SYSTEMS

1. System Overview ........................................ 1
2. Customer Assistance ........................................ 2
3. Supplies, Parts and Accessories ........................................ 2
4. Intended Use ........................................ 2
5. Personnel Responsibilities ........................................ 2
6. General Safety Awareness ........................................ 3
7. System Safety Awareness ........................................ 4
8. Risk ........................................ 6
9. Preventing Unsafe Situations ........................................ 7
10. Healthcare/UV User and Service Personnel Warnings ........................................ 8
11. Machine Overview ........................................ 8
12. Theory of Operation: ........................................ 10
13. Safety Devices ........................................ 13
14. Safety Circuit Wiring ........................................ 15
15. Batteries ........................................ 16
16. Charging ........................................ 17
17. Language Setup ........................................ 18
18. Administrative Setup ........................................ 18
19. System Preferences ........................................ 20
20. Commissioning After Storage ........................................ 20
21. Weekly Safety Device Check ........................................ 20
22. Daily Startup Procedure ........................................ 23
23. Review of Work Area ........................................ 24
24. Manual Drive ........................................ 25
25. Manual Cleaning ........................................ 25
26. Hands Free Cleaning ........................................ 25
27. Daily Shutdown Procedure ........................................ 28
28. Maintenance ........................................ 30
29. Replacement Components ........................................ 31
30. Storage ........................................ 31
31. Troubleshooting ........................................ 31
32. Diagnostics ........................................ 32
33. Sonar Diagnostic ........................................ 32
34. Touch Shield Diagnostic ........................................ 32
35. Floor Sensor Diagnostic ........................................ 33
36. Gyro Diagnostic ........................................ 33
37. Gyro Calibration ........................................ 33
38. Network Diagnostic ........................................ 34
39. WiFi Diagnostic ........................................ 34
40. Memory Diagnostic ........................................ 34
41. Outputs Diagnostic ........................................ 35
42. Flow Diagnostic ........................................ 35
43. Drive Motor Diagnostic ........................................ 35
44. Technical Data ........................................ 36
45. Revisions ........................................ 37

Attention:
Read and understand these instructions before use.

This manual includes important information about the safe use of this machine. Keep these instructions in an easily accessible location for reference.

1. System Overview
The TASKI Intellibot SWINGOBOT 1650 and TASKI Intellibot SWINGOBOT 1650 UV are robotic floor scrubbing machines intended for commercial use. The following is an overview of the machine features.

INTELLIGENT FEATURES

Main Computer Monitors all functions; commands robot to perform stored cleaning routes

Drive Subsystem Monitors and controls the robot’s movement and position

Controls Manual and autonomous

Navigation 16 sensors provide a complete, 360-degree view around robot

Front Touch Shield Full width, ABS, touch-sensitive shield provides immediate braking

Rear Touch Shield Full width, ABS, touch-sensitive shield provides immediate braking

Security User-specific password protection to prevent unauthorized use

Safety Systems Sonar obstacle detection, infrared floor sensors, touch shields, emergency stop button

SOLUTION RECYCLING SYSTEM

Solution Feed Computer-controlled, adjustable flow rate to center of each brush

Solution Tank Integral 14-gallon (53-liter) molded high-density polyethylene with easy-access lid

Recycling System Four-stage automatic recycling system filters to 10 micron standard, 1 micron optional for SWINGOBOT 1650 UV

BRUSHES AND SQUEEGEE

Pads Two counter-rotating 15° drivers and pads

Brush Head Pads are changeable without removing head from machine

Scrubbing Width 29” (73.66 cm)

Scrubbing Pressure 100 lbs. (45.36 kg)

Squeegee 32” (81.28 cm), parabolic, self-centering swing style with plastic end rollers and quick change, four-edge, reversible rubber blade
DRIVE SYSTEM
Drive Motors  Two 24 VDC precision motors, built-in encoders, traction water displacement tread
Vacuum Motor  Single 67 CFM vacuum

PRODUCTION
Cleaning Rate  Approximately 10,000 sq ft (approx. 929 sq m) per hour (avg.)

BATTERY SYSTEM
Battery  Sealed gel cell or AGM deep cycle, 180 AH, 24 VDC output
Run Time  Approximately four hours
Optional Exchange Kit  Run time can be doubled with battery exchange kit
Charger Unit  20 amp, 24 VDC output, 115 VAC input with automatic shutoff
Charge Time:  Approximate full charge time minimum 12 hours.

CONSTRUCTION
Frame  Powder-coated 5052 aluminum and stainless steel
Exterior  High-density, molded, seamless polyethylene
Machine Length  48" (121.92 cm)
Machine Width  32" (81.28 cm)
Machine Height  43" (109.22 cm)
Machine Weight  720 lbs. (326.6 kg)

ENVIRONMENT
Temperature  59° to 86° F (15° to 30° C) operation, -22° to 140° F (-30° to 60° C) storage
Humidity  20% to 75% relative humidity

1.1. Statement of Airborne Noise Emission
This machine does not exceed 75 dB(A) during operation or maintenance.

1.2. Statement of Compliance
This product complies with all applicable European Union Directives and Harmonized standards as of the date of manufacture. See product ratings label for specific model and serial number information.

Applicable EU Directives

1.3. Applicable EU Harmonized Standards
EN 60204-1  EN 60335-1  EN 12100
EN 60335-1
EN 60335-2-72 (manual mode operation)
EN 12100  EN 13857  EN 349
EN 14121  EN 55014-1  EN 55014-2

2. Customer Assistance
For questions relating to the operation, maintenance, or service of this robotic floor scrubber system, please contact:

2.1. Equipment Manufacturer:
Diversey Care Intellibot
12820 West Creek Parkway
Suite B
Richmond, Virginia 23238  U.S.A.
Phone (US): 01.888.837.0002
Email: ir-service@sealedair.com
Web: www.intellibotrobotics.com

2.2. European Union Representative:
Diversey Europe Operations B.V.
Maarssenbroeksedijk 2
3542 DN Utrecht, Netherlands
Email: customerservice.nl@sealedair.com
Phone (EU): 31.030.247.6885

3. Supplies, Parts and Accessories
For optimal machine performance, only Diversey Care cleaning solutions approved for use with this machine should be used. To maintain performance, and safety of the machine, personnel, and property, only TASKI Intellibot parts and accessories should be used to maintain this robotic floor scrubber system.

Please contact Customer Assistance for any questions regarding the use, maintenance, or service of this robotic floor scrubbing system.

4. Intended Use
This robotic floor scrubbing system is an industrial floor scrubbing machine intended for interior use in commercial buildings. The machine should only be used for the wet cleaning of hard commercial floor surfaces.

This machine must be attended by an operator at all times during use. The operator is responsible for the safe operation of this machine and must follow the operating and safety instructions provided in this manual.

5. Personnel Responsibilities
The following identifies personnel requirements for the safe use of this equipment.

5.1. Manager
It is the manager’s responsibility to ensure that operator(s) and maintenance personnel are properly trained in the use and maintenance of this robotic floor scrubber system. Managers must ensure that operator and maintenance personnel are provided with the appropriate supplies and equipment needed to safely operate the machine.
5.2. Operator
A operator refers to a user of this equipment who is properly trained in the use, maintenance, and troubleshooting of this robotic floor scrubber system. The operator is responsible for ensuring that maintenance is performed only by trained maintenance personnel.

5.3. Maintenance Personnel
Maintenance personnel must be properly trained to maintain this robotic floor cleaning equipment. Maintenance includes replacement of consumables such as water, detergent, filters, scrubbing pads, and scheduled cleaning of the machine.

