

OPERATIONAL MANUAL

brain^{OS}



ROBOTIC
SCRUBBER

ICE RS26
GEN2

Powered by BrainOS

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INTRODUCTION

This guide contains information to allow for quick start-up of your new Brain-enabled scrubber. The ICE RS26 Robotic Scrubber, powered by Brain OS can be used in manual mode or as a self-driving, autonomous scrubber. Use in autonomous mode requires a subscription to Brain Corporation's Autonomy Services. It is important to follow all instructions and warnings provided. Not adhering precisely to directions, or ignoring them, could result in damage to the machine and injury for the operator and the public.

Brain Operating System (Brain OS) is the name of our artificial intelligence (A.I.) and autonomous navigation software. This is also known as EMMA and is what controls your robotic scrubber.

MACHINE DESCRIPTION

The Brain-enabled scrubber or robotic scrubber, is a commercial floor scrubber that is powered by Brain OS software. The machine is capable of functioning in either manual or autonomous modes. When in autonomous mode, the Brain-Enabled scrubber is driven by the Brain OS navigation software.

INTENDED USE AND PRECAUTIONS

The Brain-enabled scrubber is intended for supervised commercial use. It is designed exclusively to scrub hard floors in an indoor environment and is not constructed for any other use. Only use recommended accessories. Machine should only be used by trained operators in controlled, restricted environments approved by Brain Corp. Brain Corp may provide additional training as to the intended use of the machine, and the machine shall only be used in accordance with such training. Use the machine in approved environments in accordance to the ASA and EULA. Please see Autonomy Services Agreement ("ASA") and Autonomous Navigation Software End User License Agreement ("EULA").

The operator is responsible for the operation and use of each machine, whether the machine is in manual or autonomous mode. Accordingly, each operator must be mindful to use the machine in accordance with its intended use and precautions at all time.



WARNINGS + SAFETY PRECAUTIONS



- Do not use the Brain-enabled scrubber on soil, grass, artificial turf, or carpeted surfaces. This machine is intended for indoor use only. In addition, it should only be used to scrub flat surfaces, with inclines less than 3%. It should not be used near any sort of steep drop, stairs, or cliffs.
- The Brain-enabled scrubber is not intended for use on public roadways. Do not use the Brain-enabled scrubber in a manner other than what is described in the operations manuals.
- The Brain-enabled scrubber is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.
- Please see the ASA and EULA for further uses and restrictions. If the machine operates autonomously in an area where people are present, it is recommended that proper floor cleaning signage be used in accordance with standard floor cleaning practices.
- The operator is responsible for the operation and use of each machine, whether in manual or autonomous mode. Each operator must be mindful to use the machine in accordance with its intended use and precautions at all time! DELETE, this is a duplicate!
- This product 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. Please see www.braincorp.com/open-source-attributions/ for details.

CAUTION!

THE FOLLOWING SITUATIONS COULD CAUSE PERSONAL INJURY OR DAMAGE.

READ AND UNDERSTAND ALL INSTRUCTIONS BEFORE USING!

- Do not ride the machine while it is operating in the autonomous/robotic mode. The operator is responsible for supervising and monitoring safe operation of the Brain-Enabled Scrubber.
- Proper floor cleaning signage shall be used while the machine is in operation.
- This machine shall be only be used by properly trained and authorized persons
- Drive wheels need to be in contact with the floor at all times. Avoid abrupt maneuvers while using in manual mode.
- Keep sparks, flame and smoking materials away from batteries. Explosive gases are vented during normal operation. Charging the batteries produces highly explosive hydrogen gas. Charge batteries only in well-ventilated areas, away from open flame.
- Remove all jewelry when working near electrical components.
- Turn the key switch off (O) and disconnect the batteries before servicing electrical components.
- Never work under a machine without safety blocks or stands to support the machine.
- Do not dispense flammable cleaning agents or operate near flammable liquids.
- Do not clean this machine with a pressure washer.
- Only use the brushes provided with the machine or those specified in the instruction manual. The use of other brushes may impair safety and potentially damage the machine.
- The Machine is not designed or intended for use in environments requiring fail-safe performance, including without limitation, any application in which failure of the machine could lead directly to death, personal injury, or severe physical or property damage.
- This machine is not approved for use on public paths or roads.
- Use the proper personal protective equipment when adding cleaning chemicals or draining fluids.
- This machine is not suitable for picking up hazardous or explosive dust
- Do not use scarifier discs and grinding stones. Brain Corp. will not be held responsible for any damage to floor surfaces caused by scarifier or grinding stones.
- When operating this machine, ensure that third parties, particularly children, are not endangered.
- Before performing any service function, carefully read all instructions pertaining to that function.
- Do not leave the machine unattended without first turning the momentary key/ignition switch off (O), and removing the key. In addition, when the Brain-Enabled Scrubber is being used in autonomous mode, remove the key to prevent unauthorized use. Turn the Momentary Key/Ignition switch off (O) and remove the key, before changing the brushes, and before opening any access panels.
- Take precautions to prevent hair, jewelry, or loose clothing from becoming caught in moving parts.
- Use caution when moving this machine in below freezing temperature conditions.

CAUTION!

THE FOLLOWING SITUATIONS COULD CAUSE PERSONAL INJURY OR DAMAGE.

- The batteries must be removed from the machine before the machine is scrapped. The disposal of the batteries should be safely done in accordance with your local environmental regulations.
- Do not use on surfaces having a gradient exceeding 3% (AUTONOMOUS) or 3% (MANUAL)
- All doors and covers are to be positioned as indicated in the instruction manual before using the machine.
- If the battery charger supply cord is damaged, it must be replaced before using the charger.

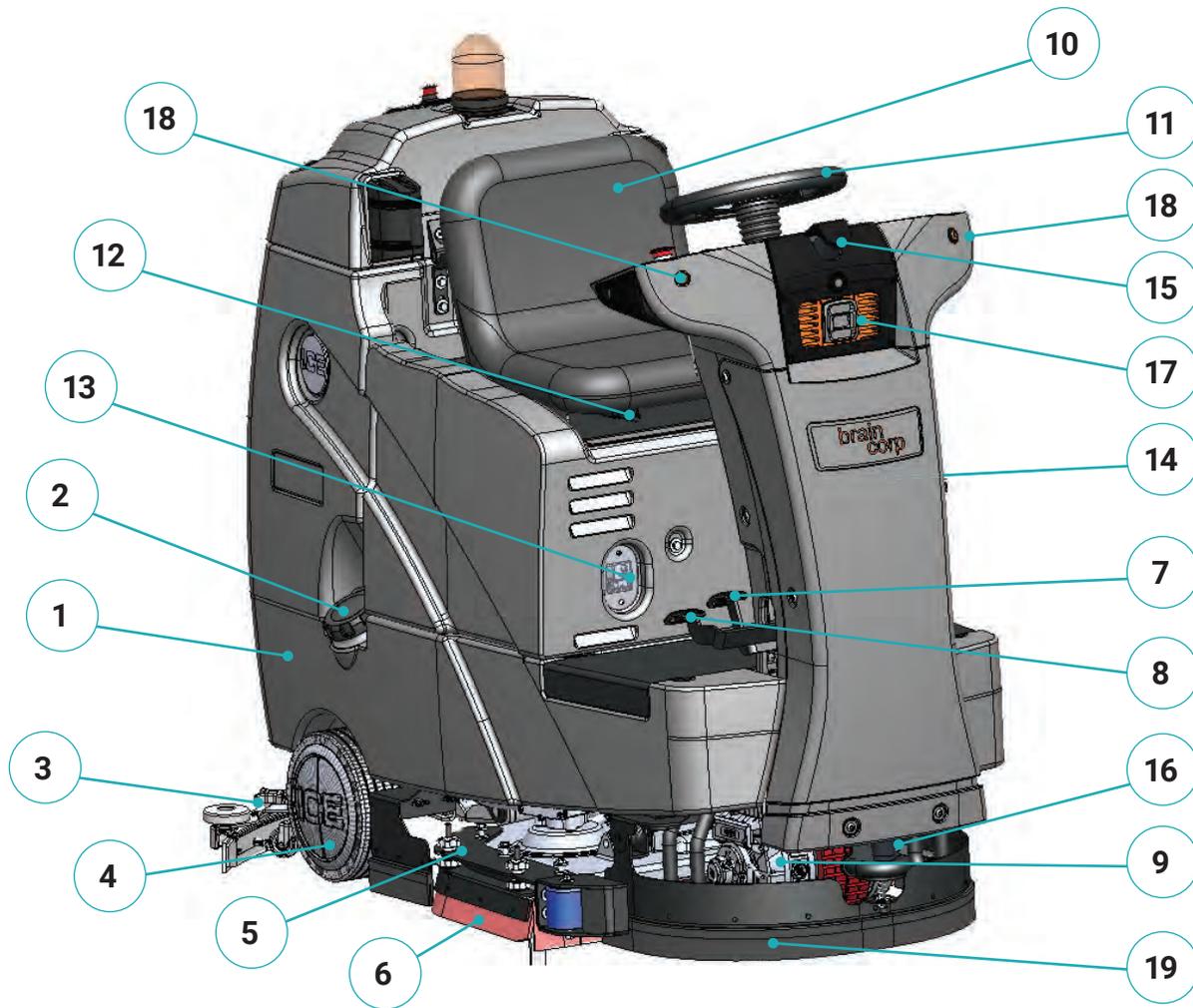
SAFETY LABELS



TECHNICAL SPECIFICATIONS

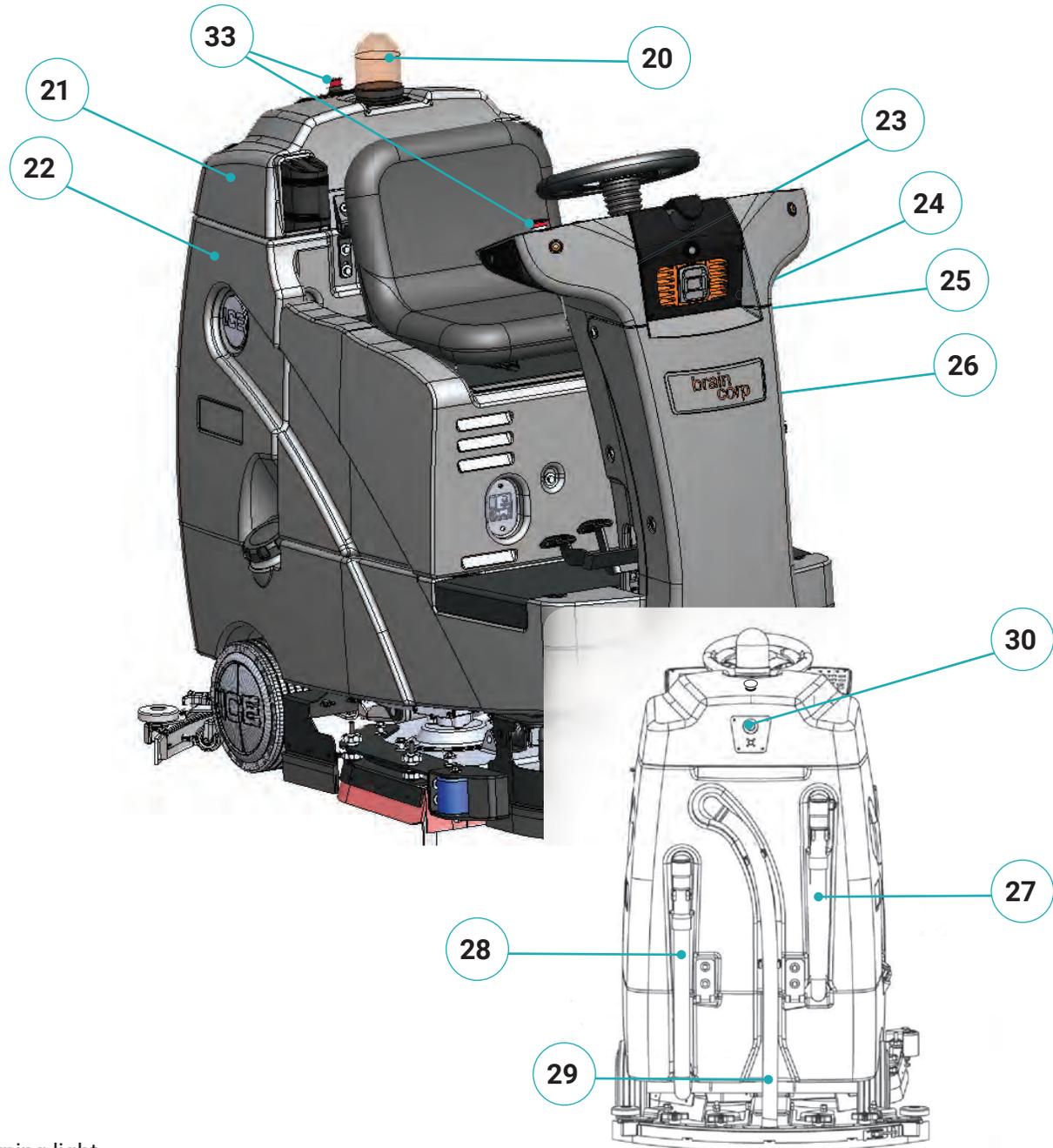
MODEL	BE-MK1-RS26
DIMENSIONS	66.57" X 33" X 5 IN (1961 X 846 X 1383 MM)
WEIGHT	617 LBS (280 KG)
WEIGHT WITH BATTERIES	881 LBS (400 KG)
RECOVERY TANK CAPACITY	29 GAL (110 L)
SOLUTION TANK CAPACITY	29 GAL (110 L)
SQUEEGEE WIDTH	33.8 IN (860 MM)
CLEANING PATH WIDTH	26 IN (650 MM)
PRODUCTIVITY RATE (IN THEORY)	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	77 LBS/121 LBS/165 LBS (35 KG/55 KG/75 KG)
SOLUTION FLOW	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	3~3.5 HRS Wet Lead Acid 4 hours AGM
VOLTAGE DC	24 V
DECIBEL RATING AT OPERATOR'S EAR, INDOORS	68 DB(A)
GRADE LEVEL, MAX	3% (AUTONOMOUS) 3% (MANUAL)

MACHINES IMAGES AND COMPONENTS



- | | |
|-------------------------------------|---|
| 1. Clean Water Tank | 11. Steering wheel |
| 2. Hose fill Clean Water Port & Cap | 12. Adjusting handle, seat |
| 3. Squeegee assembly | 13. On-board battery charger receptacle |
| 4. Wheels, 10-inch | 14. Detergent level watching window |
| 5. Scrub head assembly | 15. Sensors – Plantar Lidar |
| 6. Side squeegee assembly | 16. Sensors – Lower Lidar |
| 7. Brake pedal | 17. Sensors – Front 3D Camera |
| 8. Accelerator pedal | 18. Sensors – Side 3D Camera |
| 9. Front drive wheel | 19. Front Bumper Skirt |
| 10. Operator seat | |

MACHINES IMAGES AND COMPONENTS



- 20. Warning light
- 21. Recovery tank cover
- 22. Recovery tank
- 23. Cup holder
- 24. Cap
- 25. Detergent bottle
- 26. Battery box

- 27. Drain hose, recovery tank
- 28. Drain hose, solution tank
- 29. Vacuum hose
- 30. Blue autonomy button
- 33. Emergency stop

MACHINES IMAGES AND COMPONENTS



- 31. User interface LCD screen
- 32. Momentary key/ignition
- 33. Emergency stop
- 34. Battery indicator
- 35. General alert indicator
- 36. Detergent level indicator and control

- 37. Water level indicator and control
- 38. Scrubber depth indicator
- 39. Horn
- 40. One-touch button
- 41. Vacuum pump button
- 42. Directional switch

STANDARD ACCESSORIES

- Machine
- Squeegee Assembly

OPTIONAL ACCESSORIES

- 2 Pad drivers
- 2 Brushes

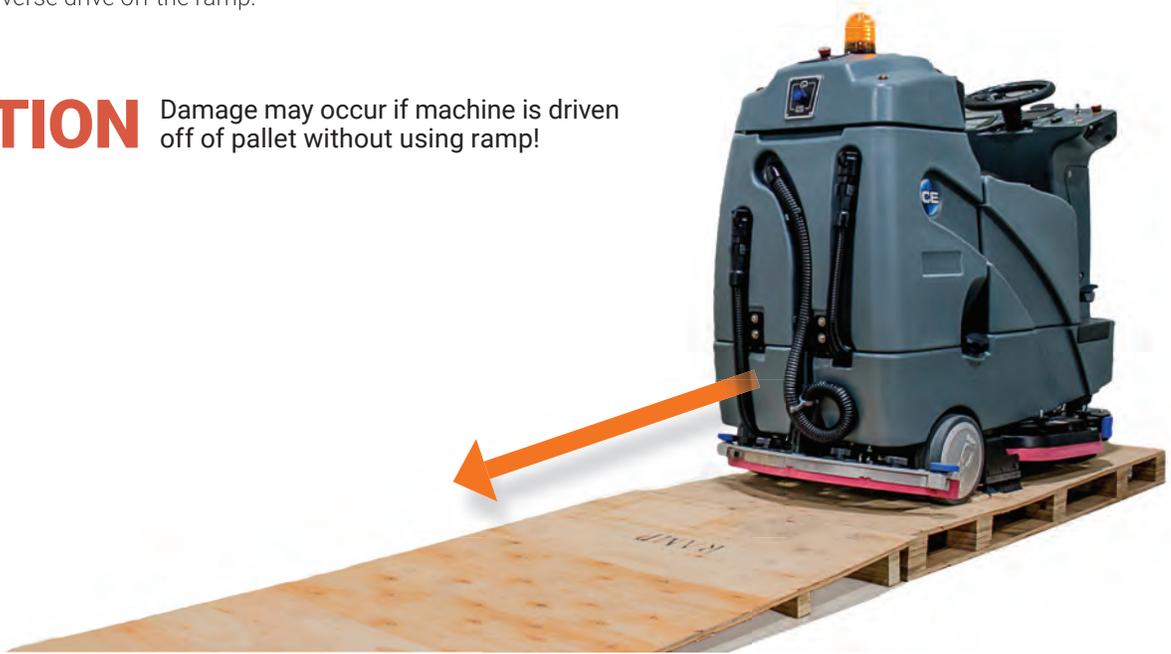
MACHINE SETUP AND INSTALLATION

UNCRATING MACHINE

Check packing crate for any damage and immediately report any damage to carrier. Check contents of package to ensure all items are included:

1. Uncrate the wooden box, place the top board on the edge of pallet, in back of the machine, as shown below. Slowly reverse drive off the ramp.

CAUTION Damage may occur if machine is driven off of pallet without using ramp!



2. For US Domestic customers, your batteries are installed prior to crating. OUS- Install batteries if applicable. (See INSTALLING BATTERIES)



3. Turn on momentary key/ignition switch and make sure squeegee assembly and scrub head assembly are off the floor.
4. Put directional switch in the forward position and carefully reverse drive machine down ramp.

INSTALLING BATTERIES (if applicable)

WARNING Batteries emit hydrogen gas. Explosion or fire can result from hydrogen gas. Keep sparks and open flames away! Keep battery compartment open when charging. Use the proper personnel protective equipment when handling and maintaining batteries.

CONNECTING THE BATTERIES (if installed and shipped)

Lift seat exposing battery compartment. Remove tape from the two red battery connectors. Attach batteries as shown in the picture.

RECOMMENDED BATTERY SPEC:

- (4) 6 V, Trojan J305 WET LEAD ACID OR EQUIVALENT
- (4) 6 V, FullRiver DC335-6 Deep Cycle MAINTENANCE FREE AGM BATTERY OR EQUIVALENT

MAX. BATTERIES DIMENSIONS:

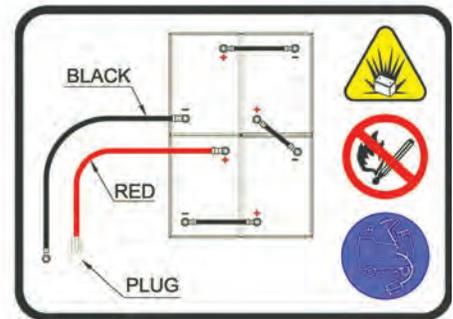
11.8 in (L) X 7in (W) X 11.4 in (H) (300mm X 180mm X 290mm)



1. Turn off the momentary key/ignition switch



2. Remove the operator seat and the battery box from the scrubber.



3. Carefully place batteries into compartment as shown in figure above.

NOTE: Do not drop the batteries into the compartment!

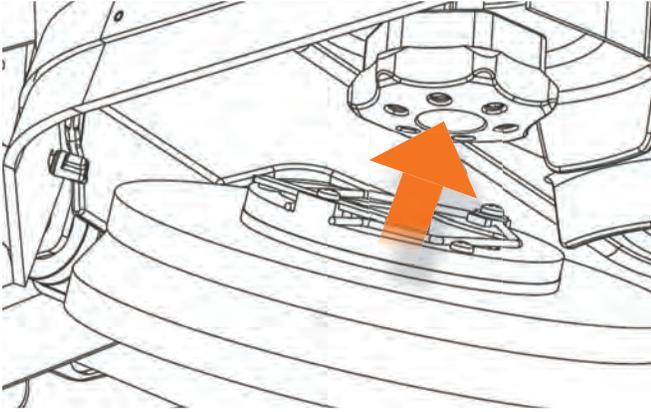
4. Connect battery cables to posts in order as shown in figure above. Ensure all battery cable boots are installed and properly seated.
5. Install the battery box and seat. Use caution when installing the seat to prevent damage to the components surrounding the battery compartment.

NOTE: RED to POSITIVE and BLACK to NEGATIVE.

Brain Corporation recommends that only trained field technicians or maintenance staff install or replace batteries.

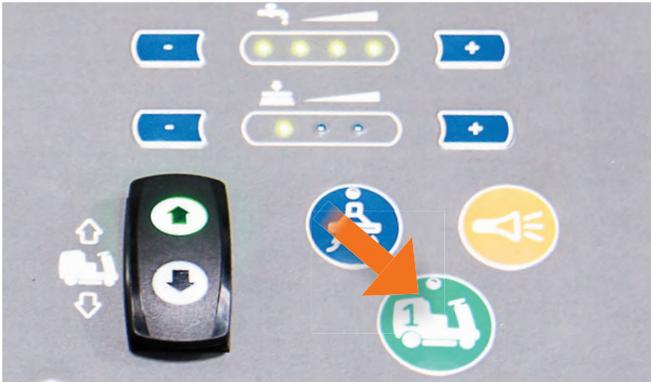
INSTALLING AND REMOVING BRUSHES OR PADS

Before installing brushes or pads, ensure Brain-enabled scrubber is off.

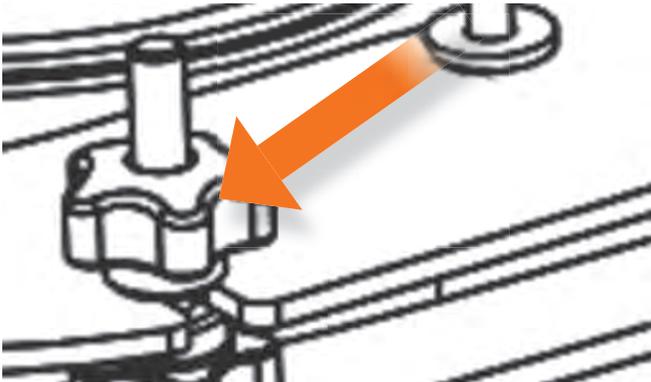


1. The Brain-enabled scrubber must not be in autonomous mode. In addition, check to ensure that all machine parts are raised off the floor
2. If using the pad driver, first attach the appropriate pad to the pad driver surface.
3. Remove the side squeegee assembly before installing brushes. Align the pad driver or brush under the motor hub and push it upward to engage.
4. To remove the pad driver or brush – ensure machine is off and scrub head is in the raised position. Remove the side squeegee assembly (Machine Components #6), and push the edge of the brush downward.

MOUNTING SIDE AND REAR SQUEEGEE ASSEMBLIES



1. Press the one-touch button to turn off the scrubber functions and ensure the squeegee assembly and scrub head are off the floor. Turn key to the off position.



2. Mount the squeegee assembly to the squeegee pivot bracket. Make sure the knobs are completely seated into the slots before securing them. Hand tighten only.
3. Connect the vacuum hose (Machine Components #29) to the squeegee assembly. Loop the hose by using the hose clip provided.
4. Check the squeegee blades for proper adjustment. (See "How to Adjust" instructions for further guidance).

FILLING THE SOLUTION TANK



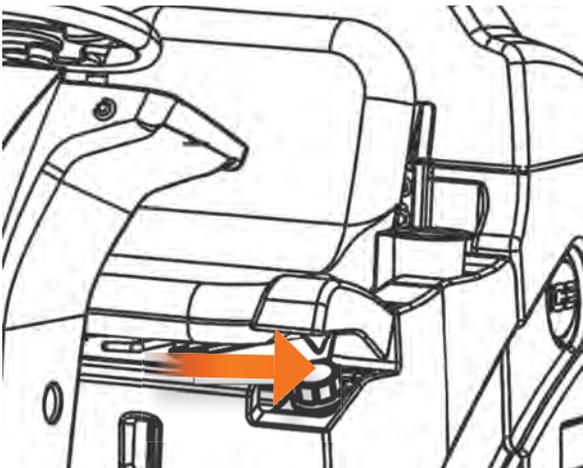
The Brain-enabled scrubber is equipped with a hose to fill clean water port (Machine Components #2) at the side of the machine, and a bucket fill-port located under recovery tank.

WARNING Do not put any flammable materials into solution tank.
This can cause an explosion or fire.

NOTE: Before accessing the bucket fill-port make sure that the recovery tank is empty. When filling the solution tank with a bucket, make sure that the bucket is clean. Do not use the same bucket for filling and draining the machine. The Brain-enabled scrubber must not be in autonomous mode. In addition, check to ensure that all machine parts are raised off the floor.

FILLING THE DETERGENT BOTTLE

The Brain-enabled scrubber is equipped with a six-liter detergent bottle (Machine Components #20)



1. Open the cap (Machine Components #24).
2. Fill detergent and observe the liquid level on the detergent level watching window (Machine Components #14).
3. The ratio of water and detergent is 0~5%. This ratio can be adjusted by pressing the detergent level buttons (Machine Components #36).

NOTE: Only use recommended cleaning chemicals. Contact your janitorial supply distributor for recommendations regarding proper chemicals.

CAUTION – Before using any cleaning chemicals:

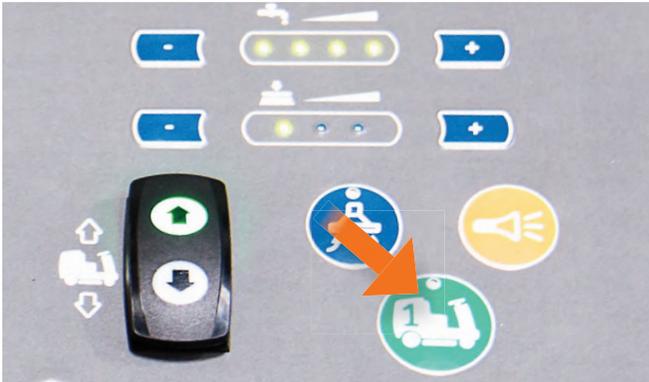
- The Safety Data Sheet (SDS) for the chemical shall be reviewed by the worker and the employer.
- Instructions and precautions noted in the SDS and on the container shall be followed.
- Employers must provide cleaning chemical safety training to workers at a level and in a language and vocabulary that the workers can understand.

CONTROLS OVERVIEW

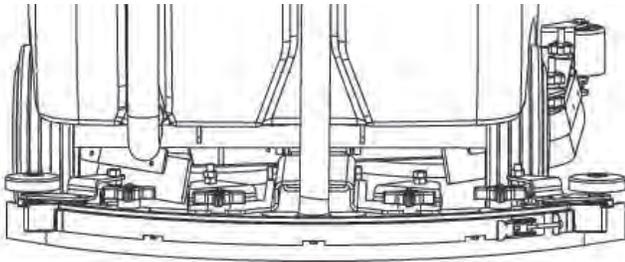
MANUAL FUNCTIONS – (RIGHT SIDE CONTROL PANEL)

This section describes manual scrubber controls located to the right of the Brain- enabled scrubber steering wheel.

ONE-TOUCH BUTTON

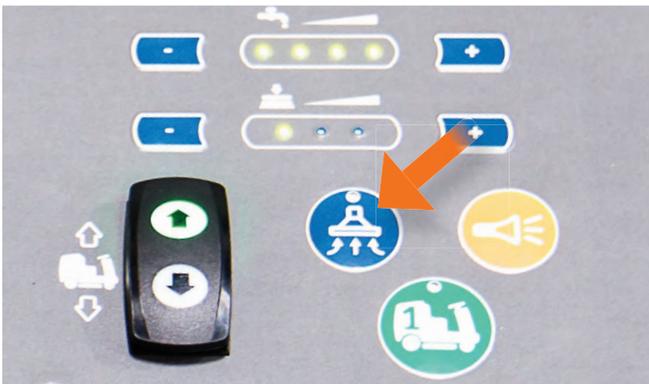


The one-touch button engages the scrub deck, vacuum and squeegee, allowing for immediate operation of the scrubber. In addition, pressing the one-touch button lowers the scrub deck and the squeegee located on the back end of the Brain-enabled scrubber. The vacuum will also be engaged when this button is pressed. The machine is now ready to scrub.



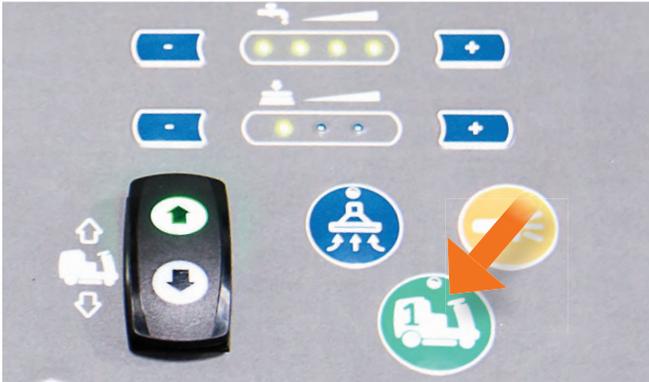
When finishing work – press the one-touch button again to shut-off cleaning operations. The scrub deck will rise off floor. The squeegee remains down for an additional few seconds and then lifts as well. After the squeegee has lifted, the vacuum will remain on for a few additional seconds in order to clear remaining water in the hose.

VACUUM BUTTON



This button lowers the squeegee located at the rear of the machine. The vacuum will also be initiated when this button is used. It will recover water with squeegee only. Pressing the vacuum button a second time raises the squeegee and shuts the vacuum off. There will be a slight delay before the motor shuts off.

DOUBLE SCRUBBING (MANUAL MODE ONLY)



Initiate double scrubbing by using the one-touch button to turn on the machine.

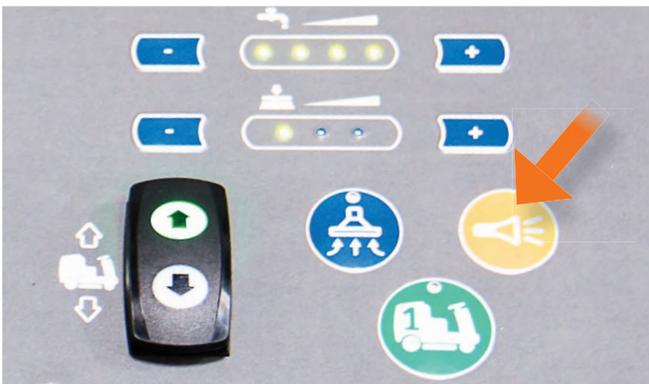


Next, press the vacuum button to turn off the vacuum.

Doing this raises the squeegee off the floor. Double scrubbing is a mode of operation in which the Brain-enabled scrubber cleans the floor without simultaneously removing the fluid from the floor's surface. Only the scrub deck is engaged while double scrubbing. The squeegee is not in operation, allowing solution to remain on the floor for increased cleaning solution dwell time.

WARNING 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.

HORN



Use this button to activate horn.

MOMENTARY KEY/IGNITION



Insert momentary key into ignition and turn clockwise to start power.

DIRECTIONAL SWITCH



Controls direction machine travels when accelerator pedal is pressed. Pressing upward arrow instructs machine to drive forward. Pressing downward arrow puts machine in reverse mode.

When driving the Brain-enabled scrubber in reverse, the squeegee will raise automatically. In addition, the vacuum motor turns off after a short delay. This prevents damaging squeegee.

EMERGENCY STOP



The Brain-enabled scrubber is equipped with two emergency stop buttons

Press this button in an emergency. Doing so engages the brake immediately and stops all scrubber function.



ONLY USE THE EMERGENCY STOP DURING AN ACTUAL EMERGENCY, AS THIS FUNCTION POTENTIALLY ALLOWS FLUIDS IN THE MACHINE TO RELEASE ON TO THE FLOOR. TO PAUSE OPERATION DURING AUTONOMOUS MODE, USE THE REAR BLUE BUTTON.

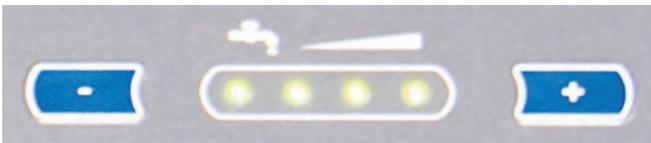
IF THE eStop BUTTON IS ENGAGED, ROBOT OPERATOR WILL NEED TO:

- Disengage red eStop button by twisting up
- Power cycle the machine
- Return to the home location code and select route to run

SETTING CLEANING FUNCTIONS

The following controls regulate the Brain-enabled scrubber's cleaning functions. To obtain optimum cleaning performance, adjust brush pressure, solution flow and detergent dosage before use in manual or autonomous mode. When turning on machine, the controls will default to the factory settings.

DETERGENT LEVELS INDICATOR AND CONTROL



To regulate amount of detergent released onto floor, press blue plus and minus buttons located on either end of the indicator to increase or decrease volume of detergent discharged. The machine allows between 0%-5% of detergent release.

WATER LEVEL INDICATOR AND CONTROL



Press the blue plus and minus buttons on either end of the indicator to increase or decrease the amount of water released. The machine allows between 0%-5% of water release.

SCRUBBER PRESSURE CONTROL



Increase or decrease scrub pressure (or down force).

If any of the warning indicators outlined above appear, cease operating machine and correct problem. Additional detailed information about each error outlined below will appear on the Brain-enabled scrubber display.

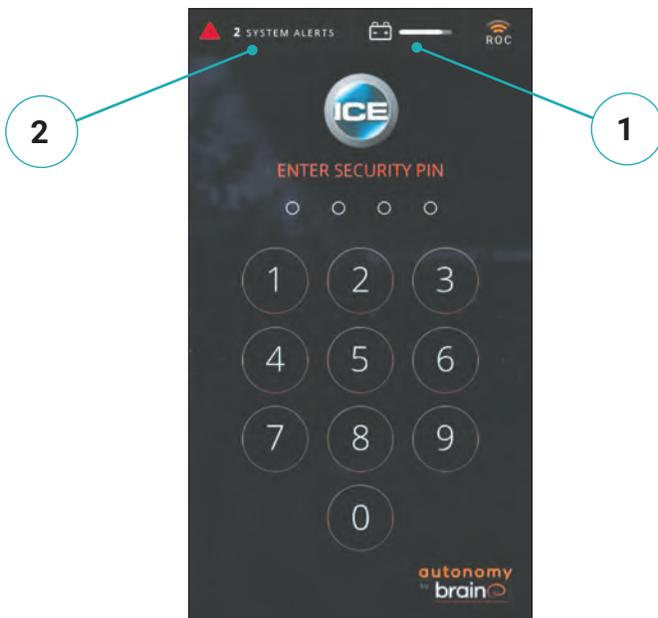
AUTONOMOUS FUNCTIONS – (LEFT SIDE USER INTERFACE)

Your ICE RS26 robotic scrubber, powered by Brain OS has artificial intelligence software installed on the Brain-enabled scrubber. You can interface with robotic scrubber, powered by Brain OS's functions through the display's user interface, which provides messaging and also controls various functions. The user interface allows users to select a cleaning route, teach a new cleaning route, and delete routes. It also provides detailed error messaging and status messages regarding battery life, hours operated and connection to the ROC (See section on ROC for further details).

USER INTERFACE LCD TOUCHSCREEN

The user interface LCD screen displays various menus that control a variety of functions and options of the Brain-enabled scrubber, including teaching route, choosing route and machine settings.

The user interface is a touchscreen component and user may command the machine by simply touching items that appear on the menu on the screen



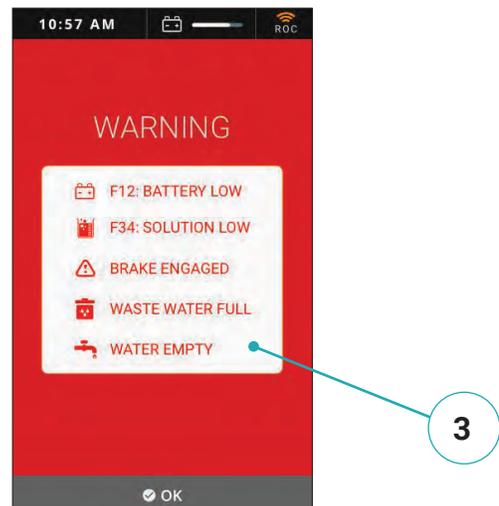
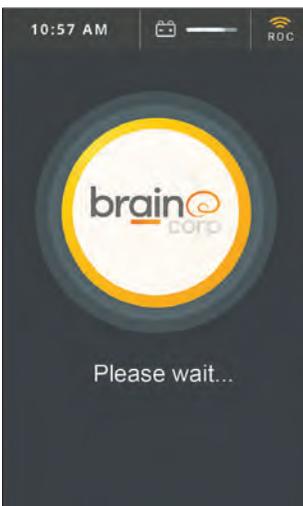
1. BATTERY INDICATOR

2. GENERAL ALERTS

Are shown on the UI, on the left side of the user interface panel. For a machine component alert, follow instructions and cease operating machine and correct problem or call service provider.

3. WATER LEVEL INDICATOR

A low water alert, is shown on the UI, on the left side of the user interface panel. The Brain-enabled scrubber can still be driven, but scrubber functions will be disabled while the water is low.



OPERATING THE MACHINE

ADDITIONAL OPERATING COMPONENTS AND VEHICLE FEATURES

Additional function and operation controls located on the body of the Brain-enabled scrubber.

PROPEL PEDAL (RIGHT PEDAL)



Press propel (accelerator) pedal to drive the machine. Removing pressure from the pedal stops travel. The park brake engages after short delay.

BRAKE DEVICE AND BRAKE PEDAL (LEFT PEDAL)



Removing pressure from propel (accelerator) pedal stops travel. The park brake engages after a short delay.

The Brain-enabled scrubber is also equipped with a brake pedal, which can be used if quicker stopping is needed or if operating on an incline.

OPERATOR SEAT



The seat is moved forward and backward using the black lever protruding from underneath seat base. This seat can also be lifted to access the Brain-enabled scrubber battery and brake release instructions and tool.

BLUE AUTONOMY BUTTON



Initiates autonomous (robotic) mode, pauses autonomous mode and resumes operations after a pause.

Pressing the blue autonomy button stops the Brain-enabled scrubber's forward motion and scrub brush rotation, but the machine will continue its vacuuming function. A message will appear on the user interface LCD screen indicating that the machine has been paused.

WARNING Steering wheel will rapidly and unexpectedly move while in autonomous mode, which could injure the operator's hands and arms. An operator may not sit on the seat while the Brain-enabled scrubber is in autonomous (robotic) mode.

The seat has a joy-ride sensor. When operating in robotic mode, the machine will automatically stop and call for an alert should a person attempt to sit on the seat.

OVERVIEW

The machine is capable of both manual and autonomous operation thanks to BrainOS technology. Your robotic scrubber can be used in self-driving mode, which performs floor cleaning without direct real-time operator control. The BrainOS technology performs commercial floor cleaning, allowing janitorial staff to focus on other tasks. The RS26 is a scrubber only, with no sweep functionality.

NEW FACILITY SET-UP

In order to create an environment in which your robotic scrubber, powered by Brain OS can operate, clear all obstacles from the space to be cleaned. Home location code (s) must also be installed in order for robotic scrubber, powered by Brain OS to be able to operate. (See section explaining Home Location Codes). In addition, the following key terms and definitions must be understood to successfully operate the Brain-enabled scrubber.

ROUTE - TEACH A NEW CLEANING ROUTE

This is the course your ICE RS26 robotic scrubber, powered by Brain OS follows during cleaning.

Before your robotic scrubber, powered by Brain OS can clean on its own, an operator must drive the Brain-enabled scrubber through each desired cleaning route and save the route to memory.



HOME LOCATION CODES

A total of ten home location codes are provided with the Brain-enabled scrubber. A home location code is a unique identifier similar to a bar code. Each code provided with the Brain-enabled scrubber stores information that robotic scrubber, powered by Brain OS scans and uses to function. By scanning a home location code, your robotic scrubber, powered by Brain OS is able to identify the machine's current location, as well as which routes are saved to that specific location. The machine is capable of storing six routes for each home location code. Each facility has up to 60 routes in total.

PRE-OPERATION CHECKS

Before operating in either manual or autonomous mode, the following checks must be conducted.

1. Check the tank cover seals for damage.
2. Check and drain the recovery tank, check the vacuum fan inlet filter, clean them if necessary.
3. Check the vacuum hose for debris or blockage. Check the squeegees for damage, wear and for deflection adjustment.
4. Check whether the pad/brush is installed properly. Check the brakes and steering for proper operation.
5. Check that the rear squeegee and side skirts are free of tears, rips and excessive wear and are picking up water properly.
6. Check the water, solution and scrub deck pressure levels are to the desired need for the route. Adjust as needed for each route.



MANUAL MODE

Start-Up

The steps below should be followed to begin operating the machine. Note, the Brain-enabled scrubber must be fully charged before use.

1. Disconnect the machine from the power outlet.



2. While sitting in the operator seat, turn the momentary key/ignition clockwise to initiate power and wait for the screen to display "Choose Route, Teach Route and Service."



3. The machine is able to operate in forward or reverse. Use directional switch to select desired direction.



4. To begin driving, press propel (accelerator) pedal. Speed can be adjusted by the force applied to the pedal - light is slow, heavy is fast, before driving the Brain-enabled scrubber



5. If manual cleaning is to be conducted, select desired cleaning settings using the scrubber depth indicator, detergent level indicator and water level indicator adjustment buttons.



6. The machine may now be driven manually to conduct cleaning.
7. When driving the machine, it is important to maintain a safe distance from the edge of ramps, platforms and other objects.
8. Go slow on inclines and slippery surfaces.
9. Drive the Brain-enabled scrubber in as straight a path as possible. Avoid turning the steering wheel too sharply when the machine is in motion. It is also important to avoid sudden turns, except in emergencies.
10. Be very careful when operating the machine in reverse.
11. Follow all safety guidelines.
12. Report any damage to machine prior to operating it.
13. Failure to follow these instructions and warnings may result in damage to the machine or injury.

BRAKE DEVICE

The Brain-enabled scrubber is equipped with a brake device. When the propel (accelerator) pedal is released, the machine will stop travel. The park brake will engage after a short delay.



The machine is also equipped with a brake pedal that can be used to control the machine if quicker stopping is needed or when operating on an incline.

EMERGENCY STOP BUTTONS

The Brain-enabled scrubber is equipped with two emergency stop buttons, one in the front and one in the rear of the machine.



Pushing this button in an emergency shuts off all manual functions. To restart machine, reset the emergency stop button, turn off the momentary key/ignition switch and then turn on the key switch.



WARNING: Only use the emergency stop during an actual emergency, as this function potentially allows fluids in the machine to release onto the floor. To pause operation during autonomous mode, use the rear blue autonomy button.

AUTONOMOUS MODE (Robotic)

Using the machine in autonomous mode means that ICE RS26 robotic scrubber, powered by Brain OS will be performing cleaning following one of the routes that have been created and saved to memory. Autonomous operation is made possible with Brain OS navigation software which enables the machine to function as a self-driving vehicle. Home location codes must be installed before operating in autonomous mode. The machine will only operate autonomously in areas where cleaning routes have been trained.

NOTE: Scrubber will not begin cleaning in autonomous mode with someone sitting in the Operator seat.

HOME LOCATION CODES

A total of ten home location codes are provided with the Brain-enabled scrubber. A home location code is a unique identifier similar to a bar code. Each code provided with the scrubber stores information that the ICE RS26 robotic scrubber, powered by Brain OS scans and uses to function. By scanning a home location code, your robotic scrubber, is able to identify the machine's current location, as well as which routes are saved to that specific location. The machine is capable of storing six routes for each home location code.

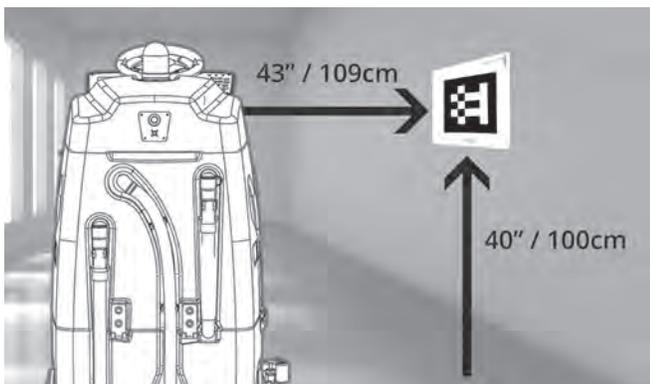
ESTABLISHING HOME LOCATIONS

Home location codes are used to establish the Brain-enabled scrubber's home location. The home location is where the Brain-enabled scrubber will begin and end its routes for that particular area. Depending on the size of the space in which the ICE RS26 robotic scrubber, powered by Brain OS will be operating, only one home location may be necessary.

In larger spaces, more than one home location may be required in order to establish more than six cleaning routes. In a multi-level building, establish a unique home location code for each floor.



Home location codes should be displayed on a wall, in a well lit location, where there are no shadows obstructing the code. Affix the home location codes to the wall, use a pin, hook or tape to keep it in place. The entire home location code should be clearly visible, not hidden behind furniture or shelving.



The home location code must be mounted 40 inches (100 centimeters) from the ground and must be scanned from a minimum distance of 43 inches (109 centimeters).

SELECTING LOCATIONS FOR THE HOME LOCATION CODE

Home location codes should be placed near commonly cleaned areas, on an open wall or column, where there's easy viewing access from the right side of the machine. It should be in an area that does not change from day to day. It is recommended that the home location code area be the most consistent place on the route.

SCANNING HOME LOCATION CODES

In order to scan a home location code, position the right side of the Brain-enabled scrubber a minimum of 24-inches from the code. The camera used to scan the code is located on the right side of the machine's steering column.

LOST OR DAMAGED HOME LOCATION CODES

If a home location code is lost or damaged, contact your service representative.

TEACHING A NEW CLEANING ROUTE

The machine can store up to six routes in memory per home location.

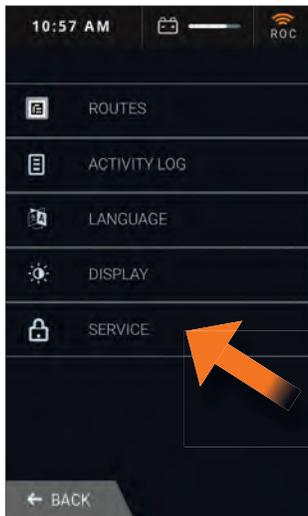
WARNING Routes should not include driving into an elevator. The machine should always be manually operated when in an elevator or around automatic doors.

TEACHING AND SAVING ROUTES

1. Initiate power on the Brain-enabled scrubber using the momentary key/ignition
2. Using the touchscreen move the blinking cursor to highlight "teach route."
3. The user interface will instruct operator to drive to the home location code.
4. If the machine is not positioned properly in front of home location code, an error code will appear on the user interface LCD touchscreen stating "Error! Home Location Not Found" or "Machine is too close." If too close, you will see a red highlight around the home location code.
5. If the home location code is visible within the live video camera view and the Brain-enabled scrubber is within the appropriate distance from the code, the machine will begin scanning and state "Scanning Home Location." You will see a green highlight around the image of the code on the UI.
6. Once the Brain-enabled scrubber completes scanning the home location code, a "Success" message appears.
7. Using the touchscreen, move the blinking cursor and select an available slot to assign to the new cleaning route. In some cases, the cursor will automatically move the next available route.
8. The Brain-enabled scrubber will indicate it's now ready to learn a route by stating "Ready. I will learn as you drive." The LCD screen will shift to "Learning Mode."
9. Drive the machine through the entire desired cleaning route. This allows the machine to map and store the new route in memory.
Note: The machine will not recall the component settings (water level, solution level and scrub deck pressure). This is to allow the end user to choose the appropriate settings based on need for the day or cleaning area. The robot operator should decide on water, solution and scrub deck level and adjust before each route is selected.
10. The robot completes its map by running a loop. It is important to finish the desired cleaning route at the home location where the route was started. A route cannot be saved in memory without completing this step. Always start and stop in the exact same location.
11. Select "Save" by pressing the save button.
12. The user interface will ask "Are you sure you want to save this route?"
13. Press the button again to indicate "Yes."
14. The Brain OS software will automatically save the route and will then appear on the "Run Route" menu option when selected.

DELETING A ROUTE

There are two ways to delete a route.

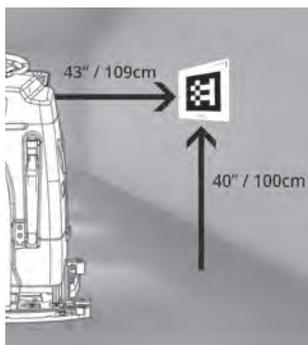


OPTION 1

1. Select Service on the user interface LCD screen.
2. A new menu of options will appear. Choose "Delete Route".
3. The list of home location codes that have been saved to memory will appear. Select the home location code that is to be edited.
4. From the list of saved cleaning routes now displayed, highlight the route to be deleted and select "Delete".

OPTION 2

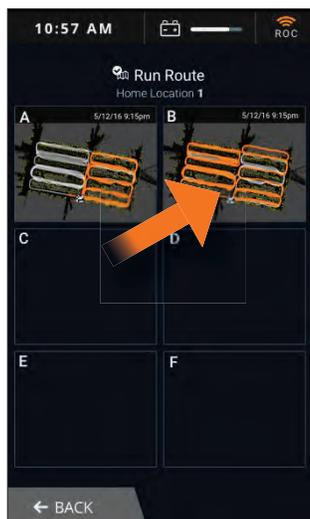
1. Drive the Brain-enabled scrubber to the home location code that's to be edited.
2. From the Service menu select "Route Deletion."
3. The routes associated with that specific code will appear on the user LCD screen.
4. Highlight the route to be deleted and select "Delete."



RUNNING AN AUTONOMOUS CLEANING ROUTE

1. Position the Brain-enabled scrubber in front of the home location code. All operations should begin and end at the home location code.
2. If the Brain-enabled scrubber is not positioned properly in front of the home location code, a message will appear on the user interface LCD screen stating "Drive to Scan My Home Location." The robotic scrubber cannot scan the code if the Brain-enabled scrubber is not properly positioned.
3. When the Brain-enabled scrubber sees the home location code, it will be visible via the live video image on the user interface LCD screen and scanning animations will appear on the LCD screen. A message will appear on the user interface LCD screen stating "Scanning Home Location."
4. Once the Brain-enabled scrubber completes scanning the home location code, a "Success" message appears.
5. Select a cleaning route via the user interface LCD screen by selecting the desired route.
6. Step off of the machine and secure the safety straps by pulling them from their housing and clasp them to the front screws on the sides of the machine.
7. Walk to the rear of the machine and press the flashing blue button to begin autonomous operation.
8. As the machine starts autonomous operation, inspect it to ensure proper cleaning function (i.e. deck and scrubbing function, squeegee function, squeegee adjustment, rear squeegee water pickup, side skirt wiping, etc.)

NOTE After a brief pause, the machine will signal that it's about to operate by flashing the yellow warning light and sounding its horn.



In summary there are **3** important and simple steps to remember: Once at the home location code, select "choose a route", then select the route you wish to clean, lastly press the blue button. **It is as easy at 1-2-3!**

CAUTION The user shall verify that the audible means of the robot exceed the ambient noise at the end-use location. Before starting the Brain-enabled scrubber, whether for manual or autonomous use:

- Make sure all safety devices are in place and operate properly.
- Check brakes and steering for proper operation.
- Prepare the area that is to be cleaned. Clear the area of debris and obstacles to ensure maximum floor coverage.
- Control and monitor the area being cleaned

ROC (ROBOT OPERATING CENTER)

Brain Corp’s Robot Operating Center (ROC) is a remote command center managed by Brain Corp technicians. The ROC is designed to enhance your robotic scrubber’s on-board capabilities by providing remote supervision and fleet management analytics. The ROC automatically deploys field support in the event of a maintenance issue with the Brain-enabled scrubber. New versions of software are automatically uploaded to your robotic scrubber without disruption to service or need for any operator interaction. Once the upgrade has completed, it will be available after the next power cycle.

ROC INDICATOR – Pairing Phone with Brain-enabled Scrubber



ACCESS TO CELLULAR SERVICE IS NEEDED FOR THE MACHINE TO CONNECT TO THE ROC.



The ROC Indicator is located on the user interface LCD screen in the status bar. When the ROC Indicator is illuminated orange, the Brain-enabled scrubber is successfully connected to the ROC.

Connecting the Brain-enabled scrubber to the ROC allows for registering to receive SMS status alerts while your robotic scrubber is functioning autonomously. The alerts can be sent to any phone that is able to receive SMS and MMS messages. This also indicated connection to the Robot Operating Center.

Pairing your phone to the machine:

1. Select “Service” on the UI Menu
2. Select “Notifications”
3. Follow instructions

Alerts will be sent under a variety of circumstances, such as when the Brain-enabled scrubber has encountered an unpassable obstacle or if the emergency stop button has been triggered. Alerts will also be sent when the machine runs out of water, the battery is low or the recovery tank is full. Only one phone number may be registered to receive status alerts. The SMS alert session expires after three hours or when a new user registers their phone.

TO ACCESS THE ALERTS SCREEN:



1. “Select System Alerts” found on the upper left corner of the UI.
2. Follow the instructions on the display
3. If a machine component alert is shown and cannot be fixed, contact customer service.

Note:
Your Brain-enabled robotic scrubber may still be used in autonomous mode without ROC connectivity.



COMPLETING DAILY ROUTINE

PARKING AND POWERING DOWN

When not in use, the Brain-enabled scrubber should be stored in its designated parking station.

It is important to turn off and secure the machine when it's not in use. Power down by turning the momentary key/ignition counter-clockwise. Remove the key to prevent unauthorized use.

NOTE: Keep the Brain-enabled scrubber clear of fire doors, access to stairways and fire equipment.

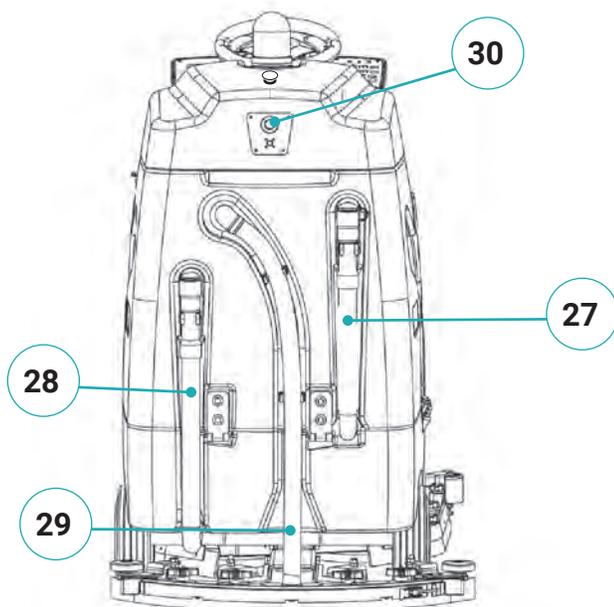
MACHINE STORAGE

1. Always store the machine indoors.
2. Always store the machine in a dry area.
3. Always store the machine in its upright position.
4. Always store the machine with the pad driver/brush raised off the floor.
5. Always store the machine with the squeegee assembly raised off the floor.
6. If storing in an area which may reach freezing temperatures, be sure to drain all fluids from the machine prior to storage. Any damage caused by freezing temperatures will not be covered by the warranty.
7. Drain the solution tank of all fluid.
8. Drain the recovery tank of all fluid, clean the recovery tank and flush the drain hose, empty and clean and the yellow debris strainer basket at the top of the recovery tank.

DRAINING THE RECOVERY TANK

Each time scrubbing is completed, or when refilling solution tank, the recovery tank should be drained and cleaned.

WARNING If the recovery tank is not drained when the solution tank has been refilled, foam or water may enter the float shut-off screen and cause damage to the vacuum motor.



While holding the recovery tank drain hose (Machine Components #27) upward, remove the cap and lower hose to drain.

Once the seat has been lifted out of the way, open the recovery tank cover (Machine Components #16) and rinse out the tank. Use a rag to remove any excess dirt. Clean the vacuum fan inlet filter located in the recovery tank.

DRAINING THE SOLUTION TANK

Any time scrubbing operation is completed, the solution tank should be drained and cleaned.

While holding the solution tank drain hose (Machine Components #21) upward, remove the cap, fold the end of the hose and lower hose to drain.

Rinse the solution tank with clean water after every use. This will help prevent chemical buildup and clogging of solution lines.

BATTERY AND CHARGING

The Brain-enabled scrubber's battery is designed to last approximately 3.5 hours for lead-acid batteries and 4 hours for AGM type batteries on the lowest scrub pressure setting. In order to maintain its charge, keep the machine plugged in when not in operation.

WARNING Charging the batteries produces highly explosive hydrogen gas. Charge batteries only in well-ventilated areas, away from open flame.

THE OPERATOR'S SEAT MUST BE OPEN WHEN CHARGING THE BATTERY.

Please dispose of old machine components such as batteries, hazardous fluids, including antifreeze and oil, in an environmentally safe way according to local waste disposal regulations.



APPROVED CHARGERS AND SPECIFICATIONS:

- Automatic shut-off circuit
- Deep cycle charging
- Output current of 20-30 Amps
- Output voltage of 24 volts

NOTE: The machine cannot operate when charging.

ON-BOARD BATTERY CHARGER

The ICE RS26, powered by Brain OS robotic scrubber has an on-board charger position below the seat, above the foot plate.

1. Place the machine in a well ventilated area.
2. Turn the machine off.
3. If charging wet (lead acid) batteries check the fluid level before charging.



ON-BOARD BATTERY CHARGER CONT.

1. Prop the Operator seat using the support stand for ventilation.
2. Connect the charger's AC power supply cord to a properly grounded receptacle.
3. Connect the charger's DC cord into the on-board battery charger receptacle (Machine Components #13).
4. The charger will automatically begin to charge and will shut off once batteries are fully charged.
5. Upon completion of charging, disconnect the AC power supply cord first from the on board charging receptacle.

LEAKING BATTERIES

1. Avoid any contact with battery acid. Use the proper personal protective equipment when handling and maintaining batteries.
2. In the event of a spill, neutralize any leaked battery acid with baking soda and water in accordance to OSHA guidelines.

MAINTENANCE AND SAFETY

WARNING Before performing any maintenance on the machine, be sure that the power is turned off and the batteries are disconnected!

WARNING Repairs are to be completed by authorized technicians only.

PREVENTIVE DAILY MAINTENANCE

1. Remove pad driver/ brush and clean with approved cleaner.
2. Drain recovery and solution tanks completely and rinse with clean water. Visually check recovery tank for debris and clean out as necessary. Also clean out strainer basket.
3. Raise squeegee assembly off floor and wipe it down with a damp towel. Be sure to store the squeegee in the up position.
4. Remove vacuum fan inlet filter and rinse it out with clean water.
5. Clean machine with water or a mild multipurpose cleaner and damp towel.
6. Recharge the batteries.
7. Check condition of squeegee blade wiping edge, rotate blade if worn. Replace if damaged. Wear of brushes and squeegees will depend on surfaces being cleaned. Replace when the items are worn.

MONTHLY MAINTENANCE

1. Clean the battery tops to prevent corrosion.
2. Check for loose battery cable connections.
3. Inspect and clean recovery tank cover seal. Replace if damaged.
4. Lubricate all grease points and pivot points with silicon spray and approved grease.
5. Check machine for loose nuts and bolts.
6. Check machine for leaks.

MOTOR MAINTENANCE

1. Contact your local distributor for any motor maintenance.
2. Motor should have its brushes checked every 250 hours. Brushes should be replaced when they are worn to a length of 10 mm or less.

BATTERY MAINTENANCE

CAUTION Use the proper Personnel Protective Equipment when handling and maintaining batteries.

1. Always follow battery charging directions as outlined in the **BATTERY CHARGING** section.
2. Keep battery tops and terminals free from corrosion. A strong solution of baking soda and water is the best way to keep batteries corrosion free. **DO NOT ALLOW THE BAKING SODA/WATER SOLUTION TO ENTER THE BATTERY CELLS.**
3. Use a wire brush with the baking soda solution to properly clean the battery posts and connections.
4. Check battery connections for wear and loose terminals. Replace if necessary

TYPE AND FREQUENCY OF INSPECTIONS

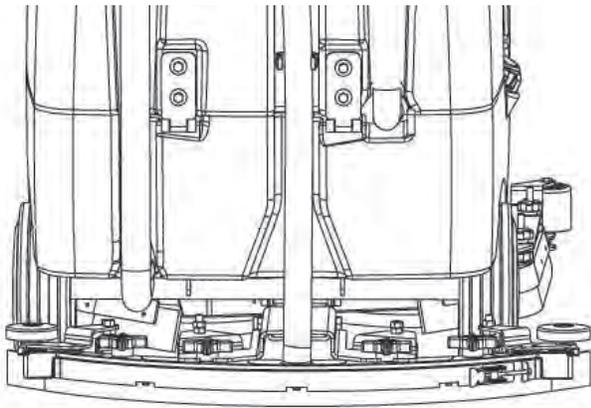
Prior to each use of machine, all of its mechanical functions should be inspected. Additionally, the following checks should be performed at startup:

1. Check tank cover seals for damage.
2. Drain recovery tank, check vacuum fan inlet filter, clean if necessary.
3. Check vacuum hose for debris or blockage. Check squeegees for damage, wear and for deflection adjustment.
4. Check whether pad/brush is installed properly.
5. Check brakes and steering for proper operation.
6. Check to ensure sensors are clean and not obstructed.

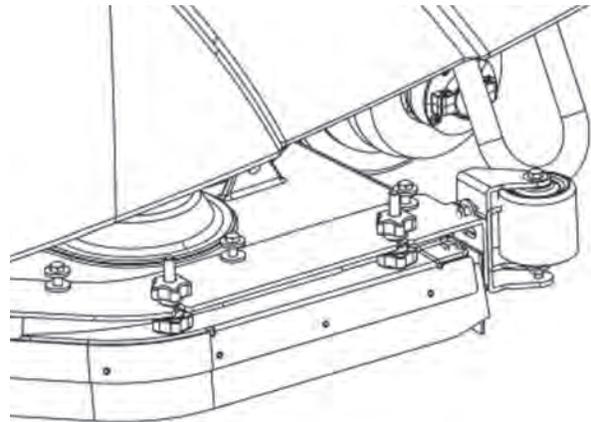
ADJUSTING SCRUBBERS AND SQUEEGEE

Adjusting Scrubbers and Squeegee

REAR SQUEEGEE

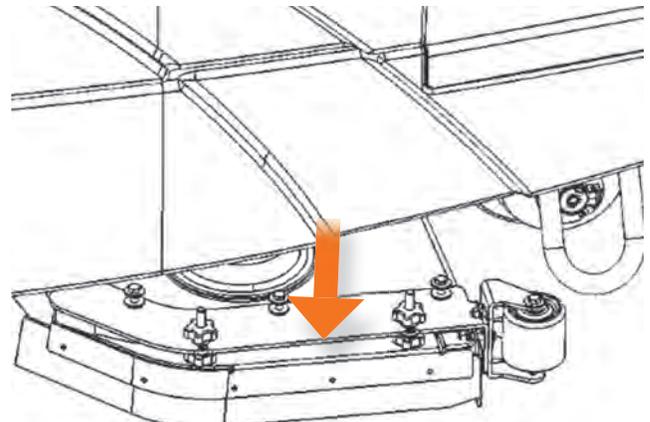
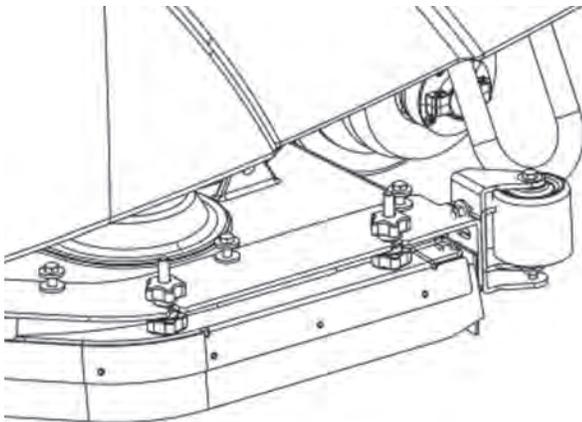


SIDE SQUEEGEE



REMOVING SIDE SKIRT ASSEMBLY

To loosen and remove the side skirts, loosen the two upper knobs and pull off the skirts.

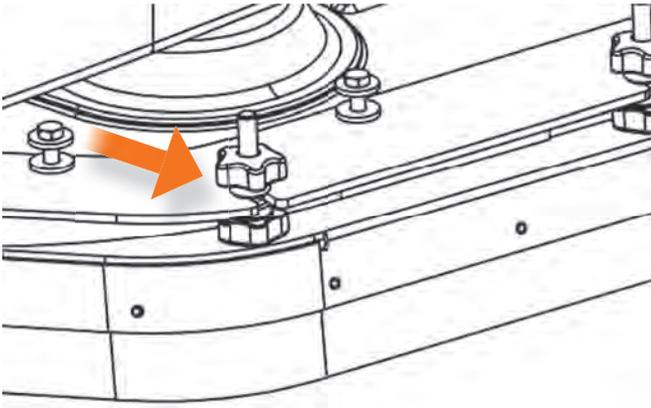


ADJUSTING SIDE SKIRT HEIGHT

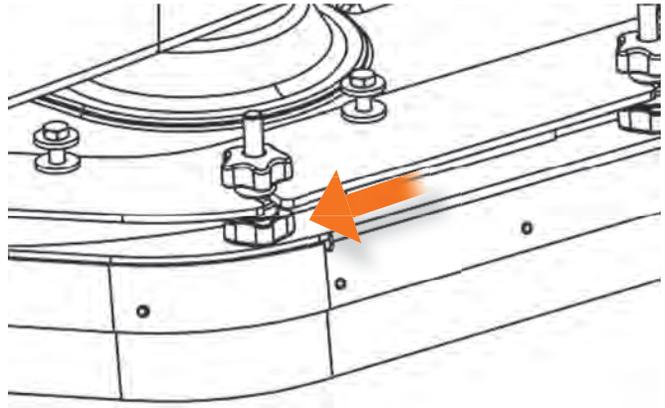
To adjust the height of the side skirt assembly, moving it up or down, use the smaller, secondary knobs located underneath the two top knobs. Begin by loosening the larger two top knobs first. Then tighten the smaller, bottom knobs to secure the deck in the desired height and position.

For best cleaning performance, the side skirt should be adjusted such that the blade flares outward slightly when the deck is lowered. Check the adjustment by operating the machine and verifying that the skirt wipes water properly during turns. If the side skirt is too high it will leave water during turns. If the skirt is adjusted too low, wiping will not be optimal and the blades will wear prematurely.

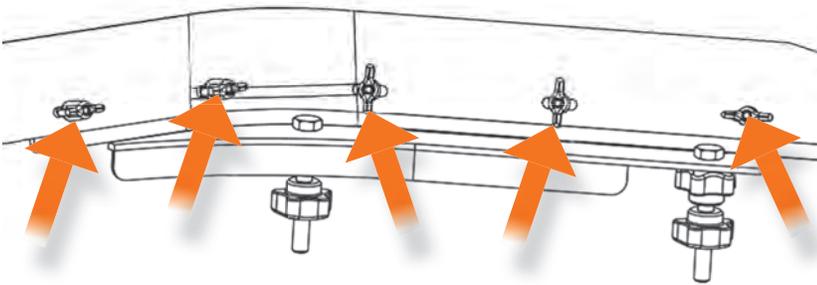
TOP KNOB



BOTTOM KNOB



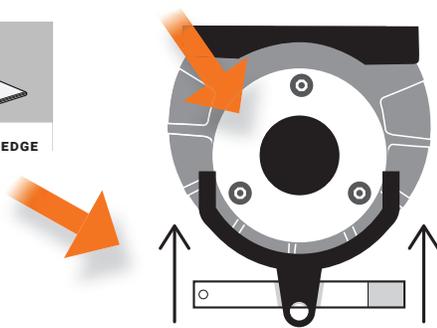
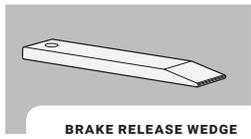
REMOVING SIDE SKIRT



To remove squeegee from the side skirt, in order to replace it entirely, loosen and remove all of the screws located on the back side of the skirt.

BRAKE RELEASE

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

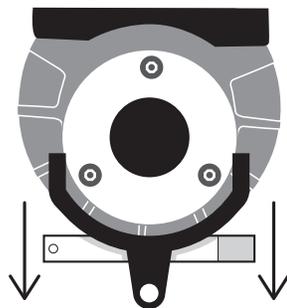


1. On the right side of the front wheel, locate the brake release lever.

2. Slide the brake release wedge under and behind the brake release lever.



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



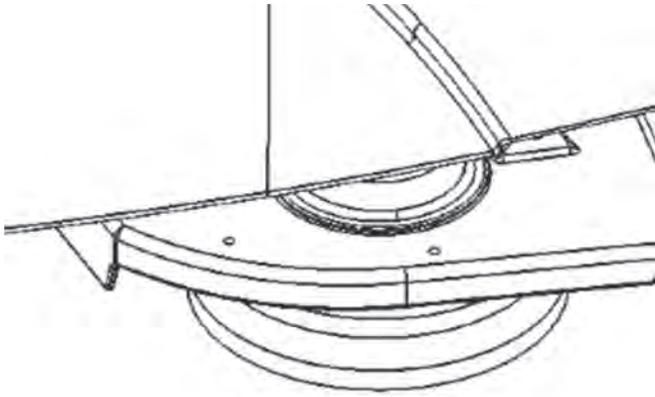
4. Once you have positioned the machine in a safe place, remove the brake release wedge.

WARNING Do not perform the brake release procedure on an incline. Once brake is released, do not push the machine down inclines as it may be unsafe and difficult to stop.

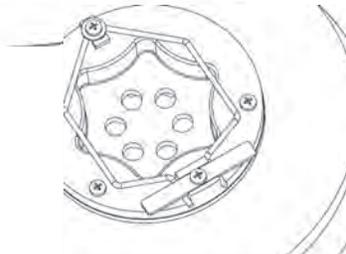
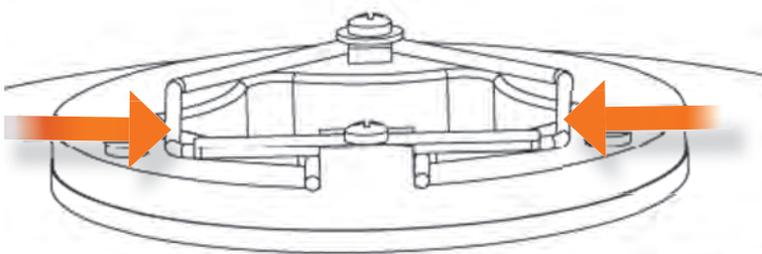
- The brake release procedure requires you to access the underside of the machine and then physically push the machine. Proper precautions should be taken by the operator to avoid injury in performing these tasks.
- Two people are required to move the machine once the brake is released, one person to 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 that would prevent you from doing so.

REMOVING SCRUBBER BRUSHES

Once the side skirt has been removed from machine, it is now possible to remove the scrubber brushes.



To remove the scrubber brushes, reach underneath the machine, and rotate the brush until the silver pins on top of the brush are visible.



Pull the brush down to remove and then slide the brush out from underneath the machine. The machine is now ready for placement of new brushes.

INSERTING NEW BRUSH

Slide the new brush underneath the machine and push it upwards into the sprocket until it snaps into place. The brush will still wobble from side to side even after it has been secured in place. Brushes should be replaced when they begin to appear thin or covered with debris.

The side skirt must be put back in place once the new brush has been installed.

The following best practices ensure proper maintenance, safe operation and optimal performance for your Brain-enabled scrubber.

BEST PRACTICES

TIPS FOR SUCCESSFUL OPERATION

To ensure successful operation it is important to adhere to the following recommendations for optimal performance.

ESTABLISH PERMANENT HOME LOCATION(S)

Home Location Markers must be in the exact same location each time your Brain-enabled scrubber is used.

- Markers must be fixed to a wall or flat surface 40 inches from the ground.
- Markers should be placed in a well-lit area.
A flashlight may be used in a lights-out building.
- Markers should never be photocopied, laminated, or placed in a sleeve or cover.
Doing so may prevent your robotic scrubber from being able to read the marker.

INSPECT & MAINTAIN THE MACHINE

Ensure optimal performance by performing the following maintenance steps.

VISUALLY INSPECT SENSORS BEFORE USE & WIPE IF NECESSARY:

- Dirty sensors can affect the machine's performance. Inspect the 3D sensor and the upper and lower LIDAR sensors to ensure they are clean and free of smudges. Clean any dirt and dust off using the microfiber cloth provided. Do not apply water to the sensors OR cloth!

INSPECT PADS, BRUSHES & SQUEEGEES:

- As brushes wear down, the scrub deck gets lower. Ensure the side squeegees are adjusted properly and raise them as the brushes wear down.
- Replace worn brushes and pads.
- Inspect rear squeegee for wear and flip or replace if necessary.

ENSURE BATTERY HEALTH

- Check charger lights before each use. A solid green light indicates a successful charge.
- Regularly check the battery water level and top off with distilled water if necessary.

RUNNING A ROUTE

Remember these tips each time you use your robotic scrubber

STAY CLEAR OF THE FRONT OF THE MACHINE AND SENSORS

- Do not crowd or stand in front of the machine especially while choosing routes at the home location.
- Keep people behind the machine.

PAIR YOUR PHONE

- Remember to pair your phone to receive alerts from your robotic scrubber.

OPTIMIZE POWER USAGE

- For daily floor maintenance, use lower water and pressure settings for longer battery life.

DON'T PARK TOO CLOSE TO THE HOME MARKER

- Being too close or too far from the marker may prevent your robotic scrubber from seeing the marker.

TRAINING A ROUTE

When training your ICE RS26 robotic scrubber, powered by Brain OS on a new route, the following should be kept in mind:

- Avoid U-Turns – your robotic scrubber requires 10 feet to perform a U-turn in aisles and hallways
- Avoid tight spaces - your robotic scrubber requires a width of 5 feet to make turns around a corner
- Avoid routes over 1.5 hours in length – this is roughly the capacity of the water tank
- To traverse a non-scrubbable area, lift the scrub deck about ten feet prior to reaching it. The Brain OS navigation software will remember when you lift and drop the scrub deck.

CLEANING & STOWING

The following steps should be completed after each use:

- Drain and rinse machine including the filter. Consider filling the tank if scrubber will be used daily.
- Power off the machine and connect to charger. Confirm charger light begins flashing yellow.
- Prop open the driver seat to allow battery ventilation during charging.

TRAINING

When training the Brain-enabled scrubber on a new cleaning route avoid extremely tight areas. For instance, pathways that the machine will clean must be at least four feet wide. In addition, corners that the machine will be required to navigate must be at least five feet wide. Any u-turn with the ICE RS26 robotic scrubber, powered by Brain OS requires at least 10 ft for a u-turn.

MANUAL AND AUTONOMOUS MODE

When using the Brain-enabled scrubber in manual mode to clean, do not end operation abruptly. It's best to drive the machine slightly beyond the end of the cleaning route and then inspect the floor to ensure that all water has been removed.

Manual mode must be used for transport and when cleaning inclines.

Upon completion of scrubbing, inspect the floor and vacuum any residual water left by the machine.

WARNING Inspect cleaning space for excess cleaning solution after the machine has passed. All excess cleaning solution in the cleaning space should be appropriately mopped or marked with warnings. Failure to do so has the potential to create slippery surfaces. In the event the machine leaves excess cleaning solution, immediately examine the scrubbers, squeegee, hoses, skirt, tanks, and water settings. Adjust accordingly.

DAILY MAINTENANCE

Each time the machine is used, the skirt should be inspected to ensure that it's wiping water effectively, thus avoiding water build-up. Side skirts should be free of tears, rips or extensive wear.

The sensors should also be wiped clean using the provided microfiber cloth in order to maintain optimal performance of your Brain-enabled floor cleaner. Do not spray liquid directly on to the sensors or the microfiber cloth. Only a dry microfiber cloth should be used.

HOME LOCATION CODES

Home location codes should be placed near areas commonly cleaned, on an open wall or column where there is easy viewing access from the right side of the machine. If they cannot be left up, ensure that it is placed in the same exact location, each time of use, if the home location code is moved even slightly, the route will not be performed correctly.

START-UP

The following steps should be followed to begin operating the machine.

1. Ensure batteries are fully charged. Visually inspect the battery condition and disconnect the charger from the scrubber.
2. Confirm the recovery tank is empty and that the strainer basket and filter are both clean.
3. Fill water and cleaning solution tanks.
4. Inspect squeegees and brushes/pads for wear, damage and proper installation.
5. Inspect and clear any dust or debris from all sensors.
6. Check and adjust machine control settings.
7. Check side skirt and adjust for proper wiping. In addition, inspect rear squeegee function for proper water pick-up upon initial use.



TROUBLESHOOTING

PAUSING OR STOPPING THE MACHINE

If you need to stop or pause your robotic scrubber, approach from behind and press the blue button at the back of the machine. You can resume operation by pressing the button again. If necessary, the machine can be driven manually after pausing.

EMERGENCY SHUTDOWN

If for some reason, there is an emergency and you need stop your robotic scrubber immediately, this may be done by pressing the red emergency stop button to the right of the machine's steering wheel or in the back of the machine. Keep in mind that stopping the machine with the e-stop may result in water leakage.

Note, the button must be twisted to release it.

ROBOTIC SCRUBBER FAQs

FREQUENTLY ASKED QUESTIONS AND ANSWERS

Some of the most frequently asked questions can be found below with answers and explanations for each.

Q: HOW LONG OF A ROUTE CAN I TRAIN?

A: As a rule of thumb, it's best to limit route-training to about 45 minutes per route. A route that takes 45 minutes to train takes your robotic scrubber about 1 hour to run on her own. Routes longer than 1 hour are not recommended due to water and battery capacity. It's also easier to monitor and control the environment if your space is divided into smaller areas.

Q: HOW DO I PAIR MY PHONE?

A: On the machine's UI, navigate to "Service" and select "Notifications". Follow the on-screen instructions to pair your phone by texting the code to the phone number displayed on the screen.

Q: I PAIRED MY PHONE YESTERDAY BUT TODAY I'M NOT RECEIVING ANY NOTIFICATIONS.

A: You have to pair your phone each day you use the machine. This is to ensure only an on-site operator will receive the notifications. Once you turn the machine off or if another operator connects, you will no longer receive notifications.

Q: ROBOTIC SCRUBBER GETS STUCK IN THE SAME PLACE EVERY DAY. THERE IS NOTHING THERE BUT SHE ALWAYS STOPS AND ASKS FOR HELP. WHAT'S GOING ON?

A: There could be an environmental factor such as a reflection causing your robotic scrubber to think something is there. For safety reasons, robotic scrubber errs on the side of caution. To help us resolve the issue, make a note of the route letter, the home location number

and the area of concern and contact support through one of the methods listed on the sticker under the seat. Pictures of what your robotic scrubber sees in front of her are helpful too. In some cases we may be able to remotely adjust the route to improve performance.

Q: HOW MANY ROUTES CAN I TRAIN?

A: You can train up to 6 routes per Home Location Code, and there are 10 codes provided.

Q: ROBOTIC SCRUBBER IS SUPPOSED TO TURN (OR TURN AROUND) BUT WHEN SHE GETS TO THAT POINT SHE STOPS AND ASKS FOR HELP. IS THERE A MINIMUM SPACE SHE NEEDS TO OPERATE OR TURN AROUND?

A: Think of "4-5-10". When your robotic scrubber is on a straight path, she can go through spaces as narrow as 4 feet (between two displays for example). When making a turn or going around a corner, your robotic scrubber requires a minimum width of 5 feet. To make a U-Turn, robotic scrubber requires a 10 ft width.

Q: BESIDES TURNING, WHAT OTHER THINGS SHOULD I KEEP IN MIND WHEN TRAINING ROUTES?

A: When training routes, try to make wide graceful turns, staying at least 6 inches away from edges and corners. If possible, avoid U-Turns by circling around or alternating aisles. See the Process Guide for more training tips and information.

FAULT CODES

The Brain-enabled scrubber is equipped with a user interface LCD screen. When a fault occurs there will be a warning message displayed on the LCD screen. A red indicator will blink continuously in conjunction with an audible alarm.



When a fault occurs, discontinue operating the machine until the fault is eliminated. Turn off the machine and resolve the fault. The fault code will be eliminated when the machine is restarted.

If a component alert or fault occurs frequently, or the fault cannot be eliminated, please contact your service provider.

Refer to the table on the next pages to determine the cause and remedy for a fault code.

ERROR CODES TABLE

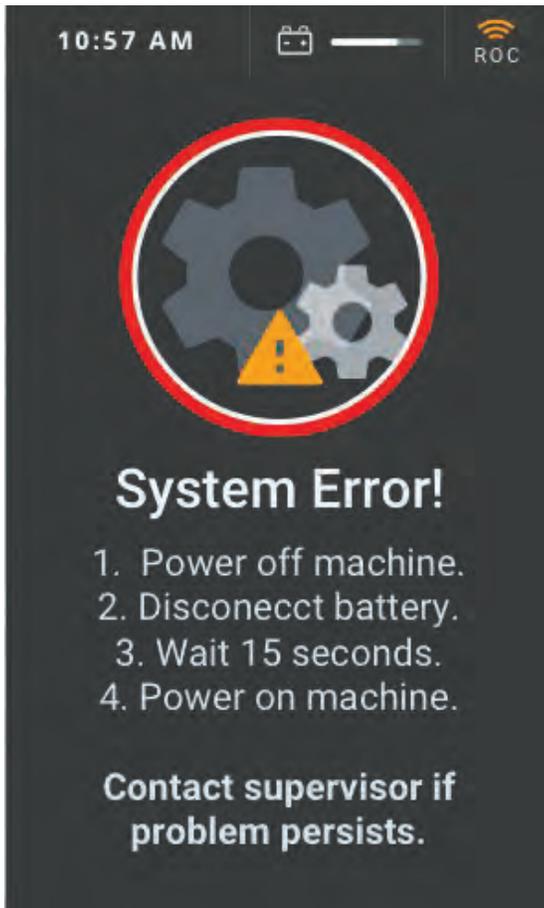
FAULT CODE	WARNING MESSAGE	FAULT CASE	REMEDY
F1	Sit in seat	Not sitting in seat	Sit in the operator seat
F1	Sit in seat	Seat circuit open	Check circuit or contact service center
F2	EMS Active	Emergency stop button is activated	Reset emergency stop button, restart the machine
F2	EMS Active	Circuit open	Check circuit or contact service center
F3	Squeegee Stall	Squeegee lifting motor is overloaded	Restart the machine
F3	Squeegee Stall	Squeegee lifting components fault	Check squeegee lifting components or contact service representative if problem continues
F4	Act. Overload	Scrub head lifting motor is overloaded	Restart the machine or contact service center
F4	Act. Overload	Scrub head lifting components fault	Check scrub head lifting components or contact service center
F5	Vacuum Overload	Vacuum motor overload	Turn Off The Machine, Wait A Moment, Restart Machine. If The Fault Continues, Contact Service Center
F6	Brush Overload	Brush motor overload	Turn Off The Machine, Wait A Moment, Restart Machine. If The Fault Continues, Contact Service Center
F7	Propel Error	Propel motor overload	Turn Off The Machine, Wait A Moment, Restart Machine. If The Fault Continues, Contact Service Center
F8	Recovery Tank Full	Recovery tank is full	Drain the recovery tank
F8	Recovery Tank Full	Bad recovery tank water level switch	Replace or Contact Service Center
F9	Solution Tank Empty	Solution Tank is Empty	Fill the solution tank
F9	Solution Tank Empty	Bad Solution Tank Water Level Switch	Replace or Contact Service Center
F10	Battery Low	Battery is low, below 40%	Charge Battery
F11	Battery Very Low	Battery is low, below 20%	Charge Battery
F11	Battery Very Low	Bad Batteries	Replace Battery
F12	Brake Open	Brake Circuit Open	Contact Service Center
F13	Accel. SRO	Stepping The Propel Pedal When Starting The Machine	Release The Propel Pedal When Turning On The Machine
F14	Brake Short	Brake Device Overload	Restart Machine
F14	Brake Short	Bad Brake Device	Contact Service Center
F15	No Brush	No brush or brush installed improperly	Install Brush Properly

ADDITIONAL TIPS

PROBLEM	CAUSE	SOLUTION
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 Filling Recovery Tank	Empty Recovery Tank. Use Less or Different Detergent. 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 Detergent, Brush or Pad Used	Contact Equipment or Application Specialist
	Low Scrub Down Pressure	Increase Brush Pressure
	Low Battery Charge	Charge Batteries
	BRUSH MOTORS DO NOT RUN, OR RUNS SLOWLY	Circuit Breaker(S) Tripped
Loose Connection		Check Motor Wires and Connection
Faulty Brush Motor Contactor		Replace Contactor
Worn Brush Motor Brushes		Replace Brushes, Check Commutator

PROBLEM	CAUSE	SOLUTION
LITTLE OR NO SOLUTION FLOW TO THE FLOOR	Solution Tank Empty	Fill Solution Tank
	Solution Flow Turned Off or Set Too Low	Turn On or Increase Flow Setting
	Solution Strainer Plugged	Clean Solution Strainer
	Solution Hoses Obstructed	Clear Obstruction from Hose
	Solution Solenoid Valve Obstructed or Stuck	Clean or Replace
	Vent Hole in Solution Tank Lid Obstructed	Clear Obstruction from Vent Hole
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 PROPEL	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 WHEN IT 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 Need to be Replaced	Replace Batteries
BATTERIES NOT CHARGING	Lead Acid Batteries Allowed to Completely Discharge	Polarity Flipped. Allow 24-48 Hours Charge Time to Restore Battery
	Battery Charger Malfunctioning	Repair/Replace Battery Charger
	Wall Outlet Not Providing Voltage	Restore Outlet Power

WHERE TO GET MAINTENANCE AND SUPPORT



If you see this error on the display, please reboot the machine. If the problem persists, please contact support.

CUSTOMER SUPPORT

1-888-834-9948

servicebraincorp@triadservice.com



ROBOTIC SCRUBBER ICE RS26, GEN2
POWERED BY BRAINOS V1.1217
CONTENT SUBJECT TO CHANGE