

TOMCAT[®]

SPORT **v2.3** CARBON **v2.3** HERO **v2.3**

Operating Instructions (EN)

MODELS:

Sport

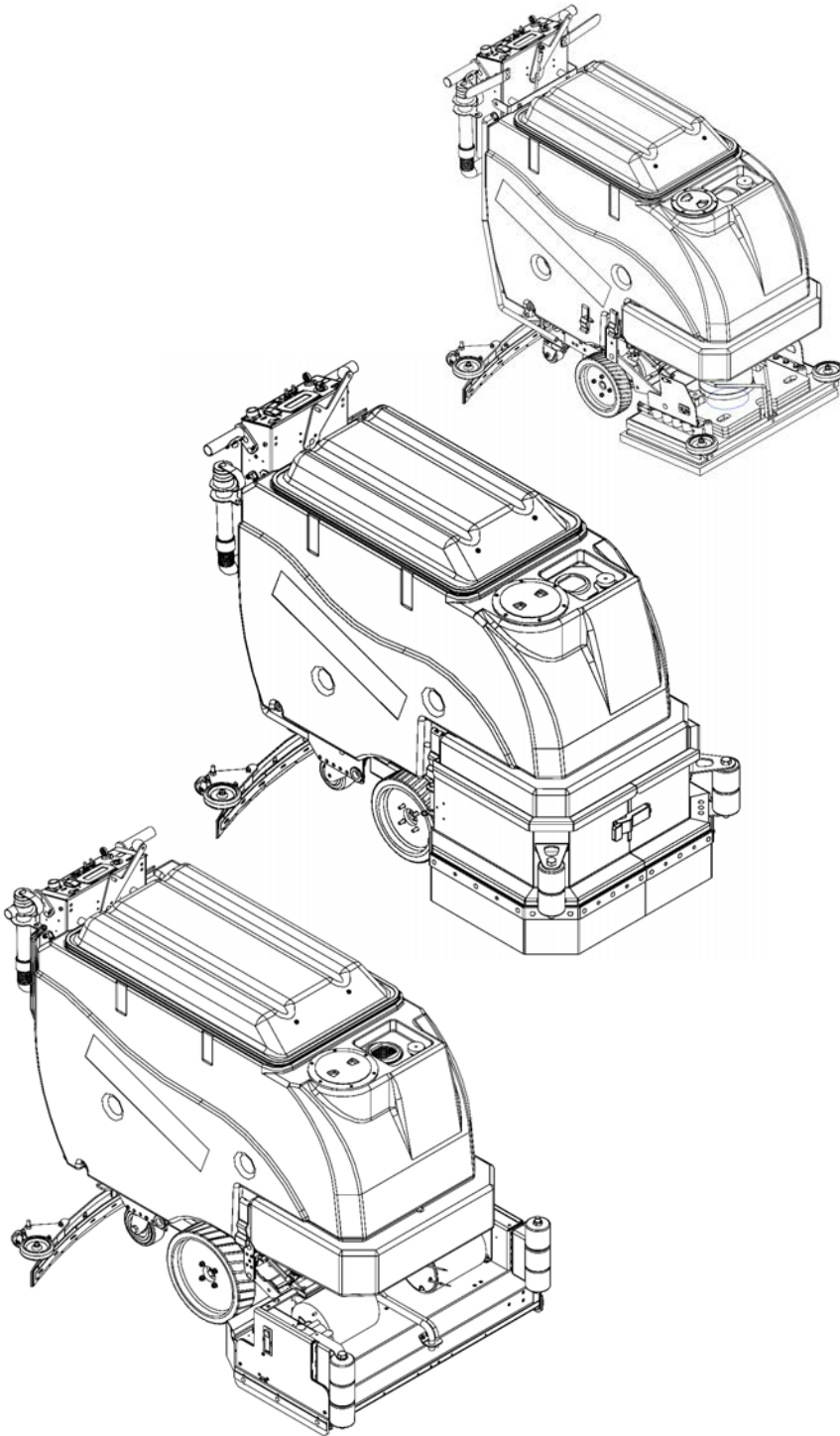
20"-26" Disk
25" Cylindrical
20", 24" & 28" EDGE

Carbon

26"-28" Disk
25"-29" Cylindrical
24"-28" EDGE

Hero

30", 32" & 34" Disk
29"-33" Cylindrical
28"-32" EDGE



Read these Instructions before using the machine.



Read these Safety Messages before using the machine.

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V25.355
TC-WALK-BEHIND-V2-3-OP-EN

INTRODUCTION

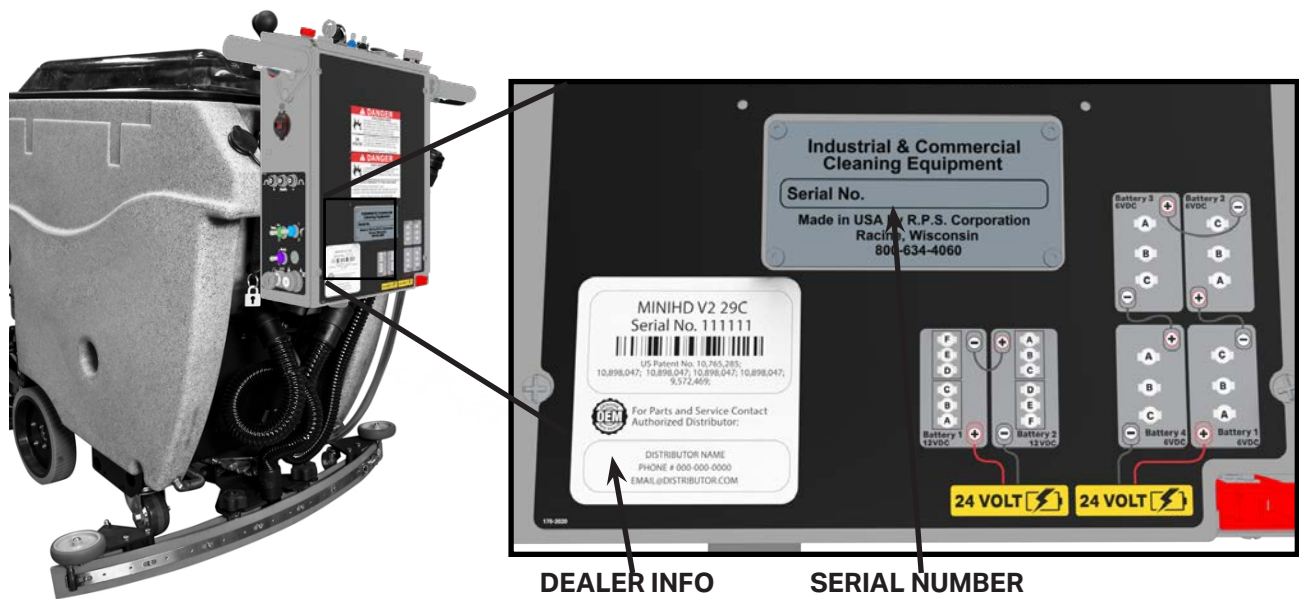
This manual is furnished with each new machine. This manual will allow the Operator to get the best performance out of your RPS manufactured Scrubber-Drier, Sweeper, Burnisher, or Orbital Scrubber. Read this manual thoroughly before operating or servicing the machine.