5.4. Service Technician
A service technician refers to a field engineer who is properly trained in the use, maintenance, troubleshooting, and service of this robotic floor scrubber system. A service technician must have factory service training.

The service technician is responsible for all repairs, upgrades, and accessory installations requested by the customer or mandated by TASKI Intellibot. Service technicians are equipped with proper tools and parts for the installation, maintenance, and service of this robotic floor scrubber system.

6. General Safety Awareness
The following section includes important information required for safe operation of this robotic floor scrubber system.

The following symbols are used to identify important safety information:

- **Warning:**
  Failure to follow this information could result in serious harm to people and/or property.

- **Caution:**
  Failure to follow this information could result in damage to the machine and/or property.

- **Note:**
  Failure to follow this information could result in malfunction or damage to the machine.

6.2. General Safety Instructions
The following symbols are used to identify important safety information:

- **This machine may only be used by a trained operator that is physically and mentally capable of maintaining control and safety of the machine. Physical or mental impairment of the user may result in serious injury to people, property, and/or the machine.**

In case of damage to safety relevant components such as the Emergency Stop switch, safety interlock, safety touch shields, front door, batter, etc., the machine must be stopped immediately. Repair or replacement of the damaged component by a qualified service.

Unauthorized use or modification of this machine may result in unsafe operating conditions, personal injury, property damage or machine malfunction. Any unauthorized modification or use contrary to the intended purpose will result in voiding the machine warranty, CE marking, and applicable safety marks.

Do not use this machine around any explosive or flammable materials or in any areas where vapors from flammable materials such as solvents, fuel, oil or dust could ignite.

Do not use this machine to vacuum flammable, toxic, caustic, or irritating substances. The machine is not designed for this use and serious injury to persons and damage to property and the machine may result.

Do not use this machine in areas with high electromagnetic fields (EMF). This machine uses electronics susceptible to electromagnetic fields. Use of this equipment in high EMF areas may result in unintended and uncontrolled operation.

Stairways and doorways must be blocked when the scrubber is used in robotic mode. Failure to block a stairway could result in the machine tumbling down the stairs, resulting in serious property damage, machine damage and injury.

Operators must take note of the surrounding area and be ready to stop the machine in case a hazardous situation. The machine must be stopped if any potentially hazardous situation arises, such as children entering the cleaning area, objects falling in the machine path, stairway blocks are moved, etc. Children should never be allowed to play in or around the cleaning area while the robotic floor scrubber system is in operation.

Never use the robotic floor scrubber system to transport people or materials. Serious injury and property damage may result.
Regularly inspect the battery charger, mains cord, and machine charging cable for damage and replace the cord or charger immediately if any damage is found. Frayed or damaged charging components could lead to shock or fire.

Caution:
This machine is not intended for the application of wax, polishing, carpet cleaning, or the dry vacuuming of dust. Cleaning of wood or laminate floors is not recommended. The owner assumes all risk for use on surfaces not designed to be cleaned with commercial scrubbing equipment.

Caution:
This machine is only intended for indoor use in dry areas. Do not use or store this machines outdoors or in damp conditions.

Caution:
This machine uses detergent as part of the scrubbing system. Please read, understand, and follow all manufacturer’s instructions for the safe and effective use of the detergent. Failure to follow the manufacturer’s recommendations, including the use of safety equipment, such as gloves and safety glasses, could result in hazards to people, property, and/or machine malfunction.

Caution:
The machine may only be operated with the top cover closed. Foam or liquid leaking from the sides or top of the machine indicates a malfunction. The machine must be stopped immediately and the malfunction identified and corrected before the machine is returned to operation.

Caution:
Always use the parking brake when the machine is unattended.

Caution:
The machine is intended for use on flat surfaces. Operating the machine on a grade exceeding 2% may result in unintended operation. Do not store or transport the system on a grade exceeding 8% or the machine may tip over resulting in injury and/or damage to the machine.

7. System Safety Awareness
Safety and informational labeling is included on the machine to remind the operator of specific hazards encountered while operating and maintaining the robotic floor scrubber system. The following is a definition of the machine safety labels.

7.1. Ratings Label
Example machine ratings label:

**Figure: 1**

The ratings label contains the following information:

1. **Model:** The model name and description of the machine.
2. **Serial Number:** The unique serial number of this machine. The serial number of the machine should always be noted when customer assistance is needed.
3. **Input Ratings:** The machine is powered by 24 Volt DC batteries. For more information on appropriate batteries, see the Battery Safety section of this manual.
4. **Weight:** The weight of the machine is important for operation and shipping. Always ensure stability of the operating environment. Always ensure shipping containers and securement is appropriate for a machine of this weight.
5. **Manufacturer:** Information regarding the manufacturer and intellectual properties.
6. **Informational Labeling:**
   - Refer to this manual for important information regarding operation and safety of this machine.

   **This machine is powered from a safety extra-low voltage power source and is considered a Class III device when operating in a dry environment.**

   **This machine complies with all relevant safety and health requirements of the applicable EU Directive(s). See the Declaration of Conformity for the specific Directives and standards applicable to this machine.**

   **This machine was designed and tested to meet the standards for a level 4 protection against liquid ingress.**

6. **European Union Representative:** The manufacturer’s representative for the European Union.
7. **Date of Manufacture:** The date of manufacture of this machine.
7.2. **System Warning Labels**

The following labels are used to warn and remind the operator, maintenance, and service personnel of specific hazards when using the machine:

![Image of warning labels]

- **High Voltage Warning Label**
  - **Input:** 24V, 20.0A
- **Charger Input/Warning Identification Label**
  - **Maximum 8% Grade Warning Label**
- **SwingoBot Rating Label**
  - **Input:** 24V, 53.2A, 1280W
  - **Weight:** 208kg without battery pack
  - **342kg with battery pack**
  - **IPX4**

7.3. **Battery Warning Labels**

The following labels are used to warn and remind the operator, maintenance, and service personnel of specific hazards associated with the batteries used in this robotic floor scrubber system:

![Image of battery warning labels]

- **Attention symbol**
  - **Warning of hazards to persons and property.**
- **Operator, maintenance, or service personnel**
  - **Refer to the appropriate manual for important information.**
- **Hazardous current**
  - **Present at the battery charging port and the battery terminals at all times.**
  - **Never store anything on top of the batteries.**
  - **Always use caution when using any metallic object near the batteries.**
- **Protective eye-wear**
  - **Must be worn when working on the batteries.**
- **Batteries contain caustic acid**
  - **That can cause severe burn or blindness.**
- **Batteries emit flammable/explosive gas.**
  - **Do not allow sparks, fire or flame near the batteries.**
  - **Never smoke near the batteries.**
- **Do not remove the battery vent valve.**
- **Caustic acid is present inside the batteries.**
- **If exposed to acid, immediately flush with water and consult medical attention.**
- **Batteries should only be serviced by a trained service technician.**
- **Use only approved gel cell or AGM batteries in this machine.**

7.4. **Battery Charger Labeling**

When a battery charger is used on a battery cart, the charger should be equipped with a cover to prevent accidental spillage of liquid onto the unit.
The cover has the following safety labels:

![Safety Labels](image)

**Figure: 4**

Hazardous voltage is present when the charger is plugged into the mains.

Hazardous currents are also present at all times when the charger is connected to the battery.

Cover was designed to meet the standards for a level 4 protection against liquid ingress into the battery charger.

The battery shutdown warning label instructs the user to shut down the machine and wait for the standby button illumination to turn off.

![Battery Shutdown Warning](image)

**Figure: 5**

1. Before Removing Batteries, hold ~ Standby button, listen for 3 Beeps, which is the computer acknowledging your button push. Computer will turn off 24V circuits & start saving data.

