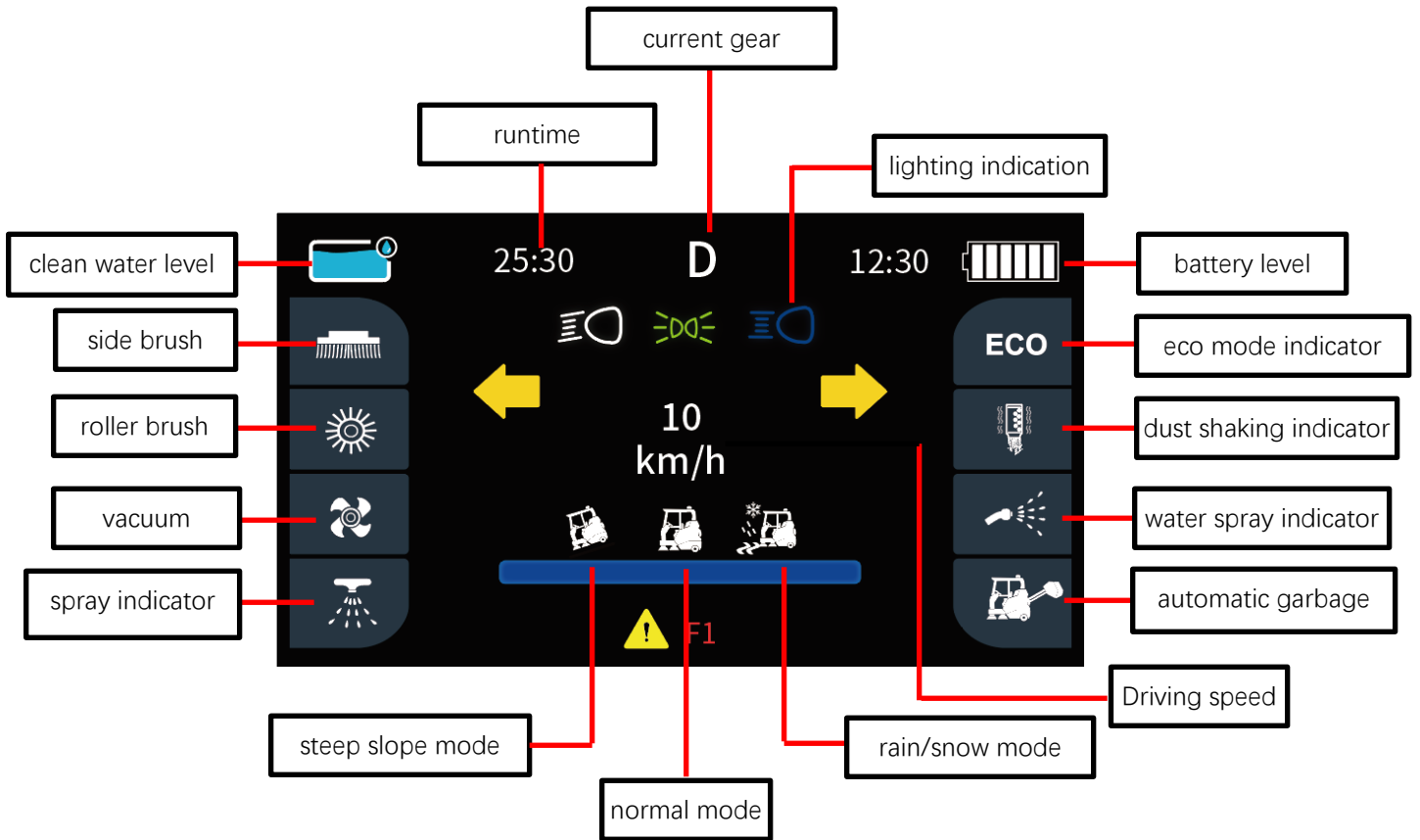
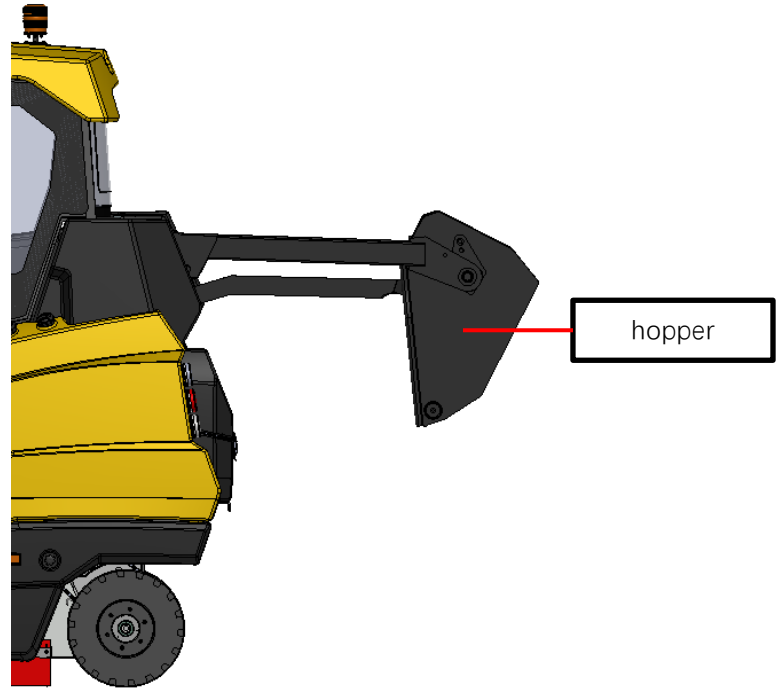


