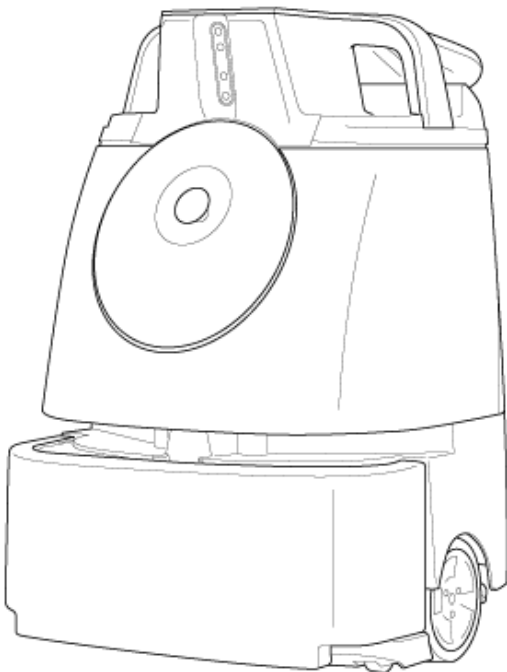


Whiz

Operational Manual

Original instructions



CAUTION: Read the Operational Manual (this document) before using the product, and store in a safe location after reading it.

Meet Whiz, the autonomous vacuum sweeper.

Whiz is a pioneer in cobotics, where humans and machines collaborate to build cleaner, more hygienic environments and better working experiences for all.

In the spirit of cobotics, Whiz is a true team-player. By taking care of the vacuuming, Whiz shares the workload and frees up more time for the tasks you care about.

Once trained, Whiz can be monitored by the cleaning team, making sure that vacuuming is always on track and up to standard.

It's time for smarter cleaning, healthier environments and better working experiences for all. It's time for a movement in cobotics. It's time for Whiz.

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1 Introduction

Whiz is an industrial-purpose robot vacuum machine developed by SoftBank Robotics and which features onboard BrainOS.

It is able to clean in two different modes (autonomous cleaning mode/manual cleaning mode). In autonomous cleaning mode, the machine cleans automatically, controlled by the BrainOS. The most current software version is always used by turning the main power switch ON/OFF on the machine. Version of the software can be confirmed from the SETTINGS menu.

- The contents described in the Operation Manual may be changed without prior notice due to specification change, etc.

2 Safety Warnings

2-1 About Safety Warnings

IMPORTANT SAFETY INFORMATION: READ AND UNDERSTAND THESE SAFETY WARNINGS AND ALL INSTRUCTIONS PRIOR TO UNPACKING AND USING THE MACHINE.

Warnings presented here are intended to warn the user of potential harm to the user and other people as well as damage to property. Always adhere to them to reduce the potential for harm. This manual also provides safety warnings, correct handling procedures, and other regulatory information for using the machine, notification pager, battery, and battery charger. Warnings provided in this manual do not cover all possible situations that may arise. Safety of the pedestrians and people in the surrounding will be the first priority in any circumstances (such as when the machine does not operate properly, when the machine has tripped over, etc.).

Always adhere to warnings regarding machine installation, maintenance, and use and store this manual where it can always be referred to. Whiz operators are advised to take normal health and safety precautions suitable to their environment.

In the following emergencies, immediately press the emergency stop button and turn off the main power switch.

- The machine is in a hazardous state (example: emitting smoke, is inoperable, has fallen over, etc.)
- The machine comes close to inflicting harm on surrounding people or things.
- The machine is operating (behaving) unpredictably or is operating in a manner that is inconsistent with this manual.

2-2 Description of Symbols

The following symbol categories explain the level of harm or damage that can occur if warnings are not observed and the machine or related equipment is used incorrectly. Please be sure you understand these symbols and their correlating meanings before reading the remainder of this manual.

 DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTE	Indicates the caution item that may cause failure or damage to the equipment when mishandled.

2-3 Description of Pictorial Indications

The following pictorial indication categories explain information to be observed. Read this guide after thoroughly understanding the information.

	Prohibited (not allowed) action.		Compulsory action based on instruction (must be performed).
	Must not be used where exposed to water, and must not be splashed with water.		Unplug the power plug from the outlet.

2-4 Handling the Machine, Battery Charger, Battery and Notification Pager (Common)



DANGER



Do not use, recharge, or leave the machine, battery charger, battery or notification pager in a place subject to high temperature (near sparks or flames, near a heater, where there is direct sunlight, in a car on a hot day, etc.) or in a warm place or where heat collects (under a radiator, hot water tank or other warm locations). Maintain adequate ventilation and make sure not to cover the machine, battery charger, battery or notification pager with any kind of fabric.

High temperatures may cause deformation, malfunction, overheating, ignition, fire, electric shock, rupture, or damage to the machine, battery charger, battery or notification pager. High temperatures may also cause the battery to leak or cause a portion of the machine case to become hot enough to cause burns.



Do not drop, break, deform, puncture, gouge, burn, or paint the machine, battery charger, battery or notification pager.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager or surrounding individuals or property.



Do not carry out repairs, such as disassembly (removing parts, etc.), modification, soldering, or replacement of notification pager battery or secondary battery.

- This may cause an accident such as fire, injury, electric shock, damage, malfunction, chemical explosion, or other damage to the machine, battery charger, battery or notification pager or surrounding individuals or property. May also cause leakage, overheating, rupture, ignition, or other damage to the battery pack.
- Modification of the machine may be a violation of the rules and regulations promulgated by the Federal Communications Commission (or equivalent body in your jurisdiction), and may be subject to penalty.
- Servicing, disassembly, modification, soldering, replacement or other repair work may not be undertaken by people other than by SoftBank Robotics or other authorized service staff.



Use only the battery charger and battery that came with the machine when recharging the machine.

Use of other battery chargers or batteries may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the battery charger.



Do not get the machine, battery charger, battery, or notification pager wet.

- The machine, battery charger, battery and notification pager are all for INDOOR USE ONLY. They are not water resistant. Do not get them wet.
- Use in an environment with less than 80% humidity. Failure to adhere to these warnings may cause fire, injury, electric shock, damage, malfunction, overheating, leakage chemical explosion, or other damage to the machine, battery charger, battery or notification pager.
- Do not use in a humid place such as in a bathing area or where there is a sink, or where the machine and related equipment may be exposed to water. Do not use with wet hands. Failure to adhere to these warnings may cause fire, injury, electric shock, damage, malfunction, overheating, leakage chemical explosion, or other damage to the machine, battery charger, battery or notification pager.
- Leaving or recharging the machine or related equipment while it is still wet or after any liquid or quasi-liquid substance any part of the machine may cause fire, injury, electric shock, damage, malfunction, overheating, leakage chemical explosion, or other damage to the machine, battery charger, battery or notification pager. Take caution of the location to use or handle the machine.



Do not allow the machine to fall over or drop when moving or transporting it.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not expose to warm air from a dryer or hot water.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Immediately discontinue use if anything unusual is noticed during use, recharging, or storage such as noise, smoke, odor, etc.

Failure to do so may result in fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not force the battery into the machine or battery charger if it cannot be connected correctly.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager, including damage or burnout of the external connection terminals.



WARNING



Do not allow liquid or quasi-liquid substance or any foreign objects to touch the charging terminals or external connection terminals of the battery charger or battery, or to otherwise enter the machine.

Doing so may result in fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.



Children should be supervised to ensure that they do not play with the appliance.



Operators shall be adequately instructed on the use of these machines.



This machine is not suitable for picking up hazardous dust.



This machine is for dry use only.



CAUTION



Do not touch the battery, notification pager, or battery charger when recharging the battery or notification pager.

Doing so may cause low-temperature burns.



The battery must be removed before cleaning or maintaining the appliance.



This machine is for indoor use only.



This machine shall be stored indoors only.

2-5 Handling the Machine



WARNING



Store in a dry environment with no dust in an ambient temperature range of 5 to 40°C. Failure to do so may result in fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



The machine is solely designed for indoor use. Do not use outside such as on a street. Doing so may cause malfunction, failure or destruction of parts due to natural elements, or other unexpected behavior as the machine is not designed for an outdoor operating environment.



Do not use the machine in a stepped location, on an uneven floor (braille blocks), or on a sloped surface.

- The machine may fall over or drop and damage the machine or floor or cause injury or damage to surrounding people or property if traveling where there are steps.
- Traveling on an uneven floor may prevent the sensors from operating normally, which may result in injury or damage to surrounding people or property.



Do not expose the machine to dust in large amounts, sand, snow, ice, water, humidity, saltwater environments, or brine mist (example: ocean environment, shore environment, etc.).

Doing so may cause malfunctioning, failure or destruction of parts due to natural elements, electric short circuiting, or other unexpected behavior or damage as the machine is not designed for an outdoor operating environment.



Be careful that dust does not adhere to the LIDAR sensor, camera, or other sensors. May interfere with normal machine operation or lead to an accident. See “P56 8 Inspection before Operating the Machine”.



When using autonomous cleaning mode, make sure that the operator is able to respond immediately to an alert received from a special app or the notification pager.

Not observing this may lead to an accident and damage or injury involving the user, third persons, surrounding objects, or other property or animals.



When using the machine in an autonomous mode, follow the regular floor cleaning practice and use appropriate signboards (cleaning in process signboard).

Not observing this may lead to an accident and damage or injury involving the user, third persons, surrounding objects, or other property or animals.



Use the machine with its wheels always in contact with the floor. When using the machine in manual cleaning mode, avoid abrupt operation except where unavoidable.



In areas where the machine is inoperable or unmovable due to power not turning on, move the machine to a safer location.



Do not perform any operation not given in this manual.

Use of the machine in a manner inconsistent with this manual may lead to death, personal injury or significant physical damage or property damage.



Do not use the machine with the grounding chain not in contact with the floor. If the grounding chain breaks or comes off, contact customer support.

Doing so may cause electric shock or injury to the operator or damage to the machine.



Recharge the battery for the machine using only the battery charger that came with the machine. Recharge the notification pager using only the charging stand that came with the machine.

Failure to do so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not cover the machine's sensors.

Doing so may result in malfunction of the machine or damage or injury to property, individuals or the machine.



Do not place anything decorative that may hinder the machine's operation or the emergency stop button.

Doing so may cause an accident.



When replacing the dustbag, brush, etc., turn off the main power switch beforehand and remove the battery from the machine in order to reduce risk of shock.



Do not clean the machine with a high-pressure cleaner.

Doing so may damage the machine's interior and cause unexpected behavior.



The machine is designed to clean indoor carpets and dry floors. Do not use it for any other purpose.



Do not use the machine to collect hazardous or explosive waste.

It is not certified for such collection and doing so may cause damage or injury to property, individuals or the machine.



Do not block the machine's vents.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager, including deformation of the machine.



When lifting the machine from the floor, always use two people as a safety precaution.

Not doing so may cause injury and a malfunction of the machine.



When the machine is operating, do not let infants, children, and pets come near the machine, or move foot or hand close to the bottom of the machine.

Doing so may cause injury due to getting caught in the machine.



Manage so that infants, children, or pets do not touch the machine.

Not doing so may cause injury due to getting caught in the machine.



If the secondary battery is off/low, do not remove the battery with the main power switch on the machine on.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery or notification pager.



CAUTION



If the machine has fallen over, press the emergency stop button and then turn off the main power switch on the machine.

Failure to do so may result in malfunction of the machine or damage or injury to property, individuals or the machine.



Avoid coming within 46 cm (18 inches) of the machine while it is in operation (except in manual operation mode).

When cleaning in autonomous cleaning mode, the machine sometimes suddenly turns, stops, or advances; coming close to the machine may cause injury. Abrupt motion near the machine may cause the machine to malfunction.



Do not insert any objects in the machine.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



If the machine is not operating normally (unusual sound, odor, smoke, etc.), immediately press the emergency stop button, to stop machine operation, turn off the main power switch, and contact customer support.



When carrying out maintenance with the dustbag, brush, hopper tray, etc., please be sure to turn off the machine prior to performing such maintenance and be careful not to get your fingers caught while working.

Not doing so may cause injury.



When installing or removing the battery, be careful not to get your fingers, other appendages or clothing caught while working.

Otherwise, it may cause injury.

2-6 Handling the Battery Charger



DANGER



Before using the battery charger, make sure that you fully understand the contents of this manual, and operate it correctly.



Do not use the battery charger at or near a place with dust, salt, corrosive gas, or flammable gas.

Using the battery charger at or near a place with dust, salt, corrosive gas or flammable gas could cause fire, injury, electric shock, damage, malfunction, chemical explosion, or other damage to the machine, battery charger, battery or notification pager or surrounding individuals or property.



Do not insert metal pins, or other foreign materials in the air vents in the battery charger.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Use the battery charger in an environment with an ambient temperature of 10 to 40°C, and humidity of 20 to 85%. When not using the battery charger, store in an environment with an ambient temperature of -10 to 60°C, and humidity of 20 to 85%.



WARNING



Do not use a power cable other than the one supplied with the machine.

Also, only use the power cable where the country label of your country of residence is affixed.

Otherwise, it may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not connect to any battery other than the supplied battery.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Make sure not to cover the battery charger with fabric, etc. Maintain conditions that allow adequate heat dissipation, and do not use or leave near a source of heat, or where exposed to water or direct sunlight.

Failure to do so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not use in a location where vibration or impact is applied.



Check that the supplied voltage is appropriate for the battery charger.

Do not use any power source or voltage other than that specified (AC 100 to 240 V, 50 to 60 Hz).

Failure to use the proper power source or voltage may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Make sure that dirt or other foreign matter do not adhere to the battery charger.

Do not use in a dusty place. If the plug is dusty, unplug it from the outlet and wipe with a dry cloth.

Otherwise, it may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not use the battery charger or power cable if damaged.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



The battery charger is designed specifically for the machine. Use only the supplied designated power cable.

Failure to use the supplied designated power cable may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager. Do not use the power cable with any another product.



Always unplug the battery charger from the outlet if not using it for a long time or when carrying out maintenance on it.

Failure to do so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



If the battery charger is not operating normally, takes a longer time to recharge than normal, or if it produces sparks, smoke, odor, etc., immediately unplug it from the outlet, and contact customer support.

Failure to do so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not step on the power cable or otherwise subject it to excessive force when it is connected to the battery charger.

May break the terminals on the power cable and cause malfunction or fire.



Use the battery charger distanced at least 10 cm (4 inches) from a wall so as not to block its air vents.

Blocked air vents will cause the temperature in the battery charger to rise, and may cause fire or malfunction.



If thunder is audible, unplug the battery charger from the outlet.

Failure to do so may damage the battery charger.



The battery charger may get hot so take caution on handling during or right after charging.

Failure to do so may result in burns or other injuries.

CAUTION



Do not touch the surface of the battery charger for a long time.
Prolonged skin contact may cause low-temperature burns.



Do not drop, step on, or place objects on the battery charger, regardless of if it is connected or not. Do not use it where it may be stepped on.
The cable may break, resulting in fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Always hold the plug body and not the cord when unplugging the power plug.
Not doing so may cause electric shock due to the power cable breakage.

2-7 Handling the Notification Pager

DANGER



Do not drop or throw.
Subjecting it to strong impact may cause the battery pack in the notification pager to leak, overheat, rupture, or ignite, and otherwise result in injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.

WARNING



Do not place the notification pager or the notification pager charger inside a heating cooker such as a microwave oven or a high-pressure container such as a pressure cooker, or place on top of an electromagnetic cooker (IH cooker).
Doing so may cause leakage, overheating, explosion, or ignition of the battery pack inside the notification pager, or overheating, smoking, ignition, or failure of the notification pager or the notification pager charger.



Store out of the reach of infants, children, and pets.
Failure to do so may present a choking hazard or other risk of physical injury or death of infants, children, and pets.



If prolonged contact with the notification pager causes skin irritation (itchiness, rash, eczema, etc.), immediately discontinue use and consult a doctor.

2-8 Handling the Battery

DANGER



Charge the battery within an ambient temperature range of 10 to 40°C. Also store in a dry environment with no dust in an ambient temperature range of 0 to 45°C.
Failure to do so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not place objects on top of the battery.
Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not smoke in the vicinity of the battery or place objects near it that may be the cause of flames or sparks.

Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not connect the battery terminals with metal, etc.

May cause leakage, overheating, ignition, or rupture and otherwise result in injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not throw into a fire or heat.

May cause leakage or explosion and otherwise result in injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



If fluid leaks, do not touch with bare hands.

If fluid enters your eyes, wash well with clean water, and immediately consult a doctor. If fluid gets on your skin or clothes, wash well with water.



Use the battery only in the machine.

May cause leakage, overheating, ignition, or rupture and otherwise result in injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



Do not subject to impact, such as by placing objects on it or letting it fall.

May cause leakage, overheating, ignition, or rupture and otherwise result in injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger, battery or notification pager.



WARNING



If the appliance is to be stored unused for a long period, the battery should be removed.



The supply terminals are not to be short-circuited.

2-9 Handling near Electronic Medical Devices



DANGER



If wearing an implanted cardiac pacemaker or implanted defibrillator, consult with the manufacturer of such medical device to confirm a safe operational distance from the machine.

Electric signals may affect the operation of the pacemaker or defibrillator.



Do not use in a healthcare environment or near electronic medical devices.

* The machine does not comply with UL or IEC 60601 standards (or equivalent standards).

DISCLAIMER

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■ FCC Compliance Statement

The Whiz Vacuum and the Notification Pager comply with part 15 of the FCC rules.

Note with respect to the Whiz Vacuum:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment (FCC ID: 2AT19-A00000101A01) complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance requirements. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note with respect to the Notification Pager:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This pager device (FCC ID: 2AT19-P00000401A01) is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set an SAR limit for an occupational/controlled environment of 0.4 W/kg, as averaged over the whole body, and a peak spatial average SAR of 8 W/kg, averaged over any 1 gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the body is 0.06 W/kg. This device was tested for typical body-worn operations with a separation of 10mm from the body. To maintain

compliance with FCC radio frequency exposure requirements, use accessories that maintain a 10mm separation distance between the user's body and the back of the pager. The use of belt clips, holsters, and similar accessories that contain metallic components in their assembly should be avoided, as use of such accessories might not comply with FCC exposure requirements.

SOFTBANK ROBOTICS CORP. ("COMPANY") DISCLAIMS ANY AND ALL LIABILITY ARISING FROM THE USE OF THIS DOCUMENT AND DOES NOT GUARANTEE THAT ANY INFORMATION CONTAINED HEREIN IS ACCURATE OR COMPLETE.

■ IC Compliance

This device complies with Innovation, Science and Economic Development Canada S licence-exempt RSSs. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

- Body-worn operation

The device complies with RSS 102, RF specifications when used near your ear or at a distance of 20 cm from your body (20 cm RF exposure safety distance). Ensure that the device accessories, such as a device case and device holster, are not composed of metal components.

- Conformité à la réglementation canadienne

Le présent appareil est conforme aux CNR Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage;
2. l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

- Opération du corps porté L'appareil est conforme à la norme RSS 102, RF, lorsqu'il est utilisé près de votre oreille ou à une distance de 20 cm de votre corps (distance de sécurité d'exposition RF de 20 cm). Assurez-vous que les accessoires de l'appareil, tels que son boîtier et son étui, ne sont pas composés de composants métalliques.

CAN ICES-3 (B)/NMB-3(B)
IC: 25110-P000101A01

Europe

SAFETY PRECAUTIONS

Please read the safety precautions carefully to ensure the correct use of your translator.

Do not disassemble, modify or repair the device or the battery by yourself, otherwise the warranty will be invalid.

Do not crush, throw, or puncture your device. Avoid dropping, squeezing, or bending your device.

Do not use your device in a moist environment.

The charging temperature of battery should be 10°C —+40°C .

Do not expose your device to areas with flammables and explosives.

Do not turn on your device when it is prohibited to use.

For driving safety, the driver cannot operate the device when the car is in motion.

Use a dry soft cloth to clean the device; do not use water, alcohol, detergent or any chemicals.

Keep the device battery and charger out of the reach of children to prevent them from swallowing it or injuring themselves by accident. Children should only use the device with adult supervision.

Observe all rules and regulations applicable to mobile products in hospitals and health care facilities.

Only use the battery included with the product.

This equipment complies with MPE ICNIRP radiation exposure limits. This equipment should be installed and operated with minimum distance 25 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

SAR information

This device complies with the RE Directive (2014/53/EU). A minimum separation distance must be maintained between the user's body and the device, including the antenna during body-worn operation, to comply with RF exposure requirements.

CE Head SAR(0mm)≤2.0W/kg (10g)

CE Body SAR(5mm)≤2.0W/kg (10g)

Limbs SAR(0mm)≤4.0W/kg (10g)

The Specific Absorption Rate (SAR) is the unit of measurement for the amount of radio frequency energy absorbed by the body when using a device. This device meets guidelines for exposure to radio waves, and is designed not to exceed those limits.

Do not dispose of used device in a household rubbish bin. 

The device connected to a USB interface of version USB2.0.

This equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Frequency bands and power		
Bands	Frequency	Max.Power Limit (dBm)
Lora	865-868MHz	≤14
WCDMA B1	1920MHz-2170MHz	23±2
WCDMA B3	1710MHz-1880MHz	23±2
WCDMA B8	880MHz-960MHz	23±2
FDD B1	1920MHz -2170MHz	23±2
FDD B3	1710MHz -1880MHz	23±2
FDD B7	2500MHz -2690MHz	23±2
FDD B8	880MHz -960MHz	23±2
FDD B20	830MHz -860MHz	23±2
TDD B28	703MHz -748MHz	23±2

This product can be used across EU member states.

	AT	BE	BG	HR	CY	CZ	DK
	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL
	PT	RO	SK	SI	ES	SE	UK

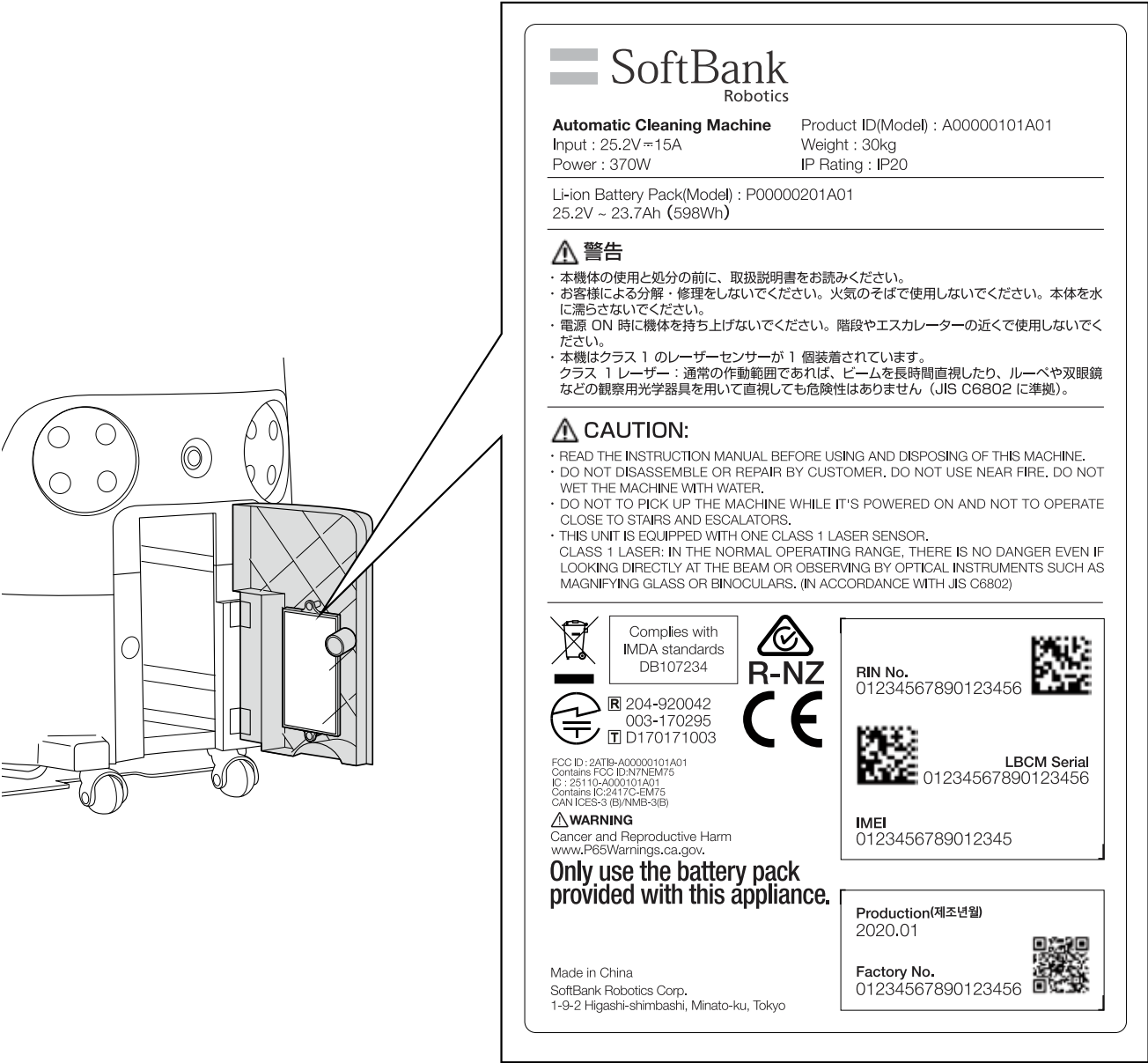
The full text of the EU declaration of conformity is available at meetwhiz.com/certification

2-10 Positions where the Warning Labels are Affixed

Refer to the labels on each product (the machine, battery charger, battery) (Fig. 2-1, Fig. 2-2, Fig. 2-3).

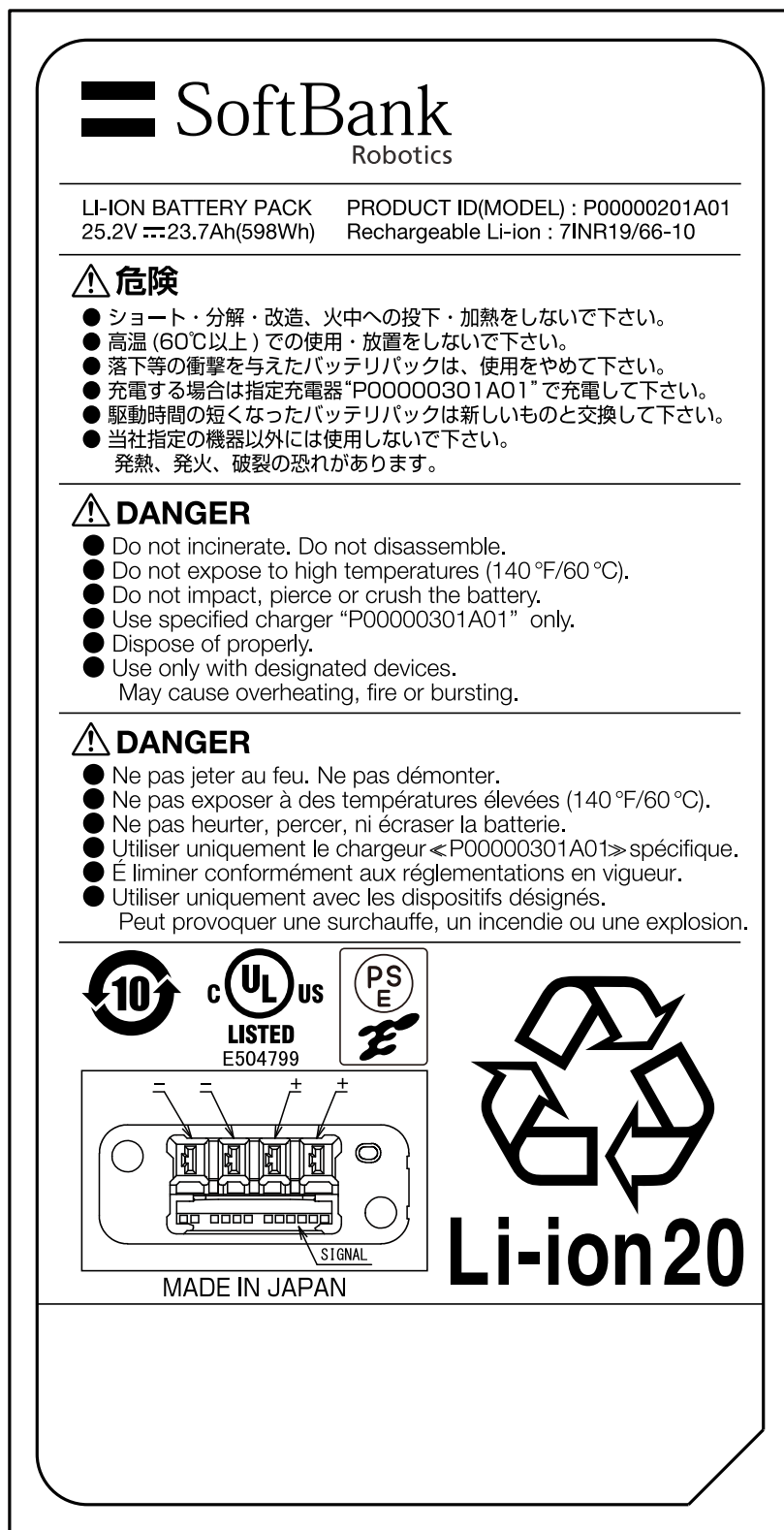
■ Machine

Fig. 2-1



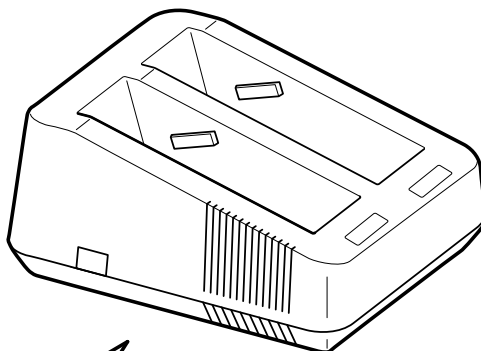
■ Battery

Fig. 2-2



■ Charger

Fig. 2-3



< Back of charger >

BATTERY CHARGER / 电池充电器 / 전기충전기

入力/输入/정격전압/INPUT: 100-240V ~ 50-60Hz 7A
 出力/输出/정격출력/OUTPUT: 29V --- 8000mA x 2

PRODUCT ID (MODEL):
 P00000301A01

CAUTION: RISK OF FIRE AND ELECTRIC SHOCK. INDOOR USE ONLY. BEFORE CHARGING, READ THE INSTRUCTION. DRY LOCATION USE ONLY. CHARGE ONLY MODEL P00000201A01 LITHIUM TYPE RECHARGEABLE BATTERIES. OTHER TYPES OF BATTERIES MAY BURST CAUSING PERSONAL INJURY AND DAMAGE. SEE INSTRUCTION MANUAL FOR PROPER SELECTION OF THE POWER SUPPLY CORD. DO NOT DISCONNECT OUTPUT CONNECTOR UNDER LOAD.



E72137

BATTERY CHARGER BFP

ATTENTION: RISQUE D'INCENDIE ET D'ÉLECTROCUTION. UTILISER À L'INTÉRIEUR SEULEMENT. LISEZ LES INSTRUCTIONS AVANT DE METTRE SUR CHARGE. À UTILISER UNIQUEMENT DANS UN EMPLACEMENT SEC. CHARGEZ UNIQUEMENT LES PILES AU LITHIUM RECHARGEABLES DU MODÈLE P00000201A01. CHARGER TOUT AUTRE TYPE DE PILES PEUT CAUSER DES BLESSURES CORPORELLES ET DES DOMMAGES. VOIR LE MANUEL D'INSTRUCTIONS POUR UNE SÉLECTION APPROPRIÉE DU CORDON D'ALIMENTATION. NE DÉBRANCHEZ PAS LE CONNECTEUR DE SORTIE QUAND CELUI-CI EST SOUS TENSION.

MADE IN CHINA

**警告**

使用不当可能会导致漏液、发热、破裂、着火、触电。

- 使用前, 请完整阅读本说明书。 制造商: 惠州志顺电子实业有限公司
- 请勿使用本品牌以外的锂电池。 地址: 广东省惠州市仲恺高科技工业区航天科技工业园
- 请不要分解或改造。

**주의**

부적절한 사용은 누수, 열, 균열, 화재, 감전의 원인이 될 수 있습니다

- 사용하기 전에 지침을 철저히 읽으십시오.
- 이 브랜드 이외의 리튬 배터리를 사용하지 마십시오
- 분해하거나 개조하지 마십시오



최저소비효율기준만족 제품
 HU072068-20005A
 R-R-HZJ-P00000301A01

제조원: Huizhou Factory Jackson Electric Co., Ltd.
 수입, 판매원: Softbank Robotics Korea Co., Ltd.
 소비자상담실: 82-10-7137-0507 중국제조

- 警告**・充電前に取扱い説明書をお読みください。
 ・この充電器はP00000201A01バッテリー専用充電器です。
 ・他のバッテリーの充電は破裂の恐れがあります。
 ・この充電器は屋内専用品です。
 ・感電を避けるため乾いた場所でご使用ください。
 ・指定外の電池を使用した場合、破裂などにより人体へ重大な傷害を生じることがあります。



T8.0A



EU ONLY



S / N: 720034018120001

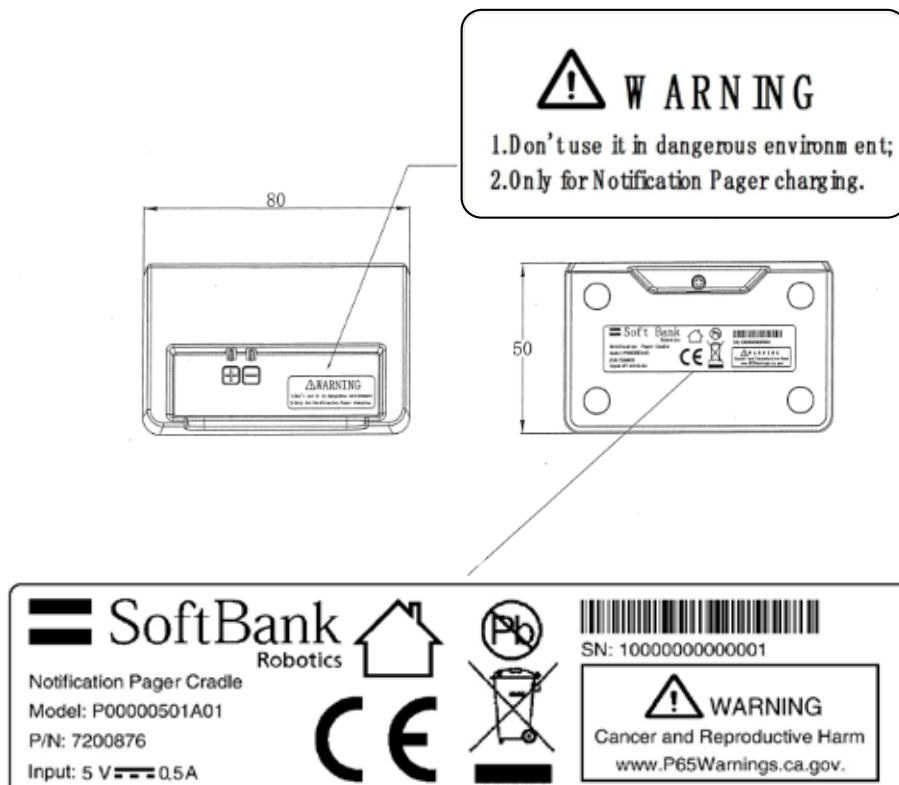
■ Notification pager

Fig. 2-4



■ Notification pager charger

Fig. 2-5



3 Precautions of Use

NOTE

Handling the machine

- The dustbag, brush, battery, HEPA filters, and notification pager are designed specially for the machine. Do not use other products. Using other products may cause the machine to malfunction or cause damage to the machine.
- Do not affix a seal or tape on the sensor or the wheels. Doing so may cause the sensor to operate improperly, which may cause failure.