2. Caution, for the next 30-90 seconds the computer saves data, wait for button light to go "Off" or you will lose the data. If light is still on after 120 Seconds, to prevent damage or injury hit e-stop to assure 24V power is disconnected from battery before breaking connection by pulling on battery handle.

3. Button goes dark; computer has shut down all power. All power is off; no trickle power is leaking from the battery to any circuit.

8. Risk

Although all reasonable precautions have been taken to ensure the safety of this machine, there are certain unforeseen risks that the manager, operator, maintenance and service personnel must address:

8.1. General Risk: Care should be taken to prevent the following:

- **Inadequate Training:** Operators, maintenance, and service personnel must be properly trained. It is the manager's responsibility to ensure the machine is not accessible to inadequately trained persons.

- **Lack of Supervision:** The robotic floor scrubbing system must be supervised at all times. The operator must be able to react to situations that may endanger people or property.

- **Lack of Stairway Obstruction:** When using the robotic floor scrubbing system in autonomous mode, all stairways and doorways must be blocked to prevent the unit from proceeding on an unintended path. Stairways must be blocked to prevent the unit from tumbling down the stairs and potentially causing serious damage or injury.

- **Unfit Components:** Only components authorized by TASKI Intellibot may be fitted to this machine. Use of unfit components may result in serious damage and injury.

- **Bacterial Growth:** Proper cleaning during maintenance and service is required to prevent the growth of bacteria in the robotic floor scrubber system.

- **Transportation Incidents:** The machine can tip over if subjected to a grade in excess of 8%, resulting in serious damage and injury. When transporting the unit by vehicle, it must be strapped to a supporting structure capable of securing the full specified weight.

- **Operating While Damaged:** The machine must never be operated while damaged. Damage to the machine may result in unsafe conditions for people and property. A damaged machine must be serviced by a trained service technician before returning to use.

- **Operating Without Safety Measures:** The machine is designed with specific safety measures to protect people and property. Damage or defeat of these mechanisms may result in serious injury.

8.2. Operational Risk: Care should be taken to prevent the following while operating the machine:

- **Entrapment:** Avoid situations that could trap an operator between the machine and an object.

- **Inadvertent Motion:** Be aware that gripping the handle can initiate machine motion. Do not grip the handle unless intending to move the machine in manual mode.
Operating on an Incline: The machine can tip over causing damage and injury if operated on an incline.

Parking on Incline: Always apply the parking break to prevent the machine from moving.

Setting Wrong Direction or Speed: Be aware of the direction and speed set in manual mode. Setting the incorrect speed or direction could entrap the operator between the machine and an object.

Unauthorized Use: Never leave the machine unattended.

Brush or Squeegee Entanglement: Use care when lowering the brush or squeegee assemblies. Always ensure adequate clearance from people and objects to prevent entanglement.

Safety System Malfunction: Safety systems need to be checked for proper operation before operating the machine.

Insufficient Braking Distance: Care must be taken to ensure an appropriate braking distance is maintained at all speeds and slopes.

8.3. Residual Risk: The operator should be aware of the following residual risks when using the machine:

Rotating Mechanism Pinch Hazard: The robotic floor scrubber system includes motors and scrubbing brushes with pads. A pinch hazard exists when these mechanisms are raised and lowered. Do not allow access to these areas while the machine is turned on.

Rotating Mechanism Entanglement Hazard: The rotating mechanisms can entangle clothing or body parts. Do not allow access to these areas while the machine is turned on.

Squeegee Pinch Hazard: The squeegee bar support may cause a pinch hazard when raised. Do not allow access to the squeegee when raising or lowering the mechanism.

Squeegee Grab/Hook Hazard: It is possible for the squeegee to grab or hook objects projecting from the floor or located in the plane of the squeegee. The operator must be aware of the operating environment and ensure that the machine is not used around objects or people that could be grabbed by the squeegee mechanism.

Machine Impact Hazard: When in autonomous mode, the robotic floor scrubber system uses sonar for locating objects in its path. The sonar system cannot be relied on for safety. It is possible for the sonar to malfunction or for personnel to be located in gaps between sonar sensors, posing an impact hazard. The operator must never allow personnel to located in the autonomous operating area.

Uncontrolled Motion (E-Stop): The machine may pose an impact hazard if the Emergency Stop switch is pressed while on an incline. Always engage the parking brake when the machine is unattended.

Entrapment Hazard: It is possible for an operator to trap themselves between the machine and an object. Care should be taken to avoid tight spaces. In case of emergency, let go of the handle and press the Emergency Stop button.

Warning: Never operate the unit in the presence of unsupervised young children. Their curiosity and reduced mass puts them in danger of severe injury.

9. Preventing Unsafe Situations

The following additional information should be considered to prevent unsafe situations when using the robotic floor scrubber system.

9.1. Protective Equipment

The following protective equipment is recommended when dealing with detergents, wash water, waste water, or spills:

- Protective eye-wear with side shields.
- Protective rubber or neoprene gloves and apron.
- Non-slip footwear.

9.2. Operating the Machine

The machine uses water and detergent during the cleaning process. The floor immediately behind the machine may be wet and slippery. Non-slip footwear is recommended to prevent falls while operating the machine.

Operators should always wear clothing appropriate for working with a commercial scrubber. Do not wear loose or torn clothing that may get entangled on or in the machine.
9.3.  Spilled Clean Water

For water spills, wipe the machine with paper towels and mop the floor as required.

9.4.  Spilled Waste Water

Waste water will contain detergents and dirt from the floor. Protective eye-wear, gloves, and an apron are recommended.

Rinse the equipment with clean water as required and wipe with paper towels.

Rinse and mop the floor with clean water as required.

9.5.  Spilled Detergent

Always follow the manufacturer's recommendations for handling the detergent. Detergents can be caustic, protective eye-wear, gloves, and an apron are recommended.

Rinse the equipment with clean water as required and wipe with paper towels.

Rinse and mop the floor with clean water as required.

9.6.  Battery Acid

Consult the battery manufacturer's recommendations for cleanup. For help with batteries supplied by TASKI Intellibot, please contact Customer Assistance.

10.  Healthcare/UV User and Service Personnel Warnings

Personnel should be made aware of the following hazards:

10.1.  UV Hazard

WARNING:

The UV light given off by this unit can cause serious burns to unprotected eyes and skin. Never look directly at an illuminated UV lamp. Never operate the unit with the lamp outside of the UV chamber. Never operate the unit without the rubber boot in place.

10.2.  Mercury

UV lamps contain Mercury, a heavy metal. Lamps should be recycled, not disposed of in a landfill. Recyclers accepting fluorescent lamps will typically also accept UV lamps. The Mercury from a broken UV lamp must be recovered and recycled appropriately.

10.3.  Puncture and Cutting Hazard

The UV lamp and quartz sleeve are fragile. If they break, pieces will be very sharp and the fragments must be handled only with protective gloves.

10.4.  High Voltages

The UV ballast uses and produces hazardous voltages. Caution should be taken when servicing components near the ballast or UV reactor.

The UV ballast is designed for a dry environment only. If the ballast is exposed to water, remove power immediately. Never operate a ballast that has been exposed to water.

Hazardous voltages exist in the UV reactor vessel. Never operate a leaking UV unit. Remove power before inspecting the unit for damage.

11.  Machine Overview

The following are basic components of the robotic floor scrubbing machine:

Figure: 6

1  Sonar Horns
2  Safety Touch Shield
3  Drain Valve and Drain Hose
Figure: 7
4  Front Access Door
5  Electronics Box

Figure: 8
6  Filters
7  Filter Wrench
8  Battery Pack
9  Parking Brake

Figure: 9
10  Emergency Stop Button
11  User Interface
12  Standby Button
13  Touch Control Handlebar
14  Warning Lamp

Figure: 10
15  Scrubber Head

Figure: 11
16  Squeegee Assembly
11.1. SWINGOBOT 1650 CE UV ONLY

Figure: 12

17 UV Sterilizer Power Supply
18 UV Sterilizer Reactor

12. Theory of Operation:
The TASKI Intellibot SWINGOBOT 1650 CE and CE UV machines are commercial wet floor scrubbing systems capable of manual and autonomous robotic operation.

Figure: 13
The system utilizes a 14 gallon (53 liter) tank for storing and recycling cleaning solution that is applied to the scrubber head for effective cleaning.

The scrubber head is comprised of two independent motors with brushes and 15-inch pads for wet scrubbing.

Figure: 14
The machine uses a vacuum squeegee system located in front of the rear casters. The squeegee uses a parabolic 32-inch, 4-edge, reversible blade system with a vacuum for pickup and recycling of used cleaning solution.

Figure: 15
The used cleaning solution is returned to the tank, where it is circulated through a filtration system. Dirt and contaminate are removed from the cleaning solution and it is recycled for use in scrubbing.

TASKI Intellibot SWINGOBOT 1650 CE UV systems include an additional UV sterilizer in the water recycling system.

Figure: 16
The sterilization system reduces biological contaminate in the recycled cleaning solution, which reduces the spread of microorganisms from contaminated floor surfaces.

The system is powered by a 24 Volt, 180 Amp-hour battery pack, providing approximately 4-hours system run time.

An optional battery cart is available for using multiple battery packs, extending system productivity.

Figure: 17
The robotic floor scrubber system utilizes a 53-liter tank for storing and recycling cleaning solution. The standard system uses a parallel canister filtration system with two 10 micron filters. Optional filters are also available. The circulation pump provides flow for the cleaning solution. A flow sensor is used to detect and set an appropriate flow rate for effective scrubbing. Water valves provide flow regulation for wash water or recycling of the cleaning solution. Cleaning solution is distributed directly onto the scrubbing head. When not scrubbing, the cleaning solution is recycled back to the tank and continually filtered. A vacuum system evacuates air from the top of the tank, providing suction for the vacuum squeegee. The squeegee system wipes used cleaning solution from the floor and the pickup tube directs the used solution back to the tank.
The robotic floor scrubber system utilizes a 53-liter tank for storing and recycling cleaning solution.

The UV filtration system utilizes a 10 micron pre-filter and a 1 micron primary filter to eliminate turbidity for effective UV penetration into the cleaning solution.

The circulation pump provides flow for the cleaning solution.

The UV sterilization system includes a power supply, UV ballast, UV lamp, and sterilization reactor to eliminate microorganisms from the recycled cleaning solution.

A flow sensor is used to detect and set an appropriate flow rate for effective scrubbing.

Water valves provide flow regulation for wash water or recycling of the cleaning solution.

Cleaning solution is distributed directly onto the scrubbing head.

When not scrubbing, the cleaning solution is recycled back to the tank and continually filtered.

A vacuum system evacuates air from the top of the tank, providing suction for the vacuum squeegee.

The squeegee system wipes used cleaning solution from the floor and the pickup tube directs the used solution back to the tank.
12.3. **Robotic Operation:**

The machine uses a number of advanced systems enabling it to clean robotically.

- A system of 16 individual sonar transceivers are used for detecting both short-range and long-range objects to determine the robot's environment.
- A gyroscopic compass is used to determine the robotic heading to follow pre-installed or custom designed cleaning maps.
- WiFi and cellular communications are available for reporting system status and remote diagnostics.

![Figure: 20](image)

13. **Safety Devices**

The robotic floor scrubber system is equipped with the following safety devices:

13.1. **Emergency Stop Button**

The Emergency Stop Button is the red switch located on the top right of the handlebar assembly. Pressing the Emergency Stop Switch will interrupt power to the system. The operator should be prepared to press the Emergency Stop Button at any time to address unintended operation or to avoid a hazardous situation in an emergency.

![Figure: 21](image)

1. Emergency Stop Button

13.2. **Front Cover Interlock**

The front cover interlock is the red magnetic switch located inside the front cover. The front cover interlock switch will interrupt power to the system if the front cover should ever be opened during operation.

![Figure: 22](image)

13.3. **Parking Brake**

The parking brake is located under the machine between the rear casters. The brake is activated by moving it to the left to lock the drive wheels.
Moving the handle to the right unlocks the brake. The parking brake should be locked whenever the machine is not in use.

### 13.4. Touch shields
The system is equipped with front and rear touch sensitive panels. If an object bumps into the panels the system will stop.

![Front Touch Shield and Rear Touch Shield](image1)

1. Front Touch Shield
2. Rear Touch Shield

### 13.5. Warning Lamp
The system is equipped with a yellow warning lamp. The lamp flashes to alert people when the unit is operating.

![Warning Lamp Light](image2)

1. Warning Lamp Light

### 13.6. Floor Sensors
The robotic floor scrubber system includes four infrared floor sensors located underneath the machine. The sensors measure the distance to the floor at each of the four corners and are used to detect drops in the floor, such as a stairwell.

![Infrared Sensor](image3)

1. Infrared Sensor

During robotic operation, the machine monitors this distance and will stop automatically if the distance exceeds a preset number.

### 13.7. Safety Device Warnings
The operator should be aware of the following warnings regarding the safety devices:

- Always set the parking brake when the machine is not running or unattended.
- Do not remove or modify the safety devices in any way.
- Do not open the front cover unless instructed to do so in this manual.
1. A safety contactor is used to safely remove power from all motors and the UV sterilizer system.

2. The safety contactor is controlled by a safety relay. The safety relay will open the safety contactor when either the Emergency Stop Button is pressed or the front cover is opened.

3. The system main controller monitors the status of the safety contactor to alert the operator when the circuit is tripped.

4. A main battery fuse is provided in the battery box to protect the primary power wiring.

5. Branch fuses are provided to protect the branch wiring to each of the motors and subsystems.

**Important:**

The components of the safety circuit are essential to the safe operation of the machine. Never tamper with or substitute any safety component, serious damage or injury may result.
15. Batteries

The robotic floor scrubber system utilizes a battery pack containing 4 six-volt gel cell, or AGM deep cycle batteries. The battery pack is heavy and requires special handling.

If replacement of the batteries within the battery pack is needed, contact Customer Assistance. Battery replacement can be hazardous and should only be performed by a trained service technician.

Do not attempt to remove the battery pack from the machine unless you are using an approved accessory stand or cart. The battery pack weighs 293 lbs (133 kg) and can cause serious injury.

15.1. Battery Safety

Batteries store a significant amount of energy and emit explosive gases when charging. Attention, care, and planning should be taken when storing and charging this machine and the battery packs. Review and understand the warnings shown in the battery warning label section and plan in advance for battery storage, charging, and accidents.

15.2. Accessory Battery Cart

TASKI Intellibot offers an accessory battery cart that allows for battery pack removal and charging in one station. If a second battery is also purchased, it can be stored on the cart and charged while the machine is in use, allowing for improved efficiency.

Figure: 28

Figure: 29

Figure: 30

Turn off the system by pressing the green standby switch and waiting until the green light is extinguished before proceeding.