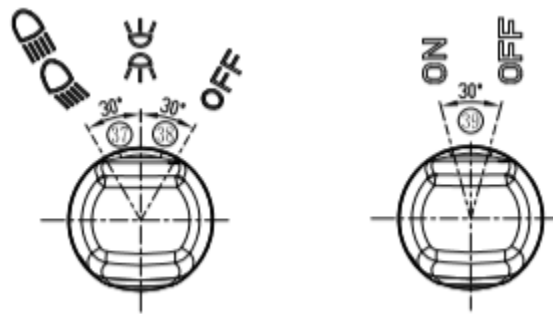
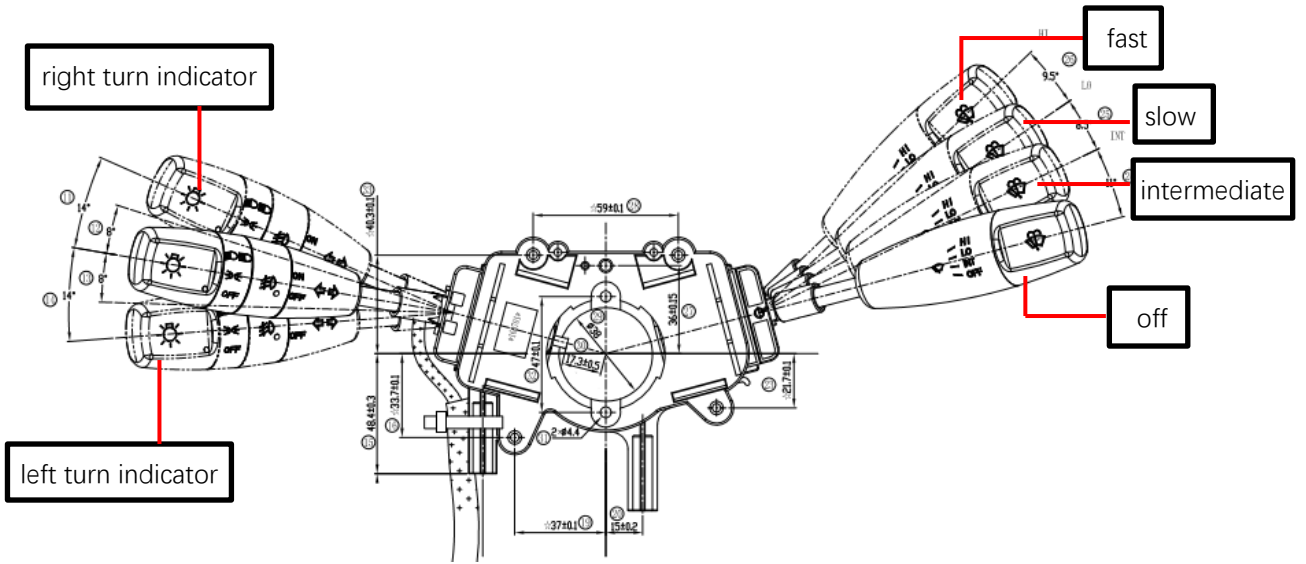


1) Steering wheel	6) Roller brush subassembly	11) Operation panel
2) Seat	7) Water tank	12) Broom pedal
3) Dust box subassembly	8) Side brush	13) Manual water inlet
4) Dustbin subassembly	9) Driving pedal	14) Automatic water inlet
5) Wheel	10) Brake pedal	

CONTROL PANEL








light switch

WORKING PRINCIPLE



The sweeping parts of the sweeper include a garbage box, a roller brush and four side brushes.

The buttons on the control panel control the brushing function of the sweeper. Turn on the roller brush switch first, and then the side brush switch (equipped with the one-key starting mode via “Auto”). When the “Forward” button  is pressed and the driving pedal is depressed, the sweeper will move forward. Adjust the speed by changing the pressure on the pedal. The sweeper will start sweeping when it moves forward.

There are four available side brushes and one roller brush. The diameter of the side brush is 19.7”, the diameter of the roller brush is 16.9” and the length of the roller brush is 31.5”.

Sweeping Method

The garbage on both sides of the sweeper’s driving path is collected to the bottom by the side brushes, and when the sweeper moves forward, the garbage will enter the cavity of the roller brush. The garbage will be swept into the dustbin at the back by the rotating roller brush. The dust raised in the dustbin will be sucked into the filter screen by the suction motor and filtered out. When the sweeping is finished, press the filter/dust shaker switch to shake the dust collected by the filter into the dustbin then take out the dustbin and dump the garbage into the designated place.

INSTALLATION AND REPLACEMENT OF ACCESSORIES

Replacing the front side brush and the back side brush.

1. Park the sweeper on flat ground, and make sure that the brush motor is in the raised position.
2. Turn off the key switch of the sweeper.

For your safety: When leaving or servicing the sweeper, park it on a horizontal surface, turn off the sweeper and remove the key.

3. Use a tool to remove the screw from the inside of the front side brush. Hold the side brush with both hands and remove it. Disassemble the flange of the side brush and install the replaced side brush, and then put it back to its original position (don't forget the flat key of the side brush motor) (Fig. 2).



Fig. 2

4. Use a tool to remove the screw from the inside of the back side brush. Hold the side brush with both hands and remove it. After the flange of the side brush is disassembled and the replaced side brush is installed, the flange of the back side brush is poked up from the inside of the side brush and fixed as shown in the figure below. Install the side brush back to its original position (do not forget the flat key of the side brush motor) (Fig. 3).

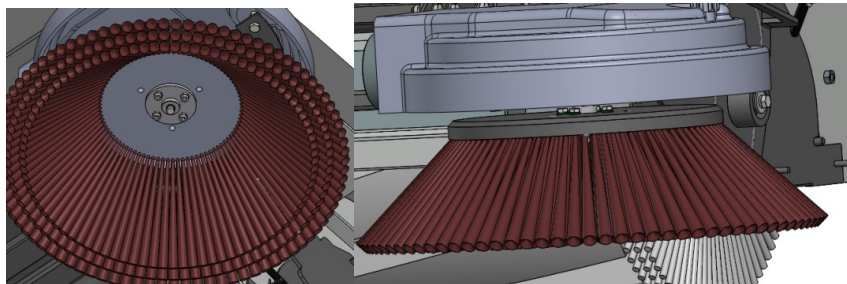


Fig. 3

Installing/replacing the roller brush

1. Park the sweeper on a flat ground, and make sure that the brush motor is at the raised position.
2. Turn off the key switch of the sweeper.

For your safety: When leaving or servicing the sweeper, park it on a horizontal surface, turn off the sweeper and pluck off the key.

3. Remove the two handles of the roller brush cover on the left side of the sweeper (on the left in front of the operator when he sits in the sweeper), and place the roller brush cover at the back of the sweeper (pay attention to the connection cable of the rear radar) (Fig. 4);

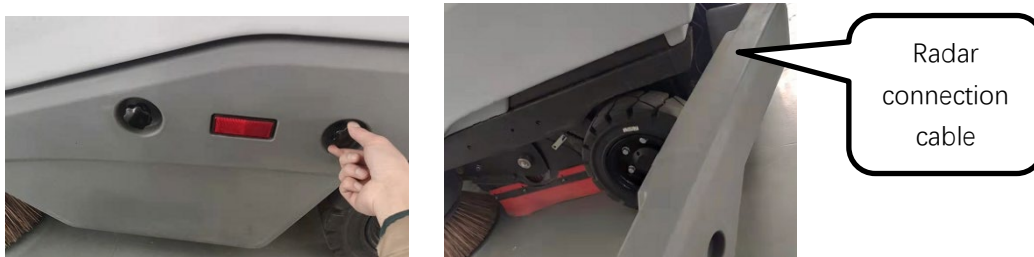


Fig. 4

4. Loosen the screw (Fig. 5) of the left guard plate of the roller brush, remove the left fixing plate (Fig. 6) of the roller brush, loosen the pressing plate of the left guard plate of the roller brush (Fig. 7), remove the left guard plate of the roller brush (Fig. 8) and take out the roller brush (Fig. 9).