Cleaning

- Use the machine after checking for obstacles in the cleaning route. For the range detectable by the machine's sensors, see "P22 3-2Sensor Detection Range".
- Check that the following are not in the cleaning area. If vacuumed, they may cause malfunction of the machine or damage or injury to property, individuals or the machine.
 - Waste containing liquid or moisture
 - Large amounts of sand, dust; string
 - Sharp objects (glass, blades, metal fragments, etc.)
 - Objects that air cannot pass through easily (food wrap, plastic; wrapping film, etc.)
- Do not operate on the wet floor (with moisture). The machine cannot vacuum liquid. Doing so may cause failure. Only use the machine on a dry floor.

Battery charger

- Do not use any other electrical device on the same wall outlet when charging. Doing so may affect the battery charger due to lowering of the voltage.
- Do not use the battery charger placed standing or upside down. The battery charger is specifically for being placed sideways.
- Make sure the battery charger is where the power plug can connect easily to an outlet. Also position the battery charger so that its charge indicators can be checked visually.

3-1 Lasers and Infrared Light

- The machine confirms the safety of its surrounding area by laser.
- The machine is outfitted with one Class 1 laser.
- Class 1 laser:

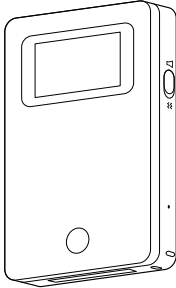
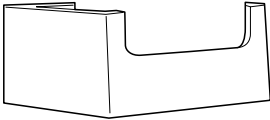
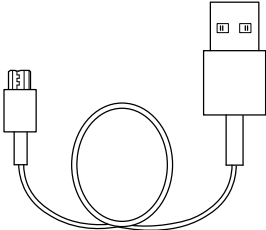
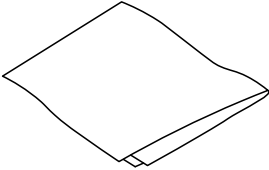
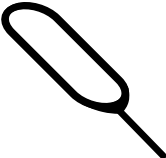
If within a normal range of operation, no hazard exists by looking directly at the laser beam for a long period, or by using an optical instrument for observation such as a magnifying glass or binoculars to look directly at the laser beam (compliant with JIS C6802).

3-2 Sensor Detection Range

- The machine confirms the safety of its surrounding area with several sensors. The machine detects obstacles in a range of about 200° in front of it; do not go near the machine within the range that is not detectable by the sensors (behind it, etc.). It may not be able to detect the user as an obstacle.
- Low obstacles less than 10 cm (4 inches) in height from the floor cannot be avoided with sensor detection; remove them from the cleaning route beforehand.

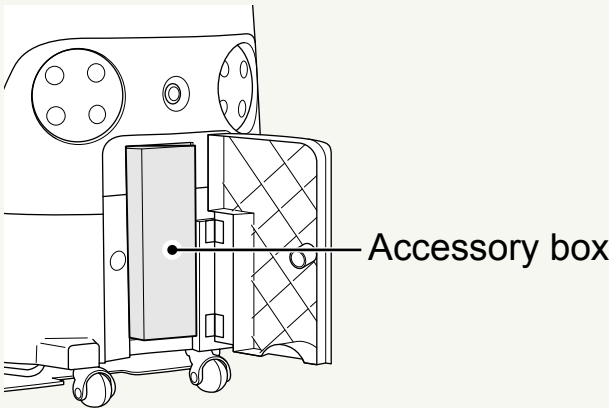
4 Supplied Accessories

4-1 Items in the Accessory Box

Notification pager×1 [P00000401A01]	Notification pager charger×1 [P00000501A01]	micro USB cable ×1 [P00014201A01]
 Notifies the operator with a sound and vibration when an abnormality or danger is detected while performing the autonomous cleaning.	 Recharges the notification pager.	 Connect the notification pager and its charger.
Micro-fiber cloth×1 [P00002101A01]	Pin×1	
 Used to wipe off the dust and dirt affixed to the sensors.	 Used when turning the power of the notification pager ON/OFF.	

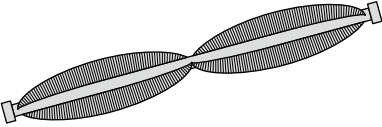
- Upon arrival, the accessory box will be stored inside the battery box (Fig. 4-1).

Fig. 4-1



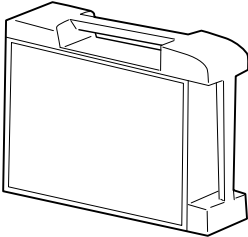
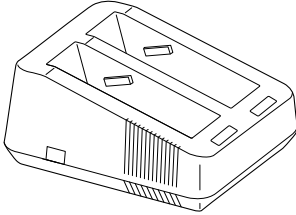
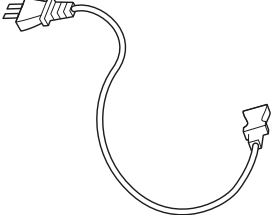
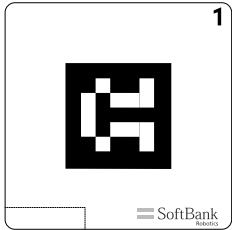
4-2 Items in the Packaging Box

Brush×1
[P00000801A01]



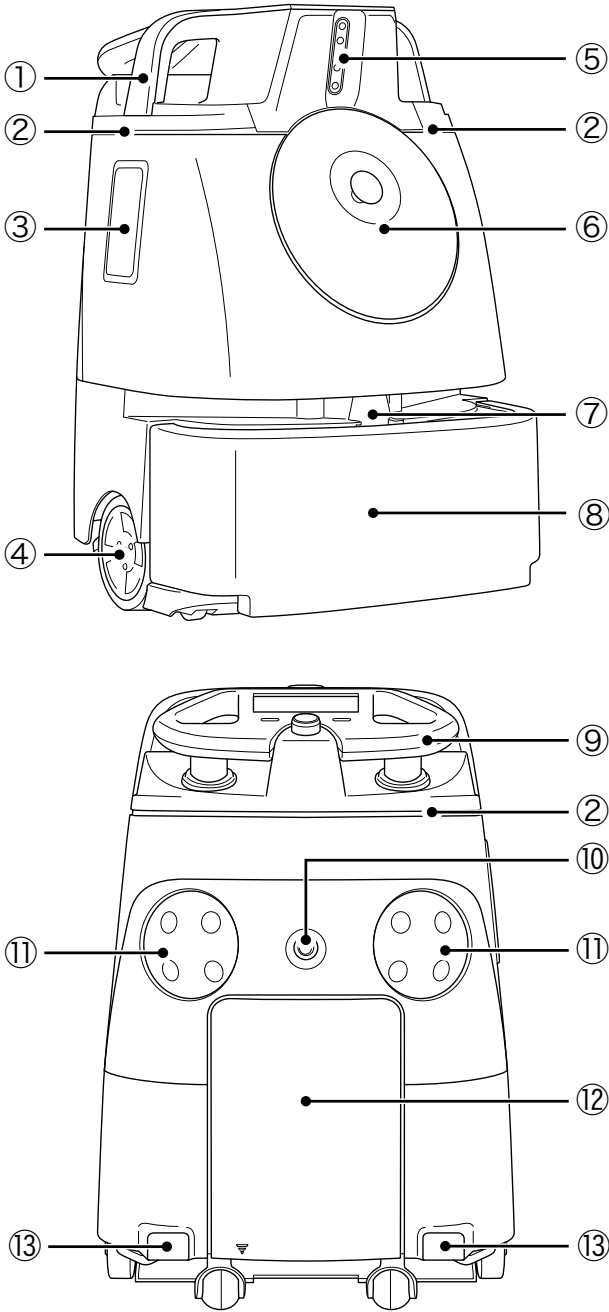
This is attached to the machine to collect the dirt and dust into the hopper tray.

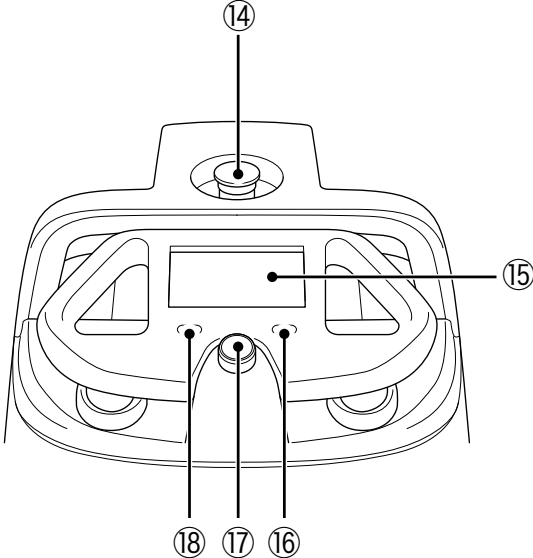
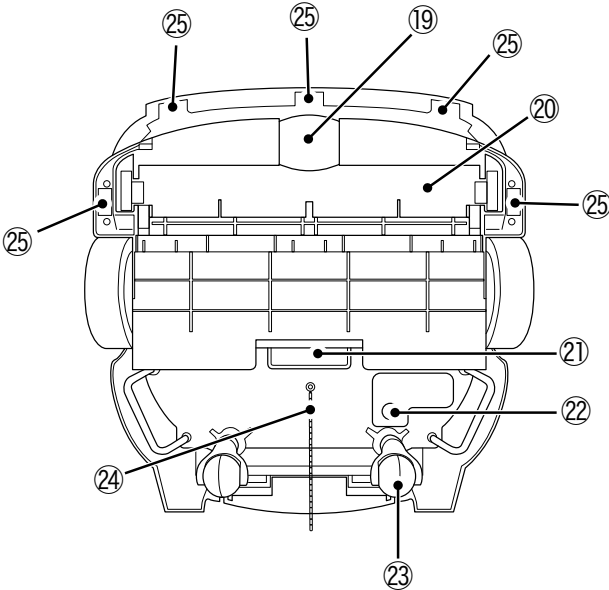
4-3 Items Delivered Separately

Battery×1 [P00000201A01]	Battery charger ×1 [P00000301A01]	AC cord with country label ×3
 A battery dedicated for the machine. It operates for about 3 hours when cleaning in normal mode.	 A battery charger dedicated for the machine.	 An AC cord dedicated for the battery charger for the machine.
Home Location Code×10 [P00001101A01 ~ P00002001A01]  A marker to indicate the position to start/stop the cleaning route when performing the autonomous cleaning.		

- Depending on your contract details, Home Location Codes may be bundled with the machine.
- A dustbag, hopper tray, and HEPA filter are pre-installed in the machine at delivery.
- The brush, dustbag, HEPA filter, battery charger, battery, and Home Location Codes are consumables.

5 Names of Parts

Machine Front/Side, Back	No.	Name
	①	Lift handles
	②	LED lights
	③	Pager holder
	④	Wheel
	⑤	2D/3D camera (sensor)
	⑥	Dustbin
	⑦	LIDAR sensor
	⑧	Bumper
	⑨	Steering handle
	⑩	Main power switch
	⑪	Filter cover
	⑫	Battery compartment
	⑬	Rubber pad

Machine Front/Side, Back	No.	Name
	⑭	Emergency stop button
	⑮	Touch display
	⑯	Max power mode button
	⑰	Autonomous clean start/stop button
	⑱	Vacuum power button
	⑲	Front wheel
	⑳	Brush compartment
	㉑	Hopper tray
	㉒	Secondary battery power button
	㉓	Rear caster
	㉔	Grounding chain
	㉕	Cliff sensor

6 Machine Setup and Parts Installation

6-1 Removing the Machine from Its Packaging

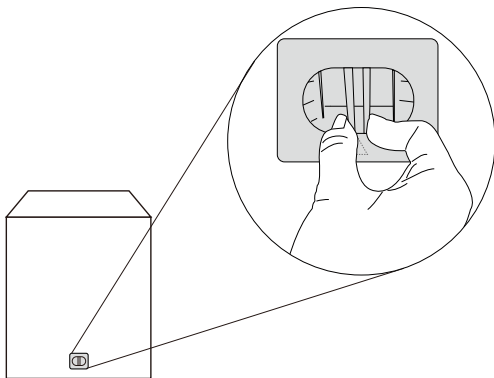
Unpack the machine. As a safety precaution, be sure to unpack with at least two people.

NOTE

- Check that the packaging is not damaged; if damaged, immediately contact customer support.
- Do not discard the packaging box or packing material, and store it safely. It will be required when storing the machine out of use for a long period (see “P126 13-3 Storing the Machine”).

- 1 Pinch the lock on the locking tab that is attached to the outer box (Fig. 6-1).

Fig. 6-1



- 2 Lift the lock (Fig. 6-2) and remove the locking tab (Fig. 6-3).

Fig. 6-2

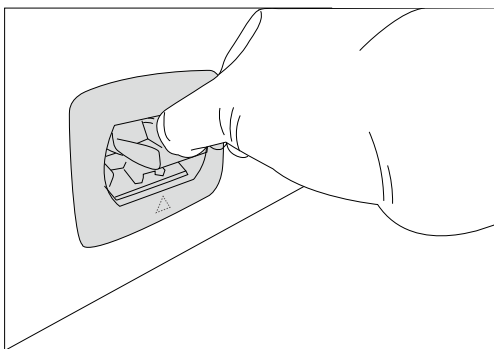
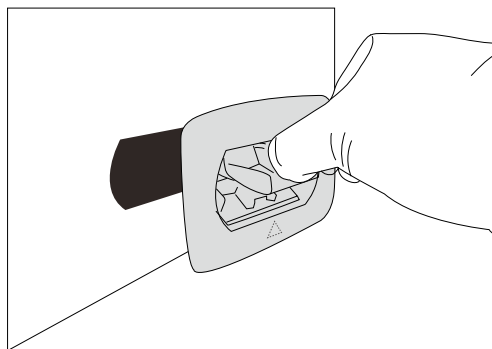


Fig. 6-3

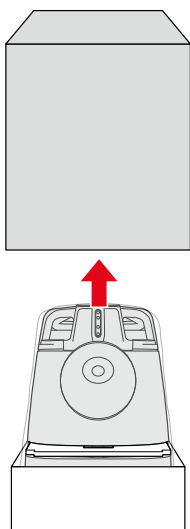


- Repeat this procedure for the 3 remaining locking tabs on the outer box.

3 Remove the outer box (Fig. 6-4).

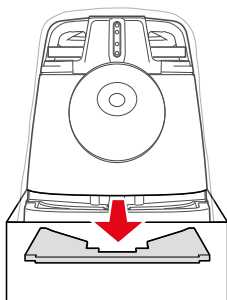
- Also remove the brush that is attached inside the outer box.

Fig. 6-4



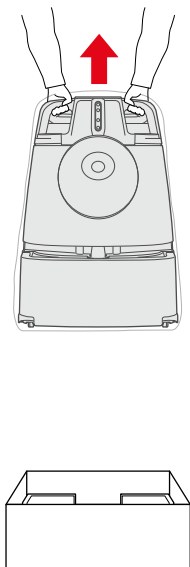
4 Remove the cushioning material (Fig. 6-5).

Fig. 6-5



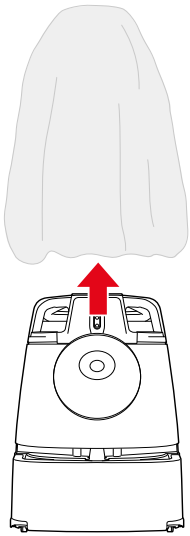
5 Take the machine out of the inner box (Fig. 6-6).

Fig. 6-6



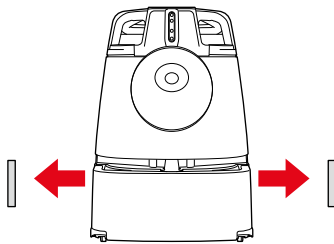
6 Remove the plastic bag (Fig. 6-7).

Fig. 6-7



7 Remove the cushioning material (back of the bumper) (Fig. 6-8).

Fig. 6-8



8 Either hold the lift handles (Fig. 6-9) or use the steering handles (Fig. 6-10) (see “P53 7-9 Steering Handle”) to bring the machine to the cleaning location.

- For your safety, carry with two people when holding on the lift handles.

Fig. 6-9

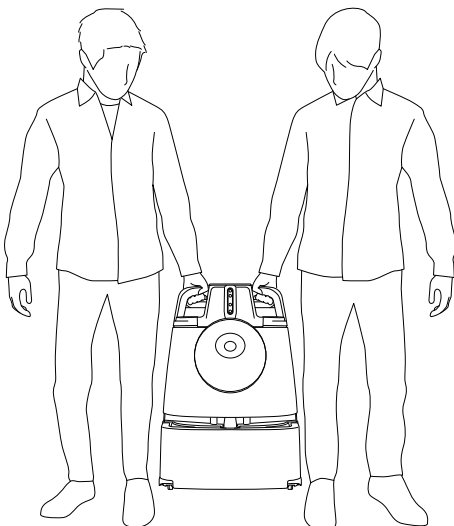


Fig. 6-10

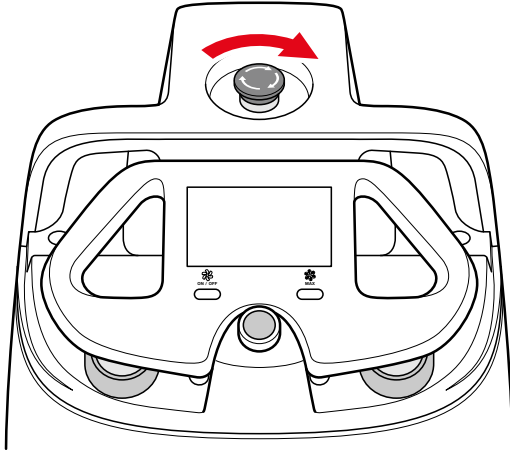


6-2 Preparing to Use the Machine

6-2-1 Checking the Emergency Stop Button

Check that the Emergency Stop Button is not pressed. If pressed, turn it to the right to release (Fig. 6-11).

Fig. 6-11

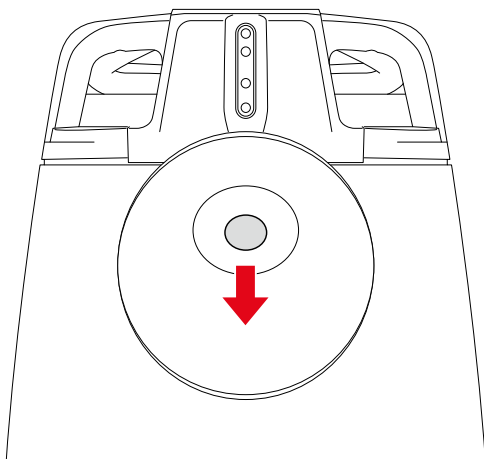


6-2-2 Checking the Dustbag

Be sure to check that the dustbag is properly attached. If it is not properly installed or if the dustbin does not close, follow the steps for reattaching the dustbag (see “P115 13-1-3 Dustbag”).

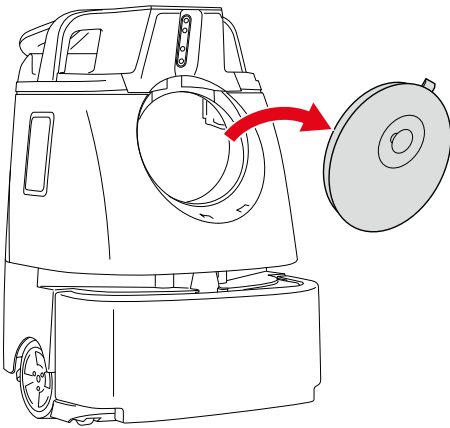
- 1 Hold the dustbin access handle and pull down (Fig. 6-12).

Fig. 6-12



- 2 Pull the cover towards you to remove (Fig. 6-13).**

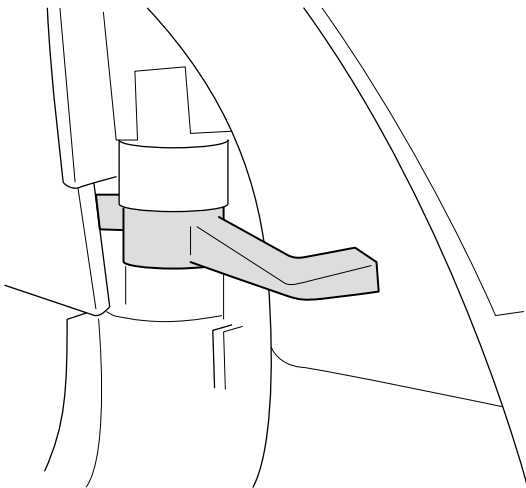
Fig. 6-13



- 3 Check that the dustbin pin is afloat (Fig. 6-14).**

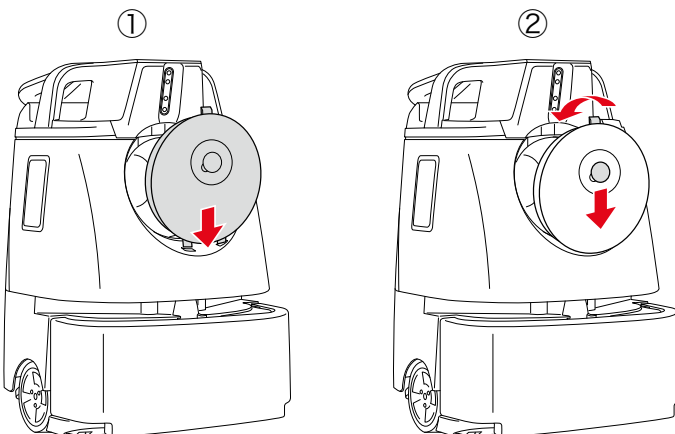
- If the dustbag is correctly set, the pin will float.

Fig. 6-14



- 4 Insert the catches at the bottom of the cover in the bottom of the dustbin (①) and close the cover while pushing down on the dustbin access handle (②) (Fig. 6-15).**

Fig. 6-15

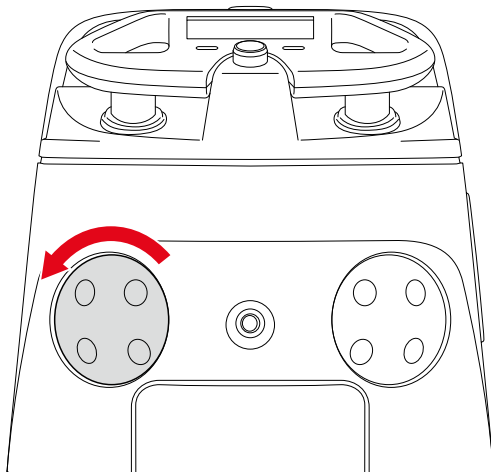


6-2-3 Checking the HEPA Filter

Check that the HEPA filter is properly installed. If the HEPA filter is not properly installed, follow the steps for installing the filter (see “P114 13-1-2 HEPA Filters”).

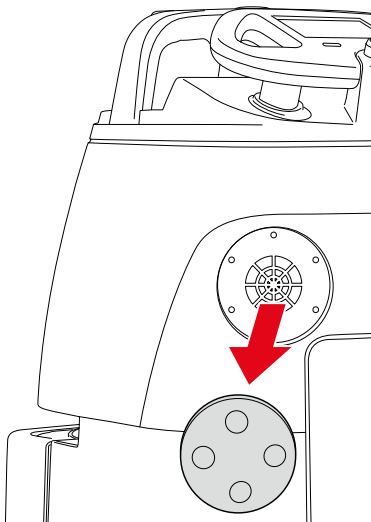
- 1 Place your fingers in the holes of the filter cover and turn to the left to remove (Fig. 6-16).
-

Fig. 6-16



- 2 Check that the HEPA filter is properly installed (Fig. 6-17).
-

Fig. 6-17



- 3 Attach the filter cover to the machine, and turn to the right until it clicks to close.
-

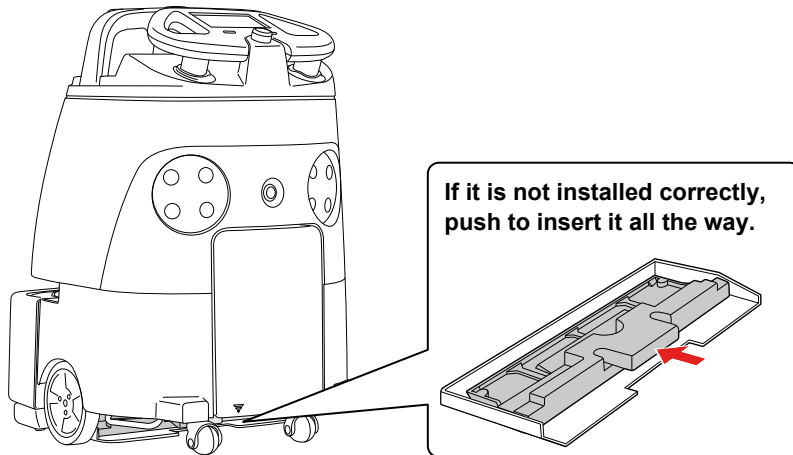
- 4 Check the other HEPA filter with the same procedure.
-

6-2-4 Checking the Hopper Tray

Check that the Hopper Tray is correctly installed. If it is not installed correctly, reinstall the hopper tray (see “P119 13-1-4 Hopper Tray”).

- 1 From the back of the machine, check if the Hopper tray is installed correctly (Fig. 6-18).

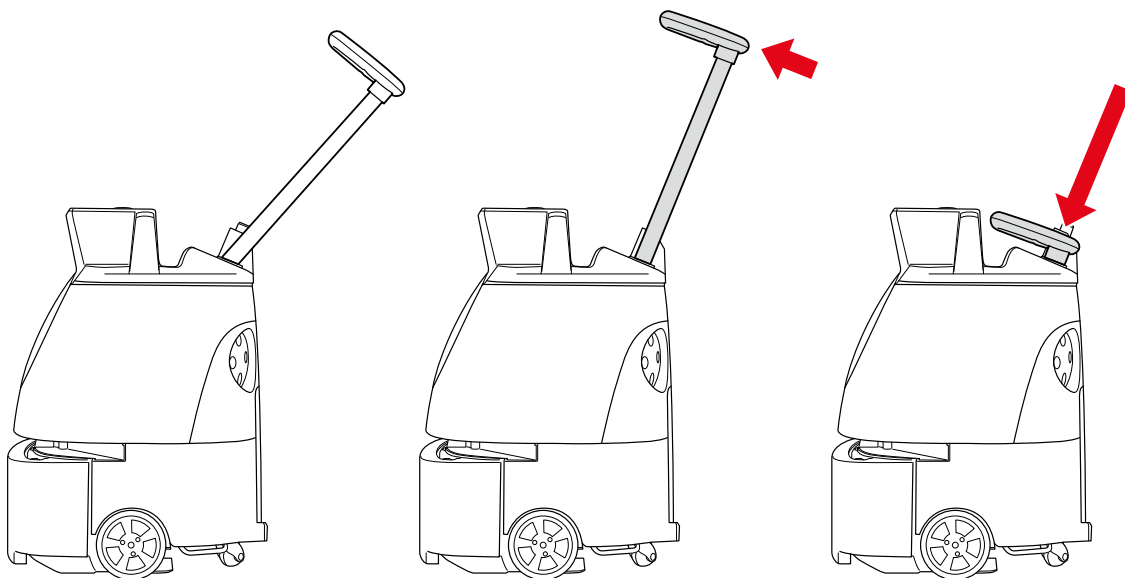
Fig. 6-18



6-2-5 Installing the Brush

- 1 Stow the Steering Handle (Fig. 6-19) (see “P53 7-9 Steering Handle”).

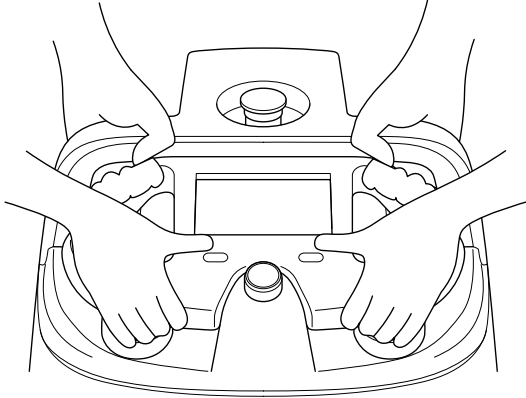
Fig. 6-19



- 2** Hold the lift handles with one hand, and hold the steering handle down with another hand (Fig. 6-20).

- Please operate with two people.

Fig. 6-20



- 3** Hold the lift handles with both of your hands, gently lay the machine on its side so that the side with the dustbin is up (Fig. 6-21).

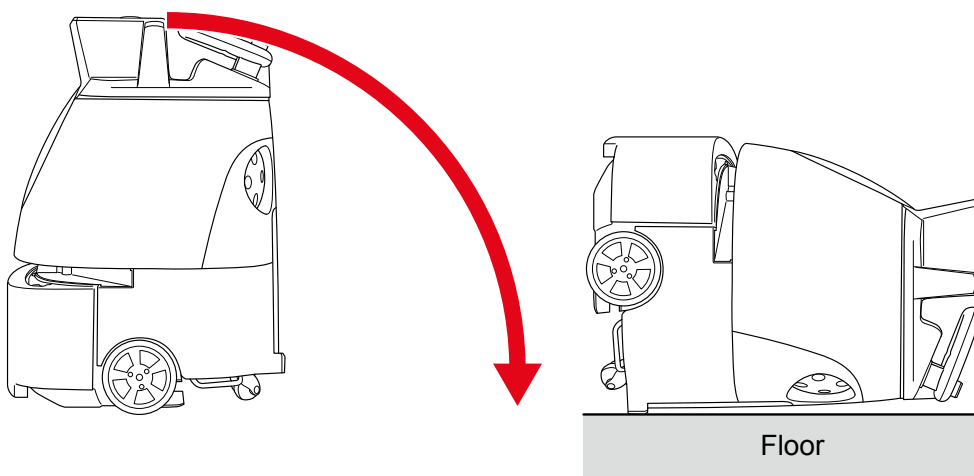
 Rubber pad will support and stabilize the machine.

- Please be cautious so the handle does not stick out of the machine.

NOTE

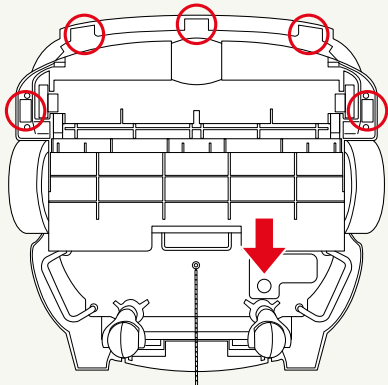
- Try to avoid letting the machine fall or turn over on its side.
- A concrete or other hard surface will scratch the machine; place the machine on carpeting or other soft and flat surface.

Fig. 6-21

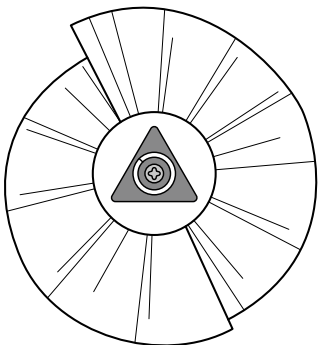
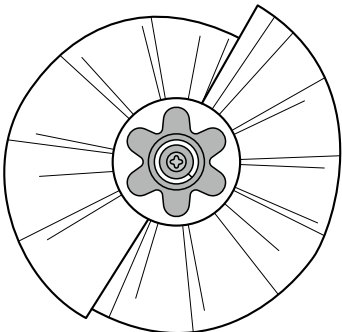


Check that the secondary battery power button on the bottom of the machine is off (see “P44 7-4 Secondary Battery Power Button”). At this time, remove the protective film of the cliff sensor as well (Fig. 6-22).

Fig. 6-22



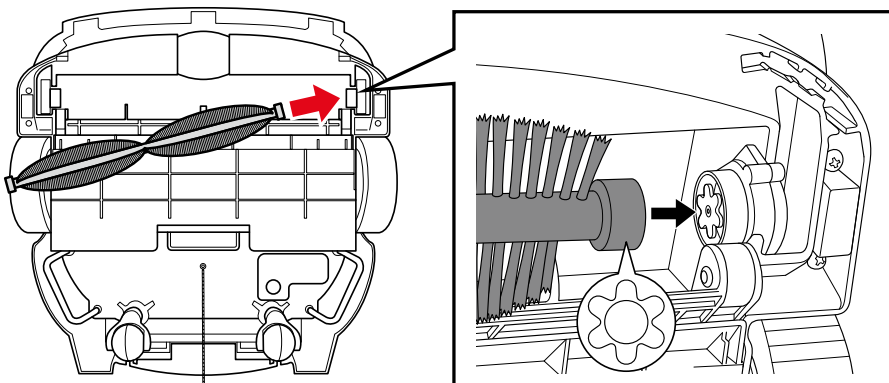
4 Check the marks on the left and right ends of the new brush.

The mark on the left	The mark on the right
	

- When the machine is laid down with the front side facing upwards, you will see the sockets of the brush compartment. These sockets correspond to the right and left sockets of the brush.

5 Attach the right end of the brush in the socket with the matching marking in the brush compartment (Fig. 6-23).

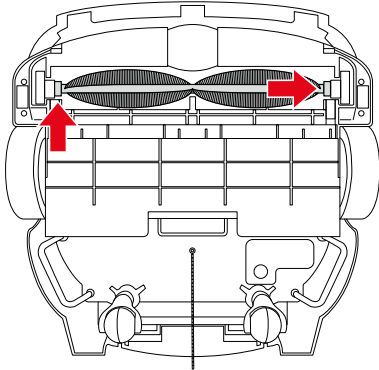
Fig. 6-23



- 6 Push the brush in to the right, and attach the left end of the brush to the socket while aligning the same marks (Fig. 6-24).**

- Spin the brush, and check that both ends of the brush are securely attached in the sockets.

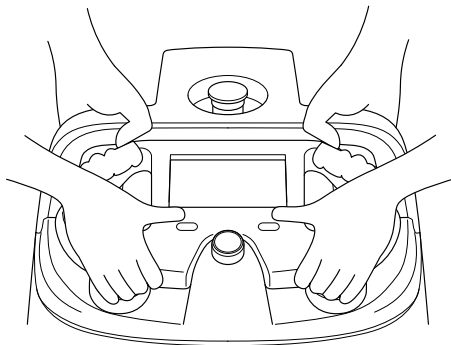
Fig. 6-24



- 7 Hold the lift handles with one hand, and hold the steering handle down with another hand (Fig. 6-25).**

- Please operate with two people.

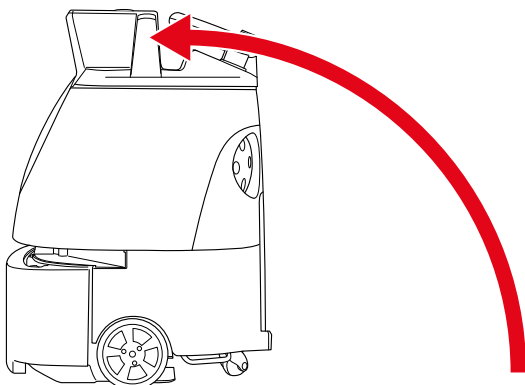
Fig. 6-25



- 8 Hold the lift handles by each set of hands, gently raise the machine using two people (Fig. 6-26).**

- Please be cautious so the handle does not stick out of the machine.

Fig. 6-26



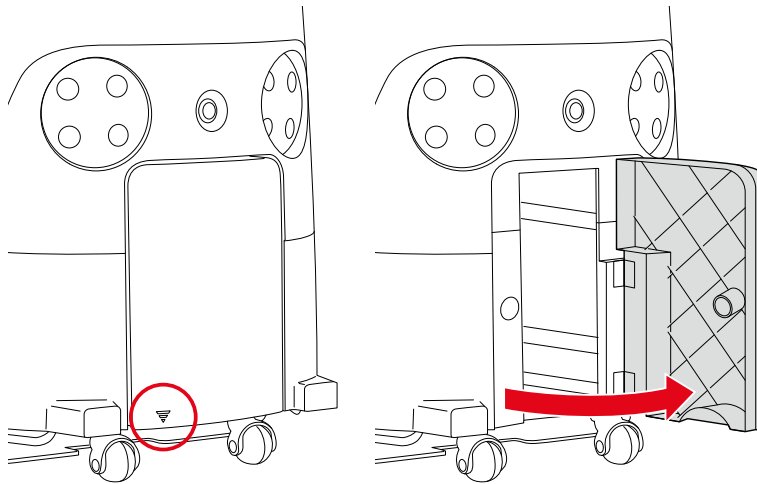
6-2-6 Charging the Battery and Installing It to the Machine

1 Charge the battery (see “P104 12-2 Recharging the Battery”).

2 Pull the bottom left of the battery door towards you to open (Fig. 6-27).

- Remove the accessory box from inside the battery compartment.

Fig. 6-27



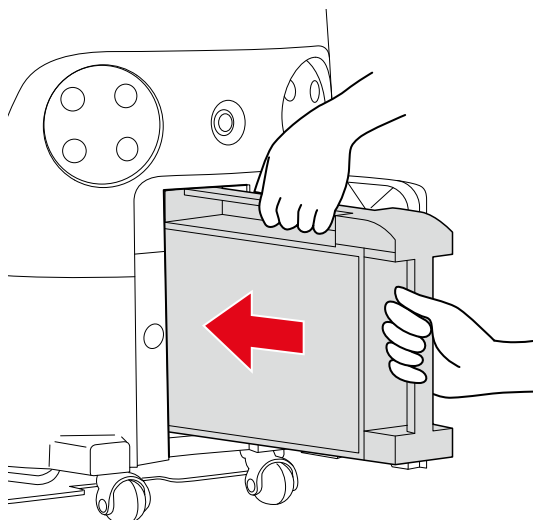
3 Insert a fully charged battery as far as it can go (Fig. 6-28).



When the battery is locked in, you will hear a “click” and see the lock pop into place.

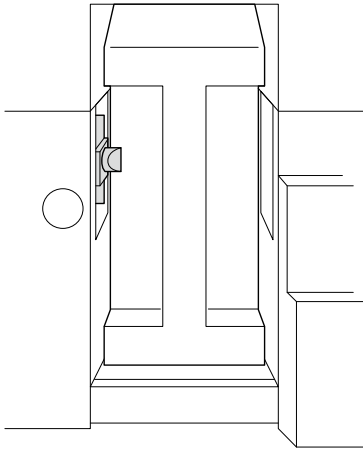
- Hold the grips by both hands, and careful not to drop the battery.
- Insert the battery in the battery compartment by its terminal end first.

Fig. 6-28



4 Check that the battery is locked (Fig. 6-29).

Fig. 6-29



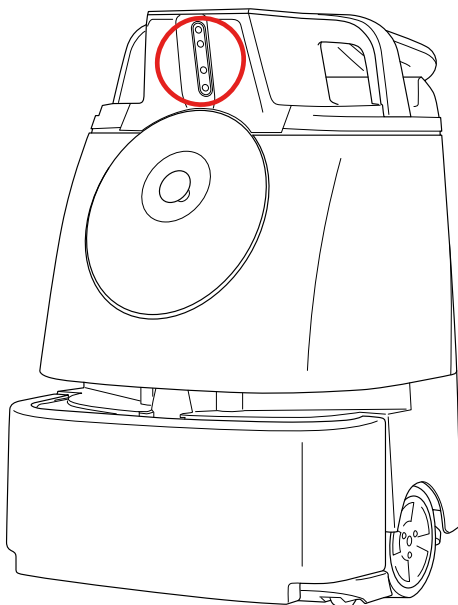
5 Close the battery door.

6-2-7 Removing the Protective Film

1 Remove the protective film on 2D/3D Camera (sensor) (Fig. 6-30).

- Please be careful not to damage the sensor when removing the film.

Fig. 6-30



6-2-8 Turning the Notification Pager Power On

Before turning the power On, check that the notification pager is fully charged. If the notification pager battery is low, charge the battery fully before using the pager. (see “P103 11-4 Recharging the Notification Pager”).

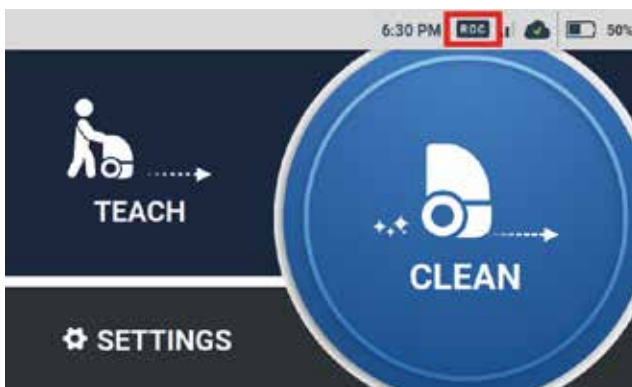
1 Turn the notification pager On (see “P99 11-2 Turning the Notification Pager On/Off).

- After turning notification pager On, pair the pager. (see “P101 11-3 Pairing the Notification Pager”)

6-2-9 Connecting to Robot Operations Center

Turn off the power switch in advance with the machine connected to the network (LTE)(Fig. 6-31) When the main power switch is turned on again, the machine is automatically connected to the network and the Robot Operations Center (ROC).

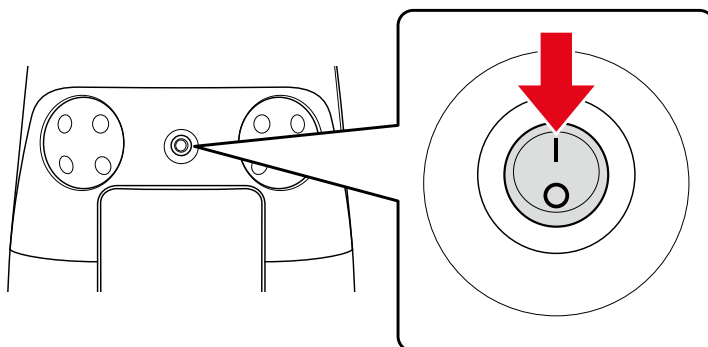
Fig. 6-31



1 Press the main power switch (I/O) to turn it on (I) (Fig. 6-32).

 A screen indicating the machine is loading appears on the touch display.

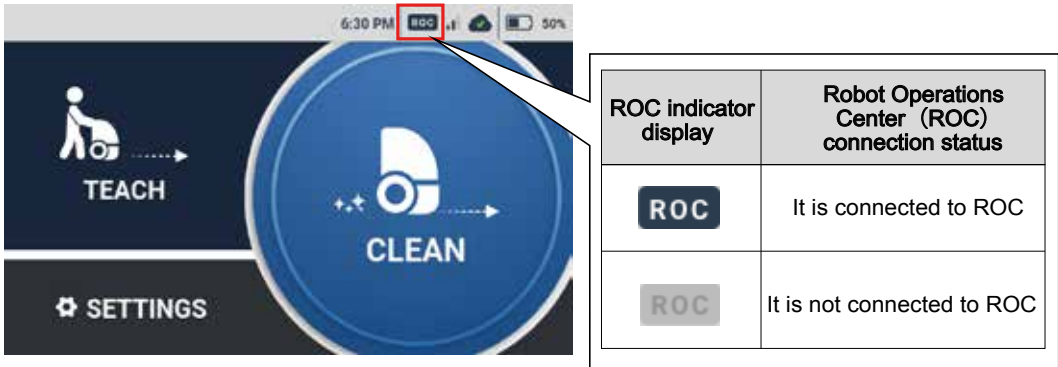
Fig. 6-32



- 2

Confirm the ROC indicator (see “P48 7-6 Touch Display”) at the top right of the touch display (Fig. 6-33).

Fig. 6-33



- If the connection mark of the ROC indicator does not appear, move the machine to an area where the network can be connected.

7 Operation

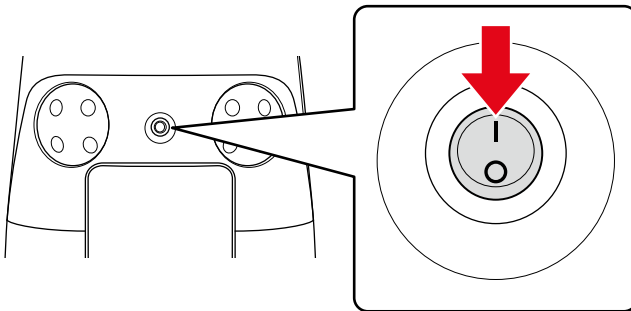
7-1 Main Power Switch

7-1-1 Turning the Power On

- 1 Press "I" of the main power switch to turn on the power (Fig. 7-1).

 After turning the power on, a screen indicating the machine is loading appears on the touch display.

Fig. 7-1

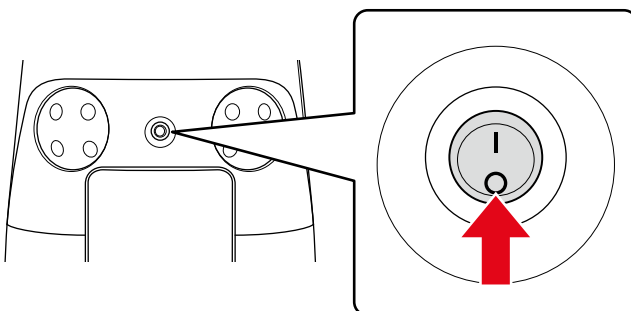


- Home screen will be displayed when the Power button is turned On. Do not turn the power Off until the Home screen is displayed.

7-1-2 Turning the Power Off

- 1 Press "O" of the main power switch to turn off the power (Fig. 7-2).

Fig. 7-2

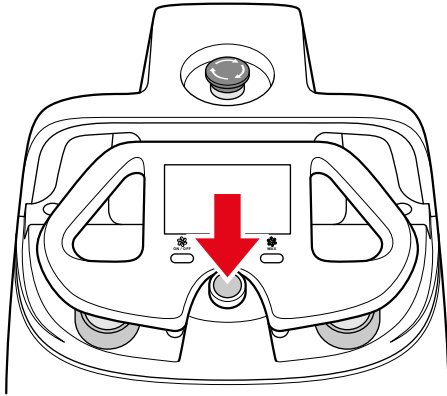


7-2 Stopping/Pausing the Machine

- 1 On the back of the machine, press the autonomous clean start/stop button (Fig. 7-3).

 The machine stops.

Fig. 7-3



- To restart machine operation, press the autonomous clean start/stop button again.
- To stop auto cleaning, tap “CANCEL ROUTE” on the touch display.

7-3 Emergency Stop

If an emergency occurs, press the emergency stop button and immediately stop the machine.

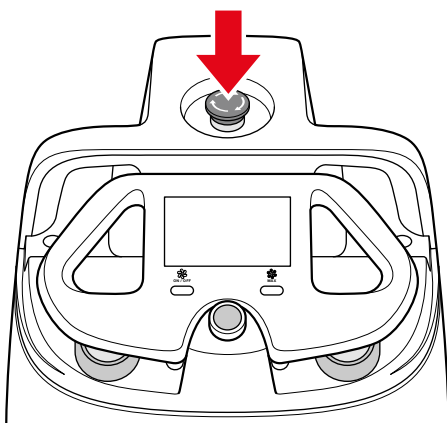
- Only use the emergency stop button in an emergency.
- To pause the machine during autonomous cleaning, use the autonomous clean start/stop button (see “P55 7-11 Autonomous Clean Start/Stop Button”).

7-3-1 Stopping the Machine Urgently in an Emergency

- 1 Press the emergency stop button (Fig. 7-4).

 The machine will stop and an alert will be notified on the notification pager (see “P95 11 Notification Pager”).

Fig. 7-4



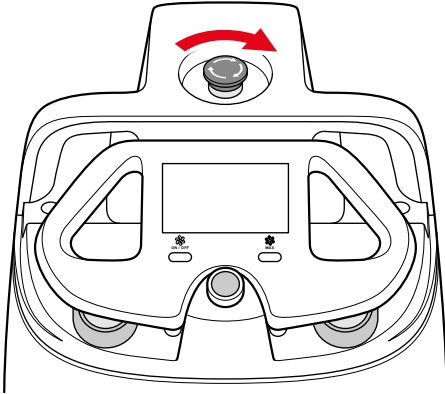
- The machine is stopped, but the power is not turned off.

7-3-2 Releasing the Machine from Emergency Stop

- Check the safety of the machine and surrounding area before releasing the machine from emergency stop.

- 1 Turn the emergency stop button to the right (Fig. 7-5).

Fig. 7-5



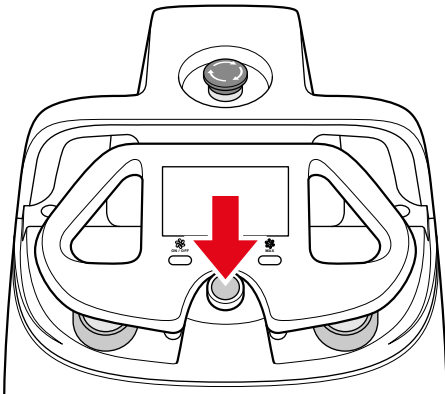
- Check that the button springs up.

- 2 Press the autonomous clean start/stop button (Fig. 7-6).



Autonomous cleaning resumes.

Fig. 7-6



- To stop auto cleaning, tap "CANCEL ROUTE" on the touch display.

7-4 Secondary Battery Power Button

This appliance contains Secondary Battery that are only replaceable by skilled persons.

When using the machine, be sure to set the secondary battery power button off. When replacing the battery during autonomous cleaning, turn on the secondary battery power button before replacing the battery.

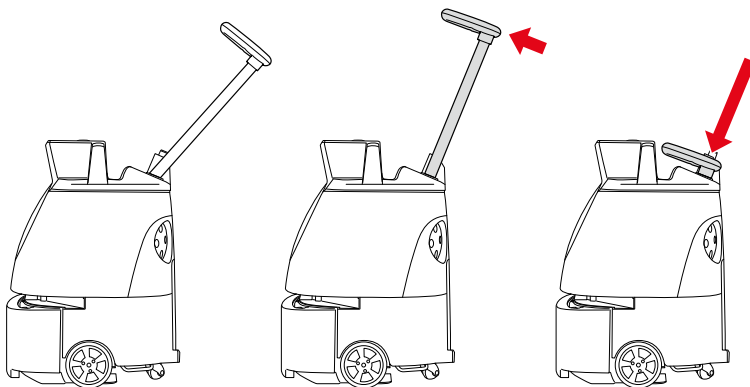
Autonomous cleaning can be continued without turning off the power. After replacement, set the secondary battery power button off.

- If not using the machine for a long time, turn off the Secondary Battery Power Button (see “P44 7-4 Secondary Battery Power Button”).
- When the secondary battery power button is off, removing the battery with the machine’s main power switch on may cause a malfunction.

7-4-1 Turning On/Off the Secondary Battery Power Button

- 1** Stow the Steering Handle (see “P53 7-9 Steering Handle”) (Fig. 7-7).

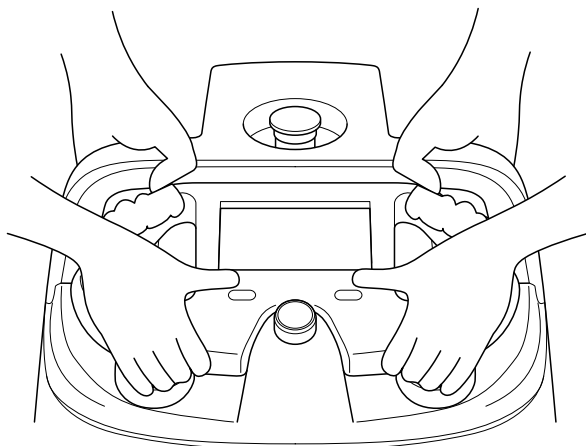
Fig. 7-7



- 2** Hold the lift handles with one hand, and hold the steering handle down with another hand (Fig. 7-8).

- Please operate with two people.

Fig. 7-8



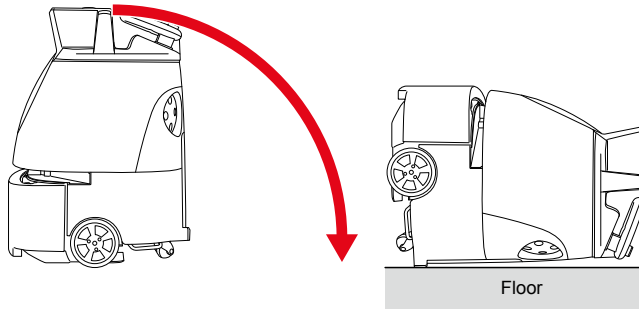
- 3** Hold the lift handles with both of your hands, gently lay the machine on its side so that the side with the dustbin is up (Fig. 7-9).



Rubber pad will support and stabilize the machine.

- Please be cautious so the handle does not stick out of the machine.
- Try to avoid letting the machine fall or turn over on its side.
- A concrete or other hard surface will scratch the machine; place the machine on carpeting or other soft and flat surface.

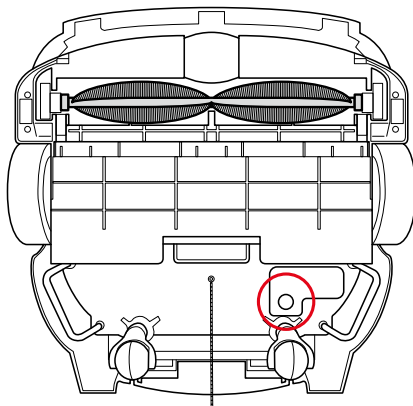
Fig. 7-9



- 4** Press the Secondary battery power button on the bottom of the machine (Fig. 7-10).

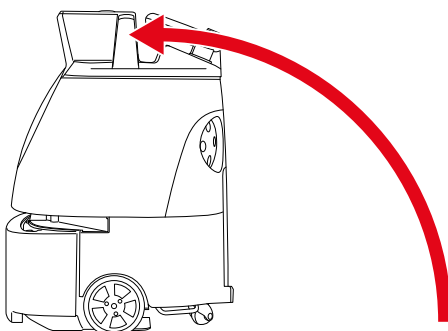
- When the Secondary battery power button is on, the button is sunken in the machine, and when it is off, the button protrudes.

Fig. 7-10



- 5** With two people, hold the lift handles by both set of hands and gently raise the machine (Fig. 7-11).

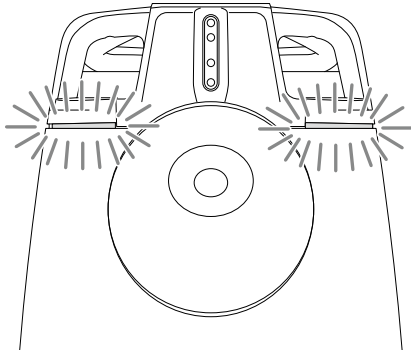
Fig. 7-11



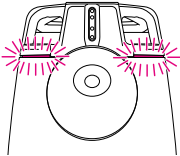
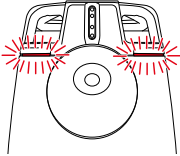
7-5 LED Lights

The LED lights notify you about the state of the machine, error information, etc. The LED lights on the front and back of the machine light in different colors and patterns (Fig. 7-12).

Fig. 7-12



Color and pattern	Appearance	Description
Lighting in each color (green → blue → orange → red → light blue)		The machine's system is starting up.
Turning around in each color (green → blue → orange → red)		The machine is shutting down.
Lit blue		Paused during autonomous cleaning.
Flashing blue rapidly for 3 seconds		Autonomous cleaning starts. Pressing the autonomous clean start/stop button causes the machine to beep.
Flashing blue slowly		Carrying out autonomous cleaning.
The left or right LED light is flashing orange rapidly		Indicating direction during autonomous cleaning. The machine turns in the direction that the LED light is flashing in. The machine beeps as it turns.
Rear LED light is flashing white		The Cliff sensor was activated during autonomous cleaning, and the machine is going backward (traveling backward).

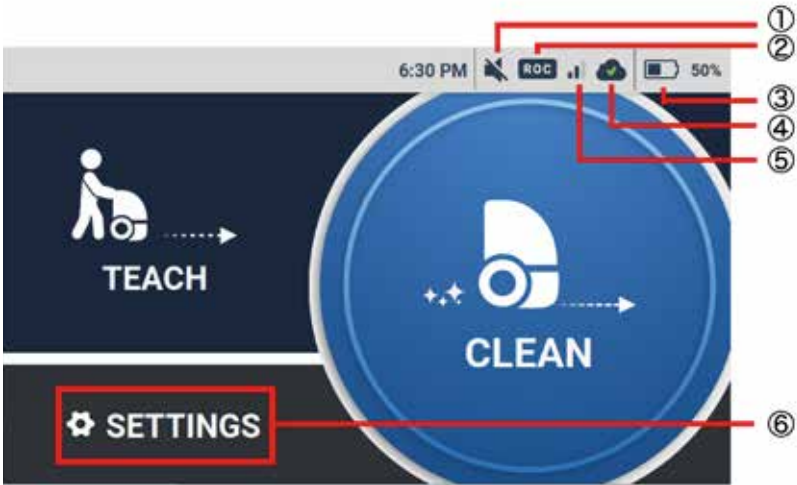
Color and pattern	Appearance	Description
Flashing bright red rapidly		Emergency stopped.
Flashing red rapidly		An alert has occurred on the machine. (For instance, this can occur if the machine has been lifted while the system is starting up)

7-6 Touch Display

You can check battery level, connection to the Robot Operations Center, error messages, and other information on the touch display. Teaching and selection of cleaning routes necessary for performing autonomous cleaning (see “P57 9 Autonomous Cleaning (Robot)”) are also done from the touch display.

7-6-1 Indications on the Touch Display

Fig. 7-13

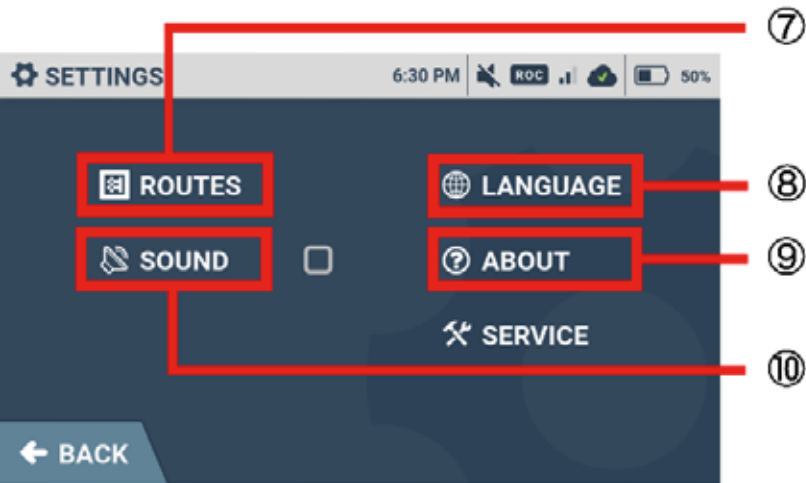


Main menu screen

No.	Item	Description						
①	Mute icon	It is displayed by turning off sounds of during autonomous cleaning on SETTINGS menu.						
②	ROC indicat	A few minutes after turning the power on, the machine automatically connects to the Robot Operations Center. If the machine is connected successfully, the ROC indicator will be displayed. <table><tr><th>ROC indicator display</th><th>Robot Operations Center (ROC) connection status</th></tr><tr><td></td><td>It is connected to Robot Operations Center (ROC)</td></tr><tr><td></td><td>It is not connected to Robot Operations Center (ROC)</td></tr></table> * To connect to the Robot Operations Center, use the machine within a communications service area for mobile phones.	ROC indicator display	Robot Operations Center (ROC) connection status		It is connected to Robot Operations Center (ROC)		It is not connected to Robot Operations Center (ROC)
ROC indicator display	Robot Operations Center (ROC) connection status							
	It is connected to Robot Operations Center (ROC)							
	It is not connected to Robot Operations Center (ROC)							
③	Battery indicator	Indicates the battery level.						

No.	Item	Description										
④	Route sync icon	Displays the status of synchronization with the Robot Operations Center (ROC) in such cases as saving or deleting cleaning routes.										
		<table><tr><th>Route sync icon display</th><th>Status of synchronization with the Robot Operations Center (ROC)</th></tr><tr><td></td><td>The cleaning route has been saved or deleted, and the machine is synchronized with the Robot Operations Center (ROC).</td></tr><tr><td> (The arrows are circling)</td><td>The machine is synchronizing with the Robot Operations Center (ROC). Cleaning routes have not been saved or deleted.</td></tr><tr><td> (The arrows pause)</td><td>The machine is not connected to the network. Synchronization with the Robot Operations Center (ROC) has been paused. Cleaning routes have not been saved or deleted.</td></tr><tr><td></td><td>It is the status of being out of synchronization with the Robot Operations Center(ROC). Cleaning routes have not saved or deleted.</td></tr></table>	Route sync icon display	Status of synchronization with the Robot Operations Center (ROC)		The cleaning route has been saved or deleted, and the machine is synchronized with the Robot Operations Center (ROC).	 (The arrows are circling)	The machine is synchronizing with the Robot Operations Center (ROC). Cleaning routes have not been saved or deleted.	 (The arrows pause)	The machine is not connected to the network. Synchronization with the Robot Operations Center (ROC) has been paused. Cleaning routes have not been saved or deleted.		It is the status of being out of synchronization with the Robot Operations Center(ROC). Cleaning routes have not saved or deleted.
		Route sync icon display	Status of synchronization with the Robot Operations Center (ROC)									
			The cleaning route has been saved or deleted, and the machine is synchronized with the Robot Operations Center (ROC).									
		 (The arrows are circling)	The machine is synchronizing with the Robot Operations Center (ROC). Cleaning routes have not been saved or deleted.									
 (The arrows pause)	The machine is not connected to the network. Synchronization with the Robot Operations Center (ROC) has been paused. Cleaning routes have not been saved or deleted.											
	It is the status of being out of synchronization with the Robot Operations Center(ROC). Cleaning routes have not saved or deleted.											
⑤	Signal strength icon	Displays the network connection status.										
⑥	SETTINGS menu	Check settings and routes for carrying out autonomous cleaning.										

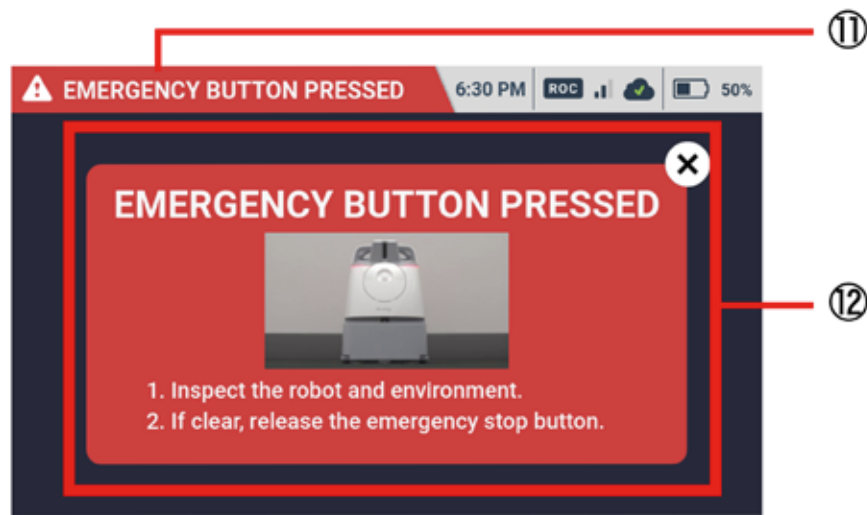
Fig. 7-14



SETTINGS screen

No.	Item	Description
⑦	ROUTES	Displays a list of Home Location Codes.
⑧	LANGUAGE	Set the language displayed on the touch display.
⑨	ABOUT	Check information such as the software version and the RIN (serial number) of the machine.
⑩	SOUND	Set the level of the sound during autonomous cleaning. When the sound is muted:  When the sound is on:  When the sound is on, move the sound adjustment button right or left to set the sound level. Tap “Play” to check the sound level that has been set.

Fig. 7-15



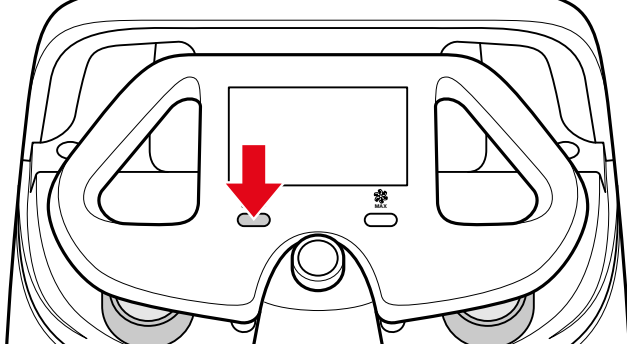
Error message screen

No.	Item	Description
⑪	Notification	Appears at the upper left of the touch display. For alerts concerning machine components, follow the instructions on the touch display to remedy problems.
⑫	Alert screen	You can check the alert by tapping on the notification in ⑪. If there are several alerts, tap ➡ to view the next alert. To delete the currently displayed alert, tap ✕

7-7 Vacuum Power Button

Press the vacuum power button to start vacuuming. Press the button again to stop vacuuming. Pressing the vacuum power button stops vacuuming in either normal mode or max power mode (Fig. 7-16).

Fig. 7-16

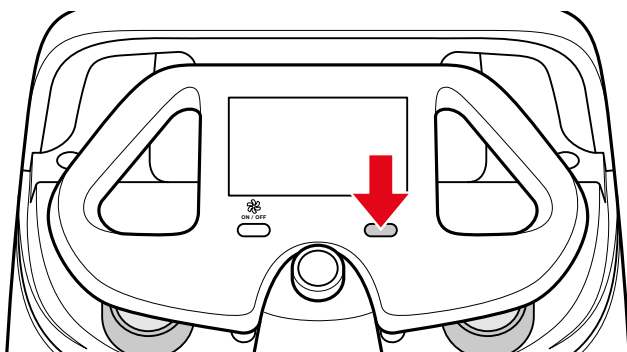


7-8 Max Power Mode Button

Press the max power mode button to change the cleaning mode from normal mode to max power mode. To clean in max power mode, check that the vacuum power button is on, and press the max power mode button. Press again to change to normal mode (Fig. 7-17).

- Use max power mode for especially dirty floors.
- Max power mode uses up much more battery than normal mode. Consider cleaning time and how long the battery will be used before using this mode.
- Either mode can be used in both autonomous cleaning/manual cleaning.

Fig. 7-17



7-9 Steering Handle

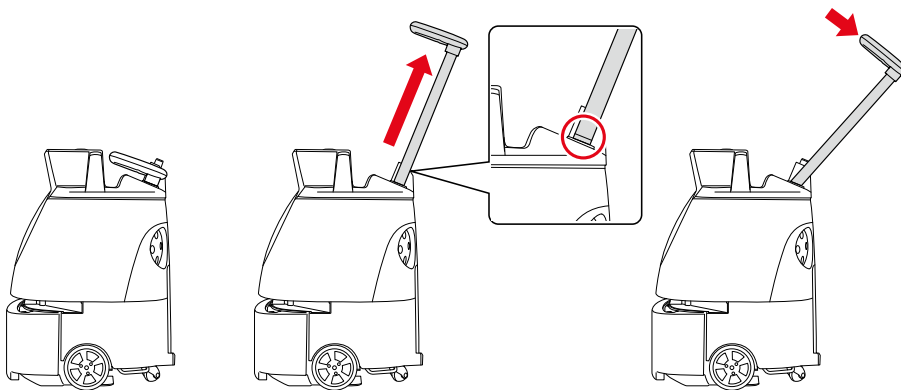
Use the steering handle to move and change the direction of the machine during manual cleaning, to teach a cleaning route, and to transport the machine. Observe the following when using the steering handle.

- Check if the steering handle is unstable (not firmly attached).
- Avoid abruptly turning with the steering handle.
- Do not lift the machine by the steering handle.
- The steering handle can be extended to move the machine even when the main power switch is off.
- Be careful not to pinch your fingers in the steering handle.
- Stow the steering handle before starting autonomous cleaning.
- Do not interact with the robot during operation while in autonomous mode.

7-9-1 Using the Steering Handle

Extend the steering handle to move the machine forward and to change directions. To extend the steering handle, hold with both hands and pull it straight up. Once the joint at the base of the steering handle is visible, lower the steering handle towards you (Fig. 7-18).

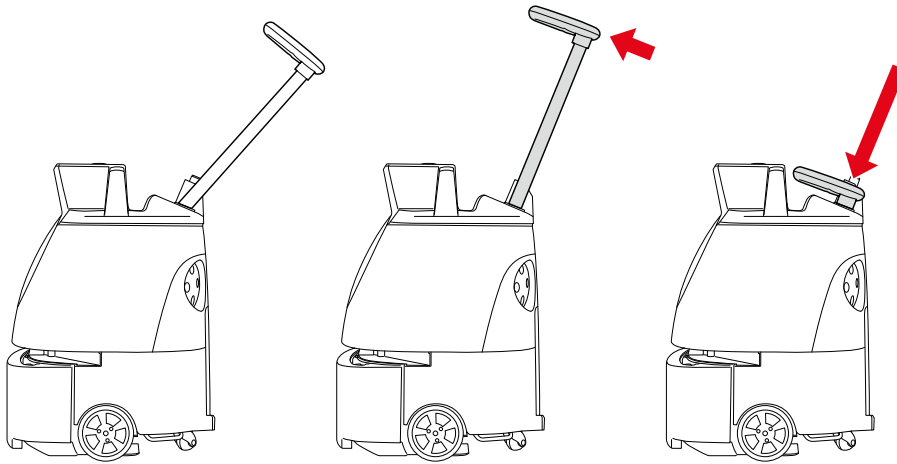
Fig. 7-18



7-9-2 Stow the Steering Handle

- To stow the steering handle, hold with both hands and raise it forward at an angle, and push it in to its original position (Fig. 7-19).
- Stow the steering handle when the machine is put away or is unused for a long time.

Fig. 7-19

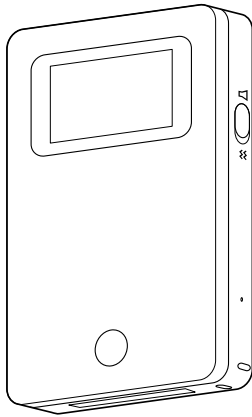


- Stowing the steering handle causes the wheels to lock. Pull the steering handle out to unlock the wheels.

7-10 Notification Pager

If the machine stops operating during autonomous cleaning or the battery becomes low, the notification pager (see “P95 11 Notification Pager”) is alerted by the machine, and the notification pager emits an alert and vibrates to notify the operator (Fig. 7-20).

Fig. 7-20



7-11 Autonomous Clean Start/Stop Button

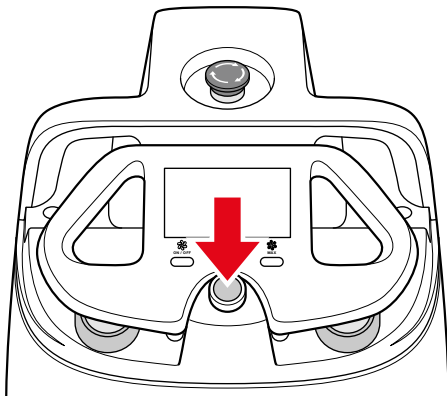
Press the autonomous clean start/stop button to start autonomous cleaning mode (see “P57 9 Autonomous Cleaning (Robot)”), pause the machine, or restart cleaning.

- The autonomous clean start/stop button is used only in autonomous cleaning mode.

■ **Start:**

Pressing the autonomous clean start/stop button starts autonomous cleaning (Fig. 7-21)

Fig. 7-21



■ **Pause:**

Pressing the autonomous clean start/stop button during autonomous cleaning pauses traveling/vacuuming of the machine.

The machine pauses traveling/vacuuming, and a message appears on the touch display (see “P48 7-6 Touch Display”) indicating the machine is temporarily paused.

■ **Resume:**

Pressing the autonomous clean start/stop button unpauses the machine, and autonomous cleaning resumes.

8 Inspection before Operating the Machine

8-1 Inspection before Operating the Machine

Before starting manual cleaning mode/autonomous cleaning mode, be sure to perform the following inspection.

8-1-1 Inspecting the Machine

- Check that the emergency stop button is not pressed.
- Check that the grounding chain on the bottom of the machine is in contact with the floor.
- Check that the secondary battery power button on the bottom of the machine is off (see “P44 7-4 Secondary Battery Power Button”).
- Check the HEPA filters, and replace with new HEPA filters if especially dirty (see “P114 13-1-2 HEPA Filters”).
- Check the hopper tray is empty (see “P119 13-1-4 Hopper Tray”).
- Check that there is no dust or dirt on the 2D/3D camera (sensor), LIDAR sensor, or Cliff sensors and wipe as required (see “P122 13-1-6 Sensors”).
 - Use the micro-fiber cloth to wipe away any dust or dirt.
 - * Do not wet any of the above sensors or the micro-fiber cloth with water.
 - Do not place any objects near the sensors.
- Check the brush for caught dust and hair, and remove as required (see “P109 13-1-1 Brush”).
- Check that the brush is attached properly.
 - If the brush is damaged/broken, replace with a new brush.
- Check that the dustbin cover, filter cover, and battery door are closed firmly.

8-1-2 Inspecting the Cleaning Area

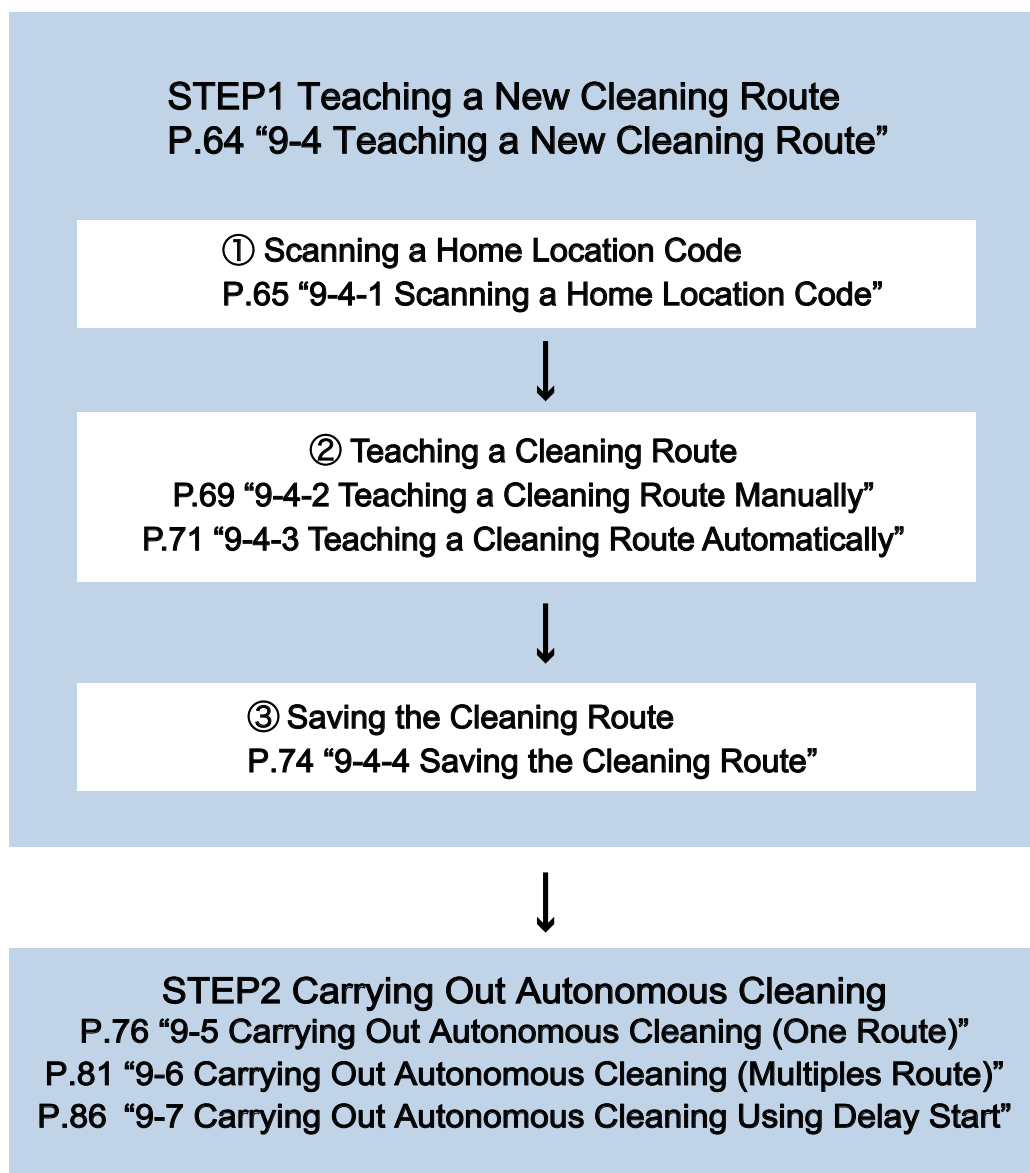
- Check that the cleaning area is an environment where cleaning is possible.
 - The machine is not water resistant. Use the machine in a dry location.

9 Autonomous Cleaning (Robot)

9-1 Overview

The machine is able to clean automatically with a saved cleaning route (autonomous cleaning mode). The autonomous cleaning mode requires first to teach a cleaning route to the machine either automatically (see “P72 9-4-3 Teaching a Cleaning Route Automatically”) or manually (see “P70 9-4-2 Teaching a Cleaning Route Manually”) and with the machine scan the Home Location Code you have created (see “P58 9-2 Home Location Codes”). Select a cleaning route you taught to start autonomous cleaning.

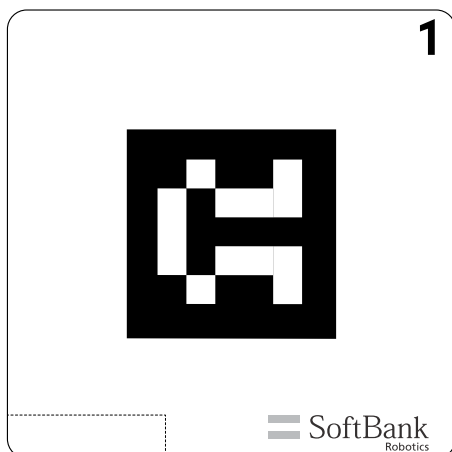
- Before carrying out autonomous cleaning, always check the inspection items before operating the machine (see “P56 8 Inspection before Operating the Machine”) and precautions when teaching cleaning routes (see “P62 9-3 Precautions when Teaching a Cleaning Route”).



9-2 Home Location Codes

Home Location Codes are markers indicating where cleaning routes start and stop (Fig. 9-1). They are used for establishing the machine's home location, and according to the size of the cleaning area, one or several Home Location Codes are used (6 cleaning routes can be saved for 1 Home Location Code). In a building with several floors, a Home Location Code specific to each floor must be placed.

Fig. 9-1

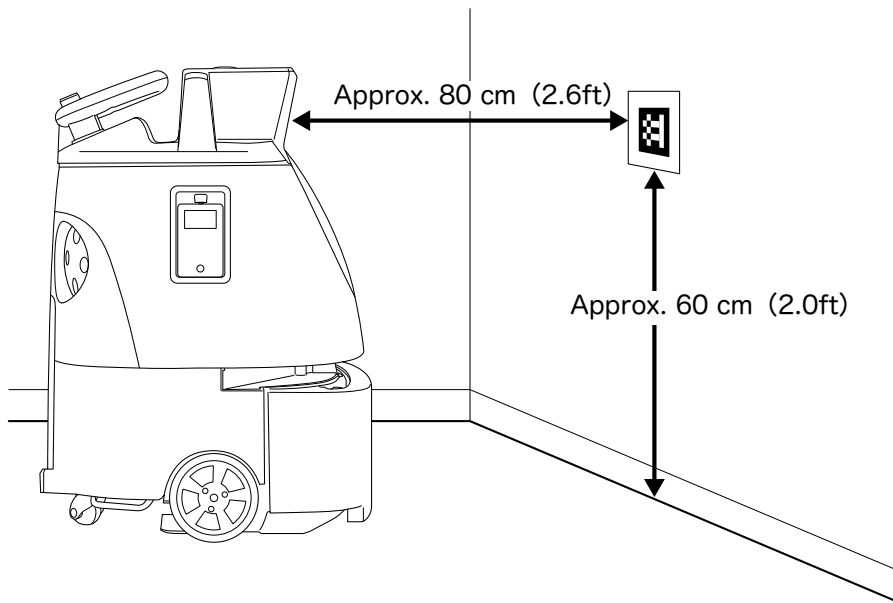


9-2-1 Locations for Placing Home Location Codes

Place Home Location Codes on walls, columns, etc. near areas that are frequently cleaned.

- The back of Home Location Codes is sticky, allowing them to be placed directly on walls, etc. Replace with new Home Location Codes if they have lost their stickiness. Depending on the wall material, the coating may peel where Home Location Codes are placed. Consult with the building manager and place Home Location Codes in appropriate locations. Do not place on walls with rough surfaces.
- Place Home Location Codes on walls, columns, etc. in a bright location and distanced approximately 60 cm (2.0 ft) from the floor and approximately 80 cm (2.6 ft) from the machine (Fig. 9-2).

Fig. 9-2



- Do not place Home Location Codes where they may be hidden, such as walls behind furniture or shelves.
- Ensure that all Home Location Codes are placed neatly in a horizontal fashion, and not in a manner that is askew; set the home location code horizontally and a little below the camera, placed in front of the machine.
- Do not place Home Location Codes in a sleeve or cover, and do not copy on them or laminate them. The machine may not be able to scan the Home Location Codes.
- Avoid locations exposed to sunlight or strong light, and set them where brightness is even.
- Leave Home Location Codes always set out. If unable to leave Home Location Codes always set out, you must place them accurately in the same positions each time you clean. If the set locations of Home Location Codes are even slightly shifted, cleaning will not be done correctly.

9-2-2 Cleaning Routes and Group Function

The machine communicates with the Robot Operations Center (ROC) and taught cleaning routes are saved to the cloud.

By assigning multiple robots to the same group on the Whiz Connect Portal*, the robots can share cleaning routes. When one robot scans the Home location code, all the robots display the same cleaning route.

Deleting cleaning routes also deletes them from the cloud. The deleted cleaning routes will no longer be displayed even if another robot in the same group scanned the Home location code.

* The Whiz Connect Portal is a portal site from where you can manage current machine activity and alerts, download activity reports, create a new group, assign a machine, and edit or delete created group names. For more details, see “Whiz Connect User Guide”.

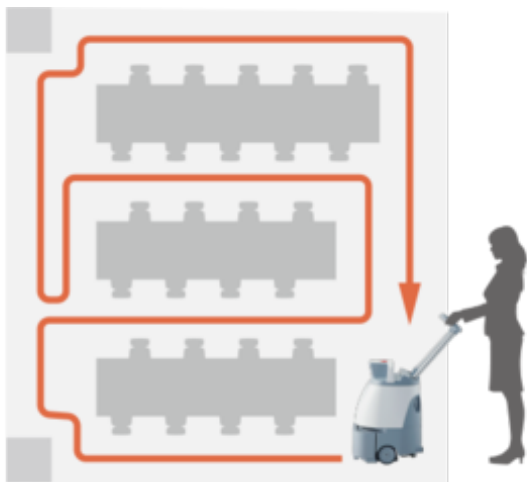
* By default, the robots are not assigned to any group.

9-2-3 Planning a Cleaning Route

Teach a route that will allow the cleaning area to be cleaned the most optimally and efficiently, taking into consideration its layout and size (area) (Fig. 9-3).

- When changing the directions (U-turn, turning right/left, etc.) during autonomous cleaning or when avoiding obstacles, this machine runs at 1.8 km/hour at maximum for safety, regardless of the speed set for the cleaning route.
- Time from start to completion of autonomous cleaning will be longer than the time required to teach the cleaning route. Consider how long the battery will last when teaching a cleaning route.

Fig. 9-3



■ Planning the Space and Frequency

It is also important to consider the environment of the cleaning area when planning a cleaning route. For example, teaching cleaning routes individually for an area that is cleaned every day (entrance or lobby to a building, corridor where people are always walking) and for a low-cleaning-frequency area only cleaned several times a month allows more effective cleaning.

When planning cleaning for a long route, check that the battery is fully charged beforehand, and take into consideration how long the machine will operate.

■ Several Areas of Differing Types

In some instances, such as in offices and schools, it is not possible to easily divide a space into cleaning zones. You should therefore check the entire cleaning area beforehand, and plan a route so that the machine can easily complete cleaning in a logical and predictable sequence.

For example, in an instance where there are several buildings to be cleaned or where there are several structures to one building (college campus, etc.), using a different Home Location Code for each floor and each structure will allow a machine to start/stop near a space where cleaning is carried out, and enable long traverses to be avoided. It is recommended to divide a cleaning area into smaller zones for easier cleaning and management where locations are spacious or have a special layout.

9-3 Precautions when Teaching a Cleaning Route

Be sure to check the following before teaching a cleaning route.

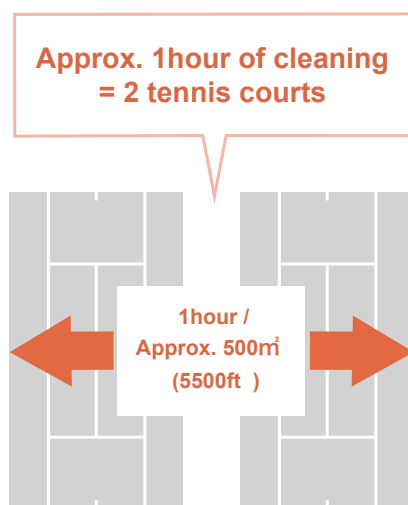
9-3-1 Machine

- Always carry out an inspection before operating the machine (see “P56 8 Inspection before Operating the Machine”).
- Do not bring the machine too close to a wall when teaching a cleaning route.
- As the machine may detect nearby people as objects, do not stand in front of the sensor, and teach cleaning routes at a time when few people are around.
- Do not use the machine where there is direct sunlight, where there is strong lighting, or near devices that emit infrared light (heaters, etc.). Doing so may affect its autonomous cleaning function.
- When teaching a cleaning route, move the machine forward. *Reverse movement will not be recognized as a cleaning route.
- The machine will push against thin mats that slide easily, and may damage the mat or brush. Remove any mats before teaching a cleaning route.
- Floors with an uneven, rough surface cannot be detected during auto cleaning. As bumpy floors may be recognized as obstacles, avoid cleaning rough-surface floors. A passageway of more than 80 cm (2.6 ft) in width is needed in order for the machine to operate autonomously at an optimum speed. *If the width of the passageway is below 80 cm (2.6 ft), the machine may recognize an obstacle and the speed may decrease or the machine may stop.
- When operating several machines, their sensors may cross-interfere with each other.

9-3-2 Cleaning Routes

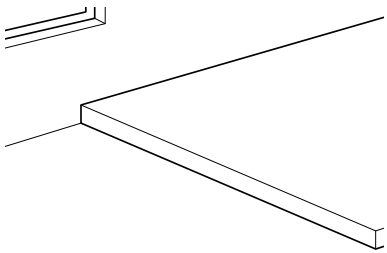
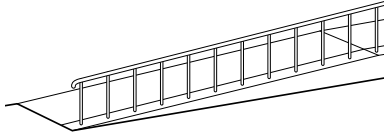
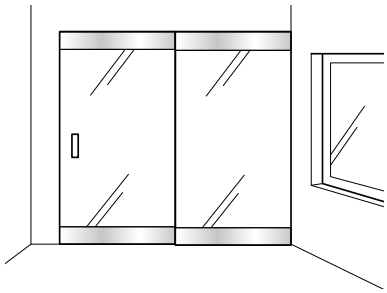
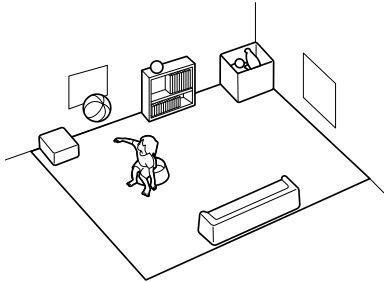
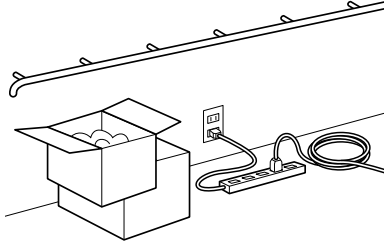
- When teaching a cleaning route, divide the area into zones using floor materials and stepped portions as boundaries.
- The recommended cleaning route area per one cleaning is about 500 m² (5500 ft²) (Fig. 9-4) when teaching a cleaning route manually (see “Teaching a Cleaning Route Manually”). A cleaning route of over 500 m² (5500 ft²) may have obstacles that could cause the machine to stop during autonomous cleaning or that could prevent the machine from saving the cleaning route.

Fig. 9-4



- Remove any obstacles, cables, etc. from the cleaning route that could be a hindrance to cleaning. If the machine detects an obstacle during autonomous cleaning and slows down/stops, it may be unable to completely clean away all dirt.

- Do not include the following locations in the cleaning route. Also, clean the obstacles in advance.

Prohibited locations for the cleaning route	Specific examples
Areas with steps higher than 1.5 cm 	· Grooves between floors, drainage lids, gratings · Around elevators, escalators or other moving platforms · Braille blocks or thick rugs
Slope 	Angled surface, etc.
Locations with reflective object 	Vicinity of automatic doors, window glass, and reflective products such as mirrors * An error may occur if autonomous cleaning is used. Perform manual cleaning.
Locations where people may suddenly jump in front of the machine 	Kids' space, etc.
Locations with an obstacle 	Decorations hanging from a wall, handrail, etc. Slippers, cables, retractable outlets, etc.

- If the cleaning area is exposed to direct sunlight or strong light, close curtains and blinds to block out light.
- Also check the sensor detection range (see "P22 3-2 Sensor Detection Range").
- For a cleaning area with objects such as pillars etc., teach a cleaning route manually.

9-3-3 Robot Operations Center (ROC)

Please check your mobile phone cellular connection in advance. Robot Operations Center (ROC) will not be connected to 4G (LTE) in an area where there is no signal. Do not include areas where the machine cannot be connected to the ROC in the cleaning area.

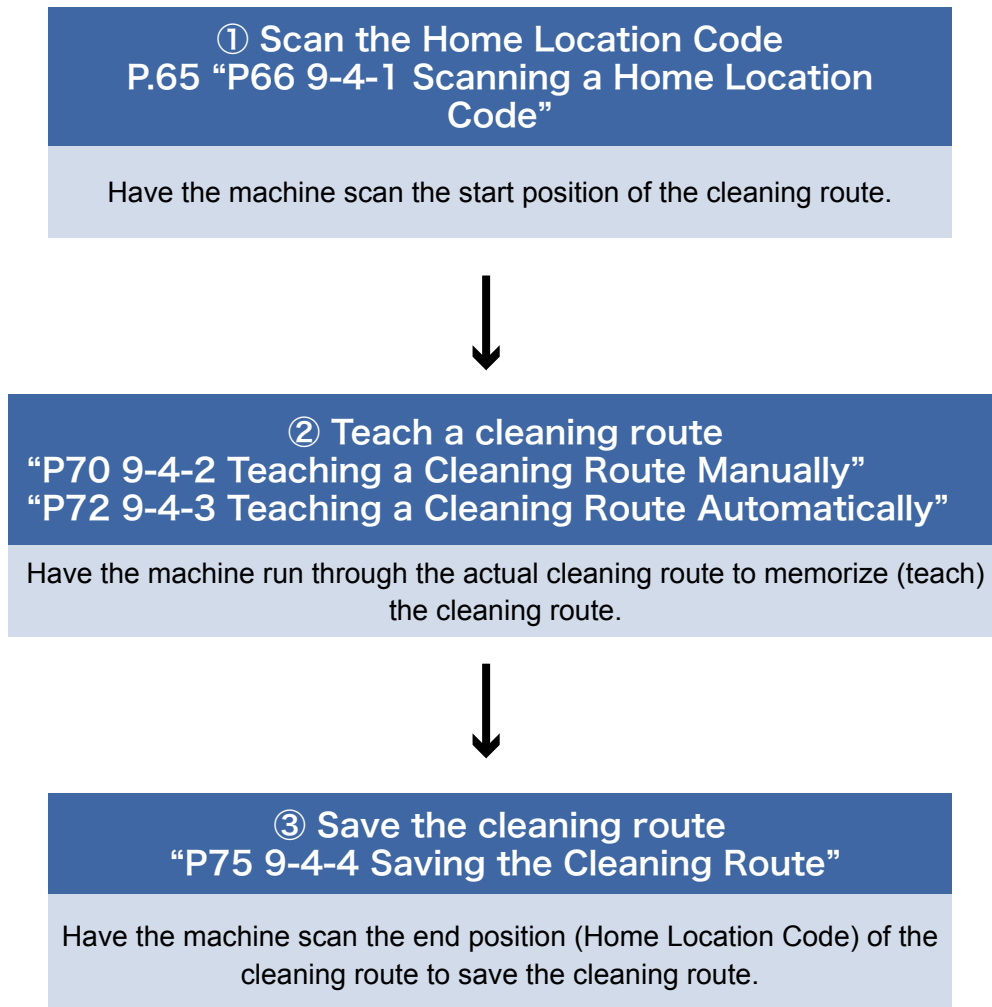
9-3-4 Notification Pager

To allow the notification pager to receive alert messages from the machine, perform pairing with the notification pager (see “P95 11 Notification Pager”).

9-4 Teaching a New Cleaning Route

The procedure for teaching a new cleaning route is described below (Fig. 9-5).

Fig. 9-5



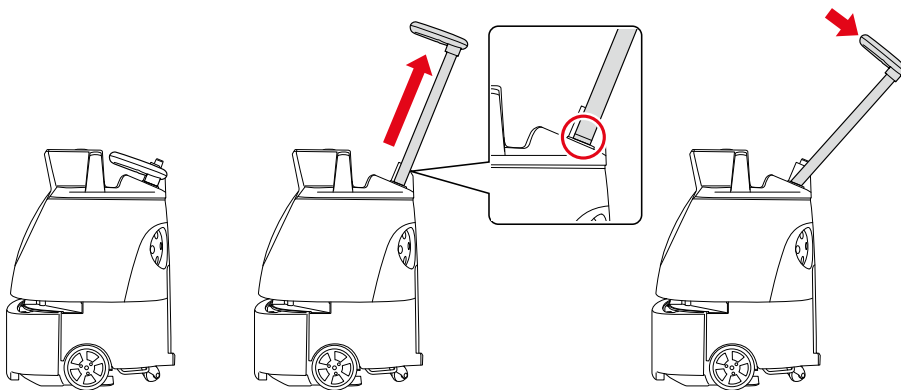
9-4-1 Scanning a Home Location Code

Home Location Codes are scanned with the camera on the front of the machine (see “P25 5 Names of Parts”).

- Move the machine to where the distance between the camera and a Home Location Code is approximately 80 cm (2.6 ft), and stop the machine so that the Home Location Code and machine are parallel. If the machine is not positioned properly, it cannot scan the Home Location Code.
- Once the machine has scanned the Home Location Code, a screen for selecting cleaning routes appears on the touch display.

- 1 Pull the steering handle up as far as it will go, and lower it towards you (Fig. 9-6).**
-

Fig. 9-6



- 2 Move the machine to the Home Location Code where cleaning is to be carried out (see “P59 9-2-1 Locations for Placing Home Location Codes”) (Fig. 9-7).**
-

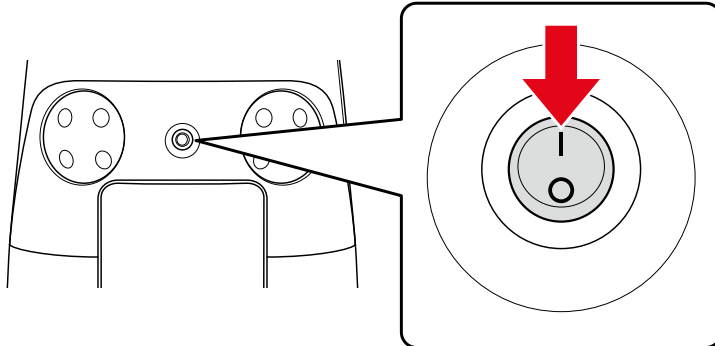
Fig. 9-7



- 3 Press the main power switch (I/O) to turn it on (I) (Fig. 9-8).

 A warning screen about escalators or other moving platforms appears on the touch screen (see “P48 7-6 Touch Display”).

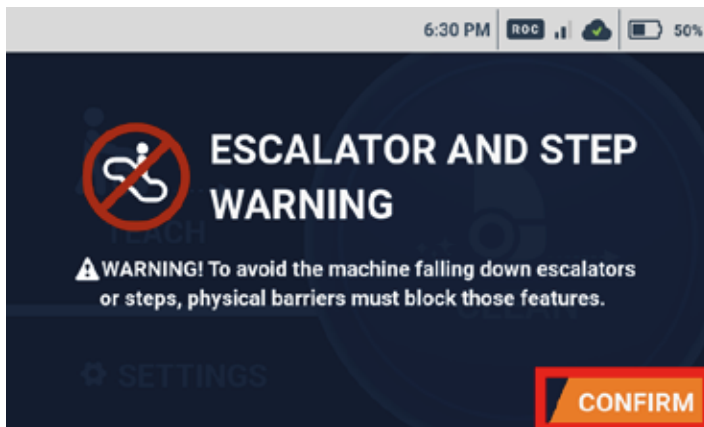
Fig. 9-8



- 4 Check the warning message and tap “CONFIRM” (Fig. 9-9).

 A screen appears on the touch display for selecting “TEACH/CLEAN/SETTINGS”.

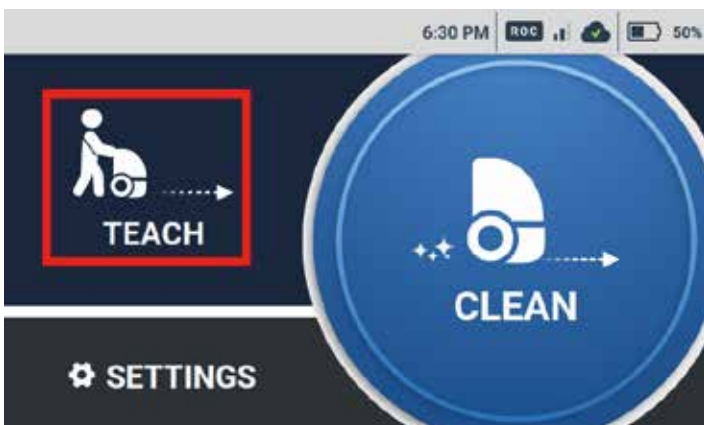
Fig. 9-9



- 5 On the touch display, tap “TEACH” (Fig. 9-10).

 Home Location Code (see “P58 9-2 Home Location Codes”) scanning screen will be displayed.

Fig. 9-10



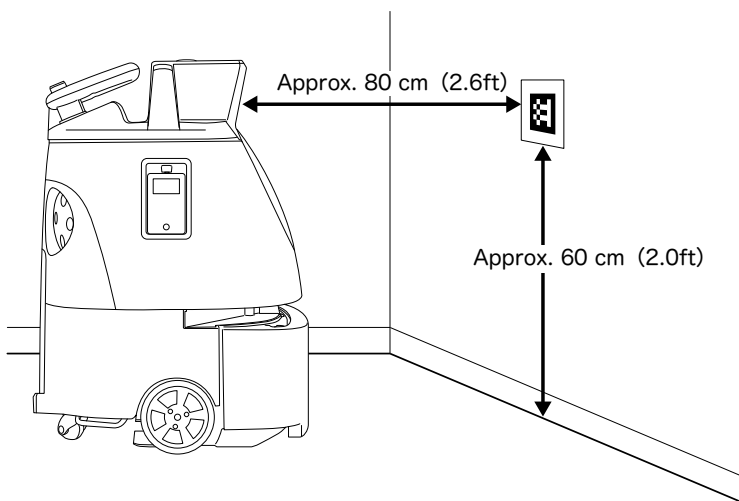
- 6** Place the machine so that the machine's sensor and the Home Location Code are parallel, and scan the Home Location Code (Fig. 9-11).

Fig. 9-11



- When the machine has scanned the Home Location Code correctly, a green frame appears. Otherwise, a red frame appears. Check that the Home Location Code is placed in the correct location (see “P59 9-2-1 Locations for Placing Home Location Codes”), or that the Home Location Code and machine are distanced about 80 cm (2.6 ft) apart (Fig. 9-12).

Fig. 9-12



- 7 Select  for where to save cleaning route (Fig. 9-13).



The selected spot is assigned to the new cleaning route.

A screen appears for checking whether there are any escalators or other moving platforms in the cleaning area.

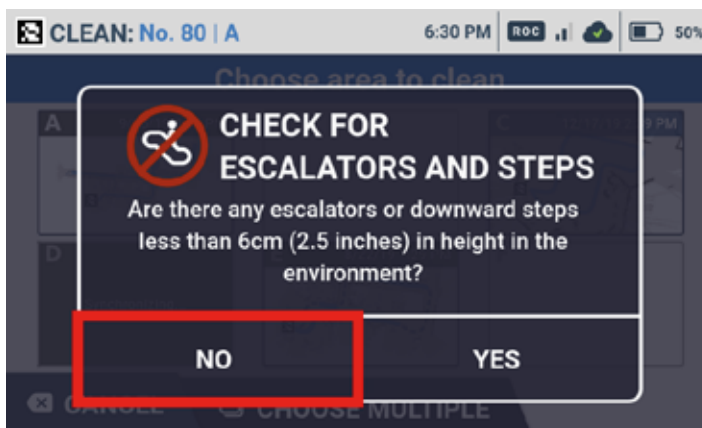
- Once the number of saved routes has reached the limit, either delete existing cleaning routes (see “P91 9-8 Deleting Cleaning Routes”), or scan a different Home Location Code.

Fig. 9-13



- 8 Check for any escalators or other moving platforms in the cleaning area and tap “NO” (Fig.9-14).

Fig. 9-14



- Tap “YES” and a barrier warning screen appears. Check the warning message and tap “CONFIRM”. Tap “CANCEL” and a cautionary screen of autonomous cleaning appears.

9-4-2 Teaching a Cleaning Route Manually

Refer to “P62 9-3 Precautions when Teaching a Cleaning Route” before teaching a cleaning route.

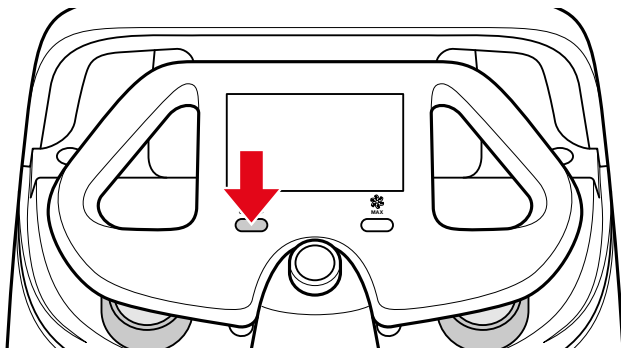
- 1 Tap “TEACH ROUTE” (Fig. 9-15).
-

Fig. 9-15



- 2 Press the Vacuum power button (see “P52 7-7 Vacuum Power Button”) (Fig. 9-16).
-

Fig. 9-16



Use max power mode (see “P52 7-8 Max Power Mode Button”) for especially dirty floors.

3 Use the steering handle to move the machine, and clean the entire cleaning route (teaching route) (Fig. 9-17).

- Changing between normal mode and max power mode (see “P52 7-8 Max Power Mode Button”) is also learned in a cleaning route.
- Teaching a cleaning route with few detours allows the machine to travel with fewer decreases in speed for more efficient cleaning.
- The speed at which the machine travels as you are cleaning along the cleaning route (teaching route) has no effect on automatic travel. Clean at your own pace, stopping to check the cleaning route, etc. as needed.
- Be sure to move the machine forward. Backward movement is not learned in a cleaning route.
- Do not lift the machine up from the floor while teaching a cleaning route.
- Do not abruptly stop other than for an emergency. Suddenly turning the machine or changing directions while teaching a cleaning route may affect teaching of the cleaning route. Make sure the machine travels in as straight a direction as possible.
- To cancel cleaning route teaching, pause the machine, and on the touch display, tap “CANCEL ROUTE”→“YES - CANCEL”.

Fig. 9-17

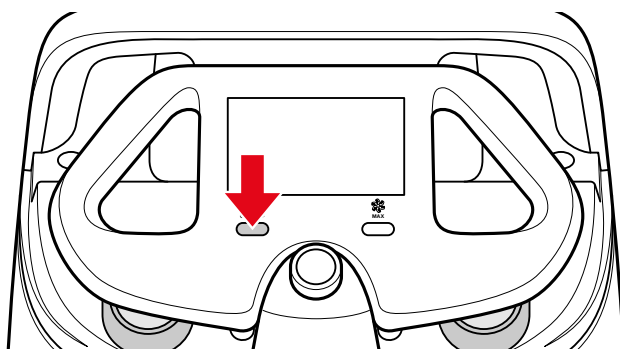


4 Press the Vacuum power button (Fig. 9-18).



Cleaning mode will turn off.

Fig. 9-18



9-4-3 Teaching a Cleaning Route Automatically

You can create a cleaning route automatically by only training the perimeter of the cleaning area (within specified limitations).

- Before teaching a cleaning route, check “P56 8 Inspection before Operating the Machine”.

1 Tap “TEACH BOUNDARY” (Fig. 9-19).

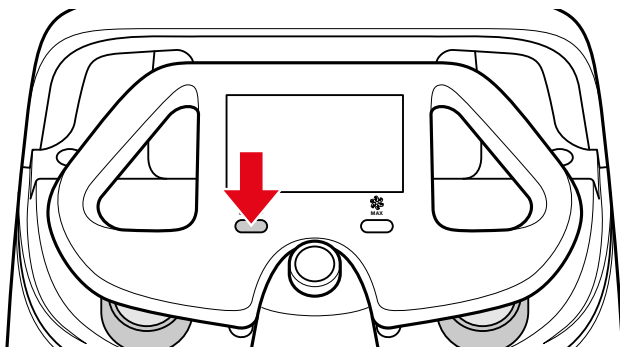
Fig. 9-19



2 Press the Vacuum power button (see “P52 7-7 Vacuum Power Button”) (Fig. 9-20).

- Use max power mode (see “P52 7-8 Max Power Mode Button”) for especially dirty floors.
- When teaching a boundary with the Vacuum power off, the entire cleaning area will be cleaned in normal mode after autonomous cleaning starts.

Fig. 9-20



3 Use the steering handle to move the machine, and clean the entire cleaning route (teaching route) (Fig. 9-21).

- Clean around the boundary once so that one side of the perimeter of the cleaning area is 10m or less and another side is 100m or less.
- Do not circle around the boundary or run the same place multiple times.
*Loops, concentric circles and other complex shapes that cross paths are not suitable to teach a boundary.
- Do not include places with obstacles such as a pillar in a cleaning area or its perimeter.
- Teach a cleaning route in cleaning mode or when carrying out autonomous cleaning (see "P76 9-5 Carrying Out Autonomous Cleaning (One Route)"). However, even when teaching is carried out in normal mode, by turning the max power mode on during autonomous cleaning (see "P52 7-8 Max Power Mode Button"), the autonomous cleaning is carried out in max power mode.

Cleaning mode of when teaching a route	Cleaning mode during autonomous cleaning
The vacuum button off	Normal mode
Switch from the vacuum button off to normal or max power mode	Normal mode or max power mode
Switch from normal to max power mode	Max power mode

* Even if cleaning mode is switched while teaching a cleaning route, once the max power mode is used, all cleaning will be performed in max power mode during autonomous cleaning.

- Changing between normal mode and max power mode (see "P52 7-8 Max Power Mode Button") is also learned in a cleaning route.
- Teaching a cleaning route with few detours allows the machine to travel with fewer decreases in speed for more efficient cleaning.
- The speed at which the machine travels as you are cleaning along the cleaning route (teaching route) has no effect on automatic travel. Clean at your own pace, stopping to check the cleaning route, etc. as needed.
- Be sure to move the machine forward. Backward movement is not learned in a cleaning route.

Fig. 9-21

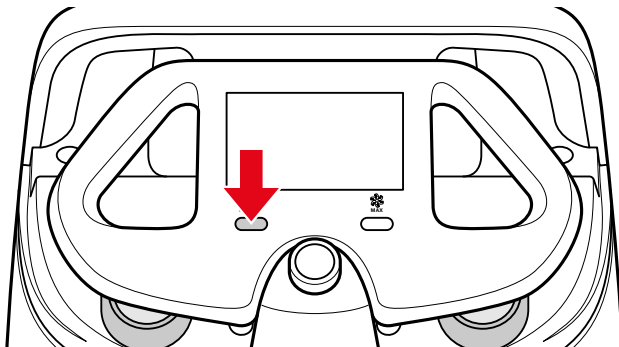


- Do not lift the machine up from the floor while teaching a cleaning route.
- Do not abruptly stop other than for an emergency. Suddenly turning the machine or changing directions while teaching a cleaning route may affect teaching of the cleaning route. Make sure the machine travels in as straight a direction as possible.
- To cancel cleaning route teaching, pause the machine, and on the touch display, tap “CANCEL ROUTE”→“YES - CANCEL”.

4 Press the Vacuum power button (Fig. 9-22).

 Cleaning mode will turn off.

Fig. 9-22



9-4-4 Saving the Cleaning Route

1 Tap “Save Route”.

2 Return to the Home Location Code (Fig. 9-23).

Fig. 9-23



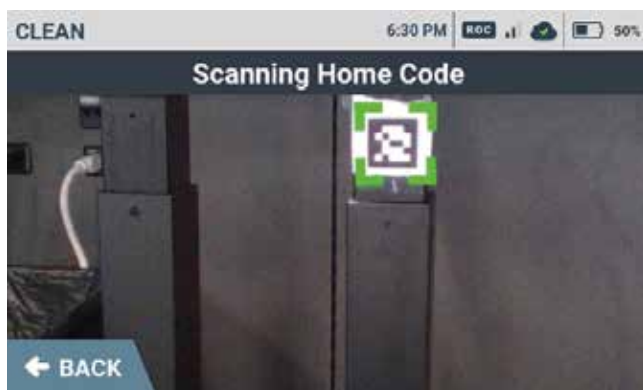
3 Scan the Home Location Code (Fig. 9-24).



The cleaning route is saved.

- The saved route appears in the “CREAN” menu.

Fig. 9-24



9-5 Carrying Out Autonomous Cleaning (One Route)

Select a previously taught cleaning route to start autonomous cleaning (see “P70 9-4-2 Teaching a Cleaning Route Manually” or “P72 9-4-3 Teaching a Cleaning Route Automatically”) and carry out autonomous cleaning. Before carrying out autonomous cleaning, always inspect the machine (see “P56 8 Inspection before Operating the Machine”).

- Once the number of saved routes has reached the limit, either delete existing cleaning routes (see “P91 9-8 Deleting Cleaning Routes”), or scan a different Home Location Code.
- To allow the notification pager to receive alert messages from the machine, perform pairing with the notification pager beforehand (see “P95 11 Notification Pager”).
- ON/OFF of the warning sound during the autonomous cleaning can be changed in the SETTINGS menu of the touch display (see “P48 7-6 Touch Display”).



WARNING

The administrator should always carry the notification pager in order to be able to respond to emergencies during autonomous cleaning. Also, be sure that the administrator always stays within 300 m (985 ft) of the machine and within two floors above and below in order to receive alerts from the machine without fail.

* The communication range is within a straight line distance of approximately 300 m (985 ft) and varies depending on the usage environment. Communication may not be possible such as where there are walls with metal.

- 1 Move the machine to a Home Location Code (see “P59 9-2-1 Locations for Placing Home Location Codes”) (Fig. 9-25).
-

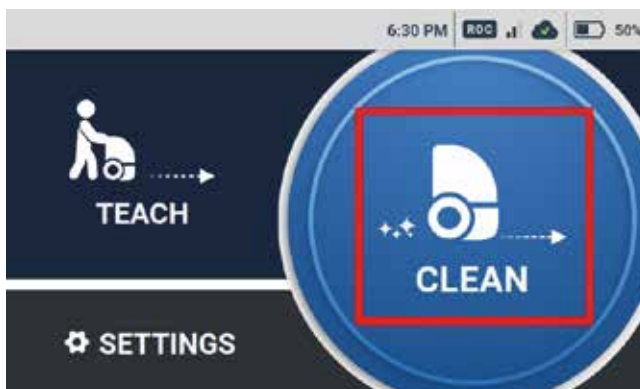
Fig. 9-25



- 2 On the touch display (see “P48 7-6 Touch Display”), tap “CLEAN” (Fig. 9-26).
-

 Home Location Code scanning screen will be displayed.

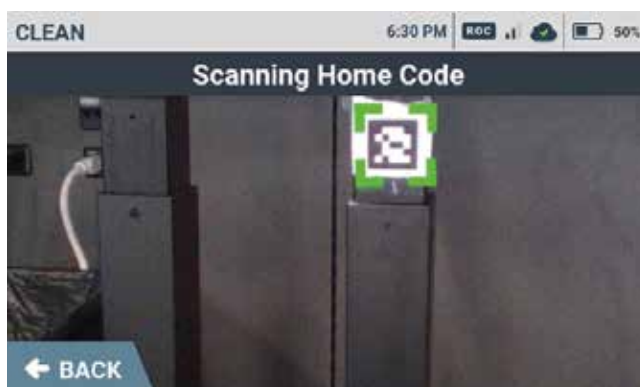
Fig. 9-26



- 3 Scan the Home Location Code (Fig. 9-27).
-

 When the Home Location Code is recognized correctly, it will turn green, and a screen for selecting a route will appear on the touch display.

Fig. 9-27

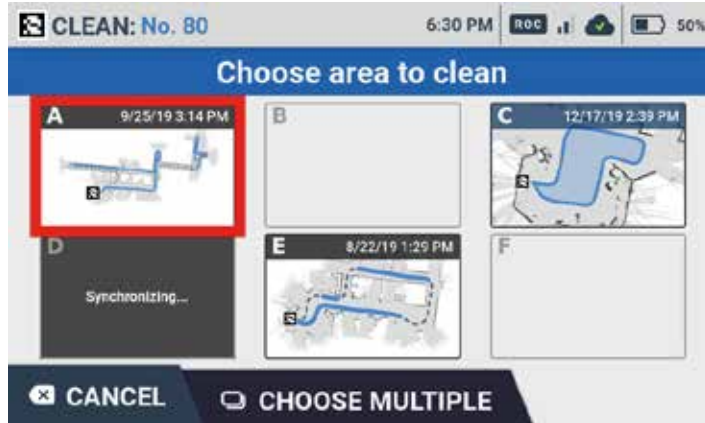


- 4 On the touch display, select cleaning ROUTE/AREA (Fig. 9-28).

 A screen appears for checking whether there are any escalators or other moving platforms in the cleaning area.

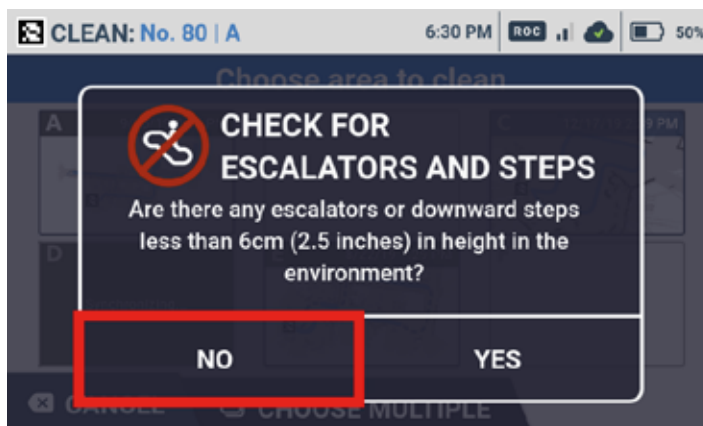
- The background color of dates is gray for teach route and is blue for teach boundary.

Fig. 9-28



- 5 Check for any escalators or other moving platforms in the cleaning area and tap “NO” (Fig. 9-29).

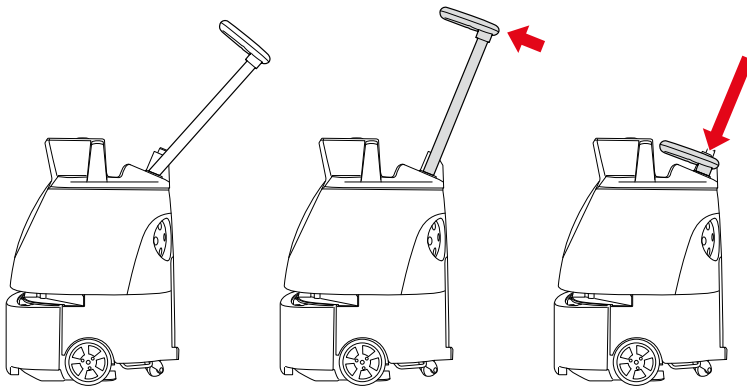
Fig. 9-29



- Tap “YES” and a barrier warning screen appears. Check the warning message and tap “CONFIRM”. Tap “CANCEL” and a cautionary screen of autonomous cleaning appears.

6 Stow the Steering Handle (Fig. 9-30).

Fig. 9-30

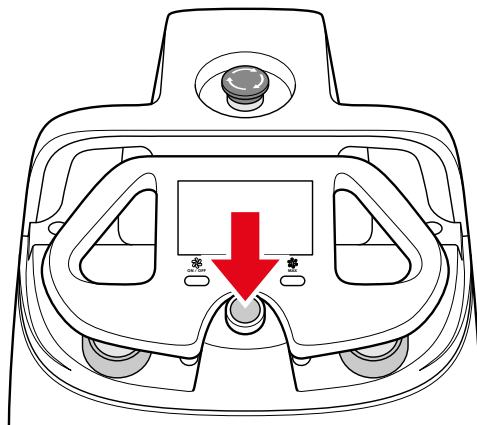


7 Remove the notification pager from the machine (see “P95 11 Notification Pager”).

8 Press the autonomous clean start/stop button (see “P55 7-11 Autonomous Clean Start/Stop Button”) (Fig. 9-31).

 **Autonomous cleaning begins.**

Fig. 9-31



- Remove the notification pager (see “P95 11 Notification Pager”) from the machine and carry it with you.
- During autonomous cleaning, the LED light indicating the direction the machine is moving in flashes orange 2 times (example: when the machine is going to turn right, the LED light on the right side will flash).
- During autonomous cleaning, the machine travels somewhat away from the edges of walls at a certain distance so as not to scratch walls, etc. Use manual cleaning to clean the edges of walls (see “P93 10 Manual Cleaning”).
- During autonomous cleaning, do not stand in front of the LIDAR sensor.

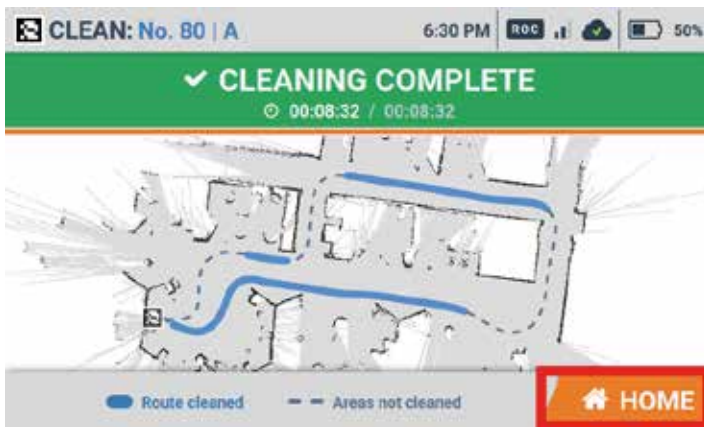
9 Check that all functions are operating properly.

- Once autonomous cleaning completes, the machine returns to the Home Location Code, and notification arrives on the notification pager.

10 The pager will notify you when cleaning is completed.

11 Check “CLEANING COMPLETE”, and tap “HOME” (Fig. 9-32).

Fig. 9-32



- After autonomous cleaning is completed, the cleaning status for cleaning route/area is displayed.
[Teach route] cleaning complete area: blue, incomplete area: white
[Teach boundary] cleaning complete area: blue, incomplete area: “- - -”
- Make sure to turn the machine off and charge the battery after use.
- For maintenance and storage after use, see “Maintenance and Safety”.

9-6 Carrying Out Autonomous Cleaning (Multiples Routes)

Select a previously taught cleaning route to start autonomous cleaning (see P63 "9-4 Teaching a New Cleaning Route") and carry out autonomous cleaning. Before carrying out autonomous cleaning, always inspect the machine (see P54 "8-1 Inspection before Operating the Machine").

- Carry out autonomous cleaning at a time with the fewest number of people passing through and the least number of objects nearby.
- To allow the notification pager to receive alert messages from the machine, perform pairing with the notification pager beforehand (see "P95 11 Notification Pager").
* Pairing is not required at every startup.
- ON/OFF of the warning sound during the autonomous cleaning can be changed in the SETTINGS menu of the touch display (see P48 "7-6 Touch Display").

- 1** Move the machine to a Home Location Code (see "P59 9-2-1 Locations for Placing Home Location Codes") (Fig. 9-33).

Fig. 9-33

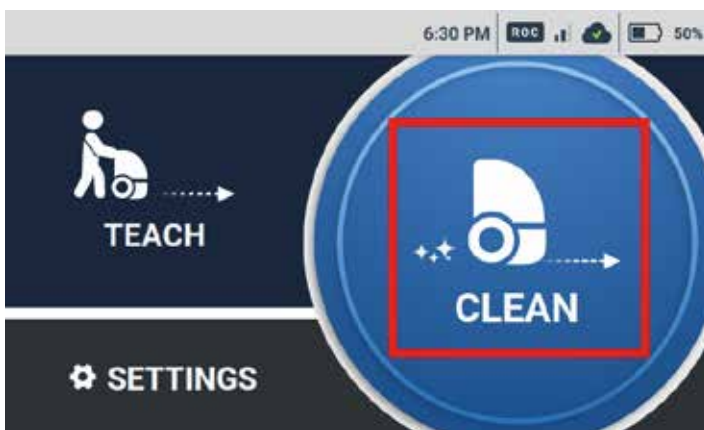


- 2** On the touch display (see "P48 7-6 Touch Display"), tap "CLEAN" (Fig. 9-34).



Home Location Code scanning screen will be displayed.

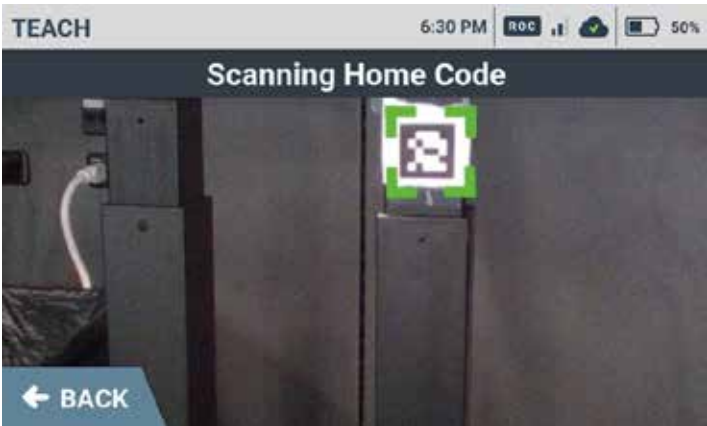
Fig. 9-34



3 Scan the Home Location Code (Fig. 9-35).

 When the Home Location Code is recognized correctly, it will turn green, and a screen for selecting a route will appear on the touch display.

Fig. 9-35



4 Tap “CHOOSE MULTIPLE” (Fig. 9-36).

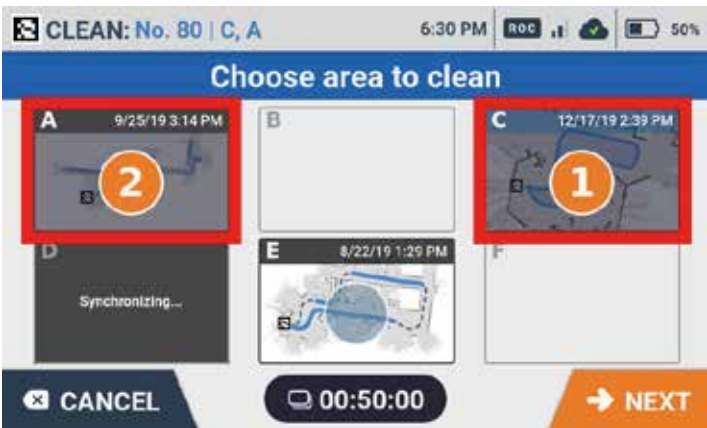
Fig. 9-36



5 Select the cleaning routes (Fig. 9-37).

- Tap the routes to select in which order you want to carry out autonomous cleaning.

Fig. 9-37



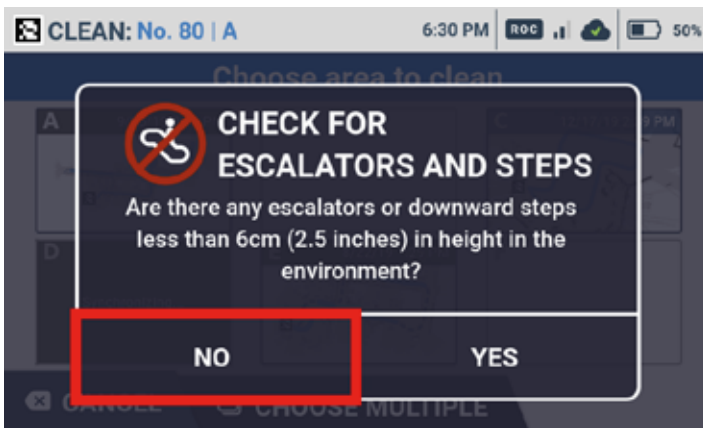
6 Tap “NEXT” (Fig. 9-38).

Fig. 9-38



7 Check for any escalators or other moving platforms in the cleaning area and tap “NO” (Fig. 9-39).

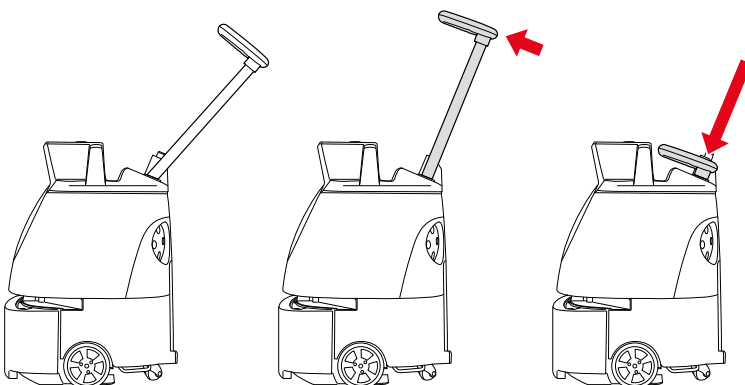
Fig. 9-39



- Tap “YES” and a barrier warning screen appears. Check the warning message and tap “CONFIRM”. Tap “CANCEL” and a cautionary screen of autonomous cleaning appears.

8 Stow the steering handle (Fig. 9-40).

Fig. 9-40

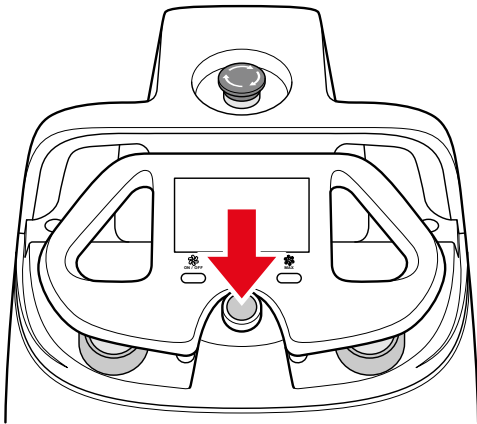


9 Remove the notification pager from the machine.

10 Press the autonomous clean start/stop button (Fig. 9-41).

 **Autonomous cleaning begins.**

Fig. 9-41



- Remove the notification pager (see “P95 11 Notification Pager”) from the machine and carry it with you.
- During autonomous cleaning, the LED light indicating the direction the machine is moving in flashes orange 2 times (example: when the machine is going to turn right, the LED light on the right side will flash).
- During autonomous cleaning, the machine travels somewhat away from the edges of walls at a certain distance so as not to scratch walls, etc. Use manual cleaning to clean the edges of walls (see “P93 10 Manual Cleaning”).
- During autonomous cleaning, do not stand in front of the LIDAR sensor.

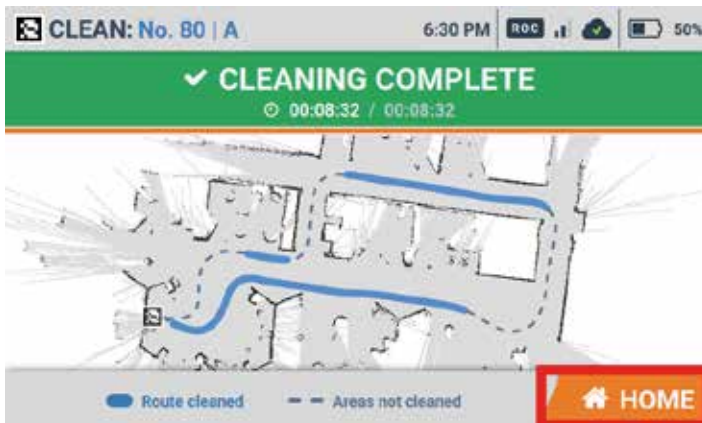
11 Check that all functions are operating properly.

- Once autonomous cleaning completes, the machine returns to the Home Location Code, and notification arrives on the notification pager.

12 The pager will notify you when cleaning is completed.

13 Check “CLEANING COMPLETE”, and tap “HOME” (Fig. 9-42).

Fig. 9-42



- After autonomous cleaning is completed, the cleaning status for cleaning route/area is displayed.
[Teach route] cleaning complete area: blue, incomplete area: white
[Teach boundary] cleaning complete area: blue, incomplete area: “- - -”
- Make sure to turn the machine off and charge the battery after use.
- For maintenance and storage after use, see “Maintenance and Safety”.

9-7 Carrying Out Autonomous Cleaning Using Delay Start

After setting the starting time of autonomous cleaning beforehand, autonomous cleaning will start automatically at the set time.

- Make sure the machine is fully charged when carrying out autonomous cleaning using Delay Start.
- Carry out autonomous cleaning as much as possible when there are few people and obstacles in the cleaning area.
- The ON/OFF setting of the warning sound during autonomous cleaning can be changed in the SETTINGS menu of the touch display (see "Touch Display").

- 1 Move the machine to a Home Location Code (see “P59 9-2-1 Locations for Placing Home Location Codes”) (Fig. 9-43).

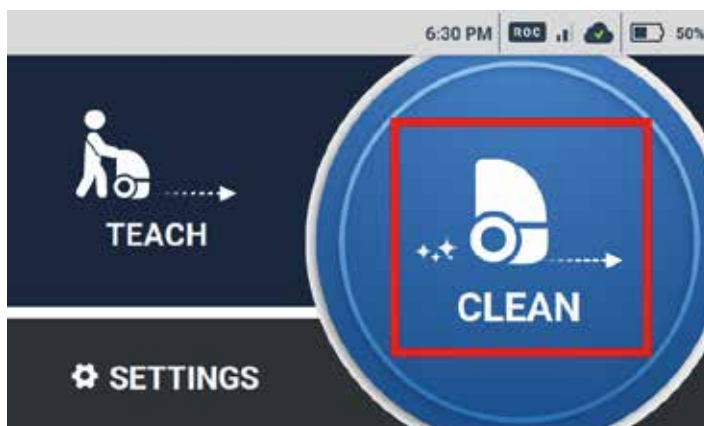
Fig. 9-43



- 2 On the touch display (see “P48 7-6 Touch Display”), tap “CLEAN” (Fig. 9-44).

 Home Location Code scanning screen will be displayed.

Fig. 9-44

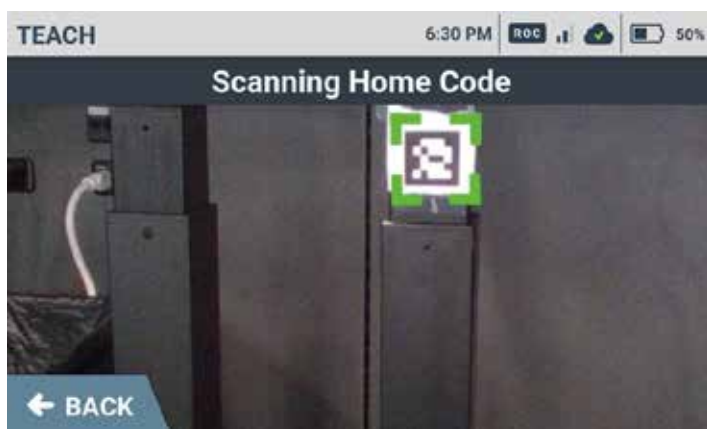


3 Scan the Home Location Code (Fig. 9-45).



When the Home Location Code is recognized correctly, it will turn green, and a screen for selecting a route will appear on the touch display.

Fig. 9-45

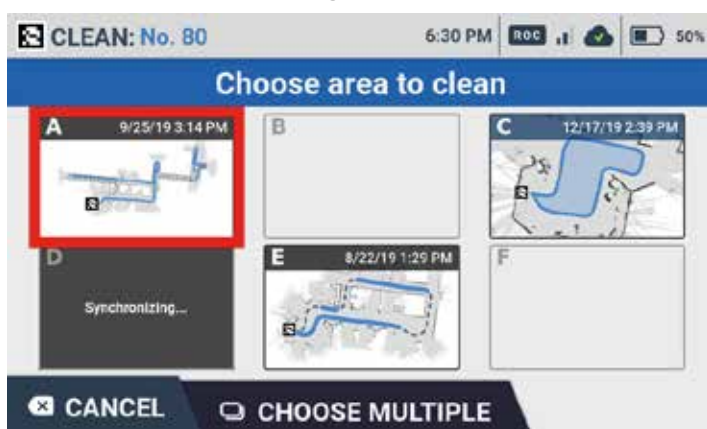


4 On the touch display, select cleaning ROUTE/AREA (Fig. 9-46).



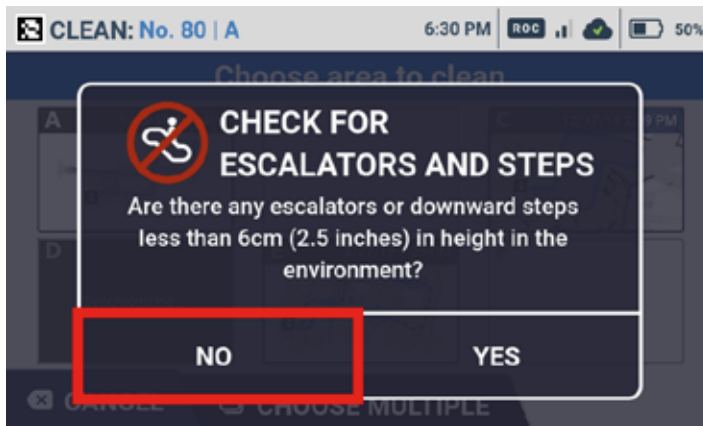
A screen appears for checking whether there are any escalators or other moving platforms in the cleaning area.

Fig. 9-46



- 5 Check for any escalators or other moving platforms in the cleaning area and tap “NO” (Fig. 9-47).
-

Fig. 9-47



- Tap “YES” and a barrier warning screen appears. Check the warning message and tap “CONFIRM”. Tap “CANCEL” and a cautionary screen of autonomous cleaning appears.

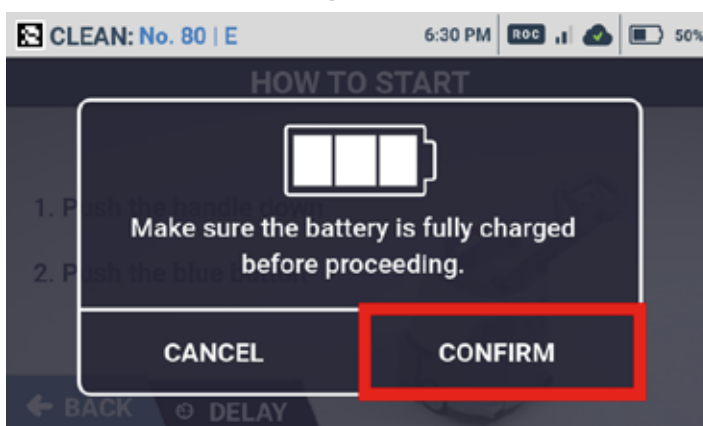
- 6 Tap “DELAY” (Fig. 9-48).
-

Fig. 9-48



- 7 Make sure the battery is fully charged and tap “CONFIRM” (Fig. 9-49).
-

Fig. 9-49

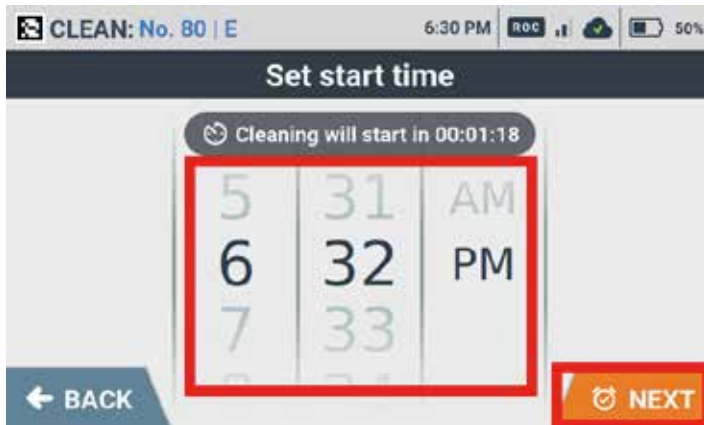


8 Set the time and tap “NEXT” (Fig. 9-50).

Scroll the digits up and down to set the desired time. The remaining time until autonomous cleaning starts is displayed after you tap “NEXT”.

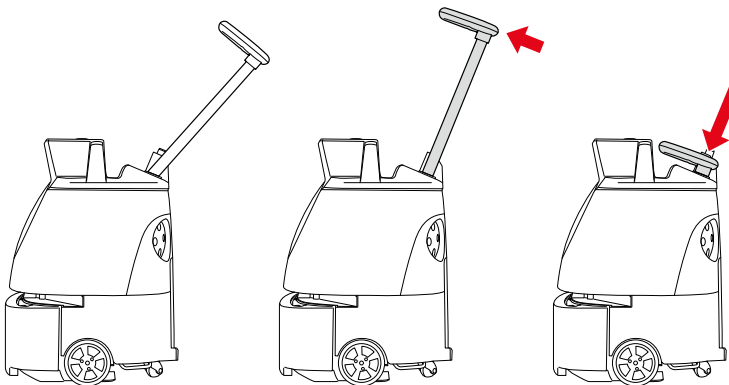
- The delayed time can be set up to 7 hours in advance.
- Autonomous cleaning starts automatically when the set time has come.

Fig. 9-50



9 Stow the Steering Handle (Fig. 9-51).

Fig. 9-51



10 Remove the notification paper from the machine

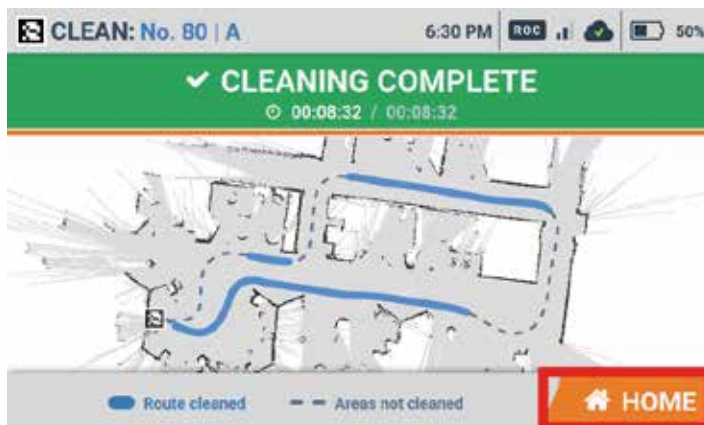
11 Check that all functions are operating properly.

- During autonomous cleaning, the LED light flashes orange twice in the direction the machine is turning. (example: when the machine is going to turn right, the LED light on the right side will flash).
- During autonomous cleaning, the machine travels somewhat away from the edges of walls at a certain distance so as not to scratch walls, etc. Use manual cleaning to clean the edges of walls (see “Manual Cleaning”).
- During autonomous cleaning, do not stand in front of the LIDAR sensor.

12 The pager will notify you when cleaning is completed.

13 Check “CLEANING COMPLETE”, and tap “HOME” (Fig. 9-52).

Fig. 9-52



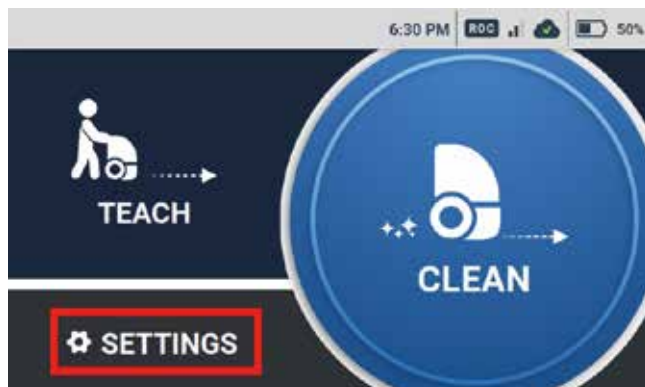
- After autonomous cleaning is completed, the cleaning status for cleaning route/area is displayed.
[Teach route] cleaning complete area: blue, incomplete area: white
[Teach boundary] cleaning complete area: blue, incomplete area: “- - -”
- Make sure to turn the machine off and charge the battery after use.
- For maintenance and storage after use, see “Maintenance and Safety”.

9-8 Deleting Cleaning Routes

- 1 On the touch display, tap “SETTINGS” (Fig. 9-53).

 The SETTINGS menu appears.

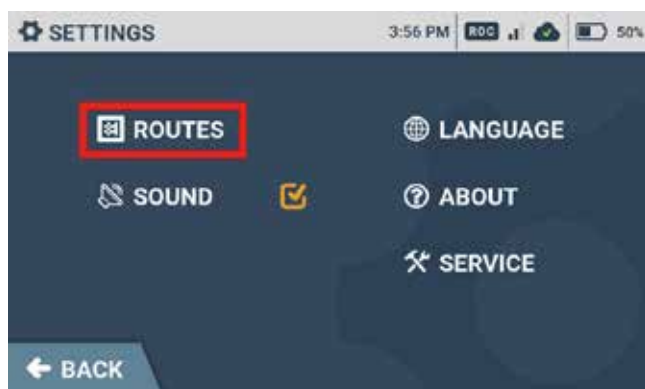
Fig. 9-53



- 2 Tap “ROUTES” (Fig. 9-54).

 A list of saved Home Location Codes appears.

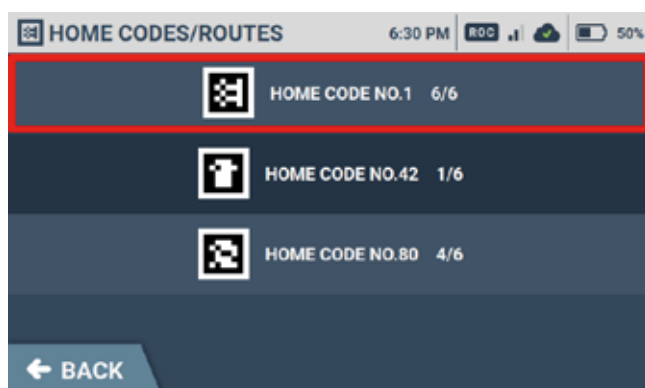
Fig. 9-54



- 3 Select the Home Location Code with ROUTE/AREA to delete (Fig. 9-55).

 A list of cleaning routes appears.

Fig. 9-55



4 Select cleaning routes/areas to delete (Fig. 9-56).

 The selected cleaning routes/areas are checked.

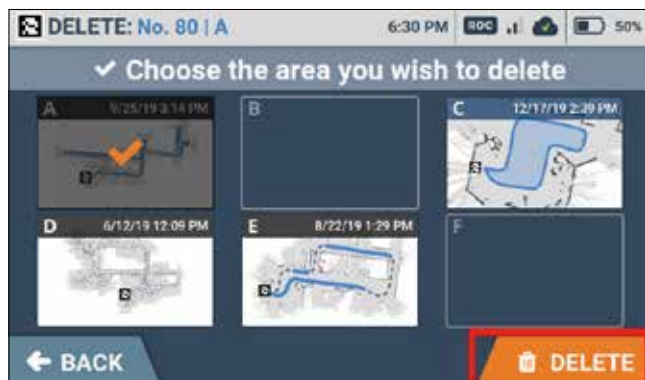
Fig. 9-56



5 Tap "DELETE" (Fig. 9-57).

 The confirmation is displayed.

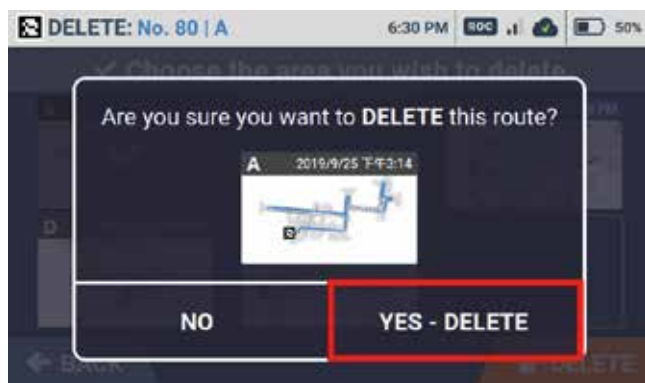
Fig. 9-57



6 Tap "YES-DELETE" (Fig. 9-58).

 The selected cleaning routes/areas are deleted.

Fig. 9-58



10 Manual Cleaning

Clean by operating manually. In areas along a wall or the like, that cannot be cleaned autonomously, clean in manual mode.

10-1 Manual Cleaning

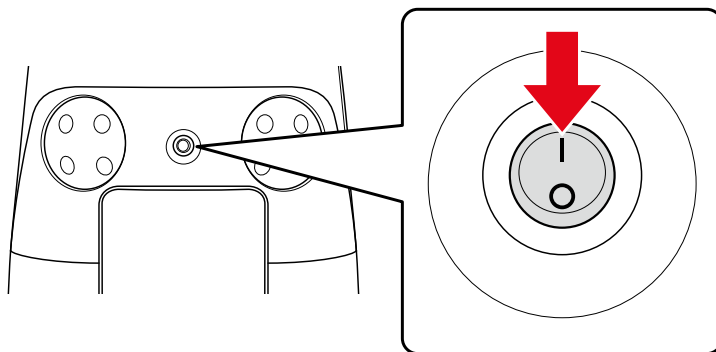
Before carrying out manual cleaning, be sure to check “Inspection before Operating the Machine”

- 1 Press the main power switch (I/O) to turn it on (I) (Fig. 10-1).



A warning screen about escalators or other moving platforms appears on the touch screen (see “P48 7-6 Touch Display”).

Fig. 10-1

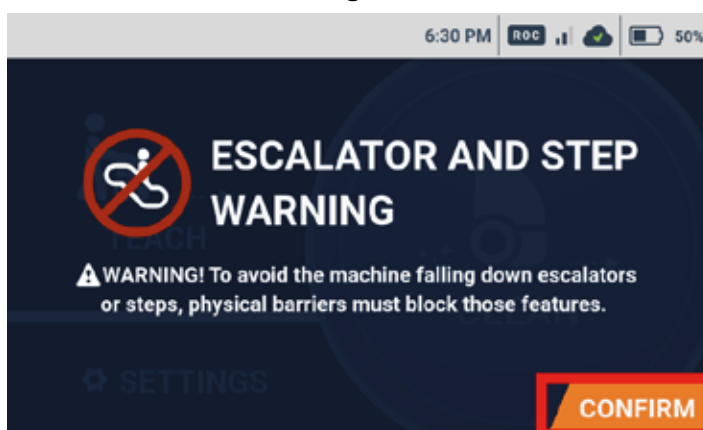


- 2 Check the warning message and tap “CONFIRM” (Fig. 10-2).



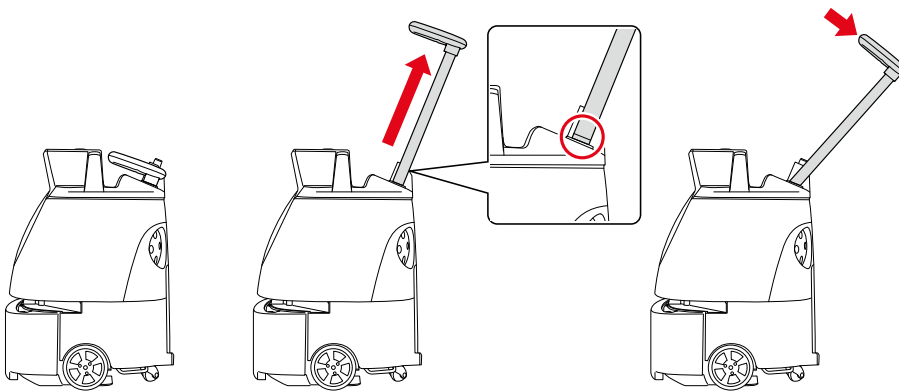
A screen appears on the touch display for selecting “TEACH/CLEAN/SETTINGS”.

Fig. 10-2



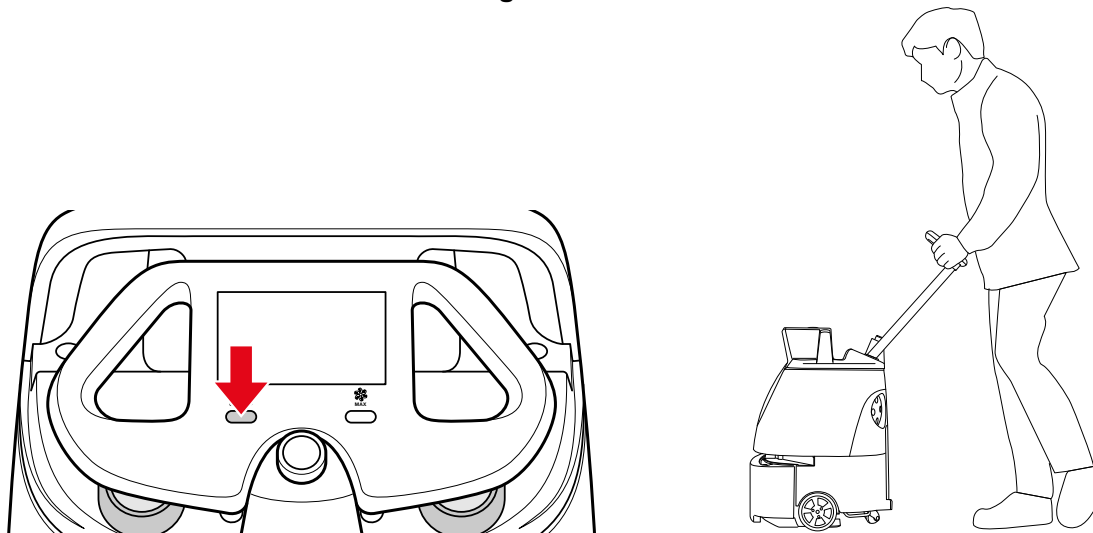
- 3 Pull the steering handle up as far as it will go, and lower it towards you (Fig. 10-3).**

Fig. 10-3



- 4 Use the vacuum power button (“P52 7-7 Vacuum Power Button”) and max power mode button (“P52 7-8 Max Power Mode Button”) to start cleaning (Fig. 10-4).**

Fig. 10-4



- The machine is designed to be moved forward to clean floors; do not move the machine backward.
- During cleaning, do not bring the machine near slopes, platforms, elevators/escalators, or other obstacles.
- Contact the administrator immediately if the machine is damaged or is operating abnormally (such as vacuum failure or a sound of an air leak).

11 Notification Pager

■ FCC Compliance Statement

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

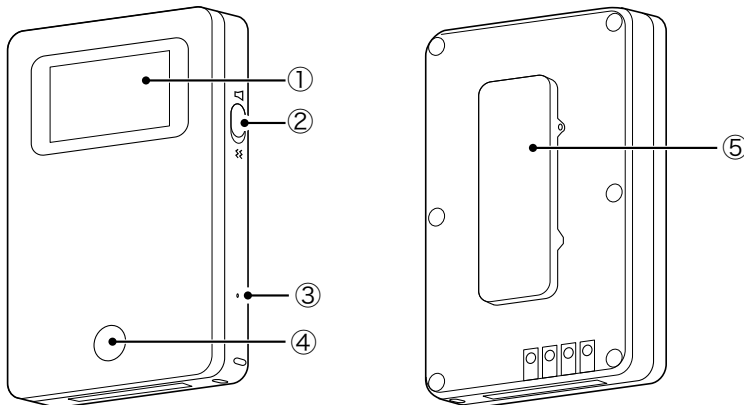
This pager device (FCC ID: 2AT19-P00000401A01) is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set an SAR limit for an occupational/controlled environment of 0.4 W/kg, as averaged over the whole body, and a peak spatial average SAR of 8 W/kg, averaged over any 1 gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the body is 0.06 W/kg. This device was tested for typical body-worn operations with a separation of 10mm from the body. To maintain compliance with FCC radio frequency exposure requirements, use accessories that maintain a 10mm separation distance between the user's body and the back of the pager. The use of belt clips, holsters, and similar accessories that contain metallic components in their assembly should be avoided, as use of such accessories might not comply with FCC exposure requirements.

11-1 Notification Pager Functions

Notification pager will notify the operator (Sound/Vibration) when irregular occur during autonomous cleaning or when the machine encounters obstacles (Fig. 11-1). When using the notification pager for the first time, please take the pager out of the battery box and charge the pager. (see “P103 11-4 Recharging the Notification Pager”).

- Notification pager can only be used during autonomous cleaning.

Fig. 11-1

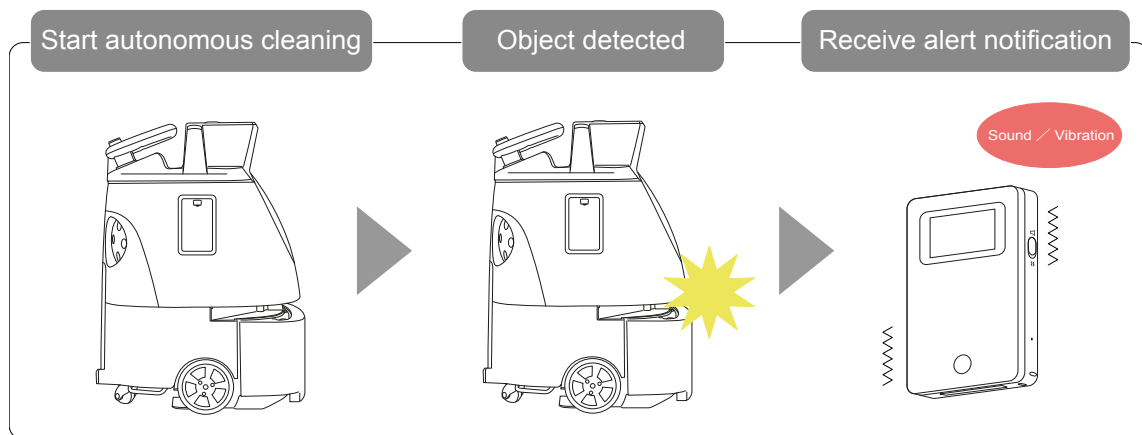


No.	Name	Description
①	Display	The battery level icon and mute icon appear at the left of the display, and alerts appear at the right of the display. (see “P98 11-1-2 Alert Display and its Notification Timing”)  Battery level icon Mute icon Alert screen
②	Pager mute switch	To set the notification pager only to vibrate for alert notifications, set the pager mute switch on.
③	Power button	Use the given pin to turn the power On for the Notification Pager.
④	Pager main button	To stop the alert and vibration, press the pager main button.
⑤	Clip	Use the clip when placing the notification pager in your pocket, etc.

11-1-1 Notification Pager Functions & Usage

- When the notification pager detects danger upon encountering an obstacle, an alert appears on the notification pager display (see “P98 11-1-2 Alert Display and its Notification Timing”), and it is notified with sound and vibration (Fig. 11-2). The sound and vibration last for 15 seconds and pause for 5 seconds, which is repeated for 10 minutes. When the error is resolved, the alarm sounds for 1 second, and “Standby” (normal) appears on the notification pager display.
- To receive the alert notification, pair the machine with the notification pager (see “P101 11-3 Pairing the Notification Pager”). Once the display on the notification pager indicates communication, place it in the pager compartment to complete pairing.

Fig. 11-2



- During autonomous cleaning, always carry the notification pager on you. Alerts cannot be received while the notification pager is in the pager holder.
- The range in which the notification pager can communicate with the machine is a direct line up to 300 m (985 ft) (2 floors above and below).
 - * Range of communication depends on the environment. Communication may not be possible such as where there are walls with metal.
- After using the notification pager, place it in the notification pager charger (see “P103 11-4 Recharging the Notification Pager”).
- If the notification pager won't be used for a long period of time (approx. 2 months) turn the switch Off (see “P99 11-2 Turning the Notification Pager On/Off”).

11-1-2 Alert Display and its Notification Timing

Appearing on display	Description	Appearing on display	Description
	Standby (within the communication range/paired)		Autonomous cleaning complete
	Machine battery level low		No machine battery remaining
	Dustbag full		Connected for wireless communication
	Connection for wireless communication not possible (outside communication range/not paired)		Error alert • When danger has been detected near obstacles or steps • When the emergency stop button has been pressed • When the machine goes off path during the operation

11-2 Turning the Notification Pager On/Off

When using the notification pager for the first time, use the supplied pin to turn the power On.

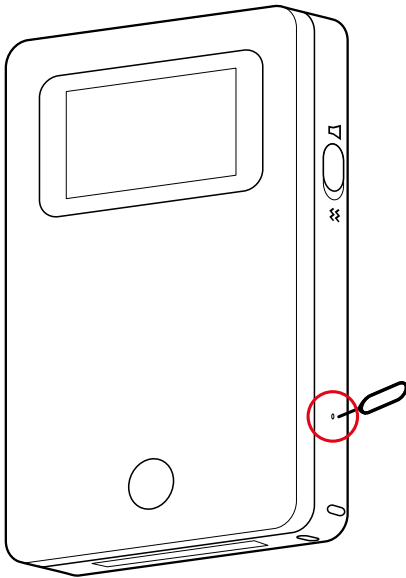
11-2-1 Turning the Notification Pager On

- 1 Insert the supplied pin in the power button on the side of the notification pager (Fig. 11-3).

Keep the inserted pin pressed until the notification pager vibrates.

 An icon appears on the display.

Fig. 11-3



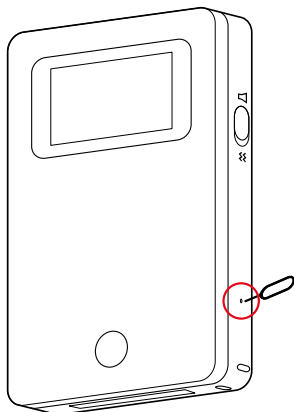
11-2-2 Turning the Notification Pager Off

- 1 Insert the supplied pin in the power button on the side of the notification pager (Fig. 11-4).
-



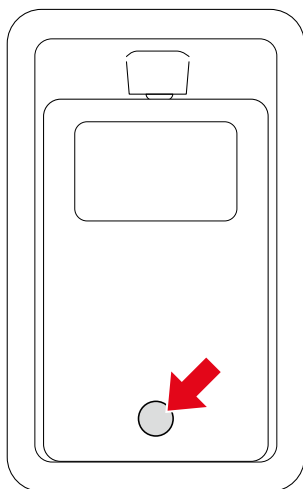
The display turns off.

Fig. 11-4



- 2 Press the pager main button, and check that nothing appears on the display (Fig. 11-5).
-

Fig. 11-5

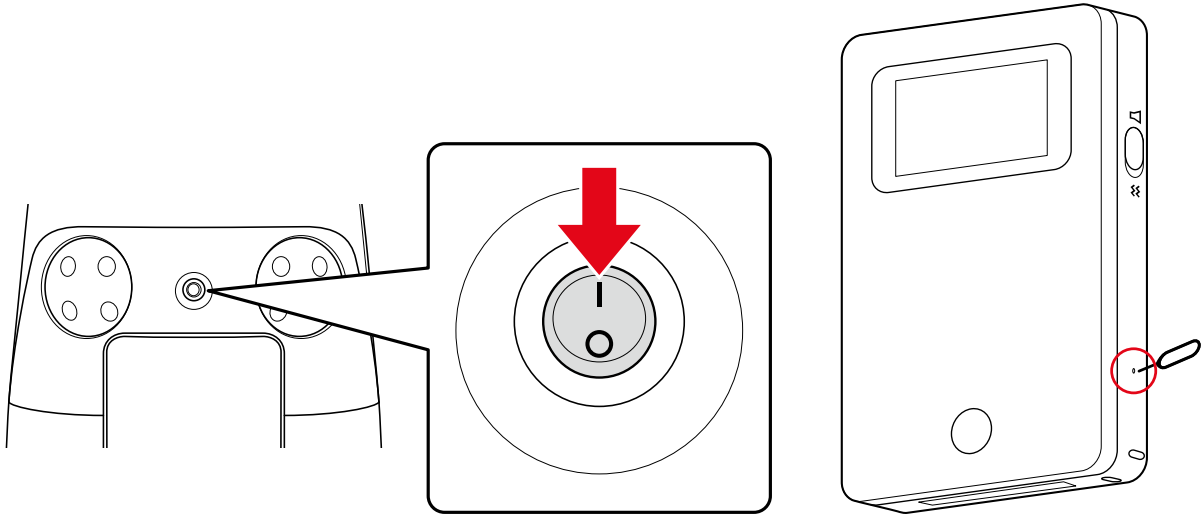


11-3 Pairing the Notification Pager

In order to receive the alerts on the notification pager, the pager must be paired with the machine itself.

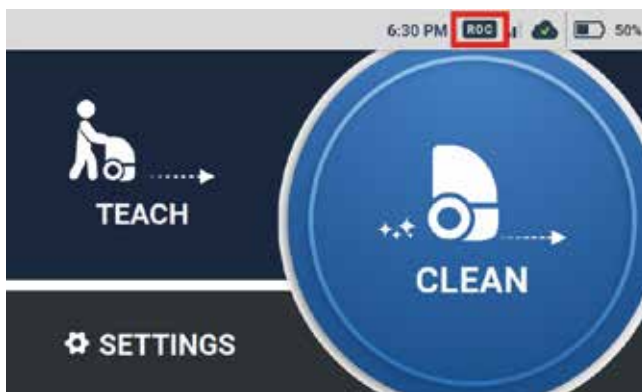
- 1 Turn On the notification pager and the machine (Fig. 11-6).

Fig. 11-6



- 2 Check if the machine is connected to the Robot Operations Center (ROC) (Fig. 11-7).

Fig. 11-7

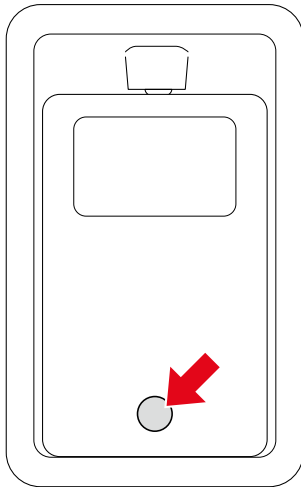


- Please check your mobile phone cellular connection in advance. Robot Operations Center (ROC) will not be connected to 4G (LTE) in an area where there is no signal.
- The connection status to the ROC will be shown by the ROC indicator on the display (see “P48 7-6 Touch Display”)

- 3 Press the button on the notification pager for at least 5 seconds (Fig. 11-8).**
-

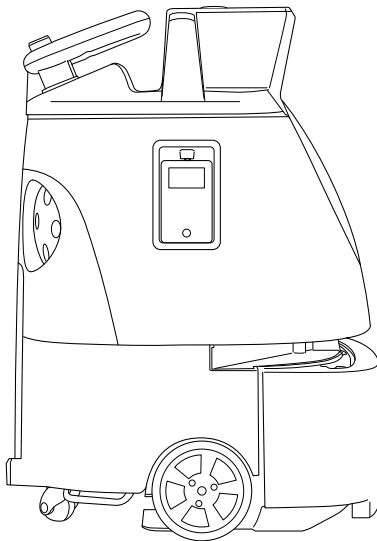
 The message “Wireless connection in process”  will be shown on the pager's display.

Fig. 11-8



- 4 Attach the pager onto the pager holder on the side of the machine (Fig. 11-9).**
-

Fig. 11-9



- Carry out autonomous cleaning and check if you will receive the alerts (see “P76 9-5 Carrying Out Autonomous Cleaning”).

11-4 Recharging the Notification Pager

If notification pager battery is running low, charge the pager fully before using it.

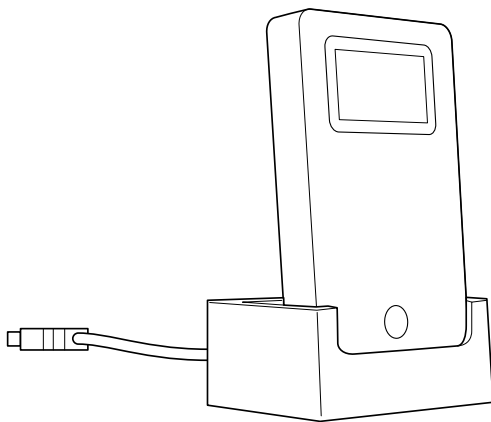
1 Insert the Micro USB plug to the cable in the terminal on the back of the notification pager charger.

2 Connect the USB plug to the cable in USB AC adapter, and plug the adapter into an outlet.

The customer must purchase a USB AC adapter themselves.

3 Place the notification pager in its charger (Fig. 11-10).

Fig. 11-10



- An AC adapter is not included in the product package. The customer must use their own AC adapter.
- Press the pager main button, and if the fully charged mark  appears on the display, it has completed charging.
- About 2.5 hours are required to fully recharge.

12 Machine Battery; Recharging the Machine's Battery

12-1 About Battery and Recharging

- The battery operates for about 3 hours when cleaning in normal mode.
- About 4 hours are required for the battery to fully recharge.
- Use only batteries designed for the machine.
- Use only a power cable that came with the machine and is intended for use in your country. Do not use any other power cable.

12-2 Recharging the Battery

Before using the machine, set the main power switch on the machine off, remove the battery, and recharge the battery in the battery charger.

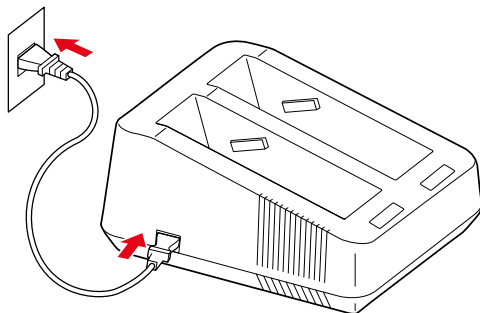
When replacing the battery during autonomous cleaning, turn the secondary battery power button (see "P44 7-4 Secondary Battery Power Button") on. After the battery is replaced, turn the Secondary battery power button off.



As a safety precaution, always use both hands when removing/installing the battery or inserting/removing it from the battery charger. Doing so with only one hand may allow it to drop, which is very dangerous.

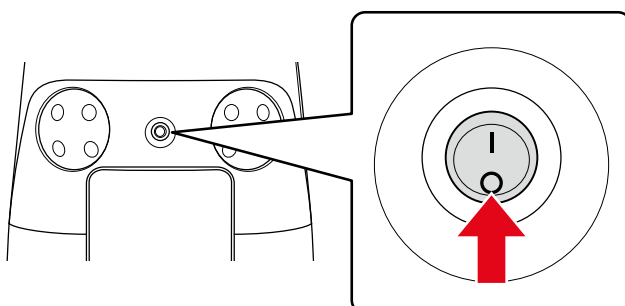
- 1** Connect the power cable for the battery charger to the battery charger, and connect the power plug to an outlet (Fig. 12-1).

Fig. 12-1



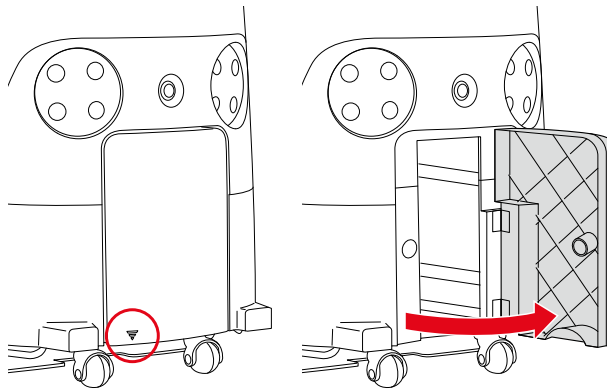
- 2** Press the main power switch (I/O) to set it off (O) (Fig. 12-2).

Fig. 12-2



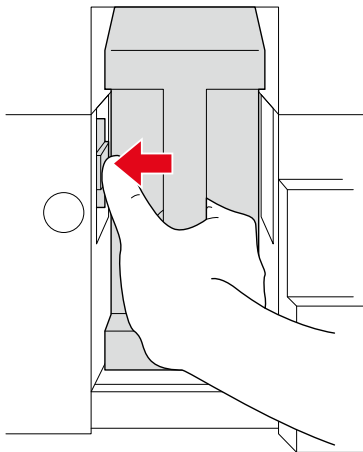
- 3** Pull the bottom left of the battery door towards you to open (Fig. 12-3).
-

Fig. 12-3



- 4** Hold the grip on the battery in your right hand, and press the battery lock with your thumb (Fig. 12-4).
-

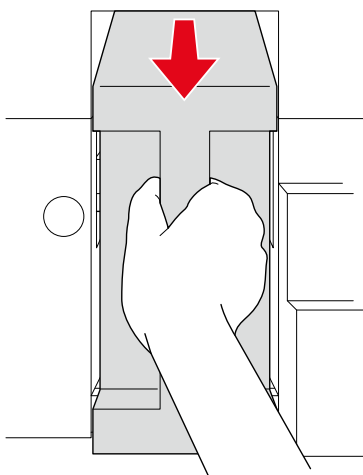
Fig. 12-4



- 5** Pull the battery out towards you as you release your thumb from the lock (Fig. 12-5).
-

- Be careful not to let your thumb get caught.

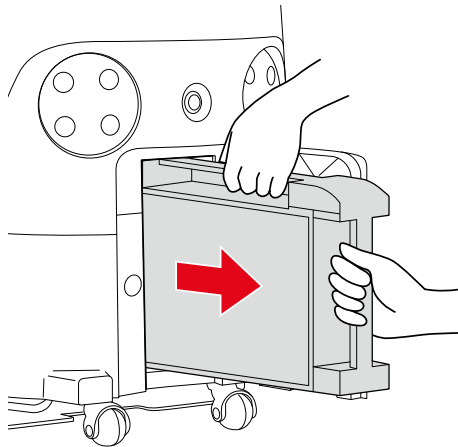
Fig. 12-5



6 Hold the handles, pull the battery out (Fig. 12-6).

Be sure to hold the grips with both hands when pulling the battery out.

Fig. 12-6

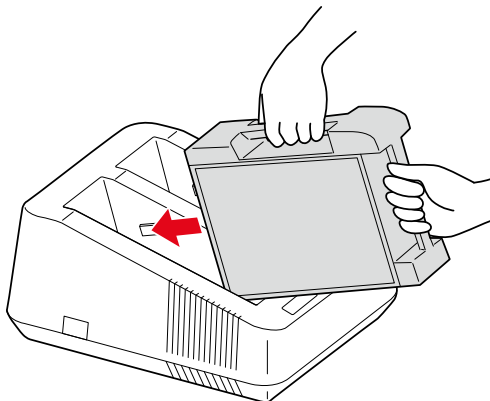


7 Insert the battery straight into the battery charger all the way (Fig. 12-7).

 **Recharging starts when the battery is properly inserted in the battery charger.**

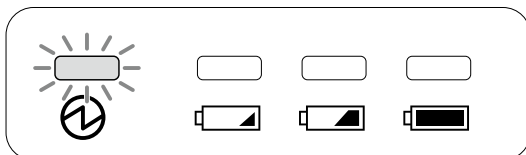
- Slide the battery gently into the charging slot. Inserting it from above may damage the charging terminal.
- After inserting the battery, check that the terminals on the battery and the battery charger are connected firmly.

Fig. 12-7



8 After recharging the battery, check that the charging status light is flashing in green (Fig. 12-8).

Fig. 12-8



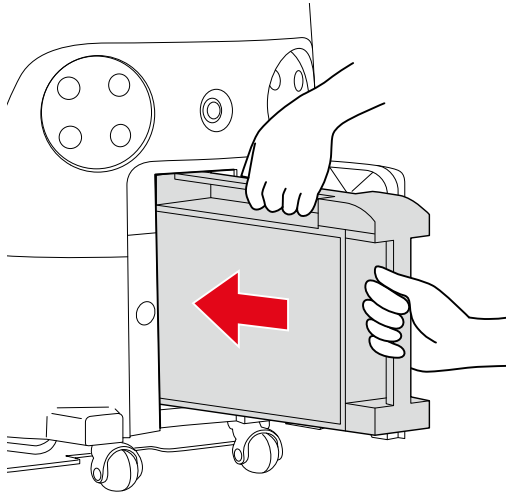
9 Once the battery is recharged, pull it straight out of the battery charger and then lift it up.

- Slide the battery out of the charging slot.
- Be sure to hold the grips with both hands when pulling the battery out.

10 Insert the battery all the way in the battery compartment, and close the battery door (Fig. 12-9).

- Insert the battery in the battery compartment by its terminal first.
- Once the battery is properly inserted, the lock in the battery compartment will pop into place, making a “click”.

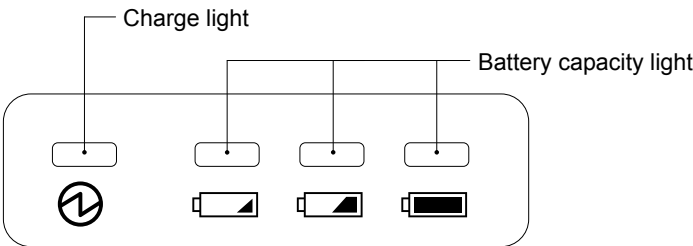
Fig. 12-9



12-2-1 Battery Charger Status Indicator

Charging status is indicated by the light on the battery charger (Fig. 12-10).

Fig. 12-10



Status		Charge light	Battery capacity light
Recharging	Battery capacity: less than 5%	Lit orange	One lit green 
	Battery capacity: 5 to 95%	Lit orange	Two lit green 
	Battery capacity: more than 95%	Lit orange	Three lit green 
Recharged		Flashing green	Not lit
Abnormal		Flashing red/lit red	Not lit

13 Maintenance and Safety

13-1 About Maintenance and Safety

After completing cleaning, carry out maintenance on the following parts every day. Before carrying out maintenance, make sure to turn off the main power switch on the machine (see “P41 7-1 Main Power Switch”).

- Brush (see “P109 13-1-1 Brush”)
 - HEPA filters (see “P114 13-1-2 HEPA Filters”)
 - Dustbag (see “P115 13-1-3 Dustbag”)
 - Hopper tray (see “P119 13-1-4 Hopper Tray”)
- Machine repair should only be carried out by technical staff approved by SoftBank Robotics.
 - Turn off the main power beforehand to disinfect the machine with alcohol. Use the amount of alcohol to some degree that a soft cloth is slightly wet.
Avoid disinfecting Rubber pad, the base of the steering handle (the rubber part), and the wheels.

13-1-1 Brush

Remove the brush, and remove any dirt or hair caught in it as necessary. If the brush is damaged, replace with a new brush following the steps below.

- When cleaning the brush, do not pull the brush forcefully. Doing so may damage the brush.
- If the bottom of the machine is dirty, wipe with a dry cloth.



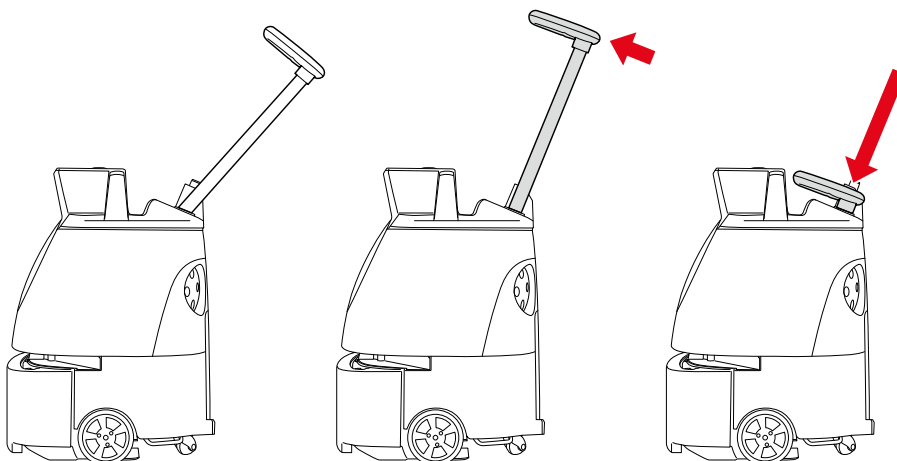
WARNING

When replacing the brush, turn off the main power switch of the machine beforehand and remove the battery from the machine in order to reduce risk of shock.

■ Removing the brush

- 1 Stow the steering handle (see “P53 7-9 Steering Handle”) (Fig. 13-1).

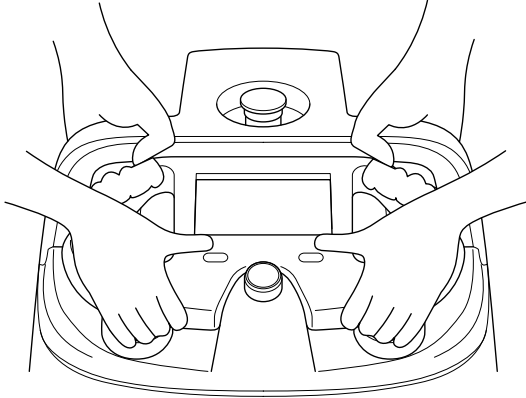
Fig. 13-1



- 2** Hold the lift handles with one hand, and hold the steering handle down with another hand (Fig. 13-2).

- Please operate with two people.

Fig. 13-2

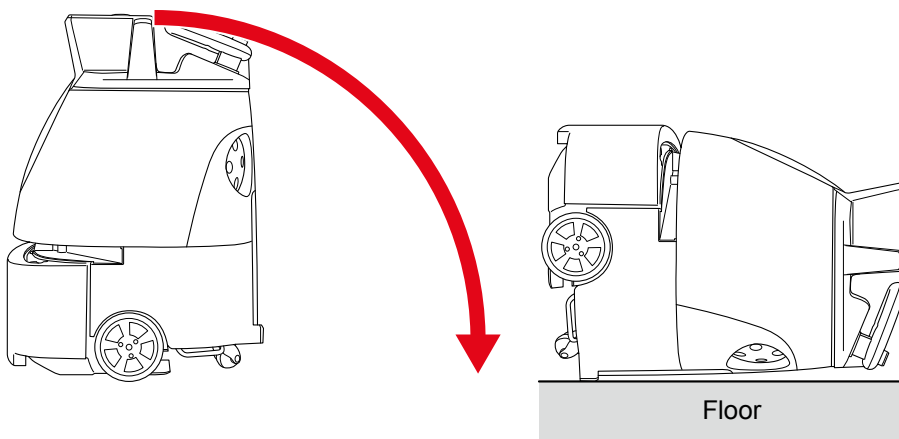


- 3** Hold the lift handles with both of your hands, gently lay the machine on its side so that the side with the dustbin is up (Fig. 13-3).

 Rubber pad will support and stabilize the machine.

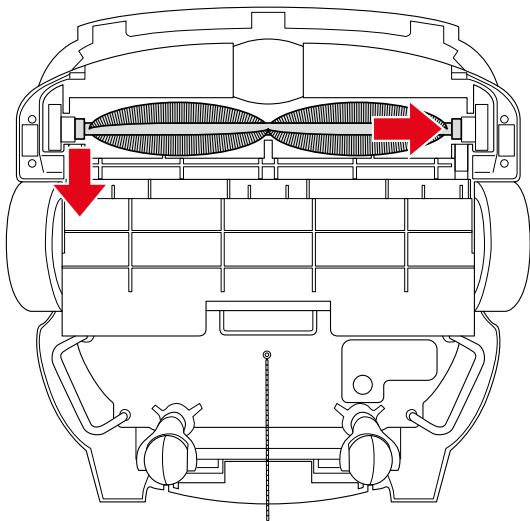
- Please be cautious so the handle does not stick out of the machine.
- Try to avoid letting the machine fall or turn over on its side.
- A concrete or other hard surface will scratch the machine; place the machine on carpeting or other soft and flat surface.

Fig. 13-3



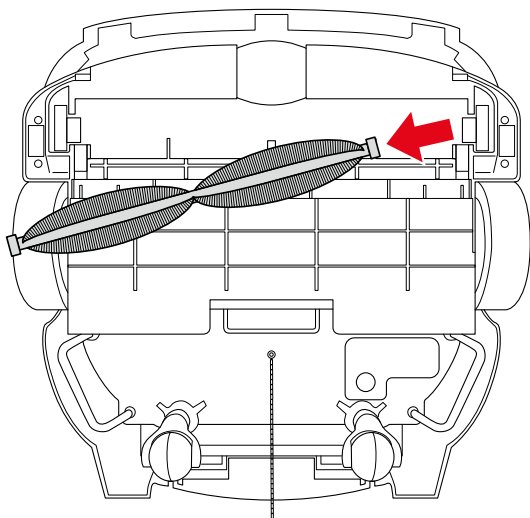
- 4** Press the brush to the right, and pull the left end out towards you to remove (Fig. 13-4).
-

Fig. 13-4



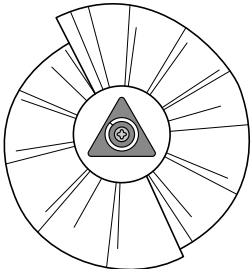
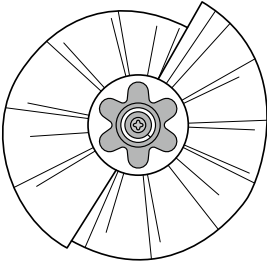
- 5** Remove the right end of the brush (Fig. 13-5).
-

Fig. 13-5



■ **Mounting a new brush**

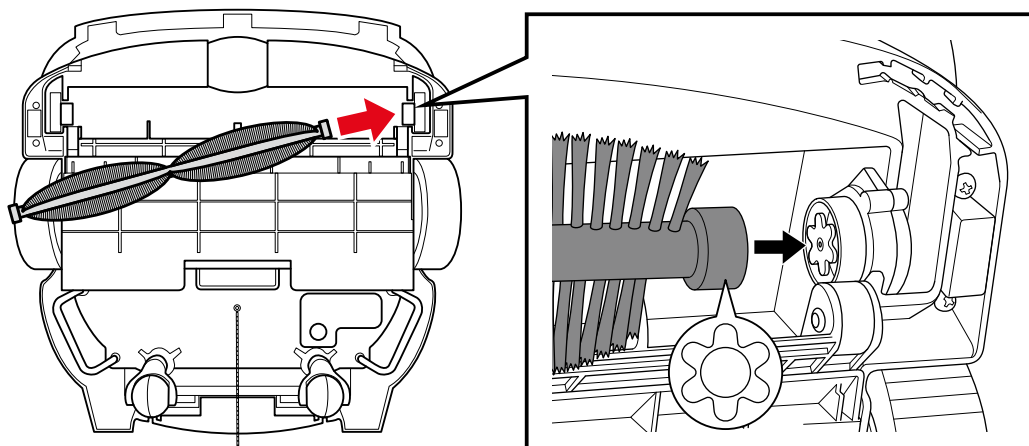
1 Check the marks on the left and right ends of the new brush.

The mark on the left	The mark on the right
	

- When the machine is laid down with the front side facing upwards, you will see the sockets of the brush compartment. These sockets correspond to the right and left sockets of the brush.

2 Insert the right end of the brush into the corresponding socket of the brush compartment (Fig. 13-6).

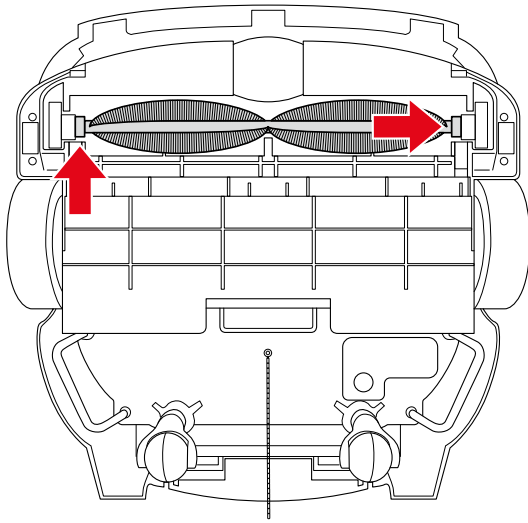
Fig. 13-6



- 3 Push the brush in to the right, and attach the left end of the brush to the socket while aligning the same marks (Fig. 13-7).**

Spin the brush, and check that both ends of the brush are securely attached in the sockets.

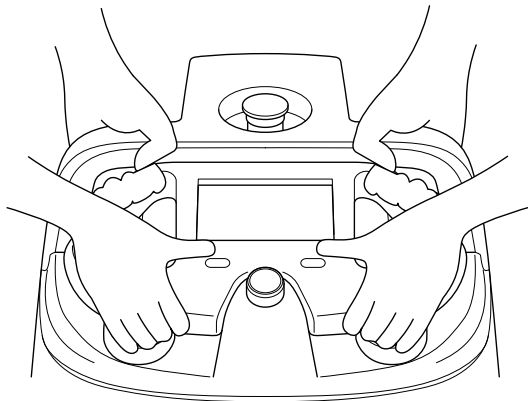
Fig. 13-7



- 4 Hold the lift handles with one hand, and hold the steering handle down with another hand (Fig. 13-8).**

- Please operate with two people.

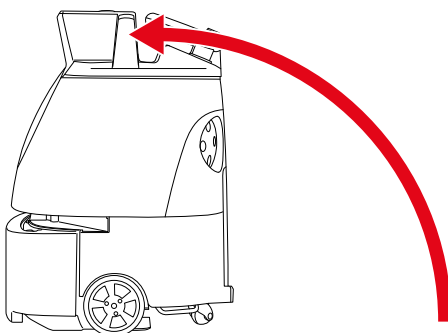
Fig. 13-8



- 5 Hold the lift handles by each set of hands, gently raise the machine using two people (Fig. 13-9).**

- Please be cautious so the handle does not stick out of the machine.

Fig. 13-9



13-1-2 HEPA Filters

Check that dirt has not accumulated in the HEPA filters and that they are not damaged. If dirt has collected or they are damaged, replace them with new filters following the steps below.

- Do not wash the HEPA filters with water.
- When disinfecting around the HEPA filters with alcohol, avoid the rubber parts.

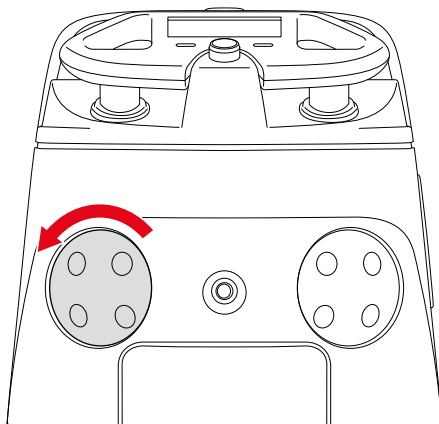


WARNING

When replacing the HEPA filter, turn off the main power switch of the machine beforehand and remove the HEPA filter from the machine.

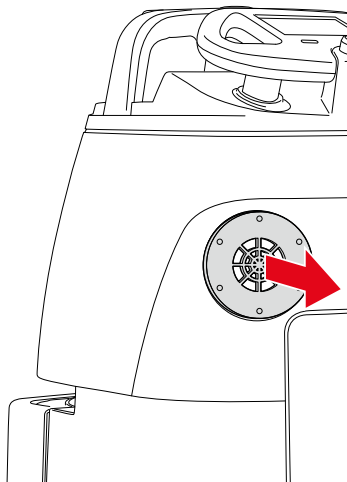
- 1 Place your fingers in the holes of the filter cover and turn to the left to remove (Fig. 13-10).**

Fig. 13-10



- 2 Hold the HEPA filter by the tab in the middle and remove (Fig. 13-11).**

Fig. 13-11



- 3 Install the new HEPA filter, replace the filter cover, and turn to the right to close.**

Replace the other HEPA filter also as required.

13-1-3 Dustbag

Replace with a new dustbag when it gets full.



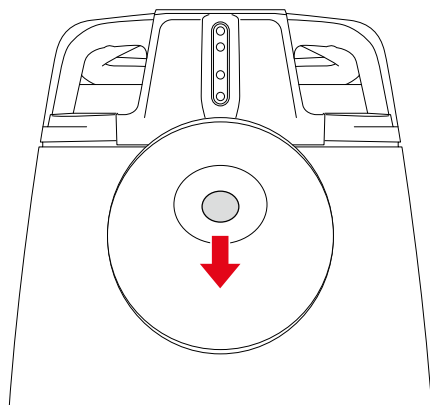
WARNING

When replacing the dustbag, turn off the main power switch of the machine beforehand and remove the battery from the machine in order to reduce risk of shock.

■ Remove the dustbag

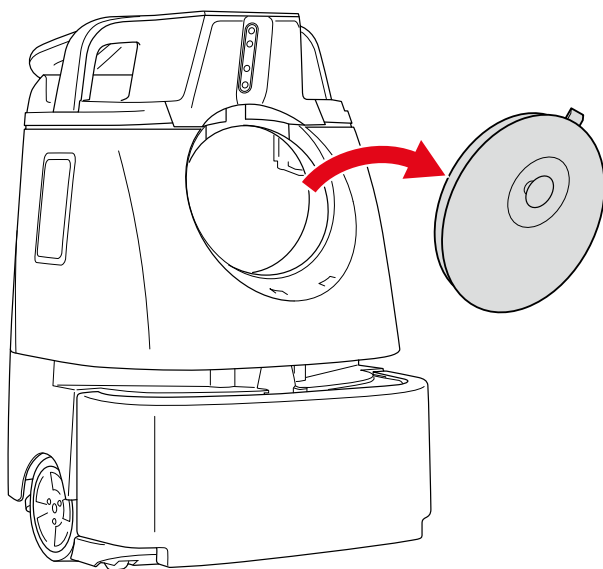
- 1 Hold the dustbin access handle and pull down (Fig. 13-12).

Fig. 13-12



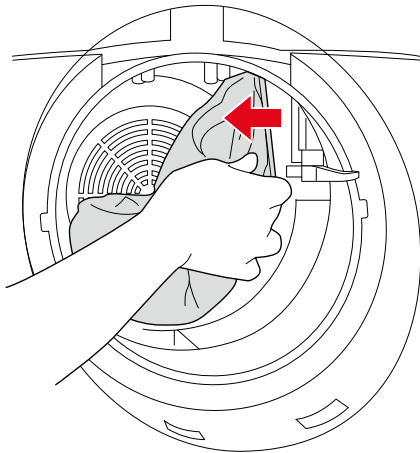
- 2 Pull the cover towards you to remove (Fig. 13-13).

Fig. 13-13



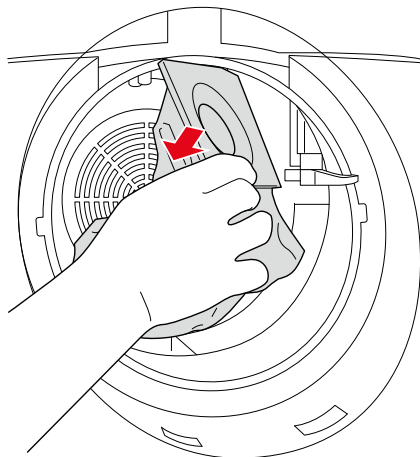
- 3 Pull out the attachment sheet for the dustbag inside the dustbin (Fig. 13-14).**
-

Fig. 13-14



- 4 Remove the used dustbag from the dustbin (Fig. 13-15).**
-

Fig. 13-15



■ **Attach the new dustbag**

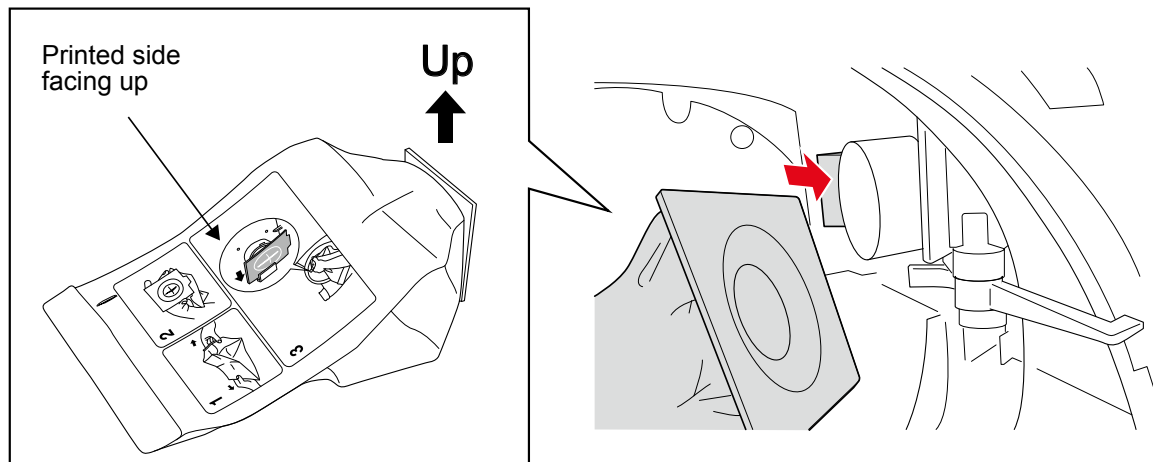
1 Spread the new dustbag out and inflate.

- Please be careful not to rip the dustbag.

2 With a new dustbag, hook the left side of the attachment sheet to the catch on the left side of the suction duct (Fig. 13-16).

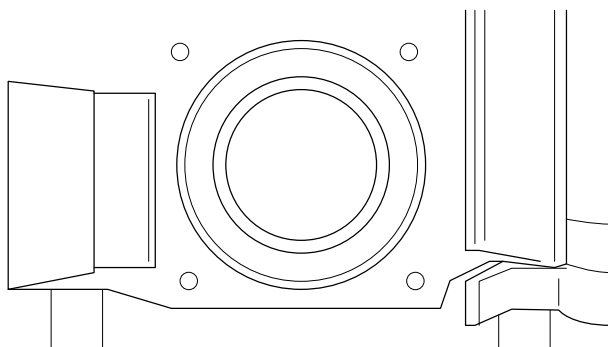
- Follow the illustration on the dustbag and make sure that the side of the illustration faces upwards.

Fig. 13-16



- The suction duct inside the dustbin appears as below when viewed from the front. The latch is visible on the left (Fig. 13-17).

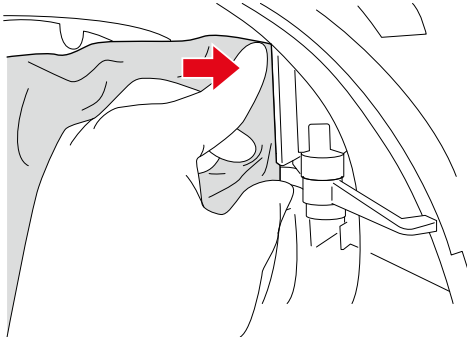
Fig. 13-17



- 3** Align the opening in the attachment sheet with the suction duct, and push the right of the attachment sheet in firmly (Fig. 13-18).

- Be careful not to pinch your fingers.

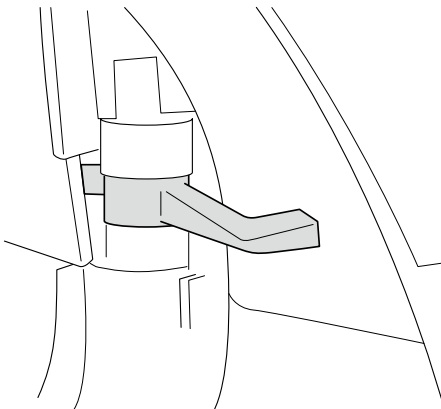
Fig. 13-18



- 4** Check that the dustbin pin is afloat (Fig. 13-19).

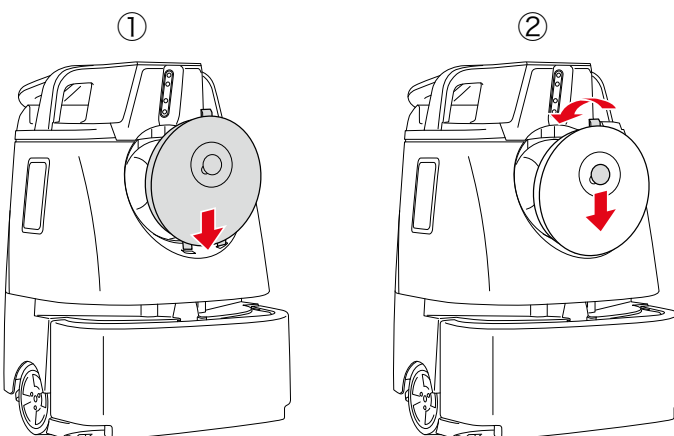
- If the dustbag is attached properly, the stopper in the dustbin is raised away as shown below. If the dustbag is not attached properly, the stopper will prevent the dustbin cover from being closed. Closing the cover forcefully may cause damage.

Fig. 13-19



- 5** Insert the catches at the bottom of the cover in the bottom of the dustbin (①) and close the cover while pushing down on the dustbin access handle (②) (Fig. 13-20).

Fig. 13-20

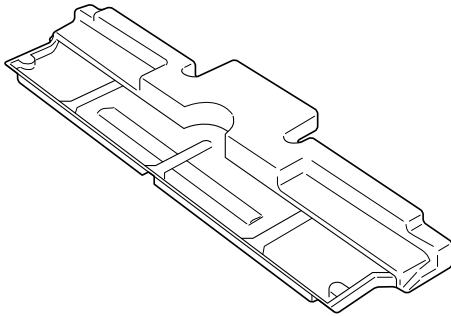


13-1-4 Hopper Tray

Empty the hopper tray after every cleaning. Remove and replace the hopper tray following the steps below.

The hopper tray is shaped as below (Fig. 13-21), and is located on the bottom of the machine (see “P25 5 Names of Parts”).

Fig. 13-21



- Do not remove the hopper tray while the machine is laying on its side. Doing so will allow dirt in the hopper tray to scatter.
- Be careful not to injure yourself when removing the hopper tray.

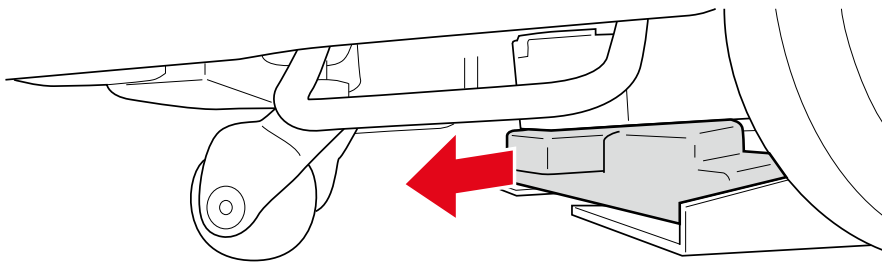


WARNING

When replacing the hopper tray, turn off the main power switch of the machine beforehand and remove the hopper tray from the machine.

- 1 Pull the hopper tray out by its handle (Fig. 13-22).**

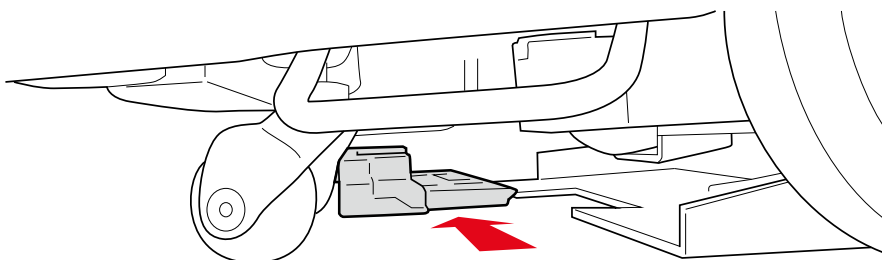
Fig. 13-22



- 2 Pull the hopper tray out on the left (direction of arrow) (Fig. 13-23).**

- The hopper tray cannot be pulled out on the right.
- To ensure adequate space for pulling the hopper tray out, orient the rear caster backward as shown in Fig. 13-23.

Fig. 13-23

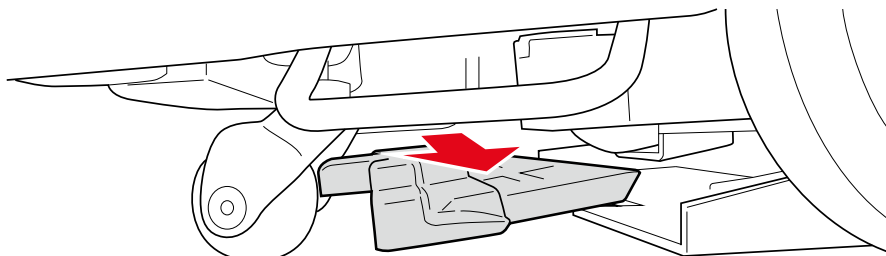


3 Discard any dirt in the hopper tray.

Wash the hopper tray with water if dirty. After washing, wipe away any water with a dry cloth and allow to dry.

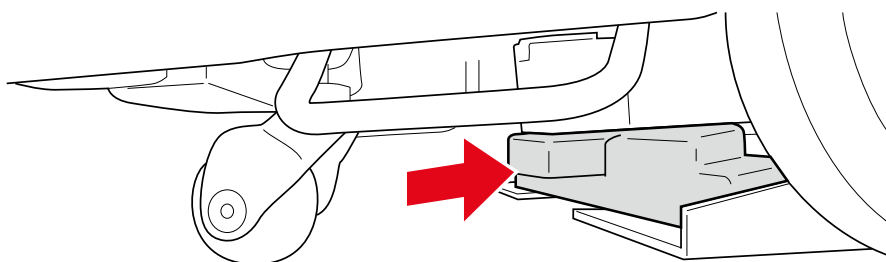
4 Slide the hopper tray into the bottom of the machine from the left (Fig. 13-24).

Fig. 13-24



5 Press the hopper tray all the way in (Fig. 13-25).

Fig. 13-25

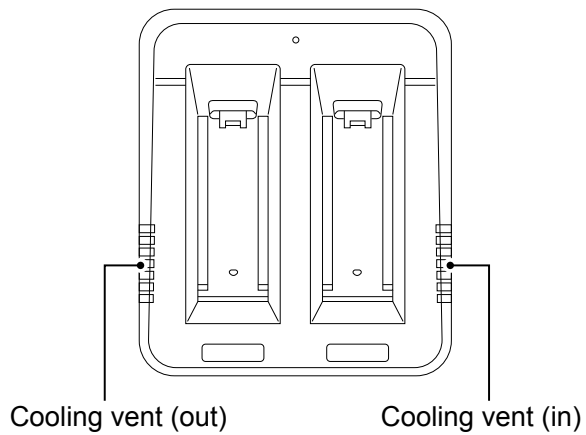


13-1-5 Battery Charger

Before recharging the battery, check that no dust or dirt is present in the air vents on the battery charger. If dust or dirt is present, clean with dry cloth.

- 1 Remove any dust or dirt from the air vents (Fig. 13-26).
-

Fig. 13-26



- Check visually for anything abnormal (discoloration, corrosion) and for any abnormal sound, etc. from inside the battery charger.

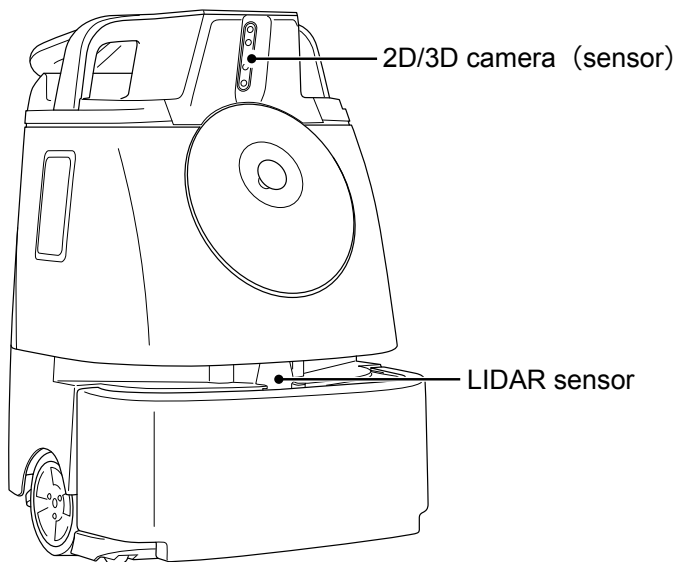
13-1-6 Sensors

If dust or dirt is on the sensor, remove by using a micro-fiber cloth.

■ Maintenance for the 2D/3D Camera (Sensor) and LIDAR Sensor

- 1 Wipe the 2D/3D camera (sensor) and LIDAR sensor with the micro-fiber cloth (Fig. 13-27).
-

Fig. 13-27

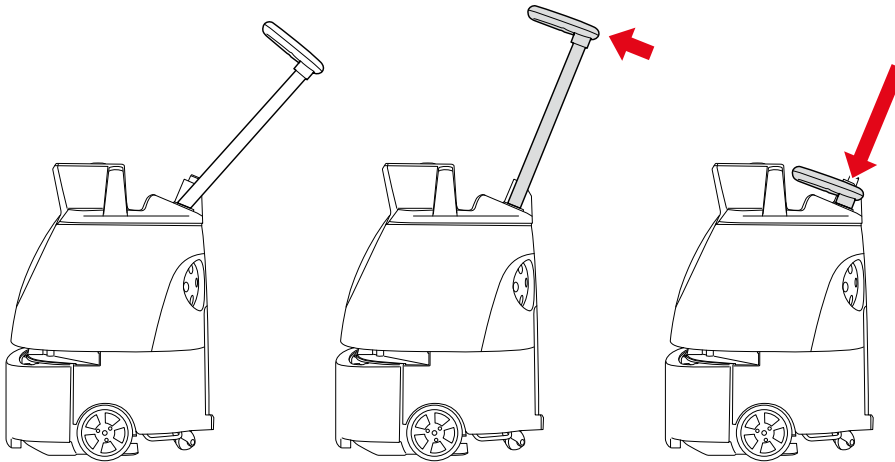


- 2 Check that nothing is caught in the gaps around the bumper, and that the machine moves back several centimeters when the bumper is pushed slightly.
-

- **Maintenance for the Cliff Sensor**

- 1 Stow the Steering Handle (“P53 7-9 Steering Handle”) (Fig. 13-28).**

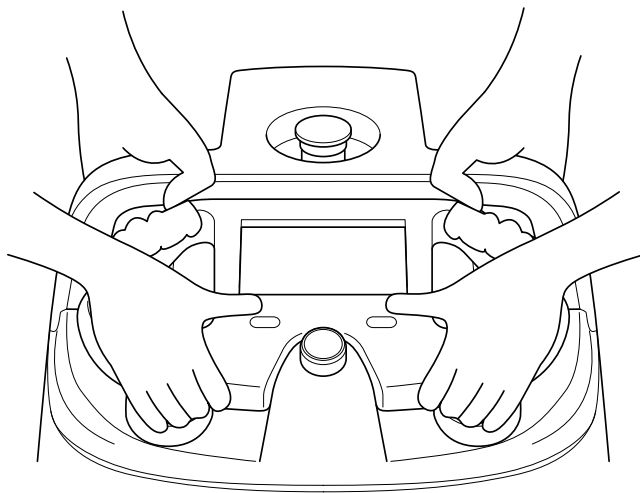
Fig. 13-28



- 2 Hold the lift handles with one hand, and hold the steering handle down with another hand (Fig. 13-29).**

- Please operate with two people.

Fig. 13-29

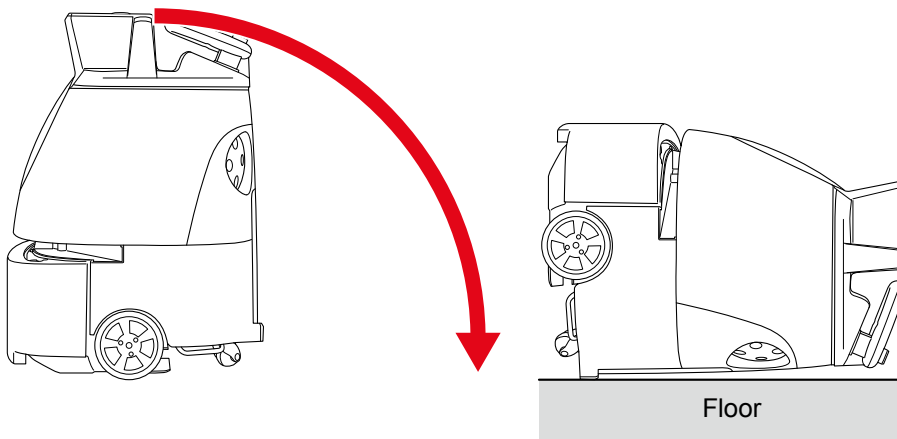


- 3** Hold the lift handles with both of your hands, gently lay the machine on its side so that the side with the dustbin is up (Fig. 13-30).

 Rubber pad will support and stabilize the machine.

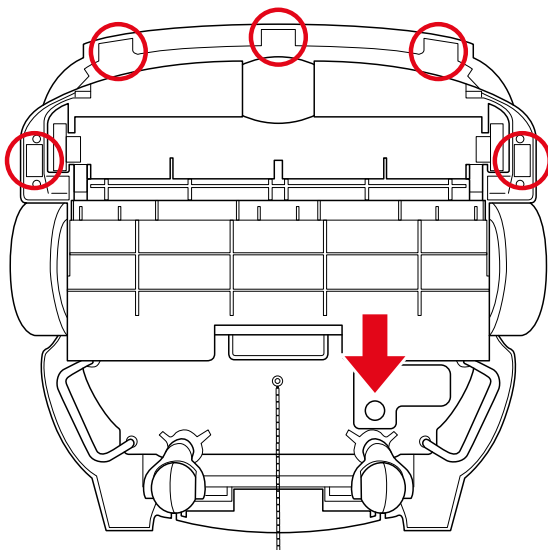
- Please be cautious so the handle does not stick out of the machine.
- Try to avoid letting the machine fall or turn over on its side.
- A concrete or other hard surface will scratch the machine; place the machine on carpeting or other soft and flat surface.

Fig. 13-30



- 4** Wipe the Cliff sensors with the micro-fiber cloth (Fig. 13-31).

Fig. 13-31



13-2 List of Consumables

Name	Model	Note
Home Location Code	P00001101A01 (1-10) P00001201A01 (11-20) P00001301A01 (21-30) P00001401A01 (31-40) P00001501A01 (41-50) P00001601A01 (51-60) P00001701A01 (61-70) P00001801A01 (71-80) P00001901A01 (81-90) P00002001A01 (91-100)	The number in parentheses is the Home Location Code number.
HEPA filters	P00000901A01	
Dustbag	P00000701A01	
Brush	P00000801A01	
Notification pager	P00000401A01	
Notification pager charger	P00000501A01	
Micro USB cable	P00014201A01	
Micro-fiber cloth	P00002101A01	
Battery	P00000201A01	
Battery charger	P00000301A01	

13-3 Storing the Machine

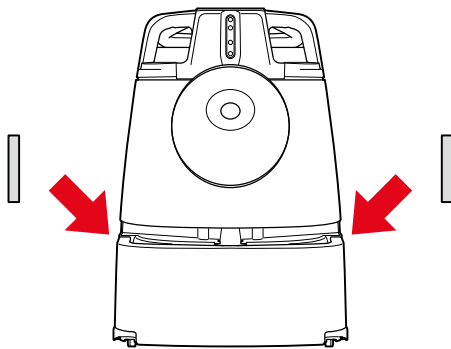
When transporting the machine, move the machine manually to its predetermined place of storage.

- Turn off the power of the machine and remove the battery before storing it.
- If not using the machine for a long time, turn off the Secondary Battery Power Button (see “P44 7-4 Secondary Battery Power Button”).
- Store the machine where it will not be a hindrance to fire doors, stairs, or firefighting equipment.
- Always store in a dry indoor location free of humidity.
- Pack the notification pager and brush in the special packaging box.
- As a safety precaution, always work with at least two people.

13-3-1 Packaging the Machine

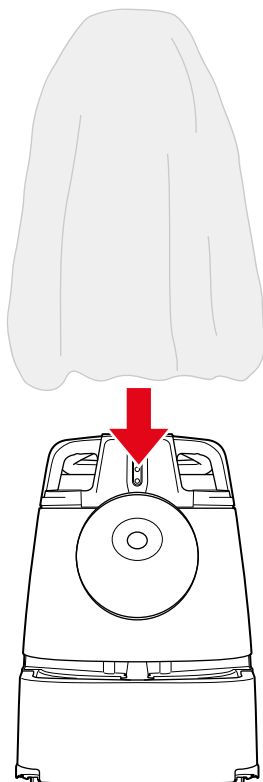
- 1** Attach the cushioning material (back of the bumper) (Fig. 13-32).

Fig. 13-32



- 2** Wrap the machine with a plastic bag (Fig. 13-33).

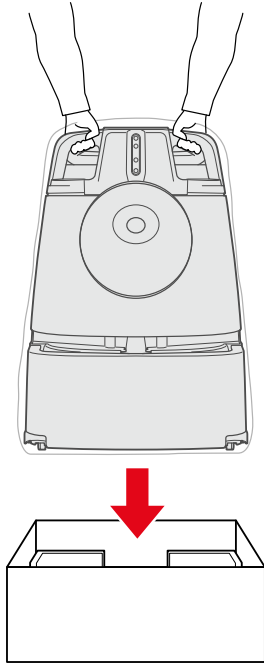
Fig. 13-33



3 Hold the lift handles and place the machine into the inner box (Fig. 13-34).

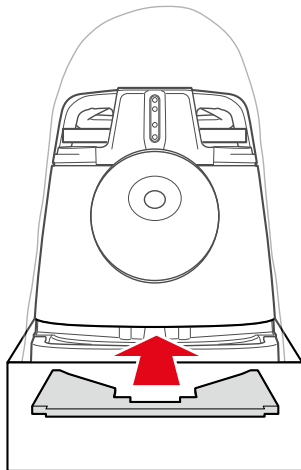
- Align the direction of the cushioning material and the inner box.

Fig. 13-34



4 Attach the cushioning material (Fig. 13-35).

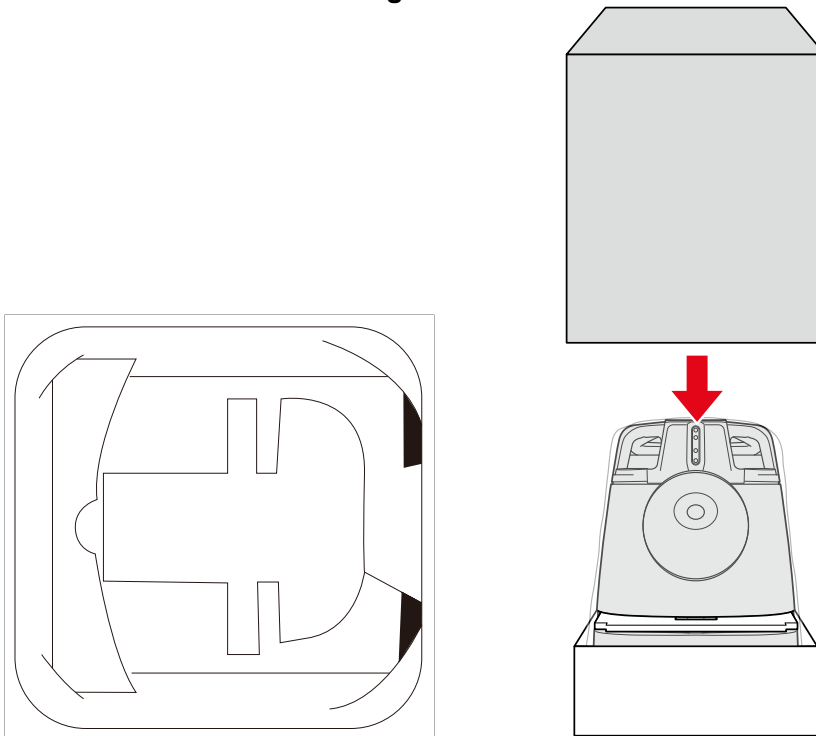
Fig. 13-35



5 Cover the inner box with the outer box (Fig. 13-36).

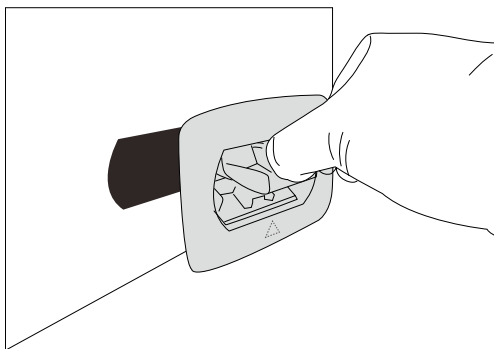
- Cover the outer box as the same direction as the cushioning material inside the inner box.

Fig. 13-36



6 Attach the locking tab to the outer box (Fig. 13-37).

Fig. 13-37

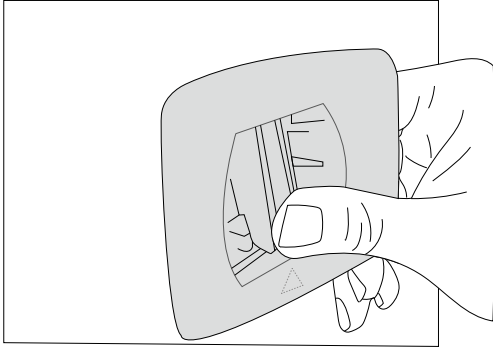


- Repeat this procedure for the 3 remaining locking tabs on the outer box.

7 Press the locking tab lock until you hear a “click” (Fig. 13-38).

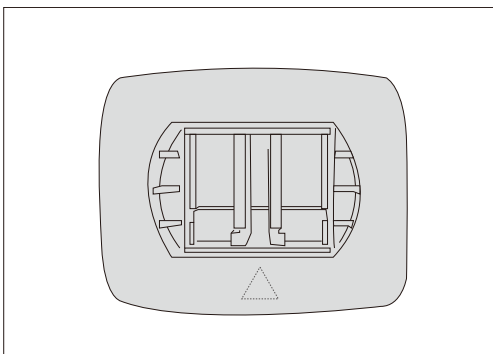
- Locking tab will lock.

Fig. 13-38



8 Make sure the locking tab will not come off from the outer box (Fig. 13-39).

Fig. 13-39



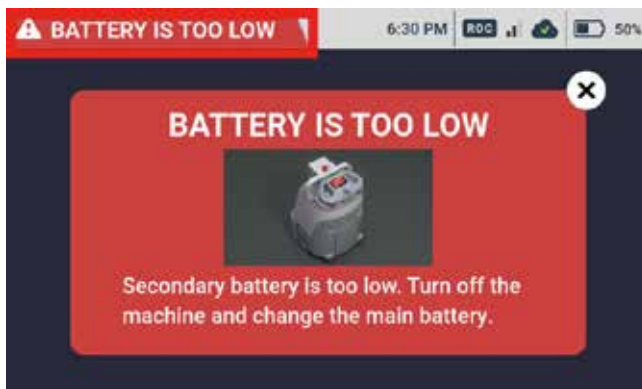
14 Troubleshooting

14-1 Checking Machine Alerts

During an autonomous cleaning, if the machine encounters an obstacle and senses danger or if the battery is low, an alert will be notified on the touch display (see “P48 7-6 Touch Display”). If an alert is displayed, please follow the instructions on the touch display.

- 1 Tap the alert appearing at the upper left of the touch display (Fig. 14-1).

Fig. 14-1



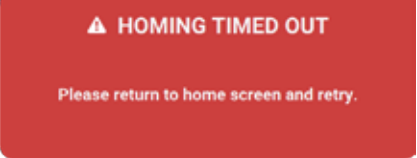
- 2 Follow the instructions on the screen (Fig. 14-2).

Fig. 14-2

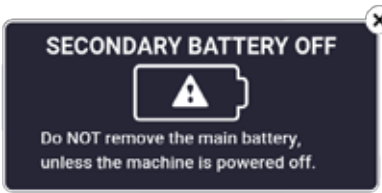
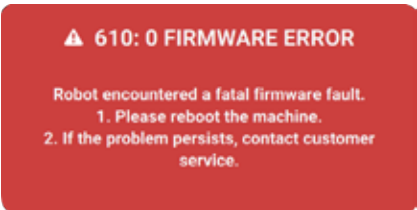


- If the machine stops moving and notifies the operator with an alert at the same location several times, check the problematic cleaning area, Home Location Code, and cleaning route, and contact customer support.
- If a problem cannot be remedied, contact customer support. The RIN (the machine's serial number) is required when inquiring with customer support. The RIN appears on a sticker located on the inside of the battery door on the machine.

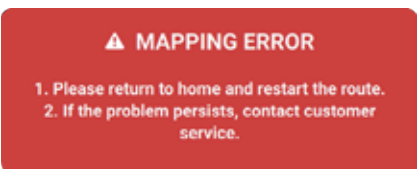
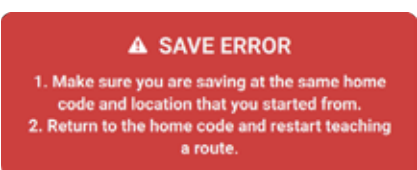
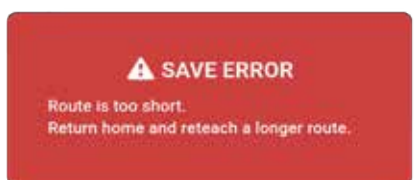
14-2 Error Message List

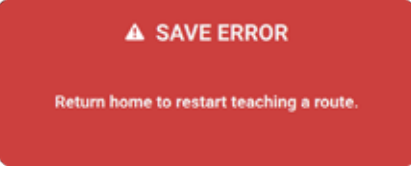
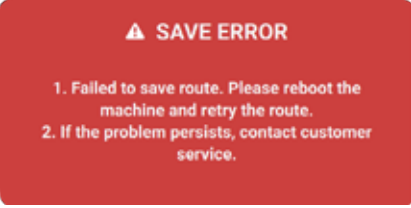
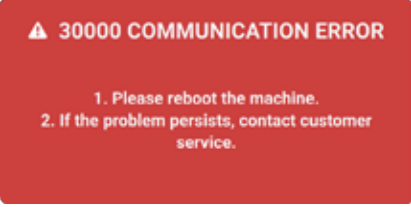
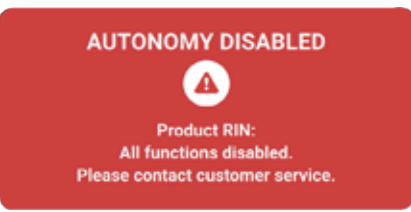
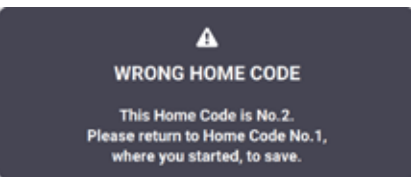
Alert message	Cause	Action
	ROBOT IS STUCK	1. Make sure the robot's path is clear or push past any obstacles. 2. Press blue button to start.
	PATH IS BLOCKED	1. Make sure the robot's path is clear or push past any obstacles. 2. Press blue button to start.
	ROBOT FAILED TO RECOVER	1. Follow the arrow and push the robot towards the red path. 2. When correct, the path will turn white. 3. Press blue button to start.
	ROBOT IS TOO FAR FROM PATH	1. Follow the arrow and push the robot towards the red path. 2. When correct, the path will turn white. 3. Press blue button to start.
	ROBOT IS OFF PATH	1. Follow the arrow and push the robot towards the red path. 2. When correct, the path will turn white. 3. Press blue button to start.
	HOMING TIMED OUT	Please return to home screen and retry.
	EMERGENCY BUTTON PRESSED	1. Inspect the robot and environment. 2. If clear, release the emergency stop button.

Alert message	Cause	Action
⚠ 501 HOMING ERROR 1. IMU sensor error. Please reboot the machine and restart your route. 2. If the problem persists, contact customer service.	501 HOMING ERROR	1. IMU sensor error. Please reboot the machine and restart your route. 2. If the problem persists, contact customer service.
⚠ HOMING CANCELLED 1. Please try homing again without moving the robot. 2. If the problem persists, contact customer service.	HOMING CANCELLED	1. Please try homing again without moving the robot. 2. If the problem persists, contact customer service.
⚠ 504 HOMING ERROR 1. IMU sensor error. Please reboot the machine and restart your route. 2. If the problem persists, contact customer service.	504 HOMING ERROR	1. IMU sensor error. Please reboot the machine and restart your route. 2. If the problem persists, contact customer service.
PATH IS BLOCKED  1. Make sure the robot's path is clear or push past any obstacles. 2. Press blue button to start.	PATH BLOCKED, UNABLE TO RECOVER	1. Inspect the robot and make sure the area is clear of any obstacles. 2. If area & robot are clear, press the blue button to resume.
MACHINE PICKED UP  Please do not pick up the machine while it is powered on.	MACHINE PICKED UP	Please do not pick up the machine while it is powered on.
CLIFF DETECTED  1. Make sure the machine is not operating near stairs or escalators. 2. Press the blue button to resume.	CLIFF DETECTED	1. Make sure the machine is not operating near stairs or escalators. 2. Press the blue button to resume.
BUMPER STUCK  1. Inspect machine for damage or debris. 2. Using two hands, pull the bumper forward. 3. Press the blue button to resume.	BUMPER STUCK	1. Inspect machine for damage or debris. 2. Using two hands, pull the bumper forward. 3. Press the blue button to resume.
BATTERY MISSING  Put new battery into robot.	BATTERY MISSING	Put new battery into robot.

Alert message	Cause	Action
	BATTERY IS TOO LOW	Inspect and change the battery.
	DUSTBAG FULL	Inspect and replace the dustbag.
	SECONDARY BATTERY OFF	Do NOT remove the main battery. Turn on the secondary battery, using the switch at the bottom of the machine.
	SECONDARY BATTERY LOW	Do NOT remove the main battery, unless the machine is powered off.
	610: 0 FIRMWARE ERROR	Robot encountered a fatal firmware fault. 1. Please reboot the machine. 2. If the problem persists, contact customer service.
	DUSTBAG SENSOR ERROR	Please contact customer service.
	MACHINE BACKUP ERROR	1. Please inspect the machine's environment and remove any obstacles. 2. Press the blue button to resume.
	MACHINE IS RUNNING TOO HOT	1. Please wait 15 minutes to let the temperature decrease. 2. Press the blue button to resume.

Alert message	Cause	Action
 PAGER CONNECTION ERROR 1. Bring pager back to the machine. 2. Press and hold the main button on the pager for 6 seconds.	PAGER CONNECTION ERROR	1. Bring pager back to the machine. 2. Press and hold the main button on the pager for 6 seconds. 3. Dock the pager and reboot the machine. If connection fails, please contact customer service.
 SECONDARY BATTERY CHARGING ERROR 1. Disconnect and reconnect the secondary battery. 2. If the problem continues, please contact customer support.	SECONDARY BATTERY CHARGING ERROR	1. Disconnect and reconnect the secondary battery. 2. If the problem continues, please contact customer support.
 619 SYSTEM ERROR ROCD connection error. 1. Please reboot the machine. 2. If the problem persists, contact customer service.	619 SYSTEM ERROR	ROCD connection error. 1. Please reboot the machine. 2. If the problem persists, contact customer service.
 700 COMMUNICATION ERROR 1. Please reboot the machine. 2. If the problem persists, contact customer service.	700 COMMUNICATION ERROR	1. Please reboot the machine. 2. If the problem persists, contact customer service.
 701 COMMUNICATION ERROR 1. Please reboot the machine. 2. If the problem persists, contact customer service.	701 COMMUNICATION ERROR	1. Please reboot the machine. 2. If the problem persists, contact customer service.
 BOTTOM SENSOR ERROR 1. Inspect and clean the bottom sensor. 2. Reboot the machine. If the problem persists, contact customer service.	BOTTOM SENSOR ERROR	1. Inspect and clean the bottom sensor. 2. Reboot the machine. If the problem persists, contact customer service.
 FRONT CAMERA ERROR 1. Inspect and clean the sensors. 2. Reboot the machine. If the problem persists, contact customer service.	FRONT CAMERA ERROR	1. Inspect and clean the sensors. 2. Reboot the machine. If the problem persists, contact customer service.
 8100 SYSTEM ERROR LIDAR connection error. 1. Please reboot the machine. 2. If the problem persists, contact customer service.	8100 SYSTEM ERROR	LIDAR connection error. 1. Please reboot the machine. 2. If the problem persists, contact customer service.

Alert message	Cause	Action
	8700 SYSTEM ERROR	DEPTH CAMERA connection error. 1. Please reboot the machine. 2. If the problem persists, contact customer service.
	IMPACT DETECTED	1. Make sure the robot's path is clear or push past any obstacles. 2. Inspect the robot and environment. 3. Press blue button to resume.
	ROBOT LOST	1. Return the robot to the home location. 2. Restart the route.
	ROBOT CANNOT RESUME FROM HERE	1. Follow the arrow and push the robot towards the red path. 2. When correct, the path will turn white. 3. Press blue button to start.
	MAPPING ERROR	1. Please return to home and restart the route. 2. If the problem persists, contact customer service.
	SAVE ERROR	1. Make sure you are saving at the same home code and location that you started from. 2. Return to the home code and restart teaching a route.
	SAVE ERROR	Route is too short. Return home and reteach a longer route.
	SAVE ERROR	1. IMU sensor error. Please reboot the machine and restart your route. 2. If the problem persists, contact customer service.

Alert message	Cause	Action
 SAVE ERROR Make sure to not pull the robot backwards more than 20cm at a time while teaching a route.	SAVE ERROR	Make sure to not pull the robot backwards more than 20 cm at a time while teaching a route.
 SAVE ERROR 1. Sensor error. Clean the bottom sensor. 2. Reboot the machine. If problem persists, contact customer service.	SAVE ERROR	1. Seonsor error. Clean the bottom sensor. 2. Reboot the machine. If the problem persists, contact customer service.
 SAVE ERROR Return home to restart teaching a route.	SAVE ERROR	Return home to restart teaching a route.
 SAVE ERROR 1. Failed to save route. Please reboot the machine and retry the route. 2. If the problem persists, contact customer service.	SAVE ERROR	1. Failed to save route. Please reboot the machine and retry the route. 2. If the problem persists, contact customer service.
 30000 COMMUNICATION ERROR 1. Please reboot the machine. 2. If the problem persists, contact customer service.	30000 COMMUNICATION ERROR	1. Please reboot the machine. 2. If the problem persists, contact customer service.
 30001 COMMUNICATION ERROR 1. Failed to load route data. Please retry. 2. If the problem persists, contact customer service.	30001 COMMUNICATION ERROR	1. Failed to load route data. Please retry. 2. If the problem persists, contact customer service.
 AUTONOMY DISABLED Product RIN: All functions disabled. Please contact customer service.	AUTONOMY DISABLED	Product RIN: All functions disabled. Please contact customer service.
 WRONG HOME CODE This Home Code is No.2. Please return to Home Code No.1, where you started, to save.	WRONG HOME CODE	This Home Code is No.2. Please return to Home Code No.1, where you started, to save.

15 Machine Specifications

15-1 Machine Specifications

Item	Specifications
Machine size (length × width × height)	474mm × 455mm × 653mm (18.6in × 17.9in × 25.7in)
Machine weight	Approx. 30kg (66lbs)
Machine weight (battery installed)	35kg (77lbs)
Cleaning width	360mm (14in)
Maximum inclination	0% (during auto cleaning)
Battery	Lithium-ion battery
Battery output voltage	25.2V
Battery rated capacity	23.7Ah
Charging temperature range (charger / battery)	10°C to 40°C
Battery size (length × width × height)	290mm × 215mm × 79mm (11in × 8.5in × 3.1in)
Battery weight	Approx. 5kg (11lbs)
Operating time	Approx. 3hours (normal mode) / approx. 1.5hours (max power mode)
Time to fully recharge	4hours
Charger size (length × height × width)	410mm × 350mm × 185mm (16in × 13.8in × 7.3in)
Charger weight (incl. power cable)	4.2kg (9.3lbs)
Charger power source	100 to 240V AC
Charger rated output voltage	29.4V DC / 8A × 2
Sound pressure level	80dB(A), K=2dB(A)
Sound power level	70dB(A), K=2dB(A)
Measured sound power level LwA	63dB(A), K=2dB(A)
Guaranteed sound power level	63dB(A)
Vibration	2.1m/s ² , K=0.1m/s ²

Item	Specifications
Commercial reference	Whiz
Type of device	Automatic Cleaning Machine
Model	A00000101

15-2 Notification Pager

Item	Specifications
Product code	P00000401A01
Size	Approx. 62mm (2.4in) × 100mm (3.9in) × 18mm (0.7in) (WLH)
Wireless communication standard	LoRa (Long Range)
Communication range	Straight line distance of approximately 300m (985ft) or less, can be used maximum of two stories up or down (Cannot be used when there is metallic wall, depending on the usage environment)
Built-in battery type	Lithium-ion battery 750mAh
Standby time	Approx. 48hours
Charging time (when charger is used)	2.5hours (when notification pager charger is used)

16 Applicable Standards

This machine conforms to the following standards.

This Automatic Cleaning Machine conforms to the following standards.

1. Low Voltage Directive (LVD), 2006/95/EC
2. Machinery Directive (MD), 2006/42/EC
3. Electromagnetic Compatibility (EMC) Directive, 2014/30/EU
4. Radio Equipment Directive (RED), 2014/53/UE
5. RoHS : 2011/65/EU and its amendment(EU) 2015/863
6. REACH : EC) No. 1907/2006
7. WEEE : 2012/19/EU (Recasting 2002/96/EC) Article4,11,15(2) & Annex V

This Notification Pager conforms to the following standards.

1. Electromagnetic Compatibility (EMC) Directive, 2014/30/EU
2. Radio Equipment Directive (RED), 2014/53/UE
3. RoHS : 2011/65/EU and its amendment(EU) 2015/863
4. REACH : EC) No. 1907/2006
5. WEEE : 2012/19/EU (Recasting 2002/96/EC) Article4,11,15(2) & Annex V

17 Radio

The following bands are used for the radio of the machine and the notification pager.

■ Machine

WCDMA HSPA +: B1, B2, B3, B4, B5, B8

FCC: B2, B4, B5

RED: B1, B3, B8

LTE: B1, B2, B3, B4, B5, B7, B8, B12, B13, B20, B26, B28, B30, B41, B66

FCC: B2, B4, B5, B7, B8, B12, B13, B26, B30, B41, B66

RED: B1, B3, B7, B8, B20, B28

■ Notification pager

Lora: 137-1020 MHz

Country use:

JP: 920.5-928.1 MHz

EU: 865-868 MHz

USA & CA: 902-928 MHz

CN: 470-510 MHz

SG: 920-925 MHz

AU: 915-928 MHz

HK: 865-868 MHz, channel spacing 200 KHz

KR: 920.9-923.3 MHz

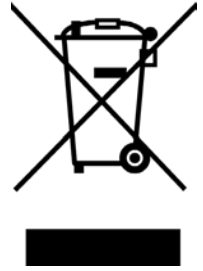
TW: 920-925 MHz

UAE: 865-868 MHz

18 Disposal

This product is designed and manufactured with recyclable, high-quality materials and components.

When disposing of the product, check that it is being disposed of properly as industrial waste differentiated from general and business waste according to regional and municipal regulations by request to an industrial waste disposal operator.



- * If the product is being leased, it cannot be disposed of by yourself. Contact customer support. When disposing of the machine, remove the battery from the machine, and dispose of properly according to regulations for waste disposal in the region you are residing in.

19 Glossary

	Terminology	Description
A	Accessory box	The box includes notification pager, notification pager charger, pin and micro-fiber cloth. Upon arrival, accessory box will be stored inside the battery box.
	Autonomous cleaning	The operator teaches a cleaning route on the machine beforehand (see “P70 9-4-2 Teaching a Cleaning Route Manually” or “P72 9-4-3 Teaching a Cleaning Route Automatically”) so that the machine can clean by itself without the operator cleaning with it manually. When carrying out autonomous cleaning, stow the steering handle in the machine beforehand as a safety precaution. (see “P57 9 Autonomous Cleaning (Robot)”)
	Autonomous clean start/stop button	Use to start autonomous cleaning mode or to pause/resume autonomous cleaning. The autonomous clean start/stop button (see “P55 7-11 Autonomous Clean Start/Stop Button”) can only be used in autonomous cleaning mode.
B	Battery	Battery in the machine. Use the special battery charger for recharging the battery. (see “P104 12 Machine Battery; Recharging the Machine’s Battery”)
	Battery charger	Charger for recharging the machine’s battery. (see “P104 12-2 Recharging the Battery”)
	Battery compartment	Box where the machine’s battery is inserted.
	BrainOS	Innovative artificial intelligence (AI) technology developed by Brain Corp. for allowing a machine to clean on its own.
	Brush	Rotating brush that collects dirt and dust into the hopper tray, and also aids efficient vacuuming. (see “P109 13-1-1 Brush”)
	Bumper	Shock absorber for impact or vibration if the machine contacts obstacles, etc.
D	Delay start	After setting the starting time of autonomous cleaning beforehand, autonomous cleaning will start automatically at the set time.
	Display (notification pager)	The screen is for checking the notification pager's battery level, Robot Operations Center (ROC) connection status, alerts, etc. (see “P95 11 Notification Pager”)
	Dustbag	Dustbag for collecting vacuumed dirt and dust. (see “P115 13-1-3 Dustbag”)
	Dustbin	Box in which the dustbag (see “P115 13-1-3 Dustbag”) is attached.
	Dustbin cover	Cover on the dustbin. Before closing the dustbin cover, check that the dustbag (see “P115 13-1-3 Dustbag”) inside the dustbin is attached properly.

	Terminology	Description
E	Emergency stop button	Button used in an emergency. Pressing the emergency stop button immediately brakes the machine and all functioning stops. (see “P42 7-3 Emergency Stop”) To resume autonomous cleaning after an emergency stop, turn the emergency stop button to the right to release the emergency stop and press the autonomous clean start/stop button (see “P55 7-11 Autonomous Clean Start/Stop Button”).
G	Grounding chain	Chain for channeling the machine’s electrical charge (static electricity) to the ground. Before using the machine, check that the earth chain is in contact with the floor.
	Group function	Function that allows multiple machines to share the cleaning route (see “P60 9-2-2 Cleaning Routes and Group Function”). It is necessary to create a group with Whiz Connect Portal beforehand, and assign the machines to the group.
H	HEPA filters	High-performance exhaust filters located at the exhaust of the machine for removing dirt and particles. (see “P114 13-1-2 HEPA Filters”)
	HEPA filter covers	Removable covers on the machine’s exhaust. (see “P114 13-1-2 HEPA Filters”)
	Home Location Code	Code used for having the machine learn where cleaning start/end points are in autonomous cleaning mode. One code can be used for the machine to learn six routes. (see “P58 9-2 Home Location Codes”)
	Hopper tray	Tray for holding dirt collected by the brush. Discard any dirt in the tray after every cleaning. (see “P119 13-1-4 Hopper Tray”)
L	LED lights	LED lights for indicating machine status, safety, and errors. LED lights are located at positions from the front of the machine to its back, and light in different colors and patterns. (see “P46 7-5 LED Lights”)
	Lift handles	Used when lifting the machine from the floor. Be sure to use two people as a safety precaution when lifting the machine.
M	Main power switch	Switch for turning on/off the machine. Press “I” to turn the machine on, and “O” to turn the machine off. (see “P41 7-1 Main Power Switch”)
	Manual Cleaning	Use the handle for making the machine travel through and clean a cleaning area manually. (see “P93 10 Manual Cleaning”)
	Max power mode	Mode with more vacuum power than normal mode. Cleaning in max power mode is recommended for cleaning especially dirty locations. (see “P52 7-8 Max Power Mode Button”)
	Max power mode button	Button for switching from normal mode to max power mode. (see “P52 7-8 Max Power Mode Button”)
	Micro-fiber cloth	Cloth used during maintenance of the 2D/3D camera, LIDAR sensor, and cliff sensor.

	Terminology	Description
N	Normal mode	The usual mode for cleaning. (see “P52 7-8 Max Power Mode Button”)
	Notification	A notification is issued when the battery level is low or when the error has occurred. Notifications appear at the upper left of the touch display of the machine (see “P48 7-6 Touch Display”).
	Notification pager	Receives alert messages when the machine encounters an obstacle or the emergency stop button is pressed during autonomous cleaning mode. When an alert message is received, it notifies the operator by sound and vibrating (see “P95 11 Notification Pager”). To recharge the notification pager, use the special charger.
	Notification pager charger	Used for recharging the notification pager. Use a micro USB cable to recharge the notification pager (see “P103 11-4 Recharging the Notification Pager”).
O	Open/close knob	This is the knob for the dust cover used to open or close the dust box.
	Operator	The person who operates and manages the machine.
P	Pager holder	Used for attaching the notification pager on the machine.
	Pager main button	Button for turning the notification pager (see “P95 11 Notification Pager”) on/off.
	Pager mute switch	Switches the alert on/off that sounds when the notification pager receives an alert message. (see “P95 11 Notification Pager”)
R	RIN	The machine’s serial number. The RIN is indicated on a sticker located on the inside of the battery door on the machine.
	Robot Operations Center	The Robot Operations Center is Brain Corp.’s cloud-based robotics center. Via LTE connection, it provides remote monitoring and manages usage of the machine, and automatically sends reports on daily use and cleaning results, software updates, and messages indicating the occurrence of any abnormalities to the operator.
	ROC indicator	When the machine is connected normally to the Robot Operations Center, this lights orange on the machine’s touch display. (see “P48 7-6 Touch Display”)
	Rubber pads	Prevent the machine from being scratched when laid on the floor.
S	Secondary battery power button	Button used to replace the battery while the power of the machine is on during autonomous cleaning (see “P44 7-4 Secondary Battery Power Button”). Turn off the secondary battery power button when using the machine or when not using the machine for a long period of time (a week or longer), and turn it on only when replacing the battery.
	Steering handle	Handle for moving the machine while it is standing on its wheels, using for manual cleaning, and when teaching a cleaning route. When carrying out autonomous cleaning, stow the steering handle in the machine beforehand as a safety precaution. (see “P53 7-9 Steering Handle”)

	Terminology	Description
T	Teach route	Use Home Location Codes to teach cleaning routes in autonomous cleaning mode. A cleaning route can be taught either automatically (see “P72 9-4-3 Teaching a Cleaning Route Automatically”) or manually (see “P70 9-4-2 Teaching a Cleaning Route Manually”)
	Teaching route	Having the machine learn a cleaning route beforehand to use during autonomous cleaning. (see “P70 9-4-2 Teaching a Cleaning Route Manually” or “P72 9-4-3 Teaching a Cleaning Route Automatically”)
	Touch display	Screen for checking the machine's battery level and operating time, connection to the Robot Operations Center, error messages, etc. Cleaning routes are also taught and selected by tapping the touch display. (see “P48 7-6 Touch Display”)
V	Vacuum power button	Button for starting/ending vacuuming. (see “P52 7-7 Vacuum Power Button”)
W	Warning sound	This is the sound played when the autonomous clean start/stop button (see “P55 7-11 Autonomous Clean Start/Stop Button”) is pressed or the machine changes the direction during the autonomous cleaning.
	Whiz Connect app	App for managing current robot operation and alerts.
	Whiz Connect Portal	Portal site allowing management of current robot operation and alerts as well as downloading of operation reports.

Revision history
January 1, 2021 :Third revision

SoftBank Robotics Corp.