Figure: 31

1. Before Removing Batteries, hold ~ Standby button, listen for 3 Beeps, which is the computer acknowledging your button push. Computer will turn off 24V circuits & start saving data.
2. Caution, for the next 30-90 seconds the computer saves data, wait for button light to go "Off" or you will lose the data. If light is still on after 120 Seconds, to prevent damage or injury hit e-stop to assure 24V power is disconnected from battery before breaking connection by pulling on battery handle.
3. Button goes dark; computer has shut down all power. All power is off; no trickle power is leaking from the battery to any circuit.

Caution:

If the standby button remains illuminated for more than 120 seconds, press the Emergency Stop button before removing the battery pack.

Attach the accessory cart to the machine.
Always lock the wheels on the battery cart to prevent the cart from moving while removing the battery from the machine.

Figure: 32
Depress the battery latch and pull the battery from the system onto the accessory battery cart.

Figure: 33
Attention
Never store the machine with discharged batteries. Otherwise, the batteries will be damaged beyond repair. Be sure to fully charge batteries whenever storing the machine.

16. Charging
The battery pack may be recharged while in the robotic floor scrubber system.

STOP

Stop

Only recommended 24 volt gel cell battery charging systems should be used. Overheating, fire, and explosion could result from improper battery charging.

STOP

Stop

The charge current should be limited to 20 Amps or less. Do not charge the system with a current higher than 20 Amps or damage could result.

STOP

Stop

It is typical of a gel cell charger set at 20 Amps to initially overshoot to as much as 30 Amps and then settle back to around 20 Amps. This is acceptable as long as it settles back to 20 Amp within a few seconds.

16.1. Locating the Charger
The location and mounting of the battery charger should be considered before charging the system or battery pack.

Figure: 34
The battery charger connects to the high voltage mains. The charger must be located on a wall, away from wet areas, to avoid a shock hazard.

Caution
To avoid water shorting the charger it should be mounted above tank no less than 12” (31 cm) above, either on a shelf or to the wall per charger manufacturers instructions.

STOP

Stop

Periodically inspect the mains and charging cables to ensure the integrity of the insulation. Do not use the charger if the insulation is nicked or cracked.

16.2. Charging the System
Before charging the battery, ensure the parking brake is set.

STOP

Stop

Turn off the system by following instructions from "Figure: 31" on page 16.
Caution: If the standby button remains illuminated for more than 120 seconds, press the Emergency Stop button before charging the system.

Caution: Never remove battery pack while charging. Damage to the electronic controls will likely result!

Locate the system charging port under the rubber flap.

Figure: 36
Plug in the charger and fully charge the batteries.

<table>
<thead>
<tr>
<th>CHARGER SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL</td>
</tr>
<tr>
<td>CBHF2 24-20</td>
</tr>
</tbody>
</table>

17. Language Setup
The robotic floor scrubber system interface supports three languages, English, German, and Spanish. Perform the following to select the system interface language:

- Turn on the system by pressing the standby button.
- Wait approximately 2 minutes until the LOG IN screen is displayed.
- Press the LOG IN key and enter your administrative password.
- The prep guide will appear. Touch the OK button to move to the home screen.

From the home screen, press the right arrow button to access the system settings menu.

- Press the Prefs button to access system preferences.
- Press the language button and select English, Spanish, or German.

18. Administrative Setup
The following are instructions for adding operators and setting operator privileges.

- Turn on the system by pressing the standby button.
- Wait approximately 2 minutes until the LOG IN screen is displayed.
Confirm "CE" is in lower left of screen as a software update may have occurred since last use.

If "CE" is not displayed, write down the serial number and software version, shut down the machine and then contact Customer Assistance. Give Customer Assistance this data and ask for further instructions.

Press the LOG IN key and enter your administrative password.

The prep guide will appear. Press the OK button to move to the home screen.

Press the Admin button to access the administrator screen.

The following buttons are used to grant or revoke privileges from the user setting screen:

- Pressing the manual mode button allows the operator to use the machine in manual mode.
- Pressing the robotic mode button allows the operator to use the machine in robotic mode.
- Pressing the mapping button allows the operator to create new maps and edit existing maps.
- Pressing the reporting button allows the operator to view machine statistics.
- Pressing the administrative privilege button allows the operator to add, modify, or delete other operators.
- Pressing the diagnostics button allows the operator to view machine diagnostics.

Press the Add Operator key to add a new system operator.

2 To edit operator information press the information key to access the user setting screen.

3 To inactivate an operator, press the inactivate operator key. This prevents an operator from accessing the machine.

4 To edit or delete an existing operator, press the operator name.

1 Press the Add Operator key to add a new system operator.
19. System Preferences
Perform the following to set the WiFi, beeper, language, measurement system, and water flow rate system preferences.

Press the OK button to exit the system preference menu.

Turn on the system by pressing the standby button.

Wait approximately 2 minutes until the LOG IN screen is displayed.

Press the LOG IN key and enter your administrative password.

Press the WiFi button to configure the system WiFi. WiFi must be turned on when the Intelli-Track reporting system is in use.

Press the beeper button to set the safety beeper on or off. When set to ‘ON’ the beeper will sound while the machine is running.

Press the language button to select English, Spanish, or German for the system interface.

Press the measurement button to configure the measurement system to metric or imperial.

Press the water flow button to configure the system flow rate from 1.1 to 2.6 liters per minute.

20. Commissioning After Storage
If the machine has been in storage, the following items must be reviewed:

The robotic floor scrubber system must be acclimated to the operating environment. Failure to do so can result in condensation inside the machine, shortening the life of critical components. Allow the machine to acclimate one hour for every 9° F (5° C).

Gel cell batteries will lose charge if not maintained while in storage. Ensure the batteries go through a full charge cycle before turning on the system.

21. Weekly Safety Device Check
To ensure the safe operation of this machine, the operator must periodically verify the operation of the system safety devices. The following operational safety device check should be performed on a weekly basis.

Press the Emergency Stop button.

Verify that the system alerts the user with three audible beeps and the user interface displays the attention symbol and the words.

Emergency Stop pressed
Twist and release to resume

If the system fails the Emergency Stop button operational check, turn off immediately by pressing and holding the standby button. Do not use the system; it must be repaired by a trained service technician.
If the system passes the operational check, twist the Emergency Stop button counterclockwise to reset and press the OK button on the user interface.

21.2. Front Cover Interlock Check
Perform the following steps to verify operation of the front cover interlock:

Verifying the front cover interlock requires partially opening the front door with the machine turned on. Do not open the door more than ¼ of the full swing. If the interlock fails to operate, personnel may be exposed to hazards within the machine.

Verify that the LOG IN screen is shown on the user interface.

Release the two latches on the front cover and open the door ¼ of the full swing.

Verify that the system alerts the user with three audible beeps and the user interface displays the attention symbol and the words:

*Front door open*
*Close front door to resume*

If the interlock operational check fails, press the Emergency Stop button immediately, then turn off the system by pressing and holding the standby button. Do not use the system, it must be repaired by a trained service technician.

If the system passes the operational check, close the front cover and attach both latches, then press the OK button on the user interface.

21.3. Parking Brake Check
Perform the following steps to verify operation of the parking brake:

This procedure requires engaging the drive in manual mode. Only use the slowest forward speed to verify operation of the parking brake. If the parking brake fails, using a higher speed reverse direction could result in damage to the machine, property, or injury to the operator.

Verify that the LOG IN screen is shown on the user interface and log into the system using your operator code.

Touch the Manual clean button on the home screen.

Touch the forward arrow button once to set the slowest speed.

Squeeze the handlebar for one second, then release. Verify that the parking brake is holding and the machine does not drive forward.

Verify the yellow safety light on top of the machine flashes while the handlebar is pressed.

If the parking brake operational check fails, press the Emergency Stop button immediately, then turn off the system by pressing and holding the standby button. Do not use the system, it must be repaired by a factory trained service technician.

Turn off the system by pressing and holding the standby button.

21.4. Touch Shield Check
There are two touch shields. The front touch shield is attached to the front cover door. The rear touch shield is attached to the main body of the machine.

Each touch shield is divided into six zones, front, left front, right front, rear, left rear, right rear. Each of the six zones must be tested for operation.
Perform the following steps with the system turned on and the parking brake set.

From the home screen, press the right arrow button to access the system settings menu.

Press the diagnostics key to enter the diagnostics menu.

Press the touch shield button to enter the touch shield diagnostic.

Press the reset button to reset the orange number counters to zero.

Press each of the six touch shield zones, applying at least 1.5 lbf (6.7 Newtons) of force.

Review the orange number and verify that the machine recorded each touch.

If the machine does not recognize any of the touch shield zones it is not safe to operate in robotic mode. Turn off the machine by pressing and holding the standby button. Do not use the system, it must be repaired by a factory trained service technician.

Press the reset button to reset the orange number counters to zero.

Press the forward key to return to the diagnostics menu.

Press the return key to return to the main menu.

21.5. Floor Sensor Check

There are four infrared sensors that measure the distance from the machine frame to the floor. The sensor operation is checked by using the system diagnostics menu.

Perform the following steps with the system turned on and the parking brake set.

From the home screen, press the right arrow button to access the system settings menu.

Press the diagnostics key to enter the diagnostics menu.

Press the floor sensor button to enter the floor sensor diagnostic.
Figure: 45
1  Reports sensor distance in mm
2  Reports sensor voltage in mV
3  Sensor
4  Return to diagnostics main screen
Verify that all four of the sensors report a reasonable distance to the floor and the “No ground” warning is not displayed.

It is possible to receive a false “no ground” warning on black shiny surfaces. If the floor is causing false readings, move the machine to a different location to perform the test.

If the machine does not recognize any of the sensors it is not safe to operate in robotic mode. Turn off the machine by pressing and holding the standby button. Do not use the system, it must be repaired by a factory trained service technician.

22. Daily Startup Procedure
The following procedure should be performed daily before operating the robotic floor scrubbing system.

22.1. Set the Parking Brake
Ensure the parking brake is in the locked position by moving the red lever to the left.

22.2. Power Off
Ensure the machine is turned off.

22.3. Remove Charging Cable
If the system is being charged, disconnect the battery charging cable from the system charging port.

The machine will not turn on with the charger mechanically connected.

22.4. Remove Empty Canisters
Remove both canisters using the supplied wrench.

Figure: 47
1  Cannister Filters
2  Filter Wrench

22.5. Install Clean Filters
Install clean filters and ensure they are seated properly in each canister.

Filter elements should be replaced every 30 days.

The TASKI Intellibot SWINGOBOT 1650 CE UV utilizes a series filtration system. The 10-micron pre-filter must be installed in the left canister and the 1-micron primary filter must be installed in the right canister.

22.6. Install Canisters With Filters
Ensure the black rubber O ring is on the interior lip of each blue canister. Seat the canister, hand tighten, and use the filter wrench to provide an additional 1/4 turn.
22.7. **Inspect Squeegee**

Check the squeegee blades for wear.

Flip worn blades and replace if necessary.

22.8. **Inspect and Replace Scrubber Pads**

Unlatch and open the front cover. Inspect the scrubber pads. Replace if pads are worn to within 10 mm of brushes.

To replace the pads, rotate the brushes toward the center of the machine to release the brush.

![Figure: 48](image1)

Replace the pad on the brush. Replace the brush on the head by rotating in the opposite direction.

Inspect pads for wear and replace if necessary.

Flip the pads every other day to extend brush life.

Close the front door and secure both latches.

22.9. **Fill the Tank**

Fill the tank with 14 gallons (53 liters) of cool water.

Diversey recommends using cold water since hot water will adjust to the floor temperature as soon as it is in contact with the floor. Thus there are no advantages to the using of hot water.

Add recommended cleaning solution to the water in the tank according to the manufacturer’s instructions. Use of protective glasses, gloves, and apron is recommended.

Only use cleaning products recommended by TASKI Intellibot. Use of products containing chlorine, acids, or unsuitable solvents may damage the machine and may be hazardous to the operator.

22.10. **System Power Up**

Perform the following steps to power up the system.

Turn on the system by pressing the standby button.

Wait approximately 2 minutes until the LOG IN screen is displayed.

![Figure: 49](image2)

Confirm "CE" is in lower left of screen as a software update may have occurred since last use.

Press the LOG IN key and enter your operator password.

You will be prompted with a series of screens to guide you through machine preparation steps. Touch any of these screens for more information.

Release the parking brake by moving the red lever to the right.

![Figure: 50](image3)

Press the OK button to begin using the machine.

23. **Review of Work Area**

Before beginning cleaning, the operator is responsible for reviewing and preparing the work area.

Remove any objects from the floor that could get caught or be thrown by the scrubber head. Objects entangled or thrown by the scrubber could cause serious property or machine damage and injury.
Block all stairways and doorways when using robotic mode. Failure to block a stairway could result in the machine tumbling down the stairs, resulting in serious property damage, machine damage and injury.

24. Manual Drive

The machine must be manually driven to the cleaning area and placed at the cleaning start location. To manually transport the machine, perform the following:

- From the home screen, press the manual clean button.
- Press the forward or reverse arrow buttons to set the desired speed then squeeze the handlebar to engage the drive system.

Take care when reversing to prevent tripping over object or trapping the operator between the machine and an object.

To prevent accidental movement, the handlebar must be squeezed within 4 seconds of selecting a speed. If the timer has elapsed, select the speed again and squeeze the handle within 4 seconds.

The system uses a gyroscopic inertia sensor to sense operator input for steering. Pull the handlebar left or right and the machine will respond by turning in the appropriate direction.

Release the handlebar to stop.

25. Manual Cleaning

Use the following functions to operate the machine in manual clean mode:

- From the home screen, press the manual clean button.
- Press the vacuum button to lower the squeegee and turn on the vacuum system.
- Press the scrubber button to lower the head and activate the scrubber motors.
- Press the forward arrow button to set the desired speed then squeeze the handlebar to engage the drive system.

26. Hands Free Cleaning

Three options are available for hands free cleaning, Spot Clean, Area Clean, and Map Clean.

<table>
<thead>
<tr>
<th>MODE</th>
<th>WIDTH (MIN)</th>
<th>WIDTH (MAX)</th>
<th>END WALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot Clean</td>
<td>5.58 ft</td>
<td>1.7 m</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>60 ft</td>
<td>18.3 m</td>
<td></td>
</tr>
<tr>
<td>Area Clean</td>
<td>5.58 ft</td>
<td>1.7 m</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>60 ft</td>
<td>18.3 m</td>
<td></td>
</tr>
</tbody>
</table>

**Spot Clean** is used to robotically clean a defined area when no end wall is present. There must be a left and right wall present for the machine to accurately measure the width of the cleaning area. The machine will clean the area between the side walls to an operator set distance between 20 ft and 196.18 ft (6.1 meters and 60.1 meters.).

**Area Clean** is used to robotically clean an area when an end wall or obstacle is present. The machine robotically cleans according to any one of twelve selectable built-in cleaning patterns.

**Map Clean** allows an authorized operator to create a custom cleaning pattern for robotic cleaning.

26.1. Spot Clean

Using the Manual Drive mode, position the machine at the cleaning start location. To enable Spot Clean, perform the following from the home screen:

- Press the Spot Clean button and use the (+) and (-) buttons to select a spot cleaning distance from 20 ft and 196.18 ft (6.1 meters and 60.1 meters.).
- Press the GO button and the machine will begin robotic cleaning.
26.2. Area Clean

Area clean uses any of twelve different cleaning patterns with the option of having the machine return to the starting location when the cleaning is complete. For example the following is a Side T Right cleaning pattern:

![Figure: 51](image1)

The machine starting location is shown as (3). The machine ending location is shown as (4).

![Figure: 52](image2)

Alternately, the same Side T Right pattern can be chosen with the machine returning to the start location (2).
The following cleaning patterns are available:

- Single Area
- Single Area Return
- Side T Right
- Side T Right Return
- L Left
- L Left Return
- Side T Left
- Side T Left Return
- L Right
- L Right Return
- Cross Left
- Cross Left Return
- T Left
- T Left Return
- Cross Right
- Cross Right Return
- T Right
- T Right Return
- U Style Right
- U Style Right Return
- Large Room
- Large Room Return
- U Style Left
- U Style Left Return

Figure: 53
Using the Manual Drive mode, position the machine at the cleaning start location. The machine must be located within 2 ft (61 cm) of start location shown on cleaning pattern.

To enable Area Clean, perform the following from the home screen:

Press the Area Clean button and choose an area cleaning pattern.

Press the GO button and the machine will begin robotic cleaning.

After the GO button is pressed the machine will spend a few moments calculating the cleaning plan before proceeding robotically. The machine will continue to clean until it reached the end of the cleaning pattern.

To interrupt the cleaning pattern, press the PAUSE button.

To resume the cleaning pattern after a pause, press the GO button.

To terminate the cleaning pattern, press the STOP button.

On the first pass of the cleaning area, the machine is looking for openings that match the selected pattern. If the openings are not found, the machine will stop.

If the machine finds a partial match, it will clean the area corresponding to the map and then stop.

26.3. Map Clean

Map Clean utilizes custom cleaning patterns created and downloaded to the machine by authorized operators. To enable Map Clean:

Using the Manual Drive mode, position the machine at the cleaning start location. The machine must be located within 2 ft (61 cm) of the start location shown on the cleaning pattern.

Press the Map Clean button and chose a custom cleaning pattern.

Press the GO button and the machine will begin robotic cleaning.

After the GO button is pressed the machine will spend a few moments calculating the cleaning plan before proceeding robotically. The machine will continue to clean until it reached the end of the cleaning pattern.

To interrupt the cleaning pattern, press the PAUSE button.

To resume the cleaning pattern after a pause, press the GO button.

To terminate the cleaning pattern, press the STOP button.

On the first pass of the cleaning area, the machine is looking for openings that match the selected pattern. If the openings are not found, the machine will stop.

If the machine finds a partial match, it will clean the area corresponding to the map and then stop.

27. Daily Shutdown Procedure

After completing cleaning, the following steps should be performed daily:

Use of protective glasses, gloves, and apron is recommended when in contact with waste water or cleaning any element of the system.

27.1. Parking

Use manual drive to position the machine next to the disposal area.

Ensure the scrubber is turned off and the scrubber heads are in the up position.

Ensure the vacuum is off and the squeegee is in the up position.

Place the parking brake in the locked position by moving the red lever to the left.

Turn off the system by pressing and holding the standby button.

27.2. Drain and Clean the Tank

Before draining the tank, take note of any local or national regulations for disposal. Waste water must be disposed of in a responsible manner, consistent with applicable environmental and safety regulations.

Locate the drain hose, remove the end from the holder and position the drain hose over the disposal area.

Pull the drain valve and drain the waste water into the disposal area.

Clean out debris and sediment from the basket filter and bottom of tank.
Flush the tank with clean water and lose the drain valve.

27.3. **Clean the Squeegee:**
Clean the squeegee by removing any debris between the squeegee blades.

Check the pickup tube for obstructions.

27.4. **Clean Caster Wheels**
Inspect and clean the rear caster wheels

![Figure: 55](image)

27.5. **Remove and Clean Filters**
Remove both canisters using the supplied filter wrench.

Remove the filters from the canisters and replace the canisters on the system and the filter wrench in its holder.

Rinse and dry the filters to prepare for next use.
28. Maintenance

The following maintenance schedule should be followed for proper machine operation:

<table>
<thead>
<tr>
<th>MAINTENANCE ITEM</th>
<th>DAILY</th>
<th>WEEKLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Drain and clean tank</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Clean tank basket filter</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Remove and clean canister filters</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Clean squeegee and pick up area</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Inspect pick up tube for obstructions</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Inspect squeegee for wear and adjust, flip, or replace as necessary</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Clean caster wheels</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Inspect pads and brushes for wear. Flip or replace as necessary.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Perform Emergency Stop Button check</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Perform front cover interlock check</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Perform parking brake and safety light check</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Perform touch shield check</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Perform the floor sensor check</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Replace canister filters</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Inspect pickup hose and replace as necessary</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Inspect hinges and lubricate as necessary</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Apply grease to squeegee pivot bracket</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Inspect battery box ball bearings and lubricate if necessary</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>□ Clean undercarriage</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

28.1. Daily Maintenance Points

- **Strainer Basket**
  
  Empty large items into the trash and rinse thoroughly.

- **Primary Solution Filter**
  
  Remove the primary solution filter from the machine. Rinse and gently clean dirt and debris from the filter using a soft bristle brush.

- **Blue Secondary Filters**
  
  Remove both blue secondary filters from the back of the machine. Rinse and clean both filters. Allow filters to air dry if possible. Visually inspect the condition of both filters and replace as necessary.

- **Squeegee Assembly**
  
  Disconnect the squeegee assembly from the SWINGOBOT 1650. Rinse the squeegee and wipe clean. Hair and other debris may hinder results by leaving streaks on the floor. Visually inspect the condition of the squeegee blades and rotate or replace as necessary. Check the condition of the frame gasket and replace as necessary.

- **Pads & Brushes**
  
  Remove pads or brushes from the machine. Rinse thoroughly and replace as needed.

- **Solution Tank Seals**
  
  Clean and visually inspect the solution tank seal.

- **Solution Tank**
  
  Tank should be drained, rinsed and cleaned at the end of every shift.
29. Replacement Components

<table>
<thead>
<tr>
<th>TASKI NO.</th>
<th>INTELLIBOT SKU</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>7523968</td>
<td>049870</td>
<td>Filter - Cotton 10 Micron</td>
</tr>
<tr>
<td>7523969</td>
<td>1300165</td>
<td>Filter - Pleated 1 Micron</td>
</tr>
<tr>
<td>7523970</td>
<td>1300755</td>
<td>Filter - Cotton 20 Micron 10&quot;</td>
</tr>
<tr>
<td>4132145</td>
<td>3300051</td>
<td>Front Blade - Squeegee - Linatex - SS</td>
</tr>
<tr>
<td>4132144</td>
<td>3300052</td>
<td>Rear Blade - Squeegee - Linatex - SS</td>
</tr>
<tr>
<td>4132108</td>
<td>1300027</td>
<td>Pad 15&quot; Scrubbing Red</td>
</tr>
<tr>
<td>N/A</td>
<td>1300066</td>
<td>Pad 15&quot; Scrubbing White</td>
</tr>
</tbody>
</table>

30. Storage
The following items should be taken into consideration when storing the robotic floor scrubbing system.

<table>
<thead>
<tr>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
</tr>
<tr>
<td>Humidity</td>
</tr>
</tbody>
</table>

**Attention**

Never store the machine with discharged batteries. Otherwise, the batteries will be damaged beyond repair. Be sure to fully charge batteries whenever storing the machine.

31. Troubleshooting

<table>
<thead>
<tr>
<th>MALFUNCTION</th>
<th>POSSIBLE CAUSES</th>
<th>TROUBLESHOOTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine without function</td>
<td>Charger plugged into robot</td>
<td>• Unplug the charger</td>
</tr>
<tr>
<td>Battery pack not engaged</td>
<td></td>
<td>• Push battery pack into place</td>
</tr>
<tr>
<td>Battery not charged</td>
<td></td>
<td>• Load batteries</td>
</tr>
<tr>
<td>Leaving water</td>
<td>Water flow set too high</td>
<td>• Go to settings menu; lower water valve setting default</td>
</tr>
<tr>
<td>Dirty squeegee</td>
<td></td>
<td>• Wipe squeegee with rag</td>
</tr>
<tr>
<td>Navigation issues</td>
<td>Sonar faulty</td>
<td>• Perform sonar diagnostic, clean sonar</td>
</tr>
<tr>
<td>Mechanical drag</td>
<td></td>
<td>• Inspect casters</td>
</tr>
<tr>
<td>Not cleaning floor surface</td>
<td>Brush motor not running</td>
<td>• Reset circuit breaker</td>
</tr>
<tr>
<td>Machine pulling to one side when manually driving</td>
<td>Parking brake is not fully disengaged</td>
<td>• Move parking brake lever all the way to the left, then all the way back to the right</td>
</tr>
<tr>
<td>If solution fails to correct the problem</td>
<td></td>
<td>• Contact your service partner</td>
</tr>
</tbody>
</table>
32. Diagnostics

The following diagnostics may be performed by operators with diagnostic privileges.

Perform the following steps with the system turned on and the parking brake set.

From the home screen, press the right arrow button to access the system settings menu.

Press the diagnostics key to enter the diagnostics menu.

Press the help button and any of the diagnostics buttons to receive help on that item. Press the help button again to turn off the help text.

Press any of the diagnostics buttons to start the diagnostic. Press the return key to return to the home screen.

The following diagnostics are available:

Sonar: Reports each sonar distance measurement.

Touch shield: Reports information on touch shield contacts.

Floor Sensors: Reports floor sensor measurements.

Gyro: Reports the compass heading of the machine.

Wireless: Reports the wireless network strength and IP address.

Memory: Reports the amount of computer memory used.

Outputs: Allows temporary control of each motor, actuator, light, and brake.

Flow: Reports the flow rate of cleaning solution dispensed onto the scrubber head.

Drive Motor: Reports the speed of each drive wheel.

33. Sonar Diagnostic

The sonar diagnostic shows the distance measured in millimeters, by each of the 17 sonar transceivers (numbered 0-16).

Select the sonar using the up and down keys (5) and (6). The sonar number (1) and the measured distance (2) are shown on the display. A sonar wave animation (3) is used to illustrate the location of the sonar on the machine. If the detected object is outside of the sonar sensor detection range, the diagnostic will report “—”.

Short range sensors 0-6 and 10-16 can detect a minimum distance of 80 mm and a maximum distance of 9000 mm. Long range sensors 7 and 10 can detect a minimum distance of 200 mm and a maximum distance of 900 mm.

34. Touch Shield Diagnostic

The touch shield diagnostic utility provides information on total touch shield contacts and allows for the test of each touch shield zone. A touch shield must be pressed with more than 1.5 lb f (6.7 N) force to recognize contact with the zone.
35. **Floor Sensor Diagnostic**

The floor sensor diagnostic provides information on and allows for testing of the four infrared floor sensors. The diagnostic illustrates the location of each sensor and provides the voltage and detected distance to the floor for that sensor.

If the sensor is located over a drop, such as a downward stair, the diagnostic will report “No ground” for that sensor.

36. **Gyro Diagnostic**

The gyro diagnostic requires machine rotation; it should only be performed in an open area where the machine can be rotated 360 degrees with room for the operator.

36.1. **Verifying Gyro Operation**

The machine heading is indicated by the compass (1) on the diagnostic display. Zero the heading by pressing the reset key (3).

Pressing the left arrow key (4) will cause the machine to rotate slowly anti-clockwise. The heading will read negative degrees of rotation.

Rest the heading by pressing the reset button (3).

Pressing the right arrow key (6) will cause the machine to rotate slowly clockwise. The heading will read positive degrees of rotation.

Record the ‘Center’ value reported on the display (6). If the number is less than 3000 or greater than 5000 contact customer assistance.

37. **Gyro Calibration**

If a gyro problem is suspected, record the numbers displayed for ‘Scale Factor’ (2) and ‘Center’ (6). Report these values to customer assistance.
Caution:
Do not change any of the gyro calibration parameters unless instructed to do so by a trained service technician. Gyro parameters affect machine performance and stability. Unauthorized changes could result in unexpected machine behavior, resulting in damage or injury.

38. Network Diagnostic
The following provides detail on the network diagnostic:

The network diagnostic is used to review parameters and signal strength for the machine WiFi and cellular network connections.

1. Select either WiFi or cellular modem for network communications
2. Return to diagnostics

Press the selection key (1) to select either WiFi or cellular modem for network communications. The display will change to show parameters and signal strength for the chosen method.

39. WiFi Diagnostic
When using WiFi network communications the network may be configured with a ‘Managed’ IP address that allows for connection to an external network or an ‘Ad-Hoc’ IP address for local wireless connection.

40. Memory Diagnostic
The memory diagnostic is used to view the current usage of the robotic scrubbing system’s computer memory.

1. Return to diagnostics

If the diagnostic reports memory usage in excess of 80%, please contact customer assistance.
41. Outputs Diagnostic

The outputs diagnostic is used to aid in system troubleshoot by allowing privileged operators to turn on specific machine devices and verify their operation.

![Outputs Diagnostic](image)

Figure: 64

1. Output on/off button
2. Cycle backward through output screens
3. Cycle forward through output screens
4. Battery voltage display
5. Return to diagnostics main screen

Cycle through the output screens by pressing the next (3) and previous (2) keys. Press the desired output (1) to cycle on or off.

The current battery voltage (4) is displayed during the diagnostic test.

42. Flow Diagnostic

The flow diagnostic allows for testing and troubleshooting of the pumping system.

![Flow Diagnostic](image)

Figure: 65

Pressing the up (1) arrow will increase the system flow rate and start a priming cycle. The cycle may be terminated by pressing the down arrow (2).

Priming may take up to two minutes. A priming failure may indicate an air leak in the plumbing, check for loose canisters or missing o-rings and restart the diagnostic.

Once priming is complete, the measured flow rate should be within 0.03 gpm (0.11 lpm) of the expected flow rate.

43. Drive Motor Diagnostic

The drive motor diagnostic utility provides information used by a trained service technician to calibrate the drive motors.

![Drive Motor Diagnostic](image)

Figure: 66

1. Amplifier status indicator
2. Encoder counts
3. Speed mm/s
4. Average mm/s
5. Command mm/s
6. Audible alert
7. Anti-drift
8. Step the command speedup
9. Step the command speed down
10. Return to diagnostics main screen

The diagnostic can be used to verify the status of the drive amplifiers by checking the Status lights (1). Green lights indicate the drive amplifier is operational, a red light indicates a fault.
## 44. Technical Data

<table>
<thead>
<tr>
<th>MACHINE</th>
<th>AMOUNT</th>
<th>UNIT</th>
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<th>UNIT</th>
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<td>Suction nozzle width</td>
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<td>DC</td>
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<td>DC</td>
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<td>W</td>
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<td>kg</td>
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<td>Machine weight with traction batteries (transport weight) (no water)</td>
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