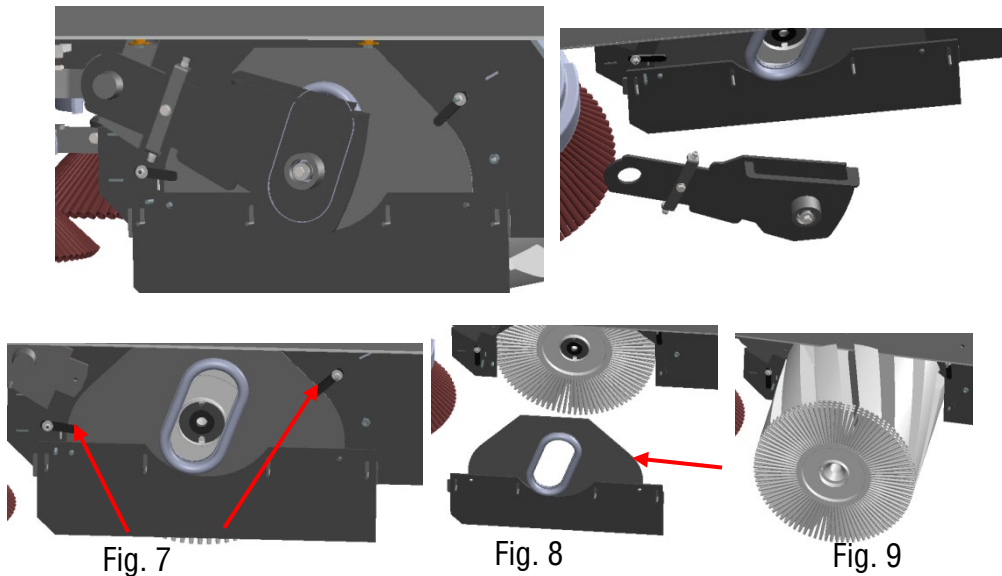


Fig. 7

Fig. 8

Fig. 9

5. After replacing the new roller brush, place it in the roller brush cavity, put it into the opposite drive shaft slot (Fig. 10), arrange the roller brush bristles, cover the roller brush left guard, fix the pressure plate, install the roller brush fixing plate, tighten the screw, and replace the roller brush shield.

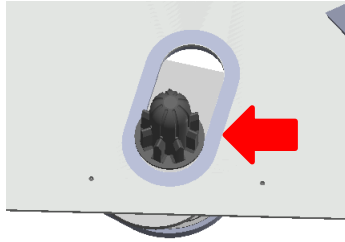


Fig. 10.

Installing/Replacing HEPA Filter

1. Park the sweeper on a flat ground, and make sure that the brush motor is at the raised position.
2. Turn off the key switch of the sweeper.

For your safety: When leaving or servicing the sweeper, park it on a horizontal surface, turn off the sweeper and pluck off the key.

3. Lift the rear cover plate (Fig. 11-A), open the buckle of the dust box (Fig. 11-B), open the dust box, unscrew the knobs (2) on the fixing seat of the dust shaking motor (Fig. 11-C), lift the dust motor fixing seat, support it with a brace (Fig. 11-D), and take out the filter hepa (Fig. 11-E).

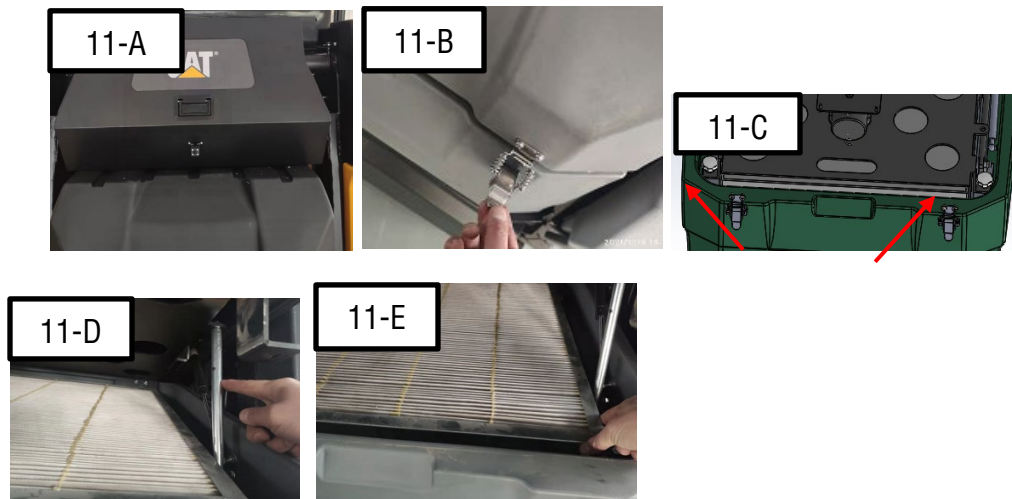


Fig. 11

4. Put the replaced filter handkerchief flat in the fixed seat, keep the crease of the filter handkerchief in a horizontal state, with a large side gap facing upwards. After confirming the flat placement, put down the strut, put down the fixed seat of the dust motor, tighten the knobs (2) of the fixed seat, close the dust box, and fasten the buckle.

Installing/Replacing Conduit Filter Screen

1. Park the sweeper on a flat ground, and make sure that the brush motor is at the raised position.
2. Turn off the key switch of the sweeper.

For your safety: When leaving or servicing the sweeper, park it on a horizontal surface, turn off the sweeper and pluck off the key.

3. The conduit filter screen is at the top of the back side brush on the left of the sweeper (on the left in front of the operator when he sits in the sweeper), unscrew the transparent cover counterclockwise, clean the filter screen, and install it clockwise (Fig. 12).

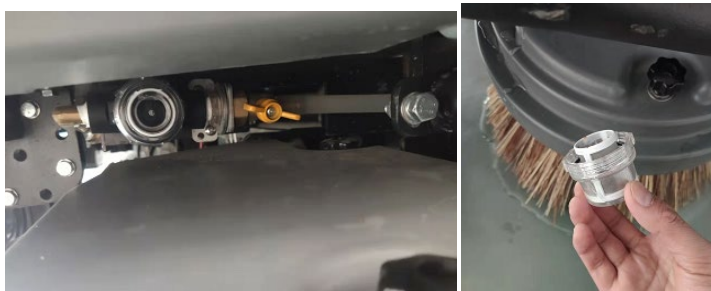


Fig. 12

OPERATING THE SWEEPER

Check before operation

- Check before operation
- Check whether the sweeper leaks dust.
- Check whether the dust on the filter screen has been shaken off.
- Check the status of the side brushes and the roller brush, and remove the thread balls, ties, wires, plastic packages or other debris around the brushes.
- Empty the garbage in the dustbin.
- Check whether the driving pedal and steering wheel can operate normally.
- Check whether the horn and working warning light are normal.
- Check the maintenance records to determine whether the sweeper needs maintenance.

