

ROBOTIC SCRUBBER ICE RS26 GEN2



INTRODUCTION

This operator manual is provided with each new model and contains information to allow for quick start-up of your new ICE RS26 Robotic Scrubber, powered by BrainOS. This manual may be periodically updated or revised. The robotic scrubber can be used in manual mode or in robotic (self-driving/autonomous) mode. Use in robotic mode requires a subscription to Brain Corp's Autonomy Services. Follow all provided instructions and warnings. Failure to adhere to directions could result in damage to the machine and injury to the operator and public.

Brain Operating System (BrainOS) is the name of Brain Corp's artificial intelligence (AI) and autonomous navigation software that provides robotic operating capabilities to the robotic scrubber. ICE China is Intelligent Cleaning Equipment Holdings Co. Ltd., a British Virgin Islands limited company, having its principal place of business at Sea Meadow House, P.O. Box 116, Blackburne Highway, Road Town, Tortola, British Virgin Islands.

ICE RS26 ROBOTIC SCRUBBER DESCRIPTION

The ICE RS26 Robotic Scrubber is a commercial floor scrubber that is powered by BrainOS software. The robotic scrubber is capable of functioning in either manual or robotic mode. When in robotic mode, the robotic scrubber is driven by the BrainOS navigation software. This manual uses the term robotic mode, which is equivalent to autonomous mode.

The robotic scrubber may be covered by one or more patents or pending patent applications. See www.braincorporation.com/patents for details. Discrete portions of this product were made possible by open source software. See www.braincorp.com/open-source-attributions for details.

INTENDED USE AND PRECAUTIONS

The robotic scrubber is a collaborative robot that is intended for supervised commercial use. Use the robotic scrubber exclusively on hard floors in an indoor environment. Do not use on soil, grass, artificial turf, or carpeted surfaces. Only use the robotic scrubber with accessories approved by Brain Corp or ICE. The robotic scrubber should only be used by operators trained by Brain Corp or Brain Corp-approved trainers in a controlled, restricted environment approved by Brain Corp.

Additional training materials may be provided as to the intended use of the robotic scrubber, and it should only be used in accordance with such training. Use the machine in approved environments in accordance with the Autonomy Services Agreement (ASA) and the Autonomous Navigation Software End User License Agreement (EULA).

The operator is responsible for the use of the robotic scrubber in both manual and robotic mode. Therefore, each operator must be mindful to use the machine in accordance with its intended use, precautions, and warnings at all times. Operators will not engage in any of the following conduct or activities with respect to Autonomy Services or BrainOS:

- a. Transmission of any software or other materials that contain any viruses, worms, trojan horses, defects, spyware, spiders, screen-scrapers, or other items of a destructive or disruptive nature;
- b. Exploitation of the Autonomy Services, BrainOS, or the machine's hardware in any unauthorized manner, including trespassing or burdening server or network capacity or infrastructure;
- c. Framing, mirroring, or reselling any part of the Autonomy Services or BrainOS without Brain Corp's prior written authorization;
- d. Unauthorized collection of user information;
- e. Attempting to deliberately damage or undermine the legitimate operation of the Autonomy Services or BrainOS;
- f. The machine's onboard cameras may capture images of people who happen to be in its surrounding. There may be additional jurisdictional laws of operation relating to use of technology with cameras. Please comply with all applicable laws, including using signage or obtaining consents as required.

INTRODUCTION



Read completely and understand this manual before operating or servicing the machine.

This robotic scrubber offers superior service and delivers best results when:

- Operated with reasonable care.
- Appropriately and regularly maintained, as per maintenance instructions provided.
- Recommended accessories are used, such as squeegee blades, scrub brushes/pads, etc.

PROTECT THE ENVIRONMENT



Dispose of packaging materials, used batteries, and fluids in an environmentally safe way according to local waste disposal regulations. Remember to recycle.

Pay special attention when any of the following symbols/indicators are used in this manual.



WARNING: Notification of hazards or unsafe practices that could result in physical or property damage, physical injury, or death.



Provides specific steps or actions that must be followed to ensure safe operation of the robotic scrubber and/or its components.



Provides helpful tips and tricks to maximize the use of the robotic scrubber.

NOTE: Provides additional information for reference.

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IMPORTANT SAFETY INSTRUCTIONS

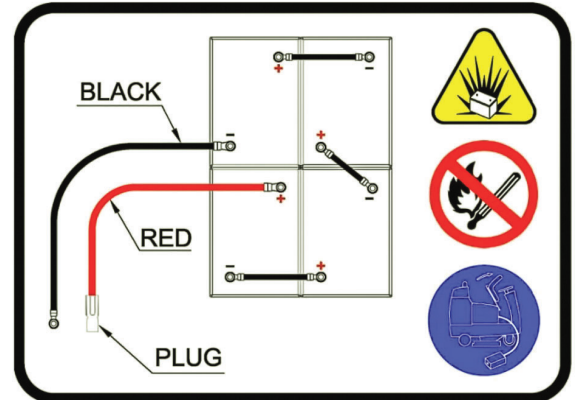
KEEP THESE INSTRUCTIONS

The following safety labels are attached to the machine. Replace any damaged or missing labels.

Located directly in front of the operator seat.



Located underneath the operator seat.



GENERAL SAFETY

- Operators must be appropriately trained on the use of the robotic scrubber.
- Operators must read and understand this manual before operating or maintaining the robotic scrubber.
- Train all personnel who will be operating the robotic scrubber. The robotic scrubber is not intended for users with reduced physical, sensory, or mental capabilities, nor by untrained users.
- Report any damage or faulty operation immediately. Do not use the robotic scrubber if it is damaged in any way.
- Avoid moving parts.
- Do not allow children to play with the robotic scrubber.
- Do not use the robotic scrubber in a manner other than what is described in this manual.
- Do not clean with a pressure washer.
- Only plug the external charger into an outlet with an appropriate electrical rating: 100 to 240V, 50/60 Hz, 8 A. In North America, the standard grounded outlet emits 120V, which is in the appropriate electrical rating.
- Do not disconnect the offboard charger's DC cord from the machine's receptacle when the charger is operating. Arcing may result. If battery charging must be interrupted, disconnect the AC power supply cord first.
- Do not pull on the battery charger cord to unplug. Grasp plug at outlet and pull.
- Only use approved batteries and chargers. Use of unapproved parts may impair safety and potentially damage the machine and/or cause a fire.

IMPORTANT SAFETY INSTRUCTIONS

ENVIRONMENTAL SAFETY

- The robotic scrubber is not designed or intended for use in environments requiring fail-safe performance including, but not limited to any application in which failure of the robotic scrubber could lead directly to death, personal injury, or severe physical or property damage.
- Do not use on soil, grass, artificial turf, or carpeted surfaces.
- Indoor use only.
- Do not use on public paths or roads.
- The robotic scrubber should only be used to scrub flat, hard surfaces with little to no inclines (up to 2% incline when operating in manual mode; 0% incline when operating in robotic mode).
- All drops, stairs, escalators, moving platforms, or cliffs near the robotic scrubber must be guarded by a physical barrier when operating in robotic mode.
- Do not use temporary elevated platforms (e.g. ladders or scaffolds) near the robotic scrubber during operation.
- Do not leave electrical cords or low-profile items (e.g. items with a height of less than 7 inches [18 centimeters] from the ground) in the robotic scrubber's area of operation.
- Place Wet Floor signs in areas where the robotic scrubber is operating. See the ASA and EULA for further uses and restrictions.
- Operating and storage temperature is 35°F - 100°F (2°C - 38°C).
- Store indoors in a dry environment.
- Use caution when moving the robotic scrubber into or out of areas that are below freezing temperatures. Any water in the tanks or hoses can cause damage to the robotic scrubber.
- Park and store the robotic scrubber on a level surface only.
- Some objects may be difficult for the robotic scrubber to detect, such as diffusive black finishes, highly polished/reflective surfaces, or Plexiglas. Avoid cleaning in robotic mode where these objects are present.
- Avoid using the robotic scrubber in proximity to other products that are sensitive to electromagnetic noise.
- Do not use in low traction environments (e.g. ice, oil, etc.).
- Avoid use in environments where stopping could result in a safety risk, such as blocking an emergency exit.
- Avoid use in environments with inconsistent terrain texture (excessively bumpy) or many floor transitions.

IMPORTANT SAFETY INSTRUCTIONS

OPERATIONAL SAFETY

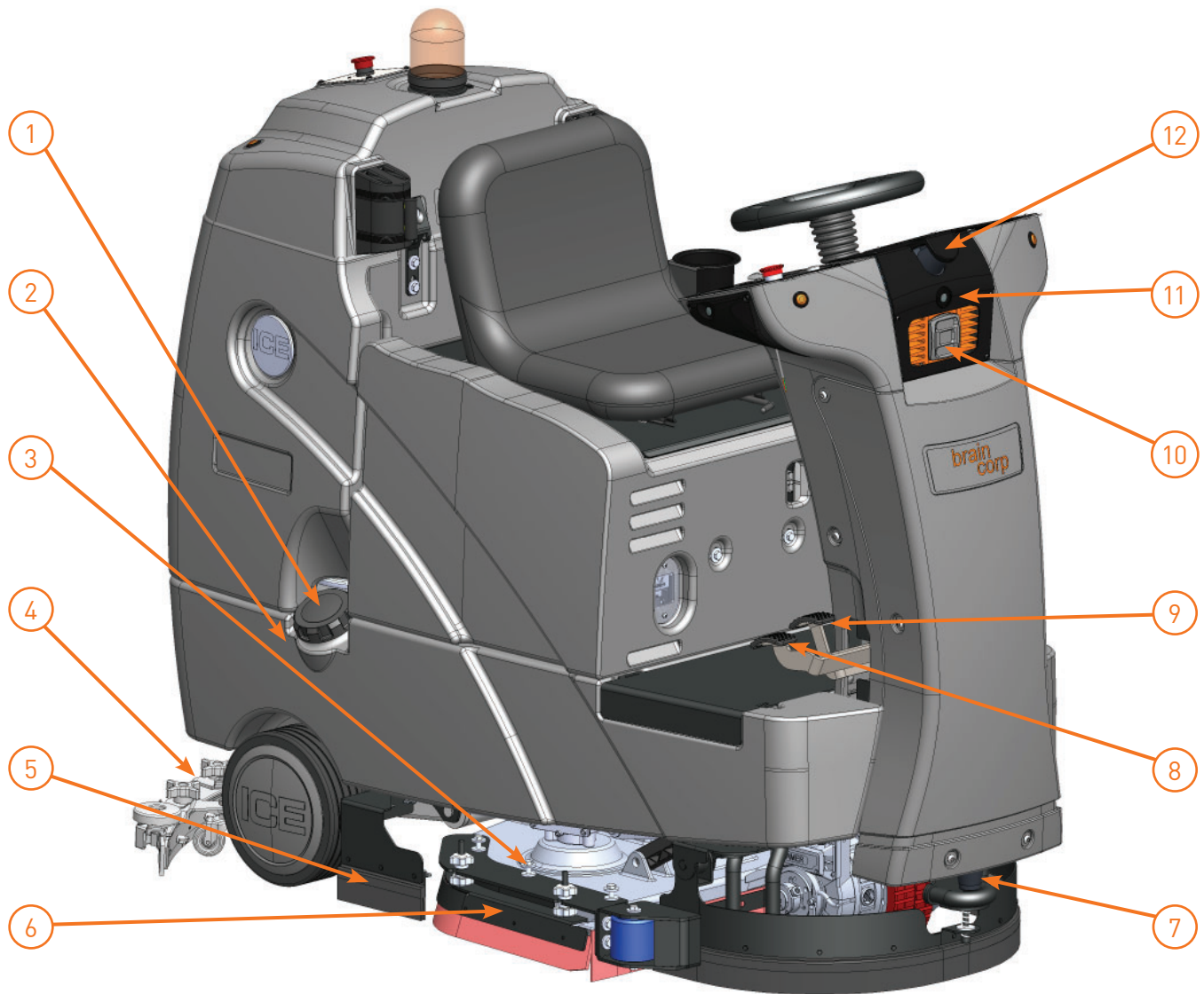
- Keep hands and feet clear of moving parts while the robotic scrubber is in operation.
- Locate and make sure all safety devices (e.g. operator seat sensor, yellow safety straps, and emergency stop buttons) are in place and fully functional.
- All doors and covers must be positioned as indicated in the instruction manual before using the robotic scrubber.
- Keep all third parties, especially children and animals, at least 3 feet away from the machine during operation.
- The operator is responsible for supervising and monitoring safe operation of the robotic scrubber.
- Do not ride the robotic scrubber when it is operating in robotic mode.
- Do not grab the steering wheel when operating in robotic mode, as it may move rapidly and unexpectedly.
- All wheels/tires need to be in contact with the floor at all times. Avoid abrupt maneuvers while using in manual mode.
- Do not use flammable cleaning agents.
- Do not operate the robotic scrubber near flammable materials such as solvents, thinners, fuels, grain dust, etc. Electric motors and components can cause an explosion when operated near explosive materials or vapors.
- The robotic scrubber is not suitable for picking up hazardous substances.
- Use appropriate personal protective equipment, as recommended by the cleaning chemical safety data sheet, when adding cleaning chemicals or draining fluids.
- Observe the legal directives and local regulations for disposal of cleaning chemicals or detergents.
- In case of accidental contact or spillage of cleaning chemicals or detergents, follow guidelines provided by the manufacturer.
- Only use brushes/pads provided with the robotic scrubber or those specified by Brain Corp or ICE. Use of unauthorized brushes/pads may impair safety and potentially damage the robotic scrubber.
- Do not leave the robotic scrubber unattended without first turning the ignition key off and removing the key. When the robotic scrubber is operating in robotic mode, remove the ignition key to prevent unauthorized use.
- Drain all tanks and hoses prior to storing the robotic scrubber.
- Prevent unauthorized use of the robotic scrubber by storing with the ignition key removed.
- Do not charge batteries when open flames or sparks are present. Do not smoke.
- If the battery charger or power supply cord is damaged, it must be replaced. Do not use damaged parts.

IMPORTANT SAFETY INSTRUCTIONS

MAINTENANCE AND SERVICE SAFETY

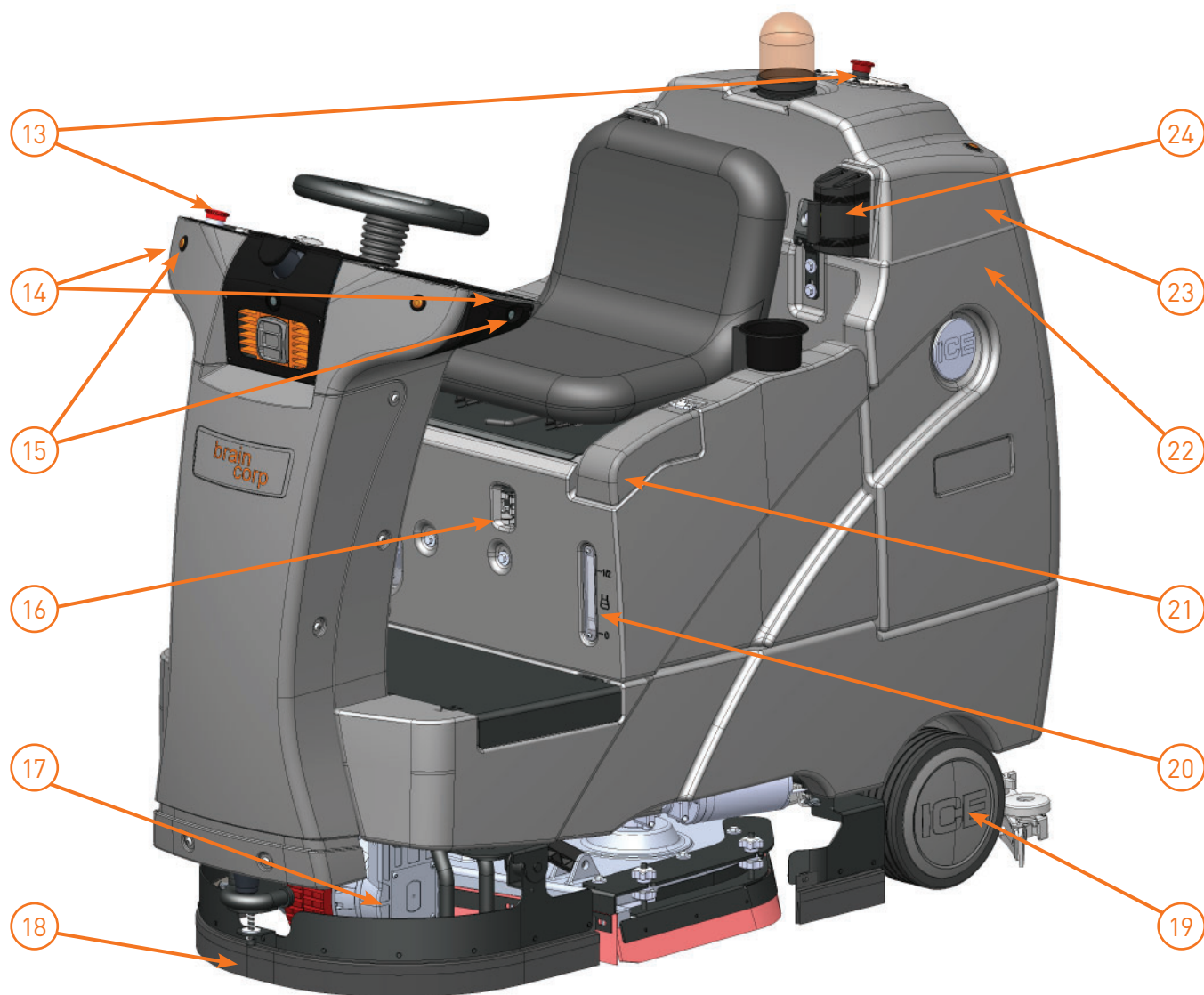
- Repairs and specified maintenance tasks must be performed by authorized personnel only.
- Only use approved replacement parts. Use of unapproved parts may impair safety and potentially damage the machine.
- Read all instructions before performing any service or maintenance function.
- Take precautions to prevent hair, jewelry, or loose clothing from becoming caught in moving parts.
- Only work on the machine when it is parked on a level surface and appropriately stabilized via safety blocks or support stands, if necessary.
- Do not lay tools or metal objects on top of the batteries.
- Remove all jewelry, watches, and other conductive materials when working near electrical components.
- Dispose of depleted batteries that can no longer be recharged in accordance with your local environmental regulations.

ROBOTIC SCRUBBER COMPONENTS



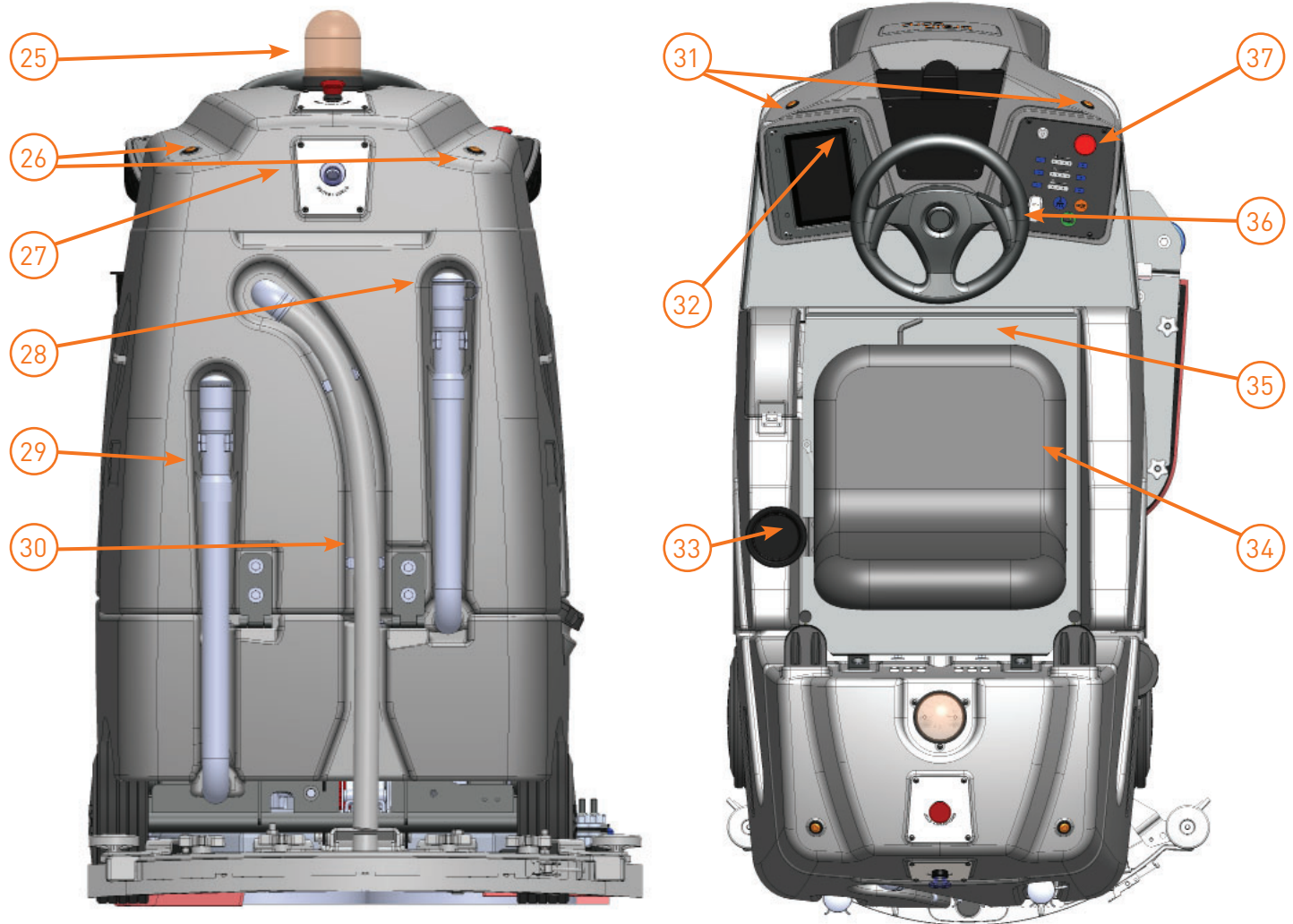
#	COMPONENT	DESCRIPTION
1	Hose Fill Clean Water Port	Input for clean water
2	Clean Water Tank	Holds clean water received via Hose Fill Clean Water Port
3	Scrub Deck	Deck that raises/lowers scrub brush during cleaning
4	Rear Squeegee	Removes debris and liquid from floor during cleaning
5	Side Perimeter Skirt	Protects the machine from oversized debris
6	Side Squeegee	Removes debris and liquid from floor during cleaning
7	Lower LIDAR	Constantly surveys the machine's surroundings for obstacles
8	Accelerator Pedal	Press to drive the machine
9	Brake Pedal	Press if fast stopping is needed or operating on an incline
10	Front 3D Camera	Constantly surveys the machine's surroundings for obstacles
11	Front 2D Camera	Constantly surveys the machine's surroundings for obstacles
12	Upper LIDAR	Constantly surveys the machine's surroundings for obstacles

ROBOTIC SCRUBBER COMPONENTS



#	COMPONENT	DESCRIPTION
13	Emergency Stop Button	Press to immediately stop the machine in emergency situations
14	Side 3D Camera	Constantly surveys the machine's surroundings for obstacles
15	Side 2D Camera	Constantly surveys the machine's surroundings for obstacles
16	Battery Charger Receptacle	Input for battery charger's DC cord
17	Front Drive Wheel	Drives the machine when the accelerator pedal is pressed
18	Front Perimeter Skirt	Protects the machine from oversized debris
19	10 Inch Wheels	Rear wheels and tires (one on each side)
20	Solution Level View Window	View window that shows the volume of solution
21	Solution Port	Input for approved cleaning solution
22	Recovery Tank	Recipient of vacuum's dirty water and debris
23	Recovery Tank Cover	Provides sealed cover for Recovery Tank
24	Retractable Safety Straps	Yellow safety straps that block off the operator seat

ROBOTIC SCRUBBER COMPONENTS



#	COMPONENT	DESCRIPTION
25	Warning Light	Signals machine operation
26	Rear Signal Lights	Signals turns during robotic operation
27	Start/Pause Button	Press to begin or pause a robotic route
28	Recovery Tank Drain Hose	Use to empty the Recovery Tank
29	Clean Water Tank Drain Hose	Use to empty the Clean Water Tank
30	Vacuum Hose	Hose where vacuumed debris flows from the floor to the Recovery Tank
31	Front Signal Lights	Signals turns during robotic operation
32	UI (User Interface) Touchscreen	Provides user access to BrainOS software
33	Cup Holder	Holds cup
34	Operator Seat	Seat for manual operation or joyride prevention during robotic operation
35	Seat Adjustment Handle	Use to adjust the operator seat forward or backward
36	Steering Wheel	Use to steer the machine
37	Control Panel	Consists of a number of manual controls for customized scrubbing

ROBOTIC SCRUBBER COMPONENTS



#	COMPONENT	DESCRIPTION
38	Ignition Key Switch	Turns machine on and off
39	Directional Switch	Controls whether the machine drives forward or backward
40	Vacuum Button	Turns the vacuum on and off
41	One-Touch Button	Engages all cleaning components (scrub brush, vacuum, & squeegee)
42	Horn Button	Press to sound the machine's horn
43	Brush Pressure Control	Regulates the amount of scrub brush pressure used during cleaning
44	Water Flow Control	Regulates flow of water discharged during cleaning
45	Solution Flow Control	Regulates flow of solution discharged during cleaning
46	Emergency Stop Button	Press to immediately stop machine in emergency situations

MACHINE SETUP

UNCRATING MACHINE

Perform the following steps to uncrate the machine:

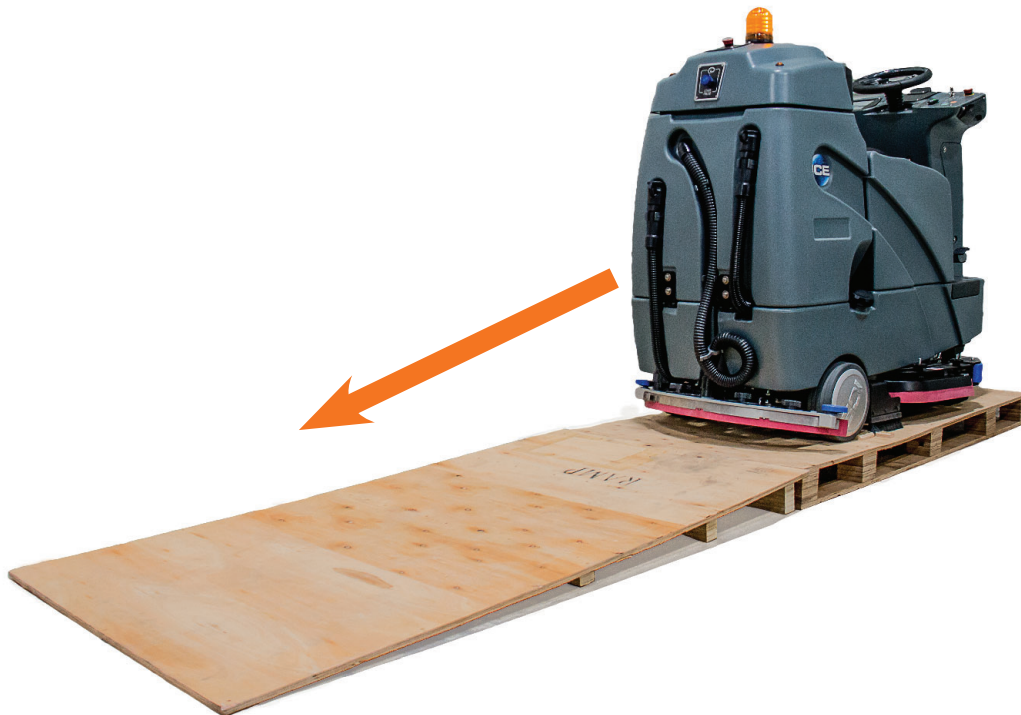
1. Check the packing crate and immediately report any damage to the carrier.
2. Remove the top and side walls from the pallet.
3. Check the contents of the crate to ensure all items are included.
4. Place the top board on the edge of the pallet by the rear of the machine.
5. Make sure that the scrub brush and squeegee assemblies are securely attached.
6. Lift the operator seat and prop open to expose the battery compartment.



7. Remove the tape from the two red battery connectors and attach together.

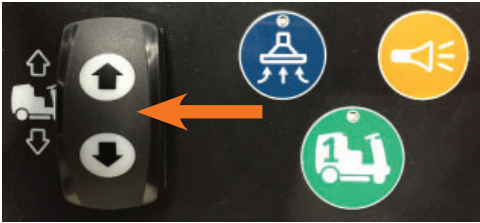


8. Lower the operator seat.
9. Sit on the operator seat, insert the ignition key and turn to the right (clockwise) to turn on the machine.
10. Make sure the scrub brush and squeegee assemblies are raised.
11. Press the down arrow of the directional switch.
12. Slowly drive the machine backwards off the ramp and onto the floor.



OPERATION OF CONTROLS

DIRECTIONAL SWITCH



The directional switch controls whether the robotic scrubber drives forward or backward when the accelerator pedal is pressed. The up arrow instructs the machine to drive forward. The down arrow instructs it to drive backward. When a direction is selected, the corresponding arrow light will illuminate. When the down arrow is pressed, the squeegee will automatically raise to prevent damage.

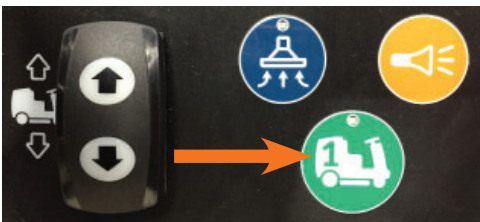
NOTE: BE SURE TO INSPECT THE FLOOR FOR ANY RESIDUAL WATER AFTER DRIVING THE MACHINE BACKWARD.

VACUUM BUTTON



Pressing the Vacuum button turns the vacuum on. When the vacuum is turned on and the directional switch is set to forward, the Vacuum button's indicator light illuminates and the squeegee automatically lowers. When the vacuum is turned off, the squeegee will stay down for a few seconds and then raise. The vacuum continues to run for up to 15 seconds and then turns off.

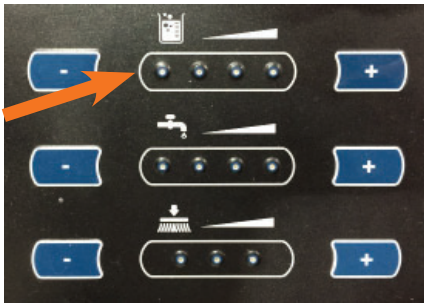
ONE-TOUCH BUTTON



The One-Touch button engages the scrub brush, vacuum, and squeegee, allowing for immediate operation of the machine. When pressed, the One-Touch button's indicator light illuminates, the scrub brush and squeegees are lowered, and the vacuum turns on. The machine is now ready to scrub. When scrubbing is complete, press the One-Touch button again to disengage cleaning operations. The indicator light turns off and the scrub brush will rise off the floor. The squeegee will remain down for a few seconds and then rise as well. After the squeegee has risen, the vacuum will remain on for a few additional seconds to clear any remaining water in the hose and then turn off.

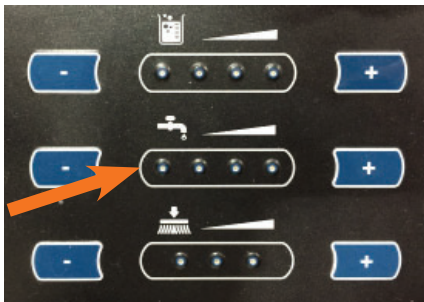
OPERATION

SOLUTION FLOW CONTROL



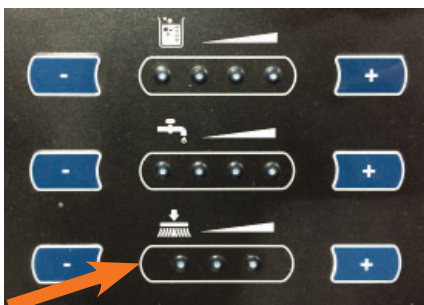
The solution flow control regulates the amount of cleaning detergent or solution that is discharged during cleaning. Solution is not dispensed by the machine unless the One-Touch button is selected. The solution flow control defaults to the lowest setting every time the machine is turned on, as cleaning needs may change from day-to-day. For low soilage conditions, set the solution flow control on the lowest setting. For moderate or heavy soilage, set the solution flow control higher, as needed.

WATER FLOW CONTROL



The water flow control regulates the amount of water that is discharged during cleaning. Water is not dispensed by the machine unless the One-Touch button is selected. The water flow control defaults to the lowest setting every time the machine is turned on, as cleaning needs may change from day-to-day. For low soilage conditions, set the water flow control on the lowest setting. For moderate or heavy soilage, set the water flow control higher, as needed.

BRUSH PRESSURE CONTROL



The brush pressure control regulates the amount of scrub brush pressure (down force) used during cleaning. The scrub deck is not lowered unless the One-Touch button is selected. The brush pressure control defaults to the lowest setting every time the machine is turned on, as cleaning needs may change from day-to-day. For low soilage conditions, set the brush pressure control to the lowest setting. For moderate or heavy soilage, set the brush pressure control higher, as needed.

START/PAUSE BUTTON



The machine is equipped with a Start/Pause button on the back that is used to start a robotic route or pause an in-process robotic route. When an existing navigation route is selected on the UI touchscreen, the Start/Pause button flashes. When pressed to start the route in robotic mode, the Start/Pause button stops flashing and remains consistently illuminated during robotic operation. The Start/Pause button is not illuminated when operating the machine in manual mode.

EMERGENCY STOP BUTTONS



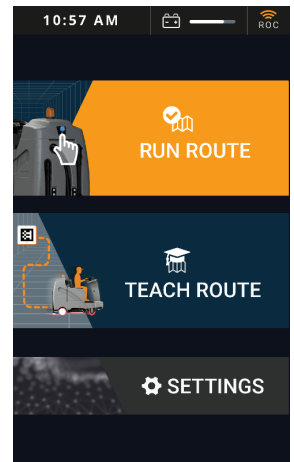
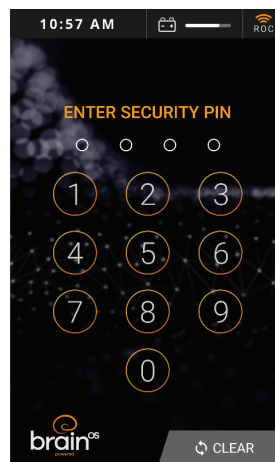
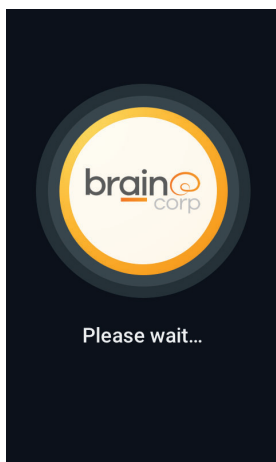
The machine is equipped with two emergency stop buttons, one on the control panel and one on the recovery tank cover on the rear of the machine. Only use the emergency stop buttons in emergency situations, as this potentially releases fluids onto the floor causing a slipping hazard.

Press either emergency stop button in an emergency to halt the machine power. Twist the same emergency stop button used to stop the machine to the right to disengage the emergency stop function. (See [Emergency Stop](#) for details.)

UI (USER INTERFACE) TOUCHSCREEN

The machine is equipped with BrainOS software that is accessible via the UI (User Interface) touchscreen located to the left of the steering wheel. BrainOS technology offers a robotic route feature that provides the ability for the machine to perform floor cleaning by following one of the saved navigation routes without direct, real-time operator control.

When the machine is turned on, the BrainOS software will automatically initialize. Once initialized, a security PIN must be entered to access BrainOS software and use its robotic functionality.



How the Machine Works

The robotic scrubber is capable of both manual and robotic operation, thanks to BrainOS technology. A subscription to Brain Corp's Autonomy Services is required to use the machine's robotic functions.

The machine consists of a solution bottle, clean water tank, scrub brushes or pads, squeegees, vacuum fan, and recovery tank that all work together to provide efficient floor scrubbing. The Vacuum button turns the vacuum on/off and raises/lowers the squeegees. The One-Touch button engages the solution, clean water, vacuum, scrub brushes/pads, and squeegees with the press of a single button. The solution flow, water flow, and brush pressure levels are configurable via their corresponding controls on the control panel. This allows customized cleaning based on current cleaning needs.

The directional switch and steering wheel determine the direction the machine travels, while the accelerator pedal controls the speed of the machine. Releasing pressure entirely from the accelerator pedal causes the machine to stop. Pressing the brake pedal will immediately stop the machine.

The machine is equipped with BrainOS software that is accessible via the UI (User Interface) touchscreen. BrainOS technology offers a robotic mode feature that provides the ability for the machine to perform floor cleaning by following one of the saved navigation routes without direct, real-time operator control. The machine can only operate in robotic mode in areas where cleaning routes have been taught and saved. It allows an operator to teach the scrubber new cleaning routes, run existing cleaning routes in robotic mode, and access triggered alert messages and notifications. It also provides constant visibility to the current battery life, number of hours the machine has operated, and Robotic Operation Center (ROC) connection status.

Home Location Codes must be permanently installed before you can begin using the machine in robotic mode. A Home Location Code is a unique scan code identifier that the machine scans to determine its current location, as well as any routes that have been saved to that specific Home Location Code. The machine is designed to work with up to 10 Home Location Codes. Each Home Location Code can store up to 6 routes for a total of 60 routes.

When operating in standard manual mode, solution and clean water are dispensed on the floor as the machine is driven. The scrub brushes/pads scrub this combination as the machine travels forward. The side squeegees help control the path of the fluids. The rear squeegee collects the dirty water. The vacuum picks up this dirty water and transports it to the recovery tank.

When operating in double scrubbing mode, solution and clean water are dispensed on the floor as the machine is manually driven. The scrub brushes/pads scrub this combination as the machine travels forward. However, the squeegees and vacuum are not engaged when double scrubbing. This allows the cleaning solution to remain on the floor longer for a deeper clean.

PRE-OPERATION CHECKS

Before using the ICE RS26 Robotic Scrubber, always perform the following checks to ensure proper operation:

- ☐ Clear all obstacles from the areas to be cleaned to ensure maximum floor coverage.
- ☐ Be sure you understand the functions of all components of the machine.
- ☐ Check the horn, warning light, and front and rear signal lights to ensure proper operation.
- ☐ Check the machine for fluid leaks.
- ☐ Check the tank cover seals for damage and excessive wear.
- ☐ Drain and clean the recovery tank, if necessary.
- ☐ Clean the vacuum fan inlet filter, if necessary.
- ☐ Check the vacuum hose for debris or blockage; flush out any obstacles.
- ☐ Check the squeegee blades for damage, excessive wear, and deflection. Rotate or replace as needed.
- ☐ Check that the scrub brushes/pads is properly installed and is clean of restricting debris such as string, banding, plastic wrap, etc.
- ☐ Make sure the batteries are fully charged and free of damage.
- ☐ Check the brakes and steering to ensure proper operation.
- ☐ Check that all cameras and LIDARs are clean and free of dust, dirt, and smudges. Clean with the provided microfiber cloth, as needed.
- ☐ Fill the clean water tank with clean water via the hose fill clean water port of the left side of the machine or via the bucket-fill port located under recovery tank. If using the bucket-fill port, ensure the recovery tank is empty before accessing.
- ☐ Using appropriate personal protective equipment, fill the solution bottle with an approved cleaning solution.



Before using any cleaning chemicals:

- 1) Review the Safety Data Sheet (SDS) for the cleaning chemical.
- 2) Use appropriate personal protective equipment, as recommended by the cleaning chemical SDS or chemical company.
- 3) Follow instructions and noted precautions in the SDS and on the container.
- 4) Provide appropriate cleaning chemical safety training.



WARNING: Do not put any flammable materials into the solution bottle or clean water tank. This can cause an explosion or fire.

OPERATION

MANUAL MODE OPERATION

Before turning on the robotic scrubber, make sure it is fully charged and free of damage.

Perform the following steps to manually operate the machine:

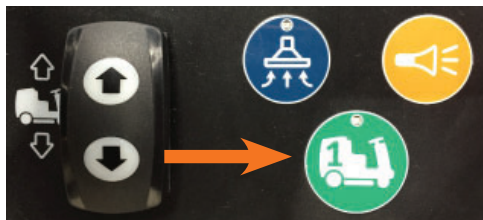
1. Disconnect the AC power supply from the outlet and then from the external battery charger.
2. Disconnect the DC cord from the machine's battery charger receptacle.
3. Fill the solution bottle with an approved cleaning solution.



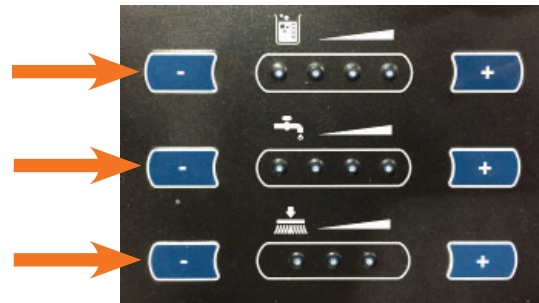
4. Fill the clean water tank with clean water via the hose fill clean water port on the left side of the machine or via the bucket-fill port located under the recovery tank. If using the bucket-fill port, make sure the recovery tank is empty before accessing.



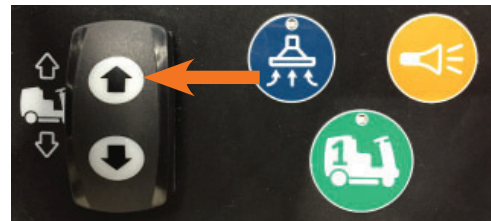
5. Sit in the operator seat, insert the ignition key and turn to the right (clockwise) to turn on the machine. Wait for the UI touchscreen to initialize.
6. Enter the 4-digit PIN via the UI touchscreen. Upon successful PIN entry, the UI touchscreen displays the Main Menu.
7. Press the One-Touch button to engage the cleaning components.



8. Select the desired cleaning settings using the solution flow, water flow, and brush pressure controls.



9. Press the up arrow of the directional switch to drive forward.



NOTE: THE MACHINE CAN ONLY SCRUB WHEN DRIVING FORWARD.

10. Press the accelerator pedal to begin scrubbing. Speed is adjusted via the force applied to the pedal - light is slow, heavy is fast.

NOTE: COMPLETE REMOVAL OF PRESSURE FROM THE ACCELERATOR PEDAL STOPS THE MACHINE. PRESS THE BRAKE PEDAL IF FAST STOPPING IS NEEDED OR IF OPERATING ON AN INCLINE OR DECLINE.

11. When finished scrubbing, remove pressure from the accelerator pedal and press the One-Touch button to disengage the cleaning components. The cleaning components will turn off after a brief delay.



- * Drive in a straight path as much as possible.
- * Drive slowly on inclines, declines, and slippery surfaces.
- * Avoid inclines or declines greater than 2% when operating manually.
- * Maintain a safe distance of approximately 18 in (46 cm) from the edge of ramps, platforms, cliffs, and glass.
- * Avoid sudden turns and/or turning the steering wheel too sharply when driving.
- * Use caution when driving backward.
- * Report any damage to the machine prior to operation.

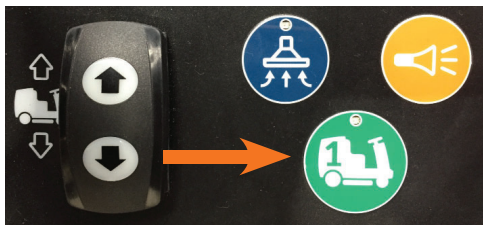
DOUBLE SCRUBBING (MANUAL MODE ONLY)

Double scrubbing is a mode of operation in which the machine scrubs the floor without simultaneously removing the fluid from the floor's surface. The squeegees and vacuum are not engaged during double scrubbing, only the scrub brushes/pads. This allows the cleaning solution to remain on the floor longer for a deeper clean.

NOTE: DOUBLE SCRUBBING IS FUNCTIONAL IN MANUAL MODE ONLY AND SHOULD ONLY BE USED IN A CONTROLLED ENVIRONMENT WHERE THERE IS NO POTENTIAL FOR SLIPPING AND FALLING.

Perform the following steps to perform double scrubbing:

1. Fill the solution bottle and clean water tank.
2. Sit on the operator seat and turn on the machine using the ignition key.
3. Press the up arrow of the directional switch.
4. Press the One-Touch button, which engages the cleaning components (scrub brushes/pads, squeegees, and vacuum). The One-Touch button's light will illuminate.
6. Drive the machine along the desired route for double scrubbing.
7. Let the cleaning solution set on the floor for approximately 5 minutes.
8. Press the One-Touch button to inactivate the scrub brushes/pads and solution flow.
9. Press the Vacuum button to turn on the vacuum, which also lowers the squeegees to the floor.
10. Drive the machine along the same path to pick up the cleaning solution.



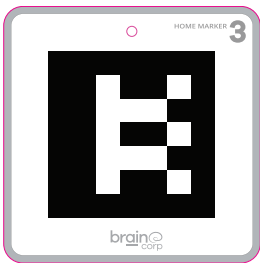
5. Press the Vacuum button to turn off the vacuum. Doing this also raises the squeegees off the floor.



ROBOTIC MODE OPERATION

The ICE RS26 Robotic Scrubber is equipped with BrainOS technology that offers a robotic mode feature. Robotic mode provides the ability for the machine to perform floor cleaning by following one of the saved navigation routes without direct, real-time operator control. The machine can only operate in robotic mode in areas where cleaning routes have been taught and saved. BrainOS software is accessible via the UI touchscreen, and provides access to teach a new cleaning route, run an existing route robotically, access triggered alert messages, and more. The UI touchscreen also provides constant visibility to current battery life, the number of hours the machine has operated, and ROC connection status.

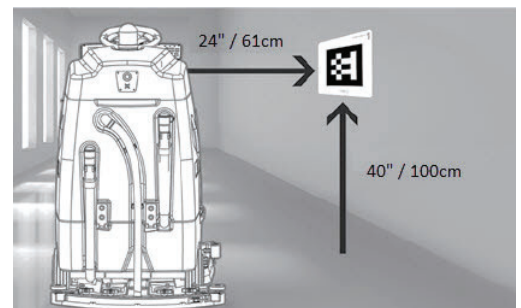
ESTABLISH HOME LOCATION CODES



Home Location Codes must be permanently installed before you can begin using the machine in robotic mode. A Home Location Code is a unique scan code identifier that the machine scans to determine its current physical location, as well as any routes that have been saved to that specific Home Location Code. The machine is designed to work with up to 10 Home Location Codes. Each Home Location Code can store up to 6 routes for a total of 60 routes.

Home Location Codes are used to establish the start and end point of a cleaning route. The number of Home Location Codes needed may vary, depending on the size of the space where the machine will be operating in robotic mode.

- Multiple Home Location Codes may be necessary for large or unusually mapped areas where more than 6 cleaning routes are needed.
- Establish a unique Home Location Code for each floor of a multi-level building.
- Install Home Location Codes in a permanent location on an open wall or column near commonly cleaned areas that do not change from day-to-day. If the Home Location Code is moved even slightly, the route may not be performed correctly.
- Install Home Location Codes at a height of 40 in (100 cm) from the ground.
- Install Home Location Codes so that the machine can easily scan with the camera on its right side at a distance of no less than 24 in (61 cm).
- Affix the Home Location Code securely to the wall.
- The entire Home Location Code must be clearly visible, not hidden behind furniture or shelving.
- Do not install Home Location Codes near stairways, fire exits, or fire, first aid, or emergency equipment.
- Do not photocopy, laminate, or place Home Location Codes in a glossy sleeve or cover, as this may prevent the machine from being able to scan.
- If a Home Location Code is lost or damaged, contact customer service for a replacement.



REGION

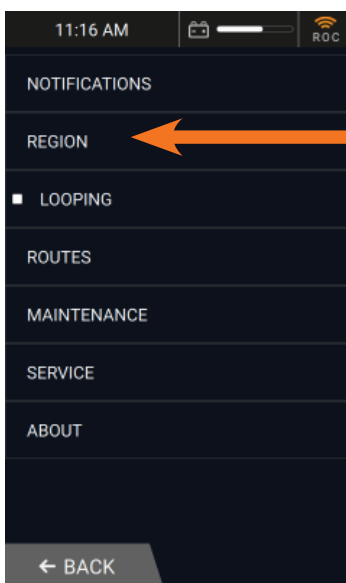
The UI (User Interface) touchscreen can be set to display in a variety of languages. English is the default language.

Perform the following steps to set the UI touchscreen to display in a different language:

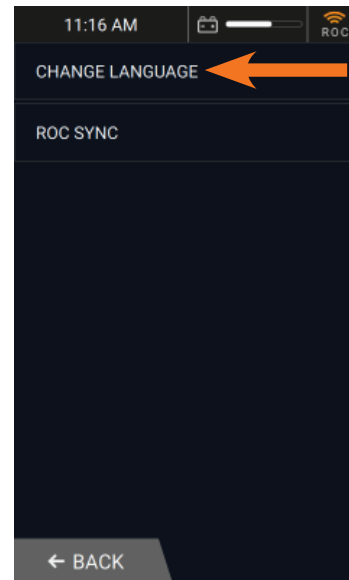
1. Insert the ignition key and turn to the right (clockwise) to turn on the machine. Wait for the UI touchscreen to initialize.
2. Enter the 4-digit PIN via the UI touchscreen. Upon successful PIN entry, the UI touchscreen displays the Main Menu.
3. Select **SETTINGS** from the Main Menu.



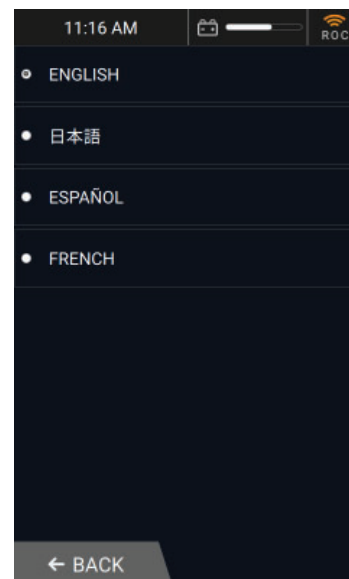
4. Select **REGION**.



5. Select **CHANGE LANGUAGE**.



6. Select the desired language.



7. Select **BACK** twice to return to the Main Menu, which will display in the selected language.

ROC: ROBOT OPERATIONS CENTER

BrainOS software provides access to Brain Corp's Robot Operations Center, also known as the ROC. The ROC is a cloud-based robot operations center, managed by Brain Corp technicians, that enhances the machine's abilities by providing monitoring and analytics. The ROC is connected via a 4G LTE modem and does not require user interaction to connect. New versions of BrainOS software are automatically uploaded to the machine without disrupting service or operator interaction.

There is a ROC indicator on the UI touchscreen's status bar. When the indicator is orange, the machine is successfully connected to the ROC. If the indicator is gray, the ROC is not connected and cannot be paired with a cell phone.

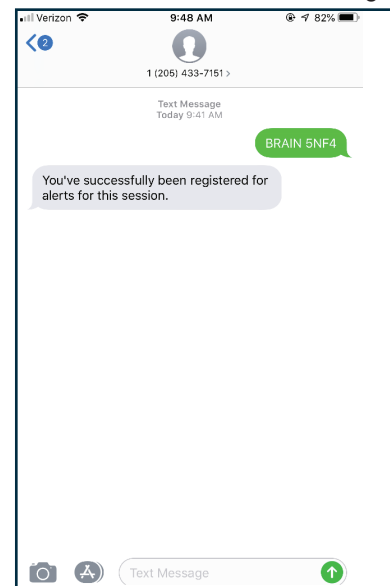
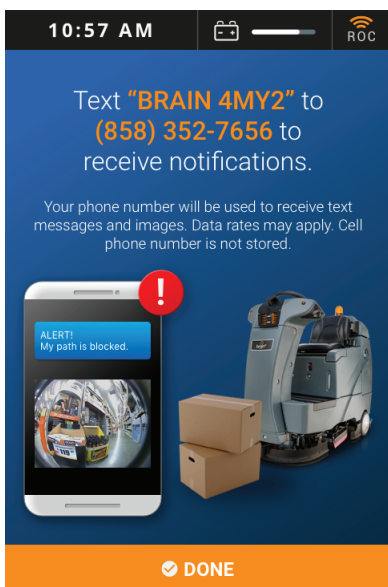
PAIR A PHONE TO THE ROC

Before running a cleaning route in robotic mode, it is recommended that the operator pair his/her cell phone to the ROC. When a cell phone is paired to the ROC, the ROC will send SMS or MMS messages to the phone whenever the machine encounters an alert and/or when the route is complete.

To ensure only the on site operator receives alerts from the ROC, only one phone can be paired to the ROC to receive status alerts. A paired phone number is automatically discarded when the machine is turned off or a new phone is paired.

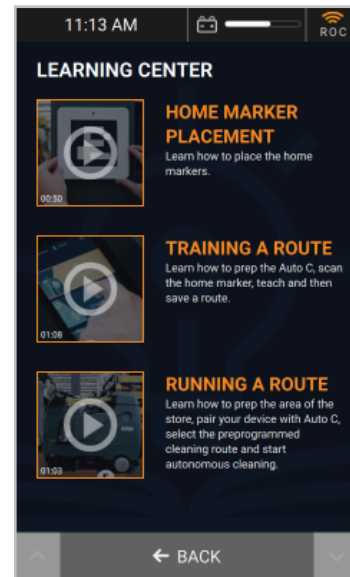
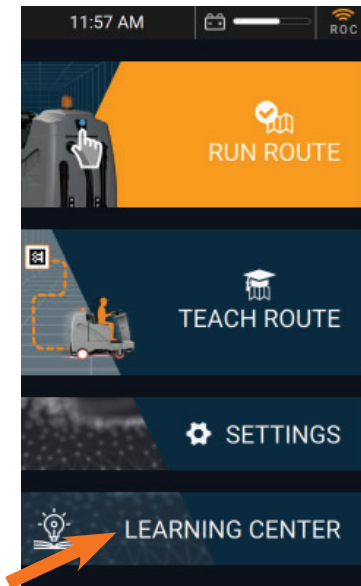
Perform the following steps to pair a cell phone to the ROC:

1. Insert the ignition key and turn to the right (clockwise) to turn on the machine. Wait for the UI touchscreen to initialize.
2. Enter the 4-digit PIN via the UI touchscreen. Upon successful PIN entry, the UI touchscreen displays the Main Menu.
3. Select **SETTINGS** on the Main Menu.
4. Select **NOTIFICATIONS**.
5. Follow the instructions on the UI touchscreen to pair the cell phone to the ROC.
6. Pairing is successful when the cell phone receives a confirmation text message.



LEARNING CENTER

The robotic scrubber's UI contains a Learning Center, which provides brief tutorial videos on how to perform certain tasks, such as how to teach a new route or run an existing route. Select **LEARNING CENTER** from the Main Menu to access these tutorials.



TEACH A ROBOTIC ROUTE

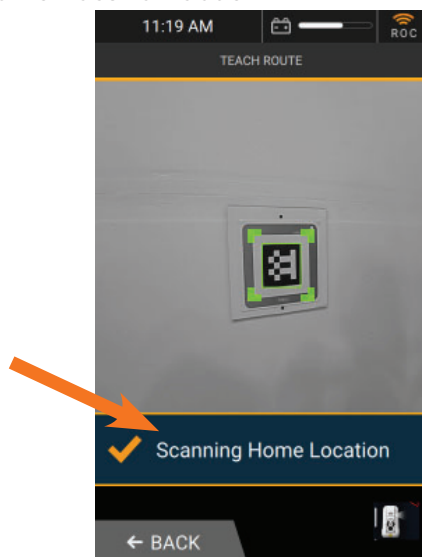
The robotic scrubber must be taught one or more cleaning navigation routes before it can run robotically.

Perform the following steps to teach a new route:

1. Sit in the operator seat, insert the ignition key and turn to the right (clockwise) to turn on the machine. Wait for the UI touchscreen to initialize.
2. Enter the 4-digit PIN using the UI touchscreen. Upon successful PIN entry, the UI touchscreen displays the Main Menu.
3. Select **TEACH ROUTE**.

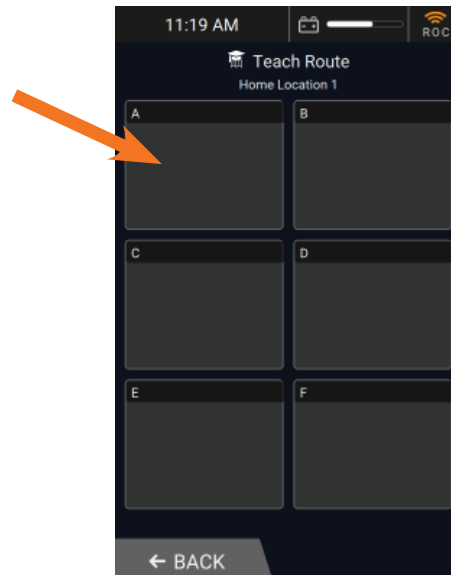


4. The UI touchscreen displays **Drive to scan my home location**. Drive to the desired Home Location Code, positioning the machine so the right-side camera is no less than 24 in (61 cm) away. The machine will automatically scan the Home Location Code.



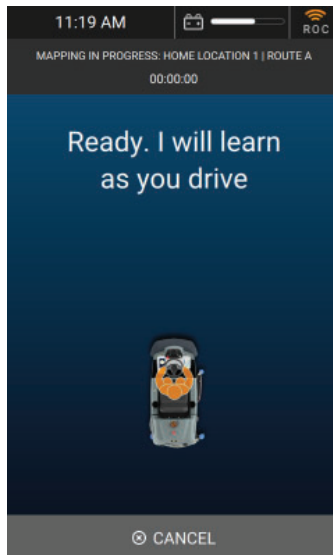
NOTE: IF THE MACHINE IS UNABLE TO SCAN THE HOME LOCATION CODE, THE UI TOUCHSCREEN WILL DISPLAY AN ERROR MESSAGE WITH SUGGESTIONS ON HOW TO RESOLVE.

5. A **Success! Choose a box to save your route to.** message briefly appears on the UI touchscreen after the machine successfully scans the Home Location Code, followed by a list of all existing and available routes for the scanned Home Location Code.

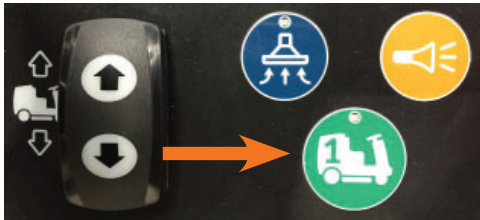


NOTE: IF NO ROUTES ARE AVAILABLE, AN EXISTING ROUTE MUST BE DELETED IN ORDER TO TEACH A NEW ROUTE.

6. Select one of the available routes. The UI touchscreen states **Ready. I will learn as you drive.**

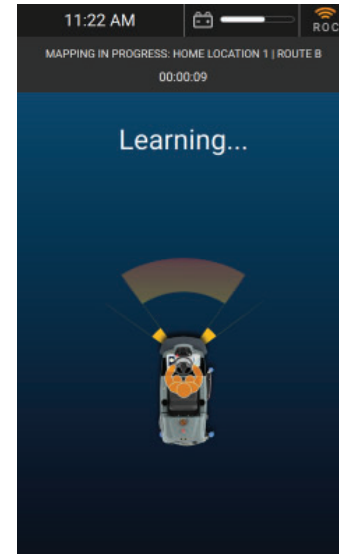


7. Press the One-Touch button to engage the cleaning components; the scrub brushes/pads and squeegees are lowered, and the vacuum turns on. The One-Touch button's light will illuminate.



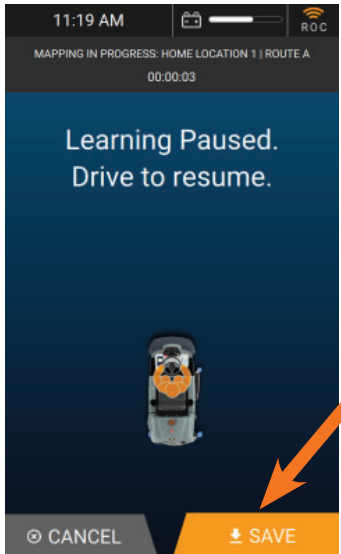
NOTE: IF THE ONE-TOUCH BUTTON OR VACUUM BUTTON IS NOT PRESSED, THE ROUTE WILL BE SAVED WITH NO CLEANING COMPONENTS ENGAGED.

8. Press the accelerator pedal and drive the machine through the entire cleaning route to be saved. As soon as driving begins, the UI touchscreen states **Learning...** along with the amount of time spent on the route so far.



NOTE: WHEN TEACHING A NEW ROUTE WITH A NON-SCRUBBABLE AREA, PRESS THE ONE-TOUCH BUTTON TO RAISE THE SCRUB BRUSH AND SQUEEGEES APPROXIMATELY 10 FT (120 IN OR 305 CM) PRIOR TO REACHING THE AREA. DRIVE PAST THE NON-SCRUBBABLE AREA AND PRESS THE ONE-TOUCH BUTTON AGAIN TO LOWER THE SCRUB BRUSH AND SQUEEGEES. THE BRAINOS NAVIGATION SOFTWARE WILL REMEMBER WHERE IN THE ROUTE THE CLEANING SYSTEMS WERE LIFTED AND LOWERED WHEN OPERATING IN ROBOTIC MODE.

- Once driving stops, the UI touchscreen states **Learning Paused. Drive to resume.** with options to **SAVE** or **CANCEL**. Select **SAVE** to save the new route.



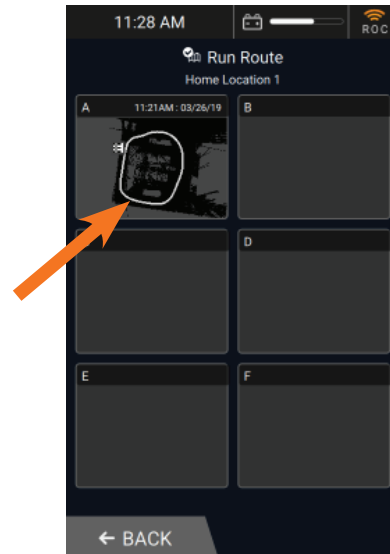
- The machine will scan the Home Location Code a second time as the end point of the cleaning route. If the machine does not see the Home Location Code from its right-side camera, the UI touchscreen states **Drive to scan my home location.**

NOTE: A NEW CLEANING ROUTE CANNOT BE SAVED UNTIL THE MACHINE SCANS THE SAME HOME LOCATION CODE IN THE SAME PHYSICAL LOCATION A SECOND TIME.

BEST PRACTICES WHEN TEACHING A ROUTE

- * Drive in a straight path as much as possible.
- * Don't teach a route with an incline or decline.
- * Don't teach routes that include driving into an elevator or automatic doors.
- * Avoid sudden turns and/or turning the steering wheel too sharply when driving.
- * Maintain a safe distance of approximately 1½ ft (18 in) from the edge of ramps, platforms, cliffs, and glass.
- * Avoid U-turns. The robotic scrubber requires a width of at least 10 ft (120 in) to perform a U-turn.
- * Avoid tight spaces. The robotic scrubber requires a width of at least 4 ft (48 in) when driving a straight line and 5 ft (60 in) to make turns around a corner or when turning into an aisle.
- * Teach routes when the area is mostly clear of obstacles and people that may block the robotic scrubber's path.
- * If a route is taught in an area with obstructions that are later removed, the robotic scrubber will not clean any areas previously occupied by those obstructions.
- * Once a route is taught, test it to ensure the robotic scrubber can perform the route in robotic mode successfully. If many assists are triggered during the test run, the route may include maneuvers that are difficult to perform robotically.

- The UI touchscreen displays **Saving...** When the route is successfully saved, the UI touchscreen briefly displays **Success! Route saved.** and then returns to the Main Menu. The new cleaning route is saved and is now available to run in robotic mode.

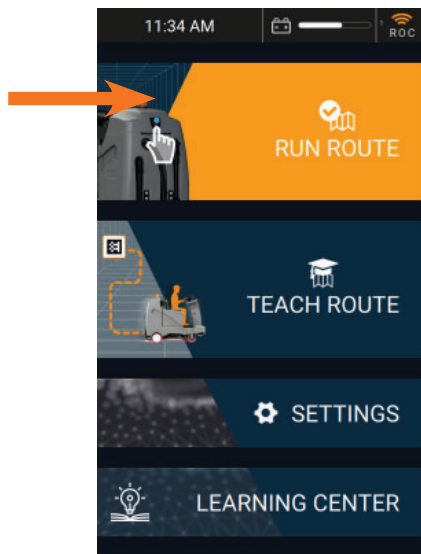


NOTE: SOLUTION FLOW, WATER FLOW, AND BRUSH PRESSURE LEVELS ARE NOT SAVED AS PART OF THE ROBOTIC ROUTE, AS CLEANING NEEDS MAY VARY FROM DAY-TO-DAY.

RUN A ROBOTIC ROUTE

Once one or more cleaning routes have been taught and saved, the machine can be operated in robotic mode. When running a route in robotic mode, pairing a cell phone can be a valuable tool. (See [Pair a Phone to the ROC for details.](#))

1. Insert the ignition key and turn to the right (clockwise) to turn on the machine.
2. Wait for the UI touchscreen to initialize to enter the 4-digit Security PIN.
3. Select **RUN ROUTE** from the Main Menu.
6. Select the cleaning route to run in robotic mode.
7. If necessary, adjust the solution flow, water flow, and/or brush pressure settings for today's cleaning needs.
8. Per instructions on the UI touchscreen, secure the yellow safety straps to block the operator seat.



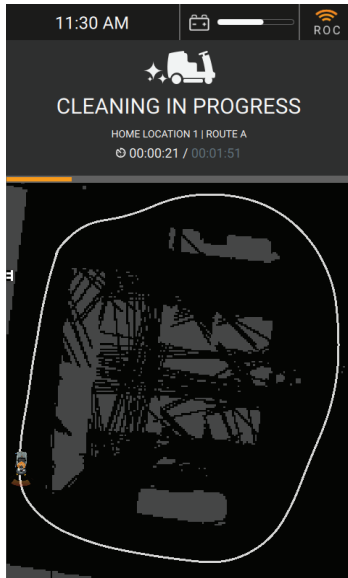
4. Drive to the desired Home Location Code, positioning the machine so that the right-side camera scans the Home Location Code. The machine automatically begins scanning, as displayed on the UI touchscreen.
5. A **Success! Select a route to clean** message is briefly displayed, followed by a list of all existing routes for the scanned Home Location Code.



9. Press the Start/Pause button on the back of the machine to start the robotic route. The yellow warning light flashes and the horn sounds to signal that robotic cleaning is starting.

OPERATION

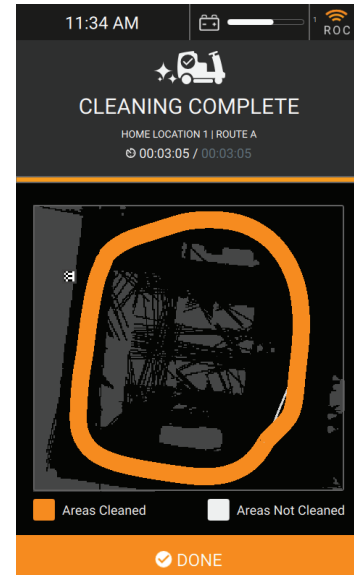
10. As the machine begins robotic operation, the UI touchscreen states **Cleaning in Progress**, along with the machine's current location on the cleaning route, amount of time spent on the route, and the total amount of time the route is projected to take in robotic mode.



14. Press the Start/Pause button to resume the route in robotic mode.

NOTE: IF AN ALERT IS TRIGGERED DURING THE ROBOTIC ROUTE, THE MACHINE AUTOMATICALLY PAUSES. THE UI TOUCHSCREEN DISPLAYS THE ALERT ALONG WITH STEPS TO RESOLVE. IF A PHONE IS PAIRED TO THE ROC, THE ROC SENDS A TEXT MESSAGE OF THE ALERT TO THE PHONE.

15. When the robotic route is complete, the UI touchscreen displays **Cleaning Complete**, as well as route information, length of time spent on the route, and a map of the route that shows areas cleaned. If a phone is paired to the ROC, the ROC sends a Cleaning Complete text message.
16. Select **DONE** to return to the Main Menu.



11. Observe scrubbing performance to ensure that all components are functioning properly.
12. If any scrubbing functions need adjustment, press the Start/Pause button on the back of the machine to pause the robotic route. The UI touchscreen states **Cleaning Paused: Press the blue button to resume cleaning!**
13. Make the necessary adjustments to the brush pressure, solution flow, water flow, and/or squeegees.



- The steering wheel may rapidly and unexpectedly move while operating in robotic mode, which could cause physical injuries. Do not sit on the operator seat, hold the steering wheel, or put your hand or arm through the holes of the steering wheel while the machine is operating in robotic mode.
- The operator seat and steering wheel have joy-ride sensors. If a person attempts to sit on the seat or hold the steering wheel when operating in robotic mode, the machine will automatically stop and trigger an alert.



If the machine repeatedly triggers an alert in the same place on a cleaning route, even when there are no obstructions, there could be an environmental factor such as a reflection causing the machine to sense an obstruction in the cleaning path. For help resolving the issue, contact customer service and provide the Home Location Code number, route letter, area of concern, and pictures of what the machine sees (if possible). Customer service may be able to remotely adjust the route to improve performance.

BEST PRACTICES WHEN RUNNING A ROUTE

- * Remove any rugs, fallen items, or large debris from the floor.
- * Sweep the floor.
- * Pair your phone to the ROC to receive text messages whenever the robotic scrubber encounters an alert and/or when the robotic route is complete.
- * Run routes when the area is most free of people and other obstructions.
- * Monitor the robotic scrubber's side and rear squeegees during the first 30 seconds of running the route to ensure they're properly adjusted.

ALERTS DURING OPERATION

The UI touchscreen displays a message when an alert occurs. Alerts can occur during manual or robotic operation. When an alert occurs during robotic operation, the machine is automatically paused. The UI touchscreen displays details of the triggered alert, along with steps to resolve the issue. When a phone is paired to the ROC to receive notifications, a text message of the alert is sent to the paired phone. If necessary, the machine can be manually driven when an alert has been triggered, but all scrubbing functions are disabled.



The following table provides a list of possible alerts with steps to resolve.

ALERT	CAUSE	RESOLUTION
RECOVERY TANK FULL	Recovery tank is full	1. Drain recovery tank. 2. Return to cleaning path. 3. Press rear BLUE button to start.
WATER TANK EMPTY	Clean water tank is empty	1. Fill water tank. 2. Return to cleaning path. 3. Press rear blue button to start.
BATTERY IS TOO LOW	Batteries need to be charged	1. Drive to charging station. 2. Inspect and charge batteries.
SENSOR ERROR	Sensor(s) dirty or damaged	1. Inspect/clean robot's sensors for damage or debris. 2. Wipe the sensors with microfiber cloth. 3. If there are no issues, press the BLUE button in the back to resume.
SEAT SENSOR TRIGGERED	Person or object on operator seat during robotic operation	1. Check that the seat is clear. 2. Press rear BLUE button to start.
PATH IS BLOCKED	Obstacle(s) on cleaning route	1. Ensure the robot's path is clear or drive past any obstacles. 2. Press rear BLUE button to start.

ALERT	CAUSE	RESOLUTION
ROBOT IS OFF PATH	Machine is off robotic route path	1. Follow the blue arrow and drive to the red path. 2. When correct, the path will turn white. 3. Press rear BLUE button to start.
IMPACT DETECTED	Machine bumped obstacle on cleaning route	1. Make sure the robot's path is clear or drive past any obstacles. 2. Inspect the robot. 3. If everything is clear, press rear BLUE button to start.
MACHINE ERROR	Steering wheel obstruction	1. Make sure that the steering wheel is free and clear. 2. Press the BLUE button in the back to resume.
UNKNOWN ERROR	Error(s) of unknown origin	1. Turn off and inspect machine. 2. Reboot and attempt to operate. 3. If issue persists, contact customer service.
203 TRACTION MOTOR ERROR	Acceleration issues	1. Power off robot. 2. Disconnect then reconnect the battery. 3. Power the robot back on. 4. If issue persists, contact customer service.
204 BRUSH ERROR	Debris caught in brush or brush is damaged	1. Inspect brushes/pads for damage of debris. Adjust or replace as needed. 2. If there are no issues, press the BLUE button on the back to resume. 3. If issue persists, contact customer service.
205 VACUUM ERROR	Vacuum hose obstructed or damaged	1. Inspect vacuum and hose for damage or debris. 2. If the hose is clear, press the BLUE button to resume. If the hose is broken, call customer service.
206 SQUEEGEE ERROR	Squeegee is obstructed, damaged, or missing	1. Inspect squeegee for damage or debris. Adjust or replace as needed. 2. If there are no issues, press the BLUE button in the back to resume. 3. If issue persists, contact customer service.
207 SCRUB DECK ERROR	Scrub deck obstruction is preventing raising/ lowering	1. Turn off and inspect machine. 2. If there are no issues, press the BLUE button in the back to resume. 3. For damage or persistent problems, contact customer service.
208 NO BRUSH ERROR	Brush missing or improperly installed	1. Make sure brushes or pads are properly installed. 2. If there are no issues, press the BLUE button in the back to resume. 3. If issue persists, contact customer service.
BRAKE ERROR	Electronic/mechanical brake error or issue	Contact Customer Service Immediately.
THROTTLE ERROR	Electronic/mechanical throttle error or issue	Contact Customer Service Immediately.

EMERGENCY STOP

The robotic scrubber is equipped with two Emergency Stop (aka E-Stop) buttons, one to the right of the steering wheel and one on the rear of the machine. If there is an emergency and the robotic scrubber must be immediately stopped, press one of these red Emergency Stop buttons.

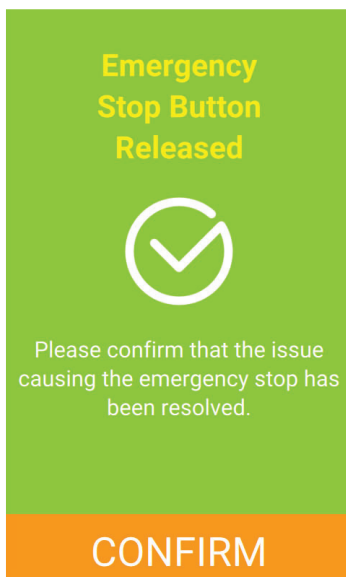
NOTE: THE ROBOTIC SCRUBBER MAY RELEASE ANY FLUIDS THAT HAVE NOT YET REACHED THE RECOVERY TANK. MAKE SURE TO MOP UP ANY STANDING FLUIDS TO AVOID A SLIPPING OR FALLING HAZARD.

If the Emergency Stop button was pressed in error or the emergency has been resolved, perform the following steps to resume the robotic route:

1. Per UI touchscreen instructions, inspect the environment and the machine, and clean up any standing fluids.
3. Select **CONFIRM** to confirm that any environmental or machine issues have been resolved.
4. Press the Start/Pause button on the rear of the machine to resume the robotic route.



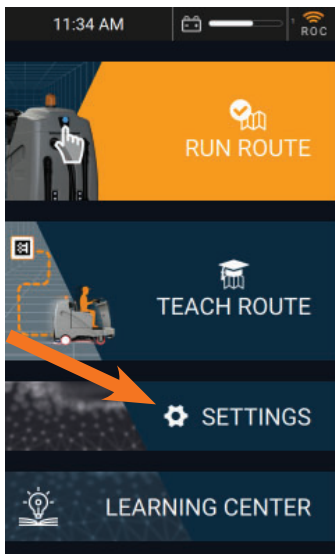
2. Release the engaged Emergency Stop button by twisting it to the right (clockwise).



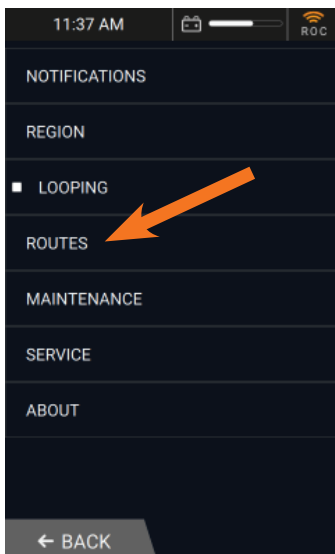
DELETE A ROUTE

Perform the following steps to delete an existing route:

1. Insert the ignition key and turn to the right (clockwise) to turn on the machine.
2. Wait for the UI touchscreen to initialize to enter the 4-digit Security PIN.
3. Select **SETTINGS** from the Main Menu.



4. Select **ROUTES**.



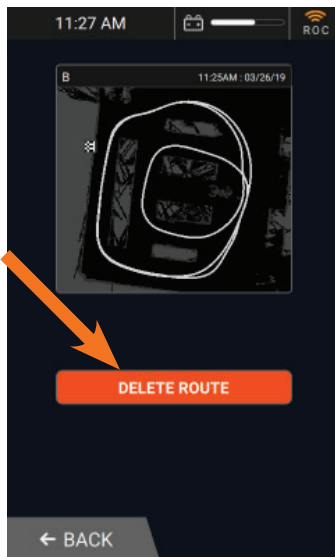
5. Select the desired Home Location Code to view existing routes available for deletion.



6. All existing routes for the selected Home Location Code are displayed. Select the route to be deleted.

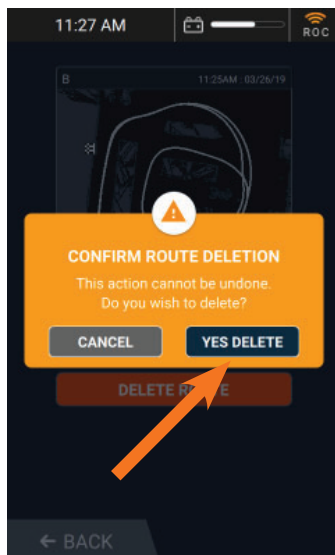


7. Select **DELETE ROUTE** to permanently delete the selected route from the machine.



NOTE: SELECT **BACK** TO RETURN TO THE LIST OF EXISTING ROUTES.

8. To confirm deletion, select **YES DELETE** to permanently delete the selected route.



9. All existing routes for the Home Location Code are displayed. The deleted route no longer appears on the screen.



10. When finished, select **BACK** three times to return to the Main Menu.

OPERATION

AFTER USE

Perform all of the following tasks after every use. These actions will keep the robotic scrubber operating at peak performance.

DRAIN AND CLEAN TANKS

1. Drive the machine to an appropriate disposal drain.
2. Press the One-Touch button to disengage all cleaning components, if needed. This will raise the scrub brush and squeegees, as well as turn off the vacuum motor.
3. Turn the ignition key to the left (counter-clockwise) to turn off the machine.
4. Put on appropriate personal protective equipment.



5. Lift the operator seat and use the support stand to prop open.



6. Remove the recovery tank drain hose on the rear of the machine.



7. Hold the recovery tank drain hose upward and remove the cap.

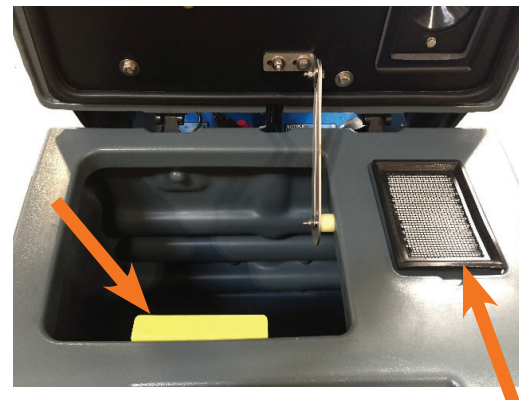
8. Lower the recovery tank drain hose to the liquid disposal drain to empty the recovery tank.

NOTE: IF THE RECOVERY TANK IS NOT DRAINED WHEN THE CLEAN WATER TANK IS REFILLED, FOAM OR WATER MAY ENTER THE FLOAT SHUT-OFF SCREEN AND CAUSE DAMAGE TO THE VACUUM MOTOR.

9. Open the recovery tank cover.



10. Remove and clean the vacuum fan filter and yellow strainer basket with a damp cloth or low pressure water hose, if dirty. Dry the filter before putting back in place.



11. Rinse out the inside of the recovery tank and the internal float sensor (located underneath the vacuum fan filter) with the recovery tank drain hose still in the liquid disposal drain.



NOTE: RINSING THE TANK AFTER EVERY USE HELPS PREVENT BUILDUP AND CLOGGING OF THE WATER LINES.

12. Return the recovery tank drain hose to the rear of the machine.
13. Close the recovery tank cover.
14. Remove the clean water tank drain hose on the rear of the machine.



15. Hold the clean water tank drain hose upward and remove the cap.
16. Lower the clean water tank drain hose to the liquid disposal drain to empty the clean water tank.

17. Make sure the recovery tank is empty and tilt it back to access the clean water tank.



18. Rinse out the inside of the clean water tank and the internal float sensor with the clean water tank drain hose still in the liquid disposal drain.



NOTE: RINSING THE TANK AFTER EVERY USE HELPS PREVENT BUILDUP AND CLOGGING OF THE WATER LINES.

19. Return the recovery tank to its upright position to close the clean water tank.
20. Lower the operator seat.

OPERATION

CLEAN SQUEEGEES

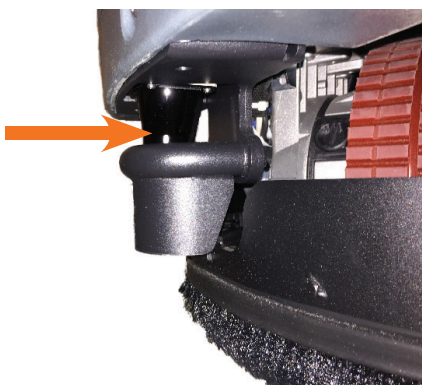
Remove the rear and side squeegee blades and wipe down with a damp towel. (See [SQUEEGEES](#) for details.)



CLEAN SENSORS

The robotic scrubber is equipped with LIDARs, 2D cameras, and 3D cameras, all of which work together to provide a 270° field of vision for the robotic software. All sensors and cameras constantly surveil the machine's surroundings for both stationary and moving obstacles. When an obstacle is detected, the machine will attempt to navigate around it and continue on its robotic route.

Robotic operation relies on all of these sensors; therefore, it is vital to keep all sensors clean and free from damage. Debris, streaks, or smudges can prohibit the machine's ability to run a robotic route. Clean all sensors using the provided microfiber cloth, and inspect each sensor and camera for damage such as scratches.



PARKING AND STORAGE

When not in use, the robotic scrubber should be stored in a designated parking station. When parking and storing the machine:

- Make sure the designated parking station is secure from public access.
- Park the machine with the front facing a wall or barrier. This will help protect the lower LIDAR sensor from getting damaged from passersby, shopping carts, etc.
- Turn the ignition key to the left (counter-clockwise) to turn off the machine, and remove the key to prevent unauthorized use.
- Park and store the machine indoors in a dry area.
- Store the machine in its upright position.
- Store the machine with the scrub brush and squeegees raised off the floor.
- Drain all fluids from the clean water tank, recovery tank, and solution bottle, especially if storing in an area which may reach freezing temperatures. Any damage caused by freezing temperatures will not be covered by the warranty.
- Always park the machine away from stairways, fire doors, and fire equipment.



OPERATION

CHARGE BATTERIES

The robotic scrubber's battery is designed to last approximately 4 hours and 20 minutes on the lowest settings. Charge the batteries when not in operation.

The following charging instructions are intended only for recommended batteries and external chargers. Use of alternate batteries and/or battery chargers is prohibited. Contact customer service for recommendations, if needed.



Dispose of components such as batteries, hazardous fluids such as antifreeze, and oil in an environmentally safe way according to local waste disposal regulations.

Perform the following steps to charge the batteries:

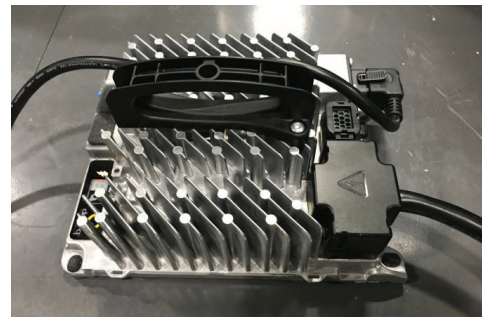
1. Park the machine on a flat, dry surface in a well-ventilated area.
2. Turn the ignition key to the left (counter-clockwise) to turn off the machine and remove the key.
3. Lift the operator seat and use the support stand to prop open for ventilation.
6. The external charger will begin to charge the batteries (flashing green light), and will automatically shut off once batteries are fully charged (solid green light).



4. Connect the external charger's DC cord into the battery charger receptacle on the machine, just below the operator seat.



5. Insert the external charger's AC power supply cord into a properly grounded, standard outlet (120V; 8 A).



NOTE: THE MACHINE CANNOT OPERATE WHEN CHARGING.

7. When charging is complete, first disconnect the AC power supply cord from the outlet, then disconnect the DC cord from the machine.
8. Store the external charger in a dry, well-ventilated space away from excessive heat, walkways, etc.

NOTE: CHARGE THE MACHINE AT LEAST ONCE A WEEK. LACK OF CHARGING FOR A WEEK OR MORE MAY PERMANENTLY DAMAGE THE BATTERIES.

TROUBLESHOOTING TIPS

PROBLEM	CAUSE	RESOLUTION
POOR OR NO WATER PICK-UP	Squeegee Out of Adjustment	Adjust Squeegee
	Debris Caught in Squeegee	Remove Debris
	Worn Squeegee Blades	Rotate or Replace Squeegee Blades
	Vacuum Hose Clogged	Clear Obstruction from Hose
	Vacuum Hose Disconnected from Squeegee or Recovery Tank	Reconnect Vacuum Hose
	Vacuum Hose Damaged	Replace Vacuum Hose
	Recovery Tank Not Sealed	Place Recovery Tank Dome on Tank Replace Damaged Gasket
	Foam Filing Recovery Tank	Empty Recovery Tank Use Less of or a Different Solution Use Defoamer
VACUUM MOTOR DOES NOT RUN OR RUNS SLOWLY	Recovery Tank Full	Drain Recovery Tank
	Recovery Tank Float System Dirty	Clean Float System
	Circuit Breaker Tripped	Reset Circuit Breaker
	Loose Connection	Check Motor Wires and Connections
	Faulty Vacuum Switch	Replace Switch
	Worn Vacuum Motor Brushes	Replace Brushes or Pads
POOR SCRUBBING PERFORMANCE	Debris Caught in Scrub Brushes	Remove Debris
	Worn Brushes or Pads	Replace Brushes or Pads
	Improper Solution, Brush, or Pad Used	Contact Equipment or Application Specialist
	Low Scrub Brush Down Pressure	Increase Scrub Brush Pressure
	Low Battery Charge	Charge Batteries
BRUSH MOTORS DO NOT RUN OR RUN SLOWLY	Circuit Breaker(s) Tripped	Reset Circuit Breaker(s)
	Loose Connection	Check Motor Wires and Connection
	Faulty Brush Motor Contactor	Replace Contactor
	Worn Brush Motor Brushes	Replace Brushes, Check Commutator
LITTLE OR NO SOLUTION FLOWS TO THE FLOOR	Solution Bottle Empty	Fill Solution Bottle
	Solution Flow Turned Off or Set Too Low	Turn On or Increase Solution Flow Setting
	Solution Strainer Obstructed	Clean Solution Strainer
	Solution Hose Obstructed	Clear Obstruction from Solution Hose
	Solution Solenoid Valve Obstructed or Stuck	Clean or Replace
	Vent Hole in Solution Tank Lid Obstructed	Clear Obstruction from Vent Hole

PROBLEM	CAUSE	RESOLUTION
NO POWER TO MACHINE	Battery Disconnected	Check All Battery Cable Connections
	Emergency Shut-Off Activated	Reset
	Battery Terminals Corroded	Clean Connections
	Faulty Main Contactor	Replace Contactor
	Faulty Key Switch	Replace Switch
LITTLE OR NO ACCELERATION	Low Battery Charge	Charge Batteries
	Wheels Spin	Decrease Brush Pressure
	Controller Overheated	Allow Cool Down Period Adjust Brush if Needed
	Loose Connection	Check Motor Wires and Connection
WATER TANK READS EMPTY BUT IS NOT EMPTY	Water Tank Float Switch is Damaged	Repair/Replace Float Switch
	Loose Connection	Check Wires and Connection
BATTERY LIFE IS SHORTER THAN EXPECTED	Low Battery Charge	Charge Batteries
	Batteries Are Old and Should Be Replaced	Replace Batteries
BATTERIES NOT CHARGING	Batteries Allowed to Completely Discharge	Polarity Flipped. Allow 24-48 Hours Charge Time to Restore Batteries
	Battery Charger Malfunctioning	Repair/Replace Battery Charger
	Wall Outlet Not Providing Voltage	Restore Outlet Power
NO ROC CONNECTION	Poor Cellular Signal	Turn Machine Off, Wait 10 Seconds, and Turn Back On

If additional assistance is required to resolve an issue, contact customer service.

Phone: (844) 809 - 5543

Email: support@braincorp.com

MAINTENANCE CHART

FREQUENCY	RESPONSIBLE PERSON	DESCRIPTION
DAILY	Operator	Drain and clean recovery tank, filter, float sensor, and yellow strainer basket.
	Operator	Drain and rinse clean water tank and float sensor.
	Operator	Check rear and side squeegees for deflection, leveling, and wear. Rotate or replace as needed.
	Operator	Check scrub brush/pad for debris, damage, and wear.
	Operator	Clean front and side 2D and 3D cameras with provided microfiber cloth. Check for damage.
	Operator	Clean upper and lower LIDAR sensors with provided microfiber cloth. Check for damage.
WEEKLY	Operator	Check the front and side perimeter skirts for debris, damage, and wear.
MONTHLY	Operator	Check the recovery tank seal for damage and wear.
	Operator	Check the solution tank seal for damage and wear.
	Operator	Check batteries and clean tops to prevent corrosion.
	Operator	Check for loose battery cable connections.
	Operator	Check all tanks and hoses for leaks.
	Operator	Check the machine for loose nuts and bolts.
	Technician	Lubricate all grease points and pivot points with silicon spray and approved grease.
250 HOURS	Technician	Check motor brushes and replace as needed.
500 HOURS	Technician	Check front and rear tires for damage and wear.

MAINTENANCE

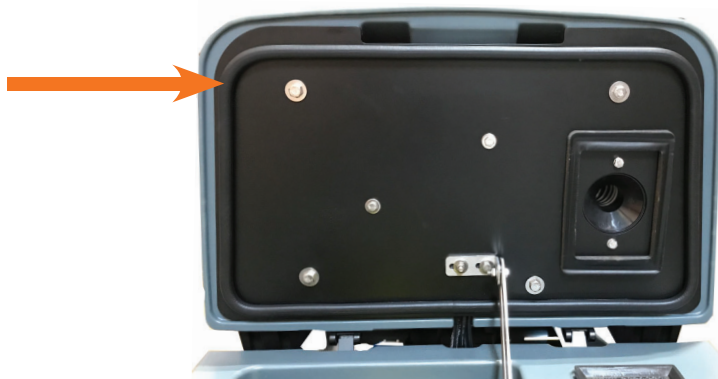
PERIMETER SKIRTS

There are three perimeter skirts that protect the scrub deck from oversized debris; one in the front and one on each side near the rear tires. Check the skirt bristles for debris, damage, and wear at least once a week. Remove any excessive debris, such as wire, and make sure the bristles lightly touch the floor. Replace damaged or worn out perimeter skirts.

TANK SEALS

RECOVERY TANK SEAL

On the underside of the recovery tank lid is the recovery tank seal. Check this seal every 100 hours for damage and wear, regardless of manual or robotic operation.



CLEAN WATER TANK SEAL

Make sure the recovery tank is empty and tilt it back to access the solution tank. On the underside of the recovery tank (which serves as the solution tank cover) is the solution tank seal. Check this seal every 100 hours for damage and wear, regardless of manual or robotic operation.



SQUEEGEES

There are three squeegees that wipe and control the flow of fluid during cleaning; one on the rear of the machine and one on each side. Clean all of the squeegee blades after each use by removing any debris and wiping with a damp towel. Rotate or replace squeegee blades as they wear down or if they become damaged.

In addition to daily cleaning of the squeegee blades, check the deflection of the blades. For best cleaning performance, the side squeegee blades should slightly flare outward when the scrub deck is lowered. Check the squeegee blade deflections daily to maintain peak performance.

ROTATE OR REPLACE SIDE SQUEEGEE BLADES

Perform the following steps to rotate or replace the side squeegee blades:

1. Park the machine on a level, flat surface and turn off.
2. Put on appropriate personal protective equipment if the machine has recently been used.
3. Loosen the knobs on the top of the side squeegee assembly.
6. Remove the squeegee blade.
7. Rotate or replace the squeegee blade, depending on current condition.
8. Reattach the metal plate to the squeegee assembly.
9. Reattach and tighten the thumb screws. Do not over-tighten.
10. Reattach the side squeegee assembly to the scrub deck of the machine and tighten the knobs on top. Do not over-tighten.
11. Repeat steps 2 through 10 for the other side.
12. Turn on the machine and press the One-Touch button to lower the scrub deck.
13. Verify that the side squeegee blades are lowered to the optimal deflection. (See [ADJUST SIDE SQUEEGEE HEIGHT](#) for details.)



4. Remove the side squeegee assembly from the scrub deck of the machine.



5. Loosen and remove the thumb screws, washers, and metal plate.



MAINTENANCE

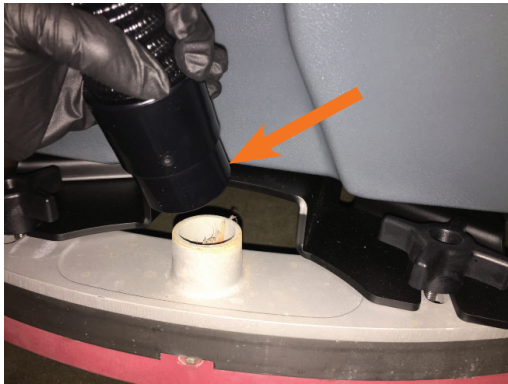
ROTATE OR REPLACE REAR SQUEEGEE BLADES

Perform the following steps to rotate or replace the rear squeegee blade:

1. Park the machine on a level, flat surface and turn off.
2. Put on appropriate personal protective equipment if the machine has recently been used.



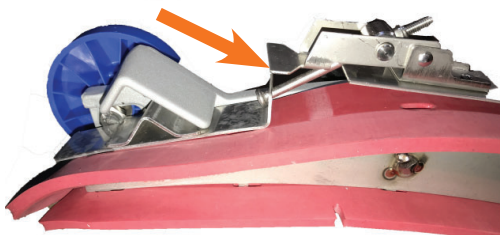
3. Remove the vacuum hose from the rear squeegee assembly.



4. Loosen the two middle knobs on the top of the squeegee assembly.
5. Remove the rear squeegee assembly from the machine.



6. Release the spring clip and remove the metal plate from the squeegee assembly.



7. Remove the inner and outer squeegee blades.
8. Rotate or replace the inner and outer squeegee blades, depending on current condition.
9. Reattach the metal plate to the squeegee assembly and fasten the spring clip.
10. Reattach the rear squeegee assembly to its original position and tighten the two middle knobs. Do not over-tighten.
11. Reattach the vacuum hose to the rear squeegee assembly and secure it with the vacuum clip.



12. Turn on the machine and press the One-Touch button to lower the scrub deck.
13. Verify that the rear squeegee blades are lowered to the optimal deflection. (See [ADJUST REAR SQUEEGEE HEIGHT](#) for details.)

ADJUST SIDE SQUEEGEE HEIGHT

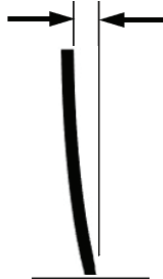
When the scrub deck is lowered, the side squeegees operate best when adjusted to optimal deflection height. The side squeegee blades should slightly flare outward when the scrub deck is lowered. Check the squeegee blade deflections daily to maintain peak performance.

The optimal deflection of the side squeegee blades is approximately $\frac{1}{2}$ in (1.25 cm). See below for a guide to adjusting the side squeegees to optimal deflection heights.

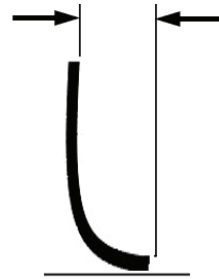
Optimal Squeegee Deflection:
 $\frac{1}{2}$ in (1.25 cm)



Not Enough Squeegee Deflection



Too Much Squeegee Deflection



NOTE: THE OPTIMAL SQUEEGEE CONTACT POINT IS ON ONE CORNER ONLY, LIKE A WINDSHIELD WIPER OR RECORD PLAYER NEEDLE. THIS WILL CHANNEL WATER CORRECTLY.

Perform the following steps to adjust the deflection height of the side squeegee:

1. Park the machine on a level, flat surface and turn off.
2. Put on appropriate personal protective equipment if the machine has recently been used.
3. Loosen the two top larger knobs of the side squeegee assembly.
5. Turn on the machine and press the One-Touch button to lower the scrub deck.
6. Verify that the side squeegee blades are lowered to the optimal deflection height.



4. Tighten the two bottom smaller knobs to secure the side squeegee assembly in the desired height and position. Do not over-tighten.



MAINTENANCE

ADJUST REAR SQUEEGEE HEIGHT

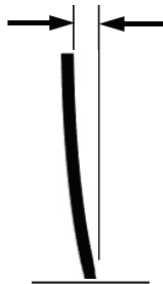
When the scrub deck is lowered, the rear squeegee operates best when adjusted to optimal deflection height. The rear squeegee blade should slightly flare outward when the scrub deck is lowered. Check the squeegee blade deflections daily to maintain peak performance.

The optimal deflection of the side squeegee blades is approximately $\frac{1}{2}$ in (1.25 cm). See below for a guide to adjusting the side squeegees to optimal deflection heights.

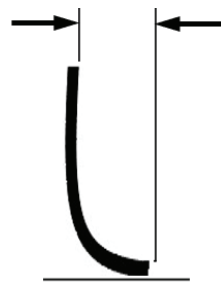
Optimal Squeegee Deflection:
 $\frac{1}{2}$ in (1.25 cm)



Not Enough Squeegee Deflection



Too Much Squeegee Deflection



Perform the following steps to adjust the deflection height of the rear squeegee:

1. Park the machine on a level, flat surface.
2. Press the Vacuum button to lower the rear squeegee assembly.
3. Turn the ignition key to the left (counter-clockwise) to turn off the machine.
4. Put on appropriate personal protective equipment if the machine has recently been used.
7. Manually spin the threaded rod to adjust the caster wheel height. The caster wheel should touch the ground.



5. Locate the two caster wheels located behind the two middle knobs.
6. Use a 17 mm wrench to remove the locking nut on each caster wheel.



8. When adjusted to the desired height, replace the locking nut on each caster wheel and tighten.

SCRUB BRUSHES AND PADS

Check the scrub brush/pad for debris, damage, and wear on a daily basis. Remove any excess debris, such as wire. Scrub brushes or pads should be replaced when they begin to appear thin, are covered with debris, or are no longer effectively cleaning.

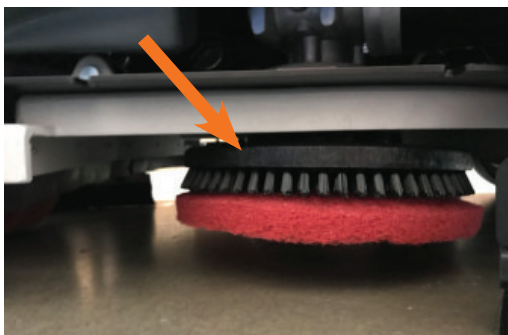
If the machine is equipped with a scrub pad, the pad must be connected to a pad driver. Scrub pads must be cleaned with soap and water immediately after use, and hung or laid flat to dry.

ROTATE OR REPLACE SCRUB BRUSHES/PADS

Use the appropriate brush or pad for the cleaning purpose. Scrub brush pads can be rotated once worn and replaced once both sides are worn. There are two scrub brushes located below the scrubber driver seat. To access, rotate, and/or replace the scrubber brush pads or scrubber brushes, the side squeegee assemblies must be detached first.

Perform the following steps to rotate or replace the scrub brushes/pads:

1. Park the machine on a level, flat surface.
2. If necessary, press the One-Touch button to raise the scrub deck.
3. Turn the ignition key to the left (counter-clockwise) to turn off the machine.
4. Put on appropriate personal protective equipment if the machine has recently been used.
5. Remove the side squeegee assemblies on both sides. (See [ROTATE OR REPLACE SIDE SQUEEGEE BLADES](#) for details.)
6. Push down on the top of the scrub brush/pad to release it from the scrub deck, then slide it out from underneath the machine.
8. Slide the scrub brush/pad underneath the machine.
9. While pinching the metal tension pins on the top of the scrub brush/pad driver, push the scrub brush/pad upward into the sprocket of the scrub deck assembly until it snaps into place.



7. Rotate or replace:
 - a. If the machine is equipped with a scrub brush, replace scrub brush.
 - b. If the machine is equipped with a scrub pad, pinch the mounting clip to release, rotate or replace the scrub pad, and reattach the plastic mount using the mounting clip.
10. Reattach the side squeegee assembly.

MAINTENANCE

BRAKE RELEASE PROCEDURE

If the machine is inoperable and/or immobile, it can be manually moved by releasing the brake with the brake release wedge.

Perform the following steps to release the brake:

1. Turn the ignition key to the left (counter-clockwise) to turn off the machine.
2. Locate the brake release lever on the front wheel of the machine.

NOTE: IF NECESSARY, TURN THE STEERING WHEEL TO ACCESS THE BRAKE RELEASE LEVER.

3. Slide the brake release wedge in between the brake release lever and the front wheel.



4. Push the machine to a safe location where it can remain until a service technician arrives to perform repairs.



5. Once the machine is positioned in a safe place, remove the brake release wedge.



- Do not perform the brake release procedure on an incline.
- Once the brake is released, do not push the machine down inclines as it may be unsafe and difficult to stop.
- The brake release procedure requires you to access the underside of the machine, and then physically push the machine. Take proper precautions to avoid injury when performing these tasks.
- Two people are required to move the machine once the brake is released; one person to steer and one to push.
- Check for and clean up any residual water or liquids on the ground before performing the brake release procedure.
- Be cautious not to slip on wet floors, especially while pushing the machine.
- Do not attempt to perform this brake release procedure if you have any health issues or physical limitations.

SPECIFICATIONS

MODEL	BE-MK2-RS26
DIMENSIONS	66.57 IN X 33 IN X 54.45 IN (1961 MM X 846 MM X 1383 MM)
WEIGHT	617 LBS (280 KG)
WEIGHT WITH BATTERIES	881 LBS (400 KG)
RECOVERY TANK CAPACITY	29 GAL (110 L)
CLEAN WATER TANK CAPACITY	29 GAL (110 L)
SQUEEGEE WIDTH	33.8 IN (860 MM)
CLEANING PATH WIDTH	26 IN (650 MM)
PRODUCTIVITY RATE (APPROXIMATE)	14,107 SQ FT/HR
TRAVEL SPEED (MANUAL TRANSPORT)	4 MPH (6.5 KM/HR)
MINIMUM AISLE TURN	60 IN (1524 MM)
PAD/BRUSH PRESSURE (LOW/MEDIUM/HIGH)	77 LBS/121 LBS/165 LBS (35 KG/55 KG/75 KG)
SOLUTION FLOW (LOW/HIGH)	0–0.71 GAL/MIN (0–2.8 L/MIN)
DRIVE WHEEL	24 VDC 850 W
BRUSH MOTOR	24 VDC 450 W X2
VACUUM MOTOR	24 VDC 450 W
BATTERIES	24 V Wet Lead Acid 24 V AGM Sealed, Maintenance Free
RUN TIME PER CHARGE	4 Hours: Wet Lead Acid Batteries 4 Hours 20 Minutes: AGM Batteries
VOLTAGE DC	24 V
DECIBEL RATING AT OPERATOR'S EAR, INDOORS	68 DB(A)
MAX GRADE LEVEL	0% (ROBOTIC); 2% (MANUAL)