This machine will provide excellent performance, but the best results will be obtained at the most minimum costs if:

- The machine is regularly maintained - per the Authorized Local Distributor.
- The machine is operated with reasonable care and caution.
- The machine is maintained with manufacturer supplied parts.

LOCATE SERIAL NUMBER

The serial number of your machine is located on the lower half of the control panel of the machine.



AS OUR POLICY IS ONE OF CONSTANT IMPROVEMENT - ALL INFORMATION AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

RPS Flooded Lead Acid (FLA) & Absorbed Glass Mat (AGM) Battery Warranty

Dear customer, We are honored that you have purchased one of our battery-powered floor machines. As you know the batteries in your machine are the heart of the machine and what makes it go. The batteries require proper care and maintenance throughout their life. Here are some important things you need to know.

Batteries need to be “Broken In”. This means that they will not yield their full capacity until you have used them and charged them properly, in some cases 20 – 40 complete charge cycles. Depending on the battery's state of discharge, complete charges may require 12+ hours of uninterrupted charging. The charger will then indicate a completed charge cycle on the charger's LED display.

Batteries need proper care while in use or when left idle for extended periods. With Flooded Lead Acid (FLA) this means weekly electrolyte level inspection, adding distilled water if needed, and charging them completely after every use. Adding water to FLA batteries already damaged from being run low won't repair them but will prevent further damage to that cell. The need to add water to cells varies based on application, environment, use, and brand, that is why we suggest frequently checking electrolyte levels. Batteries need monthly maintenance charges if not used/left idle. Plug in the charger to re-start the charge cycle. FLA and AGM batteries should always be stored fully charged.

Batteries have cycle and age limitations. Whether you are using them or not, batteries are aging from self-discharge. Batteries also age with every charge and discharge cycle, which are limited. From 250-300 cycles on some batteries, 650-700 on others. We offer a range of battery upgrades (brands, sizes, and types) and depend on the distributor to cover these battery traits and care details with their customers/end-users.

What happens when batteries seem weak or run time feels reduced? There may or may not be an issue, which requires diagnosis and that means testing, which takes time and proper tools (multi-meter, hydrometer for Specific Gravity readings, discharge testing tool).






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SAFETY MESSAGES



You will see four kinds of safety reminders in this manual:

<p> DANGER</p> <p>DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.</p>	<p> WARNING</p> <p>WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
<p> CAUTION</p> <p>CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury or damage to this machine or nearby objects. CAUTION also can be used to alert against unsafe practices.</p>	<p>NOTICE</p> <p>NOTICE indicates information considered important, but not hazard-related. This safety message may be related to property damage or warranty warnings.</p>

Your safety, and that of others, is very important. Operating this machine safely is an important responsibility.

DO NOT OPERATE THIS MACHINE:

- Unless you are trained and authorized to do so by your RPS Authorized Local Distributor
- Unless you have read and understood this Operator's Manual
- On surfaces with greater than a 2% grade unless this machine is equipped with a functional parking brake
- On surfaces with greater than an 8% grade at any time
- On Loading Docks

WHEN OPERATING THIS MACHINE:



- Remove loose objects from the floor that could be projected from the rotating Brushes
- Keep your hands and feet away from the rotating Brushes
- Do not operate this machine where flammable liquids, vapors, or dust are present
- Use caution when maneuvering

BEFORE LEAVING THE MACHINE:

- Drain "clean" Solution & "dirty" Recovery solution into APPROVED drains
- Park the machine on a level surface
- Turn the machine off & remove key

BEFORE SERVICING THE MACHINE:

- Disconnect the Batteries
- Drain both tanks

<p> DANGER</p> <p>Explosive hydrogen gas forms when Batteries are charging. An open flame or spark can cause this gas to explode. Serious personal injury or property damage could occur. Only charge the Batteries in this machine in a well ventilated area.</p>	<p> DANGER</p> <p>Flammable materials can cause an explosion or fire. Do not use flammable materials in Tank or pick up.</p>
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! WARNING

The Batteries in this machine produce hazardous voltage which can cause electrical shock, burns and/ or electrocution. Always disconnect Batteries before servicing this machine.

! WARNING

When climbing or descending ramps, always drive machine forward. To avoid overturning the machine, Do not back down ramps. Do not drive across inclines. Do not turn while ascending or descending ramps. Overturning the machine can cause serious injury or death.

! WARNING

Do not use water that exceeds 135°F / 57°C. If water is above said temperature, this will void the Tank Warranty.

! WARNING

Do not park this machine on ramps or slopes. Always park this machine on a level, hard surface. Do not operate this machine outdoors or on uneven surfaces.

! WARNING

The Batteries in this machine contain sulfuric acid, which causes burns to skin. If battery acid contacts clothing or skin, rinse the effected area with cold water immediately. If battery acid gets on your face or in your eyes, flush the area immediately with cold water and seek medical attention.

! WARNING

To avoid electrical shock, do not operate this machine over electrical floor outlets.

! CAUTION

To avoid damage to this machine, use only cleaning solutions and replacement parts recommended by the manufacturer.

! CAUTION

Do not operate this machine if any parts have been damaged or removed.

! WARNING

Dress safely. Do not wear rings or metal wrist watches when servicing this machine, as they can cause an electrical short circuit which can cause serious burns.

! WARNING

Do not remove, paint over or destroy warning decals. If warning decals become damaged, call 1-262-681-3583 for free replacements.

! WARNING

Dress safely. Do not wear a neck tie, scarf, or any loose or dangling clothing while operating this machine. Loose or dangling clothing or neck-wear can tangle in rotating parts, causing serious injury or death.

! WARNING

Always turn off this machine before leaving it unattended. Do not allow untrained persons to operate this machine.

! WARNING

NO RIDERS. Do not carry passengers on this machine. Do not use this machine as a stepladder or work platform.

! WARNING

Understand the dynamic braking system before you operate the machine on ramps. Machine may coast.

! WARNING

Before you service a Battery, always wear face protection, protective gloves and protective clothing. Battery acid or battery explosion can cause serious injuries.

! CAUTION

Always use the automatic battery charger provided by the manufacturer of this machine to charge the Batteries of this machine. It is designed to charge the Batteries at the appropriate rate. If you must use a different charger, disconnect the Batteries before charging to avoid damage to the electronic speed controller.

! CAUTION

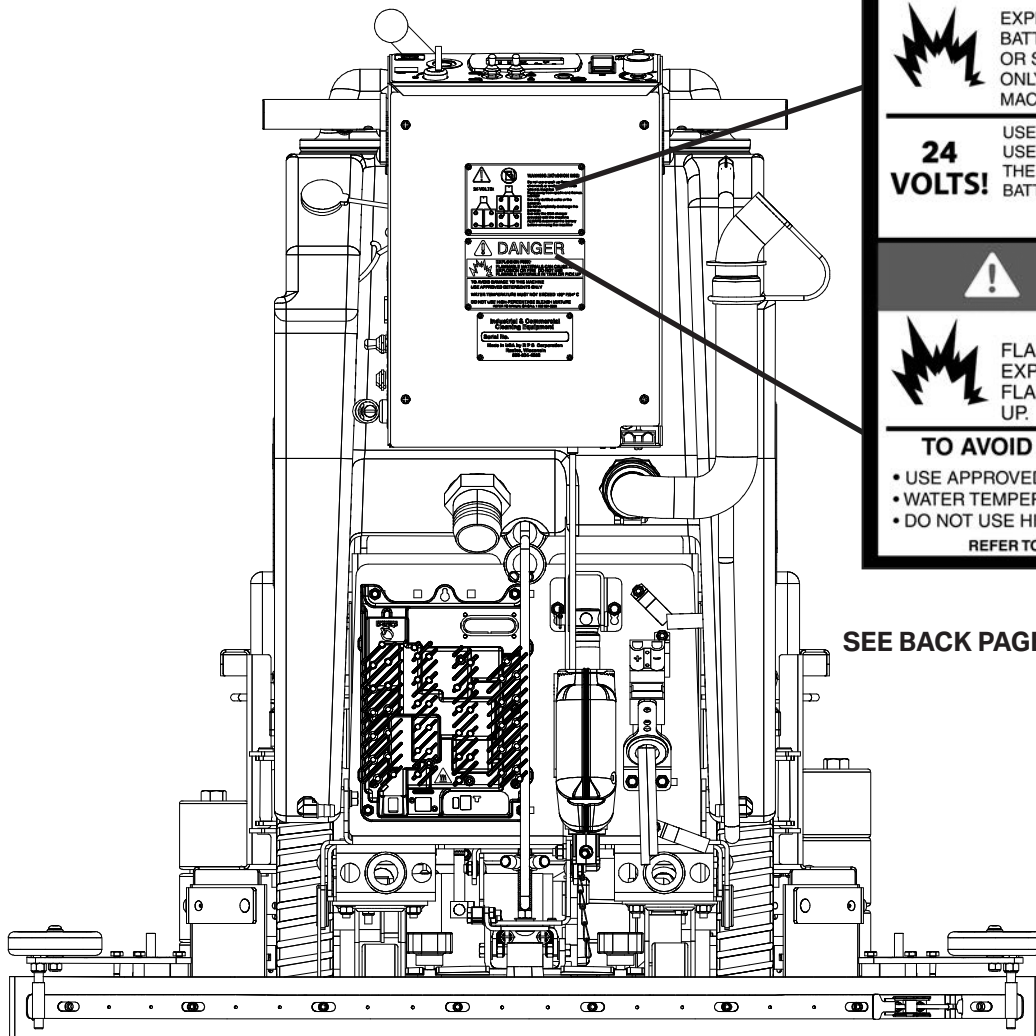
To avoid damage to the electronic control components of this machine, Do not store this machine outdoors. Do not pressure wash this machine.

SAFETY LABELS



Read and obey all Safety Labels on your Floor Scrubber. If you have questions about these labels, ask your supervisor.

These images indicate where on the Floor Scrubber the Safety Labels are located. If ever the labels become illegible, worn off, or torn, promptly report it to your supervisor and replace it.



⚠ DANGER

EXPLOSION RISK!

EXPLOSIVE HYDROGEN GAS FORMS WHEN BATTERIES ARE CHARGING. AN OPEN FLAME OR SPARK CAN CAUSE THIS GAS TO EXPLODE. ONLY CHARGE THE BATTERIES IN THIS MACHINE IN A WELL VENTILATED AREA.

24 VOLTS!

USE ONLY DISTILLED WATER IN THE BATTERIES. USE ONLY THE OEM CHARGER PROVIDED WITH THE MACHINE. **ALWAYS** DISCONNECT THE BATTERY BEFORE SERVICING THE MACHINE.

REFER TO MANUAL OR CALL +001-262-681-3583

⚠ DANGER

EXPLOSION RISK!

FLAMMABLE MATERIALS CAN CAUSE AN EXPLOSION OR FIRE. DO NOT USE FLAMMABLE MATERIALS IN TANK OR PICK UP.

TO AVOID DAMAGE TO THIS MACHINE:

- USE APPROVED DETERGENTS ONLY
- WATER TEMPERATURE MUST NOT EXCEED 130°F/54°C
- DO NOT USE HIGH-PERCENTAGE BLEACH MIXTURE

REFER TO MANUAL OR CALL +001-262-681-3583

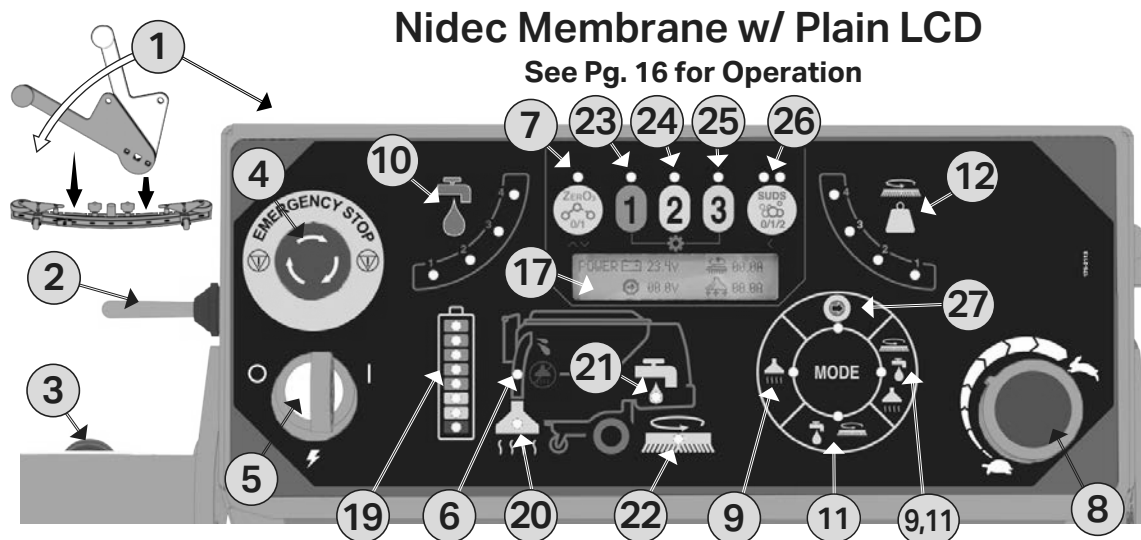
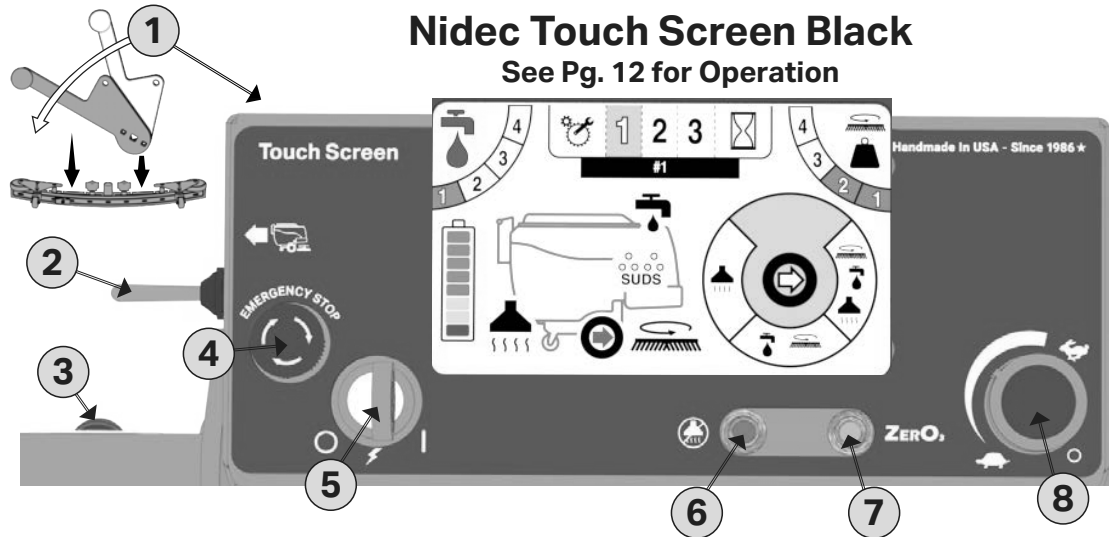
SEE BACK PAGE FOR DECAL PART NUMBERS

CENTRAL COMMAND DASHBOARD CONTROLS (MEMBRANE, TOUCH SCREEN)

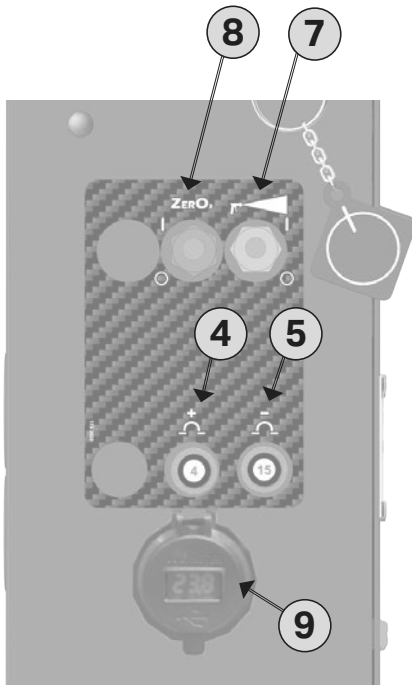
1. Squeegee Lever
2. Reverse Switch
3. Drive Switch (Both Handles)
4. E-Stop
5. Key Switch
6. Vac Clog Light
7. ZERO3 Light
8. Speed Potentiometer
9. Vac Switch
10. Solution Switch +/-
11. Scrubdeck Switch +/-
12. Down pressure Switch



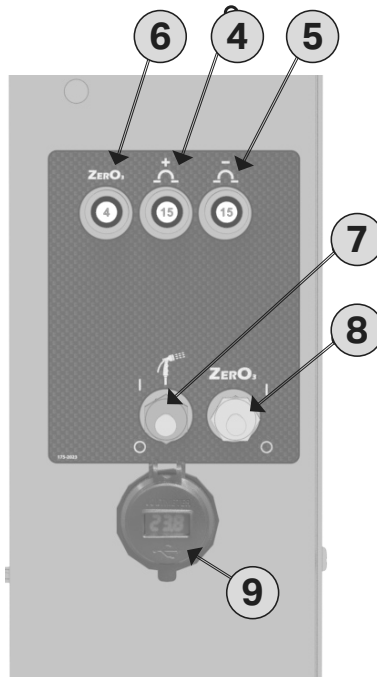
17. LCD Screen
19. Batteries
20. Vac Light
21. Solution Light
22. Scrubdeck
23. Zone 1
24. Zone 2
25. Zone 3
26. Suds (Off, Normal, 2x Dose)
27. Traction



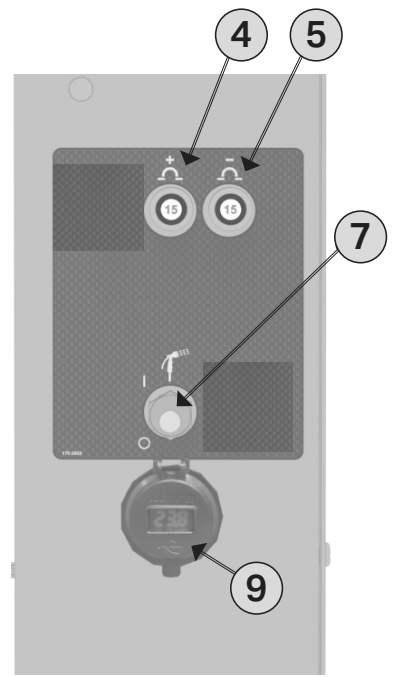
CENTRAL COMMAND SIDE PANEL CONTROLS



3" Color LCD - Membrane



Nidec Touch Screen Black



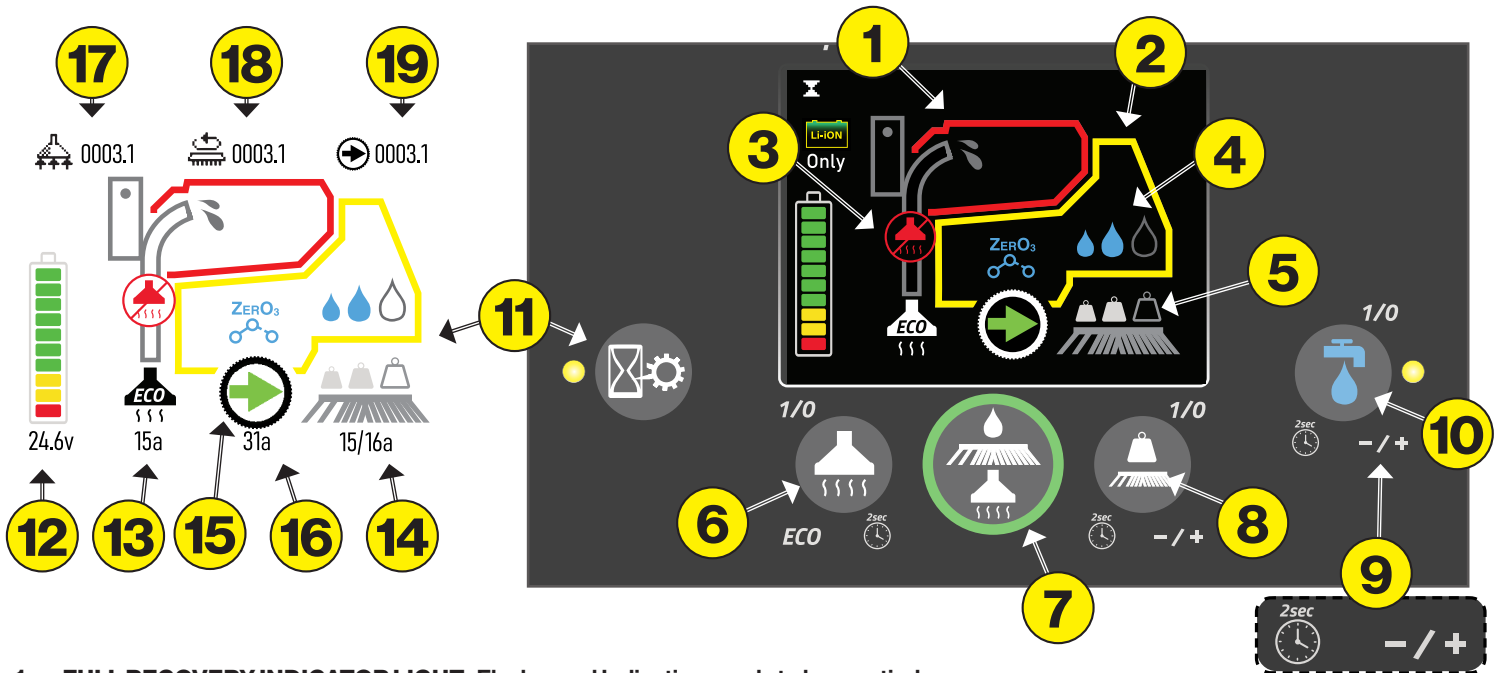
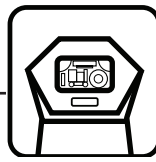
Nidec Membrane w/ Plain LCD



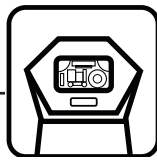
- 4. Positive BUSS Circuit Breaker
- 5. Negative BUSS Circuit Breaker
- 6. ZERO3 Circuit Breaker
- 7. Spray Jet On (I) / Off (O)
- 8. ZERO3 On (I) / Off (O)
- 9. Dual USB Voltmeter

OPERATION

3" Color LCD - Membrane



1. **FULL RECOVERY INDICATOR LIGHT** -Flashes red Indicating needs to be emptied.
2. **EMPTY SOLUTION INDICATOR LIGHT** - Flashes yellow Indicating solution tank is empty.
3. **VAC CLOG INDICATOR** - Clogged Squeegee Hose
4. **SOLUTION LEVEL** - (Off, 1, 2, 3)
5. **DECK DOWN PRESSURE LEVEL** - (Off, 1, 2, 3)
6. **VAC** - Push on/off. Hold 2 seconds to engage ECO mode. O/I or Eco
7. **SOLUTION/DECK/VAC EASY BUTTON** - (O/I or 1, 2, 3)
8. **DECK/DOWN PRESSURE** - (O/I or 0, 1, 2, 3)
9. **SECONDARY FUNCTIONS INDICATOR** - The 2 sec hold function unlocks secondary functions wherever listed.
10. **SOLUTION BUTTON** - (off, 1, 2, 3)
11. **TECHNICIAN SCREEN**
12. **ACTIVE VOLT** - Indicates the live DC Volts (under battery gauge)
13. **AMP VAC CURRENT** - Vac power consumption
14. **BRUSH CURRENT** - Brush power consumption
15. **TRANSPORT INDICATION** - Green Forward & Red Rev
16. **DRIVE CURRENT** - Traction power consumption
17. **HOURMETER** - Vac
18. **HOURMETER** - Deck
19. **HOURMETER** - Drive



3" Color LCD Membrane

BATTERY

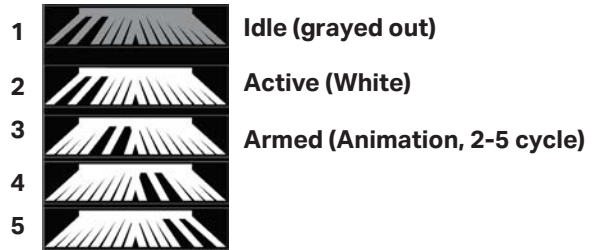


10% Increment drops until battery dead

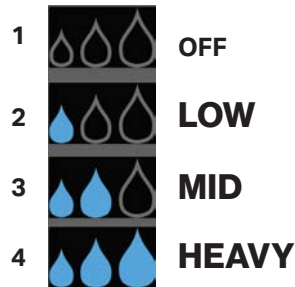
DOWN PRESSURE



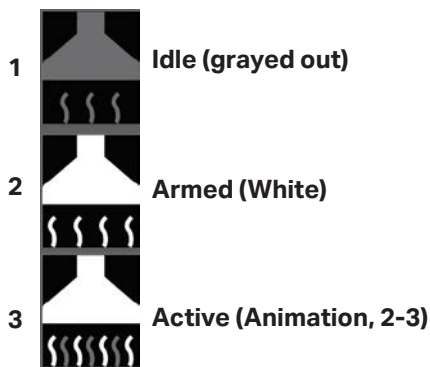
BRUSH



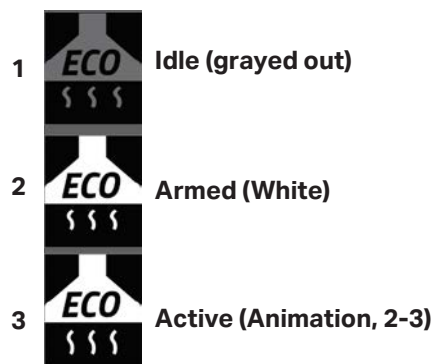
WATER



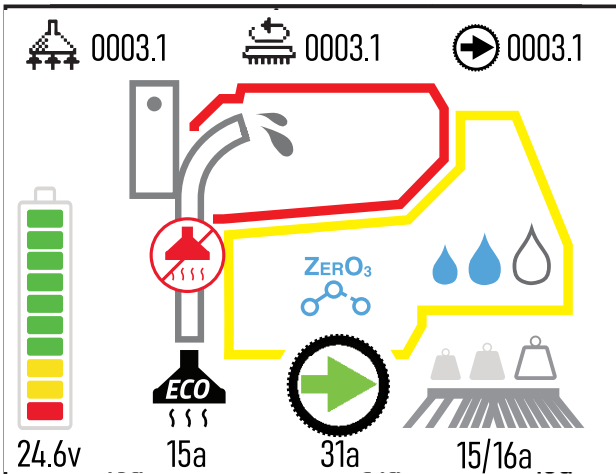
VAC



VAC ECO

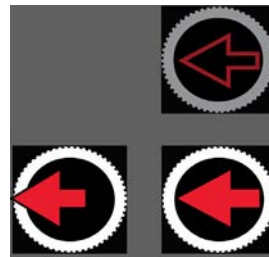


SETTINGS SCREEN



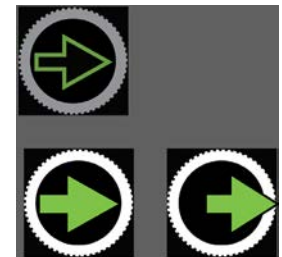
Background changes to white, hour meter icons at top of screen showing vac, brush, and traction hour meters.

TRACTION REVERSE



1 ACTIVE 1-2 CY-

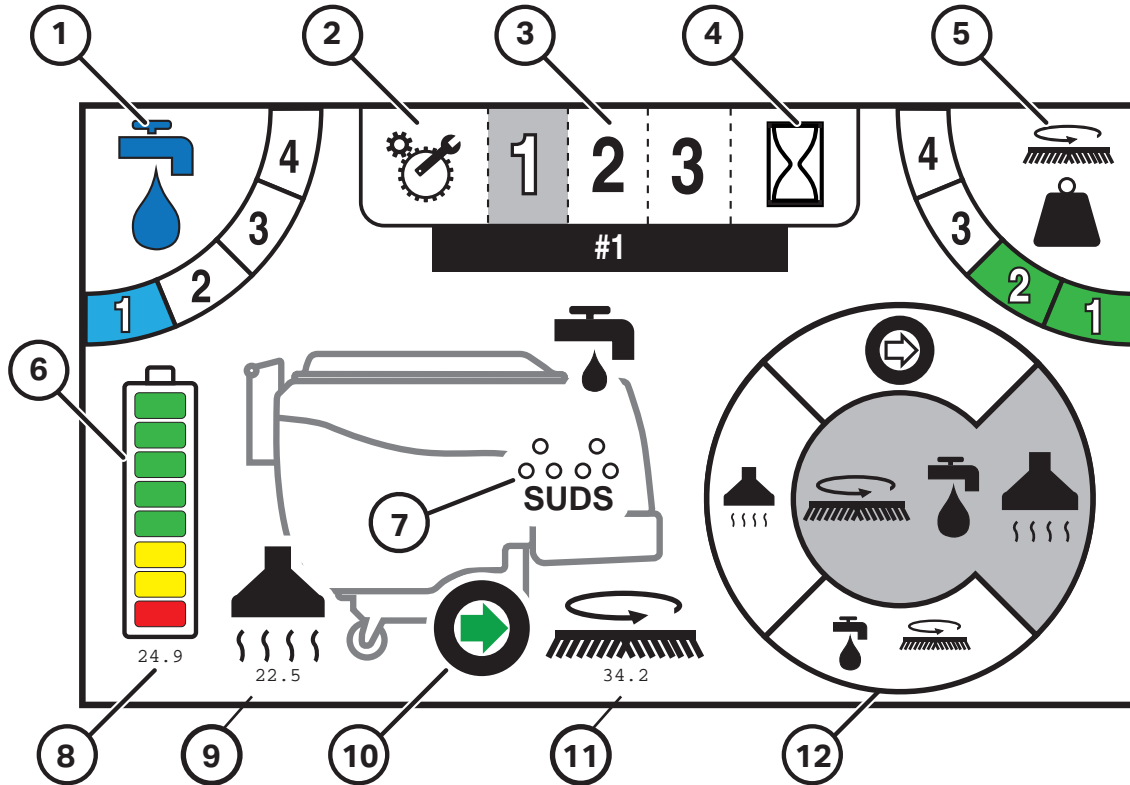
TRACTION FORWARD



1 ACTIVE 1-2 CY-

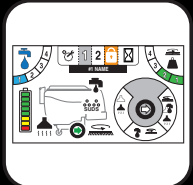


TOUCH SCREEN (OPTIONAL)

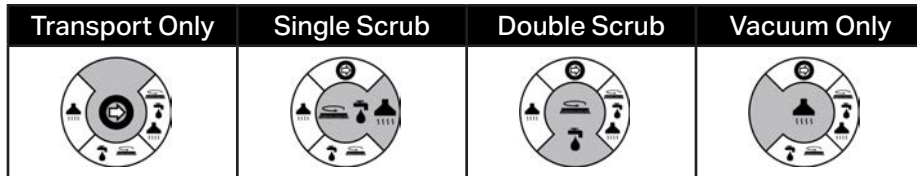


1. **SOLUTION OUTPUT** - Indicates the level of solution that is being dispensed when in operation, (0 = off, 1 = Low, 4 = High).
2. **TECHNICAL / MANAGER SETUP** - Access 'Error Code History' and Manager Programming
3. **PROGRAMMED ZONES** - Switch between preset solution and downpressure settings for varying applications
4. **HOUR METERS** - Displays all of the hour meters of the machine: Key Switch, Transport, Scrub Motors, and Vacuum Motor
5. **DOWN PRESSURE OUTPUT** - Indicates the level of downpressure that is being applied to the floor surface (1 = low, 4 = high).
6. **BATTERY GAUGE** - Indicates the level of battery charge available and volt meter
7. **SUDS** - (Onboard Chemical Dilution) indicator
8. **ACTIVE VOLT & AMP DRAW** - Indicates the live DC Volts (under battery gauge) and Amp draw (under systems) when machine is running
9. **AMP VAC CURRENT** - Indicates Vac power consumption
10. **TRANSPORT INDICATION** - Green Forward & Red Rev
11. **BRUSH DISK CURRENT** - Indicates Brush power consumption
12. **OPERATION MODE SELECTOR** - Cycle through and select which operation mode you would like to work in

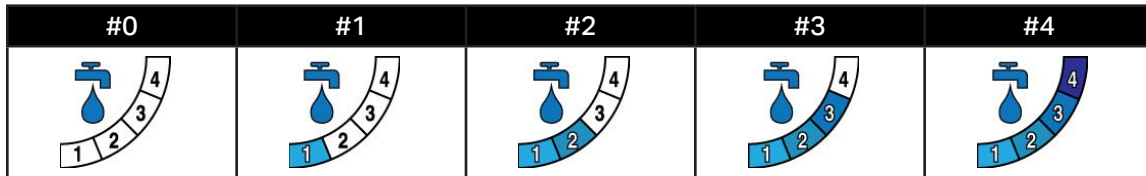
TOUCH SCREEN SYMBOLS (OPTIONAL)



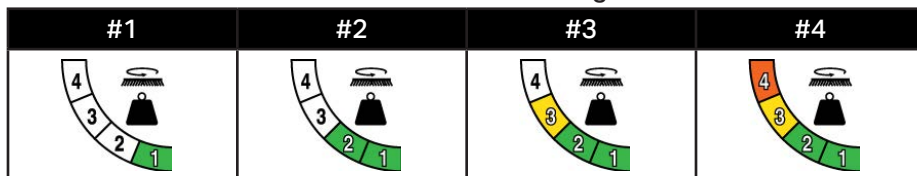
Mode Selection



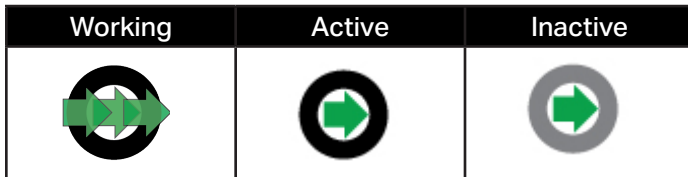
Solution Setting



Down Pressure Setting



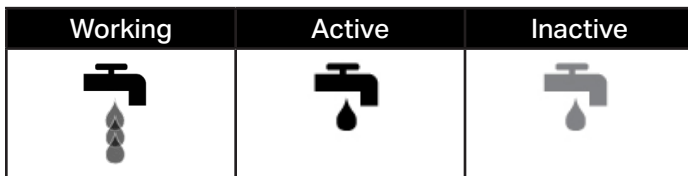
Forward Transport Motor



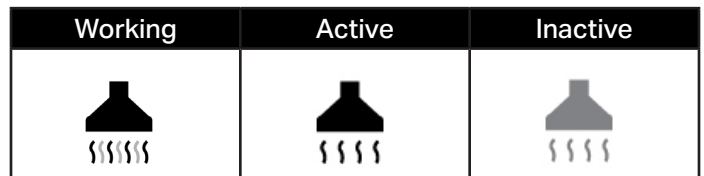
Reverse Transport Motor



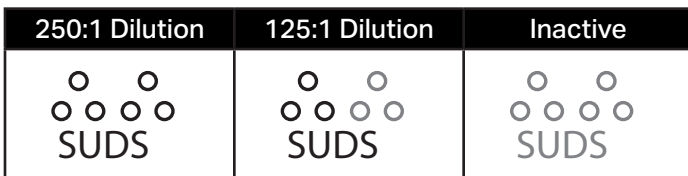
Solution Flow



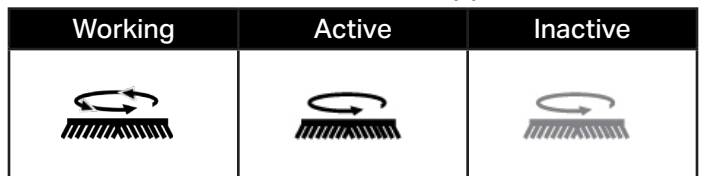
Vacuum Motor



Suds



Scrub Deck Motor(s)



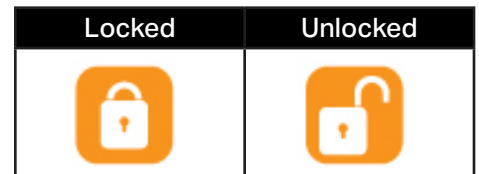
Setup



Hour Meters

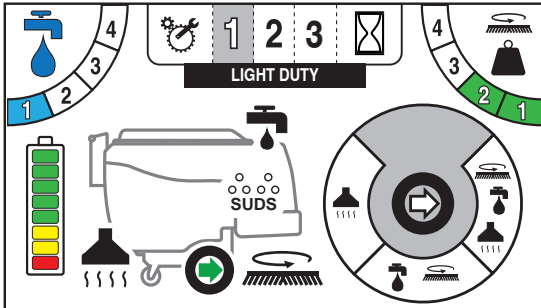


Zone Lock





TOUCH SCREEN ZONE OPERATION (OPTIONAL)



The touch screen is designed to be programmed to three specific zones. Each zone can be named and custom programmed or even disabled if not needed.

The zone you are working in is highlighted as indication. In Figure 1. the zone selected is Light Duty.

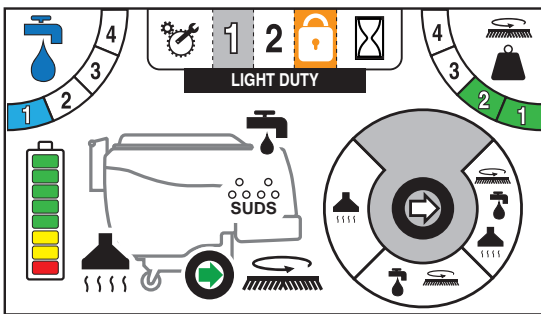


Figure 2. shows Zone 3 "locked out" by the indicator lock icon.

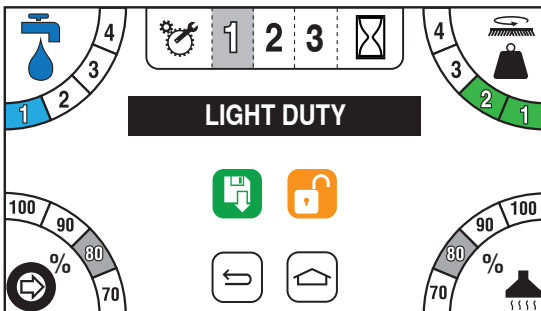


Figure 3. shows Zone 1 "Light Duty" Factory Configuration.

Water = 1
Downpressure = 2
Drive Speed = 70%
Vac Motor = 80%



Figure 3. shows Zone 2 "Daily" Factory Configuration.

Water = 2
Downpressure = 3
Drive Speed = 90%
Vac Motor = 90%

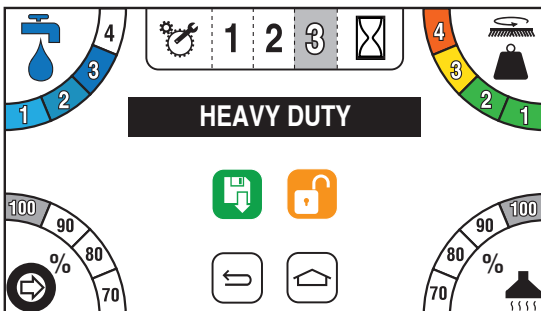
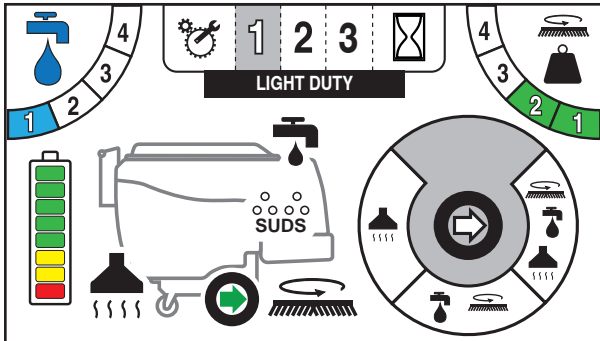
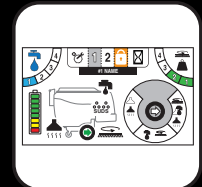