Before operation

Before sweeping, remove large debris, as well as metal wires, strings, etc. that may tangle with the brushes. Please plan the cleaning method in advance, so as to minimize the numbers of shutdowns and startups.

Passenger-sensing seat

When the sweeper is turned on but the seat is vacant, the sweeper will not move forward even if the drive pedal is engaged. Only when the operator is sitting in the seat can the sweeper operate normally in order to prevent accidents.

Electromagnetic brake device of sweeper

The sweeper is equipped with electromagnetic brake system to avoid accidental sliding of the sweeper. If you need to remove the electromagnetic brake function temporarily when safety is ensured, open the seat, and clockwise pull the handle for removing the function of the electromagnetic brake at the back of the battery compartment, as shown in Fig. 14.



Fig. 14

Adjusting the clearance between the front side brush and the ground

To adjust the clearance between the front side brush and the ground, loosen the nut first, rotate the screw to adjust it to an appropriate height, and then tighten the nut. Two symmetrical positions (Fig. 15).

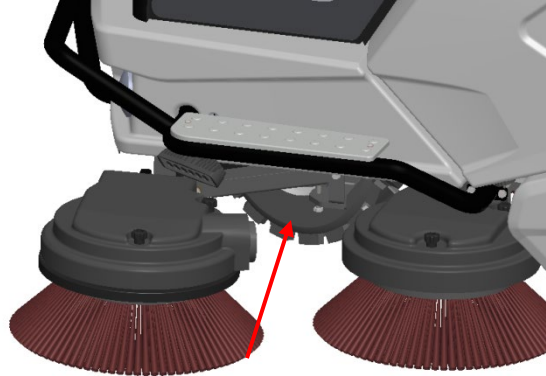


Fig. 15

Adjusting the clearance between the back side brush and the ground

To adjust the clearance between the back side brush and the ground, open the roller brush cover, loosen the nut, rotate the screw to adjust it to an appropriate height, and then tighten the nut. Two symmetrical positions (Fig. 16).

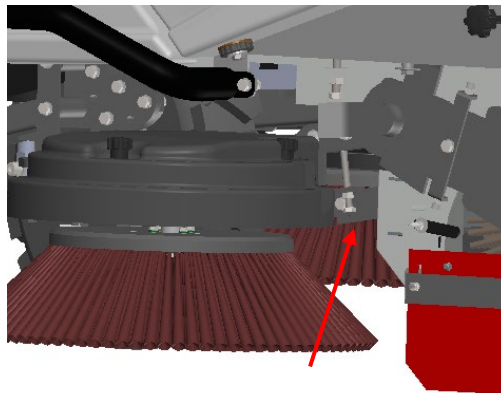


Fig. 16

Adjusting the clearance between the roller brush and the ground

To adjust the clearance between the roller brush and the ground, open the left roller brush cover, loosen the nut, and rotate the screw to adjust it to an appropriate height, then tighten the nut (Fig. 17).

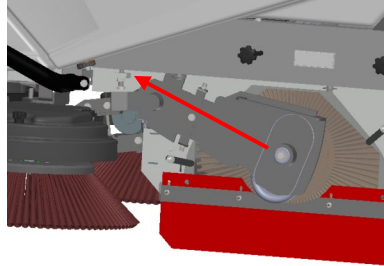


Fig. 17

Adjusting the seat

1. After sitting in the seat, pull the adjusting lever upwards to move the seat back and forth. Release the adjusting lever after moving in place, as shown in the figure (Fig. 18).

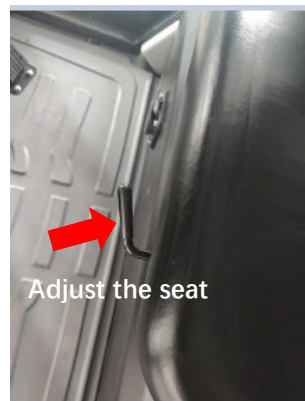


Fig. 18

2. After sitting on the seat, turn the adjustment knob clockwise or counterclockwise to adjust the angle of the seat back (Fig. 19).

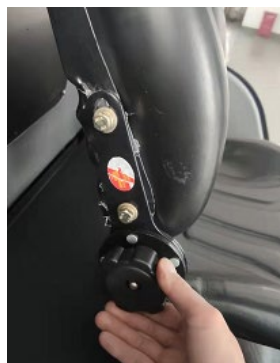










Fig. 19

Sweeping

For your safety: Do not operate the sweeper before reading and understanding the operation manual.

1. During the operation, the operator must remain seated.
2. Turn the key to the “ON” position on the key switch. The display screen on the control panel will light up.
3. Traction drive: The sweeper is equipped with an electronic drive control system, and it is necessary to select the direction.
 - When the “Forward” button  is pressed and the driving pedal is depressed (Fig. 20), the sweeper will move forward. Adjust the speed by changing the pressure on the pedal.
 - When the “Backward” button  is pressed and the driving pedal is depressed, the sweeper will move backward. Adjust the speed by changing the pressure on the pedal.
 - To stop the sweeper, press the “Forward” or “Backward” button twice, and the display screen will show it is at the “N” gear.
 - When the driver leaves the seat, the pressure switch is turned off and the sweeper stops moving.
 - In case of emergency, press the brake pedal to stop the sweeper (Fig. 20).
4. Turn on the roller brush switch  to start the roller brush.
5. Turn on the side brush switch  to start the side brush.
6. Turn on the dust collection switch  to start the dust suction.
7. Turn on the spray switch  to start the spray (three conditions must be met to start the spray: Drive with speed, side brush motor on, spray switch on).
8. Turn on the dust shaking switch  to start dust shaking.

You can also press the engine start button  to start the side brushes, roller brush, dust collection and spray motor. Press again to turn off all the functions.

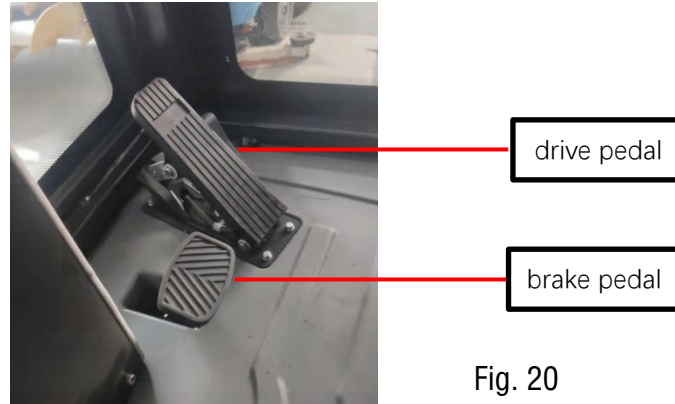


Fig. 20

During operation of the sweeper

Please try to go straight to avoid hitting the post or scraping the sides of the sweeper. Overlap the sweeper routes by several centimeters (inches).

When the sweeper is in motion, please avoid rotating the steering wheel greatly. The sweeper is very sensitive to the rotation of the steering wheel. Unless in an emergency, please avoid sharp turns.

When you reach the bottom of the aisle, please sweep from the bottom towards the aisle opening.

Keep the sweeper moving to avoid damaging the ground.

If you find that the sweeping effect is not good, please stop sweeping and refer to sweeper troubleshooting.

Sweeping Method

Adjust the clearance between the side brushes / roller brush and the ground according to the on-site situation.

Please notice the battery power indicator to make sure there is enough power for the sweeper's operation.

Please remove the key before leaving the sweeper.

After sweeping the floor, perform daily maintenance procedures (please refer to Sweeper Maintenance).

Drive the sweeper slowly on a slope: When going downhill, first switch the driving mode of the sweeper to steep slope mode, and then sweep the floor when the sweeper goes uphill instead of downhill.


For your safety: Drive slowly on the slope or smooth ground.


The maximum rated slope of the sweeping sweeper is 25%, and the maximum rated slope when transporting the sweeper is 12%.

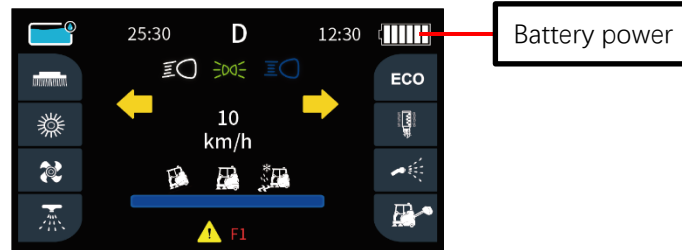
Battery power


The battery power indicator will be displayed on the LCD screen.

When the battery is full, the battery power on the LCD screen is 100%, and the battery icon is white.


When two bars  of the battery power is left, the battery icon will turn yellow, reminding the user to charge.

When only one bar  of the battery power is left, the sweeping function will be turned off, but the driving function will be kept, reminding the user to charge to protect the battery.



Note: Please do not charge the battery too often, but charge it when necessary. Overcharging will shorten the battery life. Don't leave the battery in a state of power loss , which will seriously affect the battery life. If the sweeper is stored for a long time, please check the battery power every 30 days.

Disposal of garbage and cleaning garbage box

1. When the sweeper finishes working, before garbage disposal, press the dust shaking switch  on the operation panel to shake the dust accumulated on the HEPA filter into the dustbin.

2. Press the dust shaking switch or "Auto" button again to turn off the sweeper. Undo the buckle of the dustbin. Prevent the dustbin from sliding out. Move the dustbin to the dumping place. Lift the inner container and dump the garbage. As shown in the figure (Fig. 21).

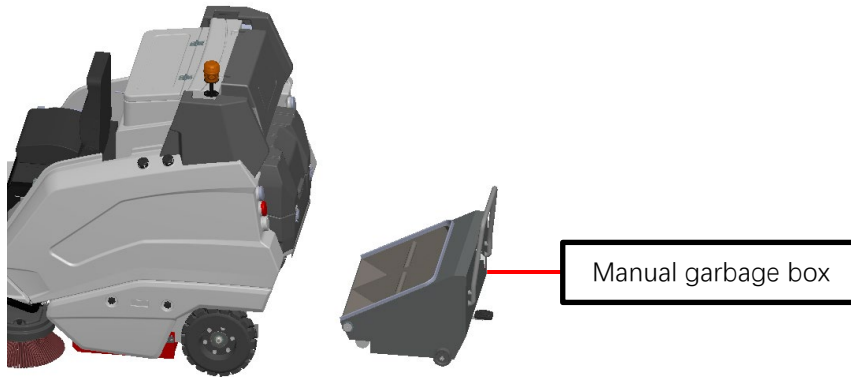



Fig. 21

* HEPA filter can be taken out regularly to clean up the dust.

⚠ Warning: Be sure to operate according to the specifications, otherwise it may cause serious injury or death.

Handling the self-dumping dustbin

For the sweeper equipped with self-dumping function, before dumping garbage, please check the environment to ensure that there are no people or objects within 1.5 meters in the back, left and right of the sweeper, so as to ensure safe operation.

1. Press the hydraulic button  on the control panel (effective within one minute after it is pressed), then operate the hydraulic lifting and lowering rocker at the right rear of the seat. Lift it up to control the lifting height of the dustbin, or lift it to the limit height of the hydraulic cylinder, then press the dump button separately until the dustbin turns over, and release the button as shown in Fig. 22.

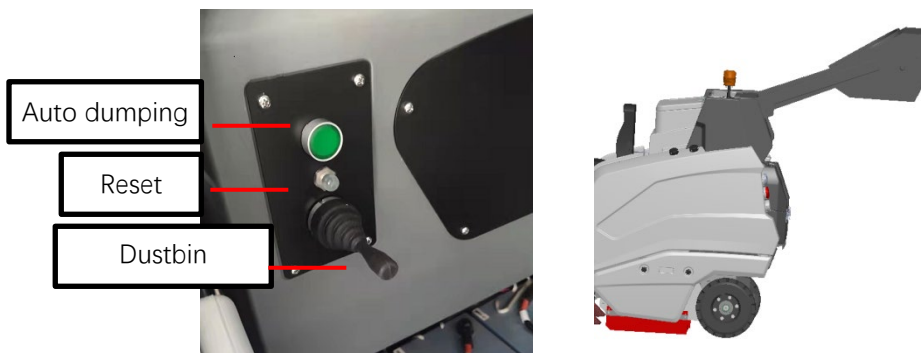



Fig. 22

2. After dumping, please check the environment again to ensure that there are no people or objects within 1.5 meters of the back, left and right of the sweeper. Press the hydraulic switch  on the control panel (effective within one minute after it is pressed), then operate the hydraulic lifting and lowering rocker at the right rear of the seat. Press it down to make the dustbin to descend to the limit height and the dustbin is completely closed. Release the rocker.

TROUBLESHOOTING THE SWEEPER

Problem	Solution
When the start switch is turned on, the sweeper does not operate, and the fault indicator keeps off.	Check whether the power plug is plugged tightly.
The sweeper does not move after being powered on.	Check and make sure the electromagnetic brake handle is in working mode (pull it counterclockwise into place)
	make sure that the emergency stop switch is not pressed during startup; make sure an operator sits on the seat.
Poor sweeping effect	Empty the dustbin.
	Replace the side brushes and roller brush.
	Check whether the filter screen is blocked.
	Check whether the roller brush is adjusted to the proper position.
	Charge the battery until the charger is turned off.
	Contact Global Industrial maintenance personnel.

Maintenance table

The following table indicates the responsible person of each program.

O= operator

T= specially trained person

Frequency	Responsible Person	Parts	Procedure
Daily	O	Roller brush	Check the height of the roller brush.
	O	Side brush	Check the height of the side brush.
	O	HEPA filter	Check whether the HEPA filter is damaged and its cleanliness.
Every 50 hours	O	Front sealing strip	Check for damage and wear.
Every 50 hours	O	Rear sealing strip	Check for damage and wear.
Every 50 hours	O	Side sealing strip	Check for damage and wear.
Every 100 hours	T	Garbage box sealing ring	Check for damage and wear.
Every 200 hours	T	Maintenance-free battery motor and wiring	Check whether the wiring is loose and clean the outer surface of the battery.
Every 500 hours	T	Dust collection motor	Check the motor brush (check every 100 hours after the first 500 hours of operation)
	T	Side brush motor	Check the motor brush (check every 100 hours after the first 500 hours of operation)
	T	Drive motor	Check the motor brush (check every 100 hours after the first 500 hours of operation)
	T	Transmission belt	Check for damage and wear.

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

Battery charging

Important information: When charging, please make sure that the charger has been properly set according to the battery type.

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

Note: Please ensure that the area is well ventilated.

2. Turn off the key switch.

For your safety: When leaving or servicing the sweeper, park it on a horizontal surface, turn off the sweeper and pluck off the key.

3. Plug the charger connector into the battery charging connector. As shown in Fig. 23.



Fig. 23

Precautions for installation and use of battery

1. Before use, check each battery whether it is damaged, clean or clearly marked, and clean the surface of the battery with a dry cloth. Check the open-circuit voltage of the battery whether the positive and negative poles are clearly marked, and whether there is reverse connection.
2. Install the battery upright and not upside down as required by the drawing. After the installation, check the requirements of the installation drawing, check whether the positive and negative poles of each battery are correct, and then connect all batteries in the whole group. The battery wiring diagram is shown in Fig. 24.
3. After all the batteries are installed, check whether there is any looseness in the connection part. If so, tighten the connection part without using excessive force lest the pole is damaged. Generally, the torque force is required to be no more than 15 Nm
4. When the batteries are installed to the sweeper, adjust the distance between the batteries to make them stand upright, and fasten them to prevent the batteries from shaking and colliding.

5. Keys, fuse holders and other spark-prone devices should be isolated from the battery.
6. The battery leaves the factory in a charged state, so the user can usually install and use it directly. If it is laid aside for a long time (more than 3 months), it should be recharged according to the charging method before use.

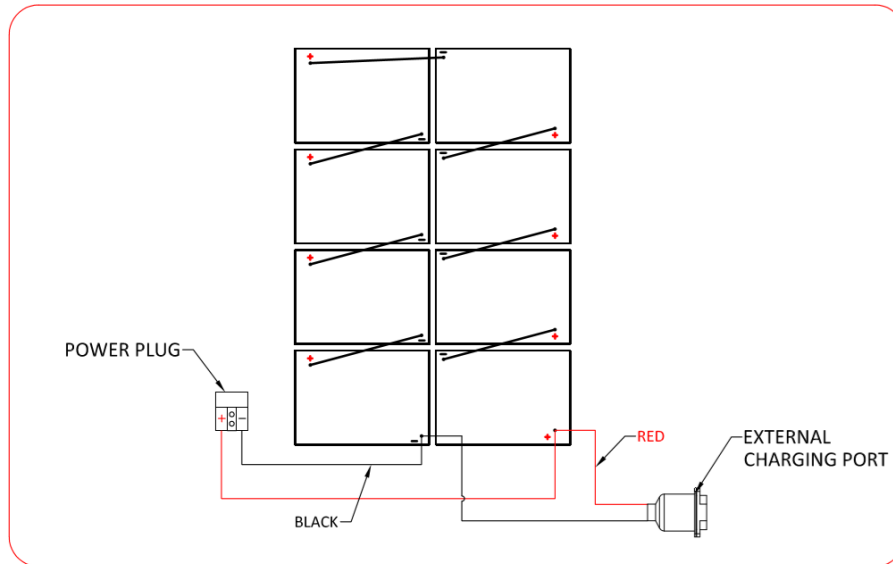


Fig. 24

PUSHING, MOVING, AND TRANSPORTING THE SWEEPER

Pushing or dragging the sweeper

If the sweeper is turned off and the electromagnetic brake of the driving motor is released, you can push it forward or backward, but you cannot drag the sweeper from the side.

For your safety: Do not operate the sweeper when the electromagnetic brake is released.

The sweeper can only be pushed or dragged on flat ground without exceeding 3.2km/h(2mph). Do not try to push or drag the sweeper at a high speed.

Transporting the sweeper

When using a truck or trailer to move the sweeper, be sure to follow the following procedures:

1. Raise the roller brush subassembly.

For your safety: Before loading or unloading the sweeper onto or from a truck or trailer, the dustbin must be emptied.

2. Use the proposed device to load or unload the sweeper.

For your safety: When transporting the sweeper, please use the proposed device to load or unload the sweeper onto or from the truck or trailer.

3. Place the front of the sweeper against the front of the truck or trailer.

4. Place an obstacle behind each driving wheel. A wire with a diameter of $\geq 2\text{mm}$ can be used to bind the reserved hole of the sweeper chassis with the tray (Fig. 25) to prevent the sweeper from sliding.

5. Tie the shelf of the sweeper with ropes, and then tie it to a truck or trailer to prevent the sweeper from tipping over.

For your safety: When transporting the sweeper, fix the sweeper on the truck bed with ropes.

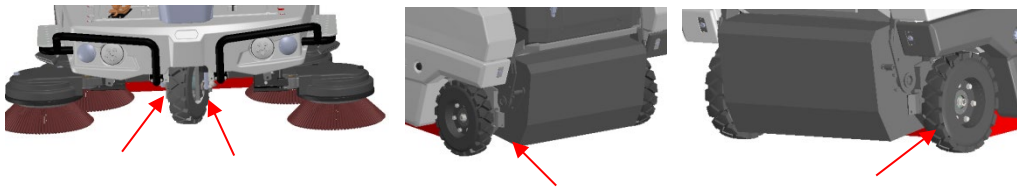


Fig. 25

STORING THE SWEEPER

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

1. Clean the HEPA filter and dustbin, and open the dustbin for ventilation.
2. Park the sweeper in a cool, dry area. Store the sweeper indoors to avoid exposing it to rain.
3. Take out the battery, or charge it every 3 months (be sure to be fully charged).

Charger LED Indicator Lights

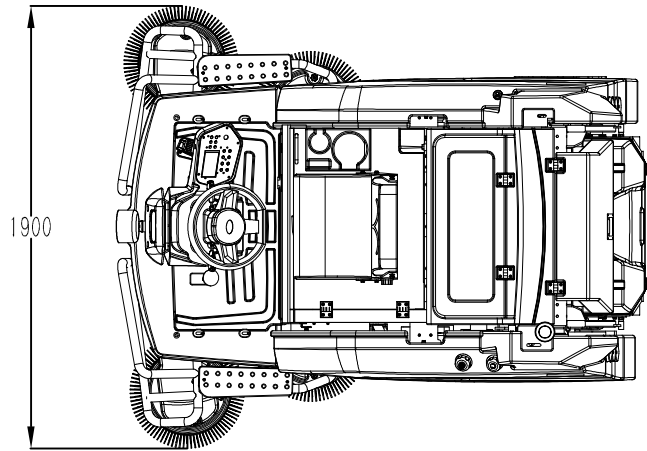
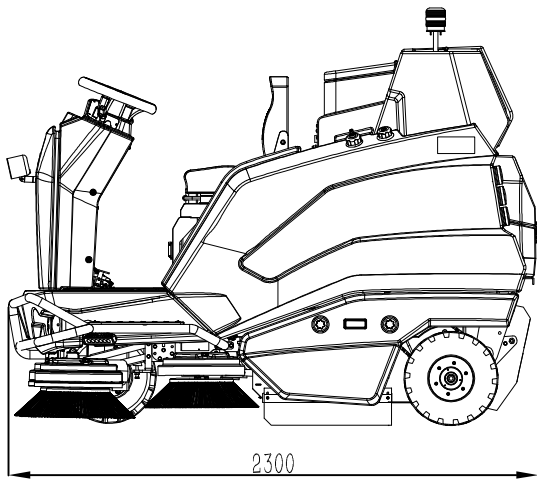
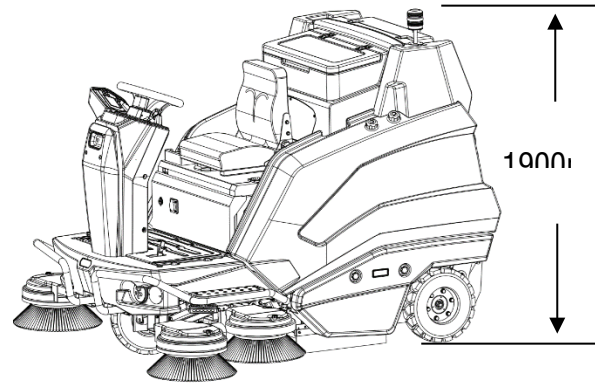
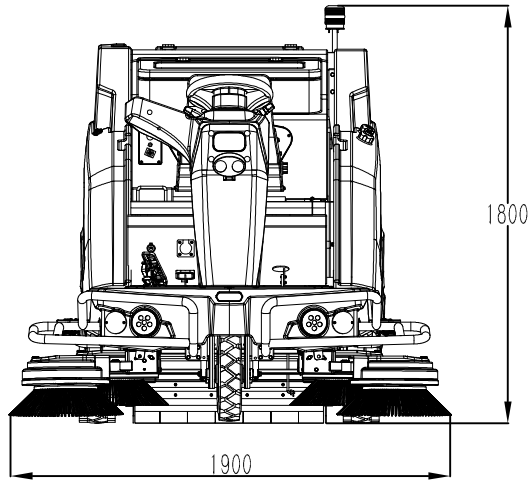
Battery Level	Red LED	Yellow LED	Green LED
Standby	ON	OFF	OFF
Less than 50%	Flash (per second)	OFF	OFF
50%-75%	OFF	Flash (per second)	OFF
75%-100%	OFF	OFF	Flash (per second)
100%	OFF	OFF	ON

SWEEPER SPECIFICATIONS

Specification	C70R	C70RX
Cleaning Width	74.8"	74.8"
Working Capacity	20,4514 sq. ft/h	20,4514 sq. ft/h
Side Brush Size	19.7" (4 brushes)	19.7" (4 brushes)
Brush Disc Motor	48V/140W (4 brushes)	48V/140W (4 brushes)
Roller Brush Size	Φ16.9"x31.5"	Φ16.9"x31.5"
Roller Brush Motor	48V/1500W	48V/1500W
Drive Motor	48V/2200W	48V/2200W
Drive Speed	6.2 MPH	6.2 MPH
Suction Motor	48V/218W (2 brushes)	48V/218W (2 brushes)
Solution Tank Capacity	60.7 gallons	60.7 gallons
Dustbin Capacity	42.3 gallons	42.3 gallons
Max Gradient	25%	21%
Filter Screen Area	64 ft ²	64 ft ²
Machine Dimensions (LxWxH)	90.6"x74.8"x74.8"	90.6"x74.8"x94.5"
Operating Voltage	DC 48V	DC 48V
Battery Weight	72.8lbs (8)	72.8lbs (8)
Machine Weight	2160.5lbs	2755.8lbs

C70R

Model 641820



TROUBLESHOOTING: ERROR CODES

Error Code	Description	Troubleshooting
F12	Controller current overload	1. Encoder fault or line interference 2. Motor UVW short circuit 3. Motor parameters do not match 4. Controller fault
F13	Current sensor fault	1. Motor UVW short circuit to the sweeper body 2. Current sensor fault of controller
F14	Pre-charging fault	1. B+Circuit access load to pull down the voltage 2. Controller fault
F15	Controller undertemp	Operating temperature of the controller is below minus 40°
F16	Controller overtemp	1. Temperature of controller is over 95° 2. Sweeper is overloaded, and the motor does not match 3. Controller fault
F17	Severe undervoltage	1. Incorrect setting of battery parameters 2. Large battery impedance 3. Fuse fault 4. Master contactor fault
F18	Severe overvoltage	1. Incorrect setting of battery parameters 2. Large battery impedance 3. Battery disconnected during regenerative braking
F21	Controller undertemp degradation	Operating temperature of the controller is below minus 25°
F22	Controller overtemp degradation	Cooling fin of the controller is over 85°
F23	Undervoltage degradation	1. Low battery power 2. Incorrect setting of battery parameters 3. Battery failure
F24	Overvoltage degradation	1. Incorrect setting of battery parameters 2. Battery voltage rises because of regenerative braking
F25	5V Power supply failure	External equipment failure
F26	Drive 6 failure	External equipment failure
F27	Drive 7 overcurrent	External equipment failure
F28	Motor overtemp degradation	1. Motor temperature reaches the set warning temperature 2. Incorrect setting of motor temperature

F29	Motor temp sensor fault	1. Motor temp sensor fault 2. Incorrect setting of motor temp sensor
F31	Driver 1 open/short circuit Master contactor open/short circuit	1. Driver 1 line fault 2. Loading equipment fault 3. Contactor fault
F32	Electromagnetic brake open/short circuit Driver 2 open/short circuit	1. Coil of electromagnetic brake open/short circuit 2. Circuit is stained or dropped
F33	Coil 3 driver open/short circuit	1. Coil 3 driver open/short circuit 2. Circuit is stained or dropped
F34	Coil 4 driver open/short circuit	1. Coil 4 driver open/short circuit 2. Circuit is stained or dropped
F35	PD open/short circuit	1. Connected load open/short circuit 2. Circuit is stained or dropped 3. Incorrect connection
F36	Encoder fault	1. Encoder power supply fault 2. Encoder fault 3. Incorrect connection
F37	Motor open circuit	1. Motor lacuna 2. Incorrect connection 3. Controller fault
F38	Master contactor adhesion	1. Contactor dissolved 2. Incorrect connection
F39	Master contactor did not pull in	1. KSI and battery voltage declined 2. KSI circuit stringing into the original parts with large power caused lower voltage 3. Contactor fault
F41	High voltage of accelerator scribing	1. Accelerator disconnected 2. High voltage of accelerator scribing
F42	Low voltage of accelerator scribing	Low voltage of accelerator scribing
F43	High voltage of pot2	High voltage of pot2
F44	Low voltage of pot2	Low voltage of pot2
F45	Pot-low overcurrent	Potentiometer impedance is too low
F46	EEPROM failure	1. Software error 2. Controller fault
F47	Sequence of operation fault	1. Key switch, interlock switch, direction switch and accelerator entry sequence fault 2. Key switch, interlock switch, direction switch and accelerator fault 3. Incorrect connection
F49	Parameter changing fault	Must restart the key switch after some parameter changed
F68	VCL run time error	Software error

F69	External power supply out of range	1. External load current is too large or small 2. Check the parameter setting
F71	OS error	1. Software error 2. Controller fault
F72	PDO timeout	1. Software error 2. CAN bus circuit communication failure
F73	Motor stalling	1. Motor stalling 2. Encoder fault 3. Incorrect connection or motor fault
F74 F75	Fault on other traction controller / dual severe fault	Fault on other traction controller / dual severe fault
F77	System fault	1. Controller detected unlawful data 2. Controller internal processor failure 3. Controller detected switch volume signal above threshold over 100ms (If fault is repeated, check the switch for damp or damage)
F87	Motor matching fault	Motor matching fault code: 0= Normal 1= Received the encoder signal and pretending to be unrecognized, the encoder pulse should be set manually 2= Motor temperature sensor failure 3= Motor high-temperature reaction failure 4= Motor overheating reaction failure 5= Motor low-temperature reaction failure 6= Low-voltage reaction failure 7= High-voltage reaction failure 8= Controller can't receive the encoder signal 9= Motor parameters are set out of range
F89	Motor type fault	Motor type parameters are set out of range
F91	VCL/OS mismatch	Controller program error
F92	Electromagnetic brake failed to set	1. Electromagnetic brake works but the sweeper still moves 2. Force of electromagnetic brake is too small
F93	Encoder LOS	1. Motor blocking or encoder failure causes limited operation activated 2. Incorrect connection 3. Sweeper stalling
F94	Emergency reverse timeout	1. Emergency reverse is always closed 2. Emergency reverse timer expired caused emergency reverse timeout activation

F98	Controller model error	1. Model of controller can't be identified 2. Controller software error 3. Controller fault
F99	Dual motor parameter mismatch	Dual motors parameter is ON, controlling parameter didn't set as 0 or 1
Error Code	Description	Troubleshooting
E002	Emergency stop button pressed	Release the emergency stop button then restart the sweeper
E003	Very low battery voltage	Must charge the battery
E004	Low battery voltage	Please charge the battery
E005	High battery voltage	Different battery specifications with manufacturer specifications
E006	Contactors didn't disconnect	1. Check if the wire is connected incorrectly 2. Replace the relay
E007	Contactors off/incorrect	1. Check if the wire is connected incorrectly 2. Replace the relay
E008	24V power supply cannot turn off	1. Check the circuit 2. Replace the 24V current source
E009	24V power leakage of electricity	1. Check the circuit 2. Replace the 24V current source
E010	Primary open circuit of contactor	1. Check the wiring of the contactor 2. Replace the contactor
E011	Primary failure of contactor	1. Check the wiring of the contactor 2. Replace the contactor
E012	Contactors cannot pull-in	1. Check the wiring of the contactor 2. Replace the contactor
E013	Contactors failure	1. Check the wiring of the contactor 2. Replace the contactor
E014	No 24V power supplier	1. Check the circuit 2. Replace the 24V current source
E015	24V supply voltage incorrect	Replace the 24V current source
E016	Primary short circuit of contactor	1. Check the wiring of the contactor 2. Replace the contactor
E017	Primary failure of contactor	1. Check the wiring of the contactor 2. Replace the contactor
E046, E047, E049	Main brush short-circuit protection fault	Replace the controller
E048	Main brush short-circuit protection	1. Check the wiring of the main brush motor 2. Replace the main brush motor

E050, E051, E053	Side brush short-circuit protection fault	Replace the controller
E052	Side brush short-circuit protection	1. Check the wiring of the side brush motor 2. Replace the side brush motor
E062, E063, E065	Vacuum motor short-circuit protection fault	Replace the controller
E064	Vacuum motor short-circuit protection	1. Check the wiring of the main brush motor 2. Replace the main brush motor
E076	No water in solution tank	Add water
E077	Temperature too low	Please use after temperature is warming-up
E078	Temperature too high	Please use after temperature is cooling-down
E079	High temperature of controller	Please cool down the controller
E080	Very high temperature of controller	Please stop using the equipment and cool down the controller
E081	Main brush motor severe overcurrent	Check the main brush motor and its related circuits
E082	Side brush motor severe overcurrent	Check the side brush motor and its related circuits
E085	Vacuum motor severe overcurrent	Check the side brush motor and its related circuits
E086	Main brush motor overcurrent	Check the main brush motor and its related circuits
E087	Side brush motor overcurrent	Check the side brush motor and its related circuits
E090	Vacuum motor overcurrent	Check the side brush motor and its related circuits
E091	High current of main brush motor	Check the main brush motor and its related circuits
E092	High current of side brush motor	Check the side brush motor and its related circuits
E095	High current of vacuum motor	Check the side brush motor and its related circuits
E109	Main brush temperature too high	Check the main brush motor and its related circuits
E110	Full recovery tank	Sewage discharging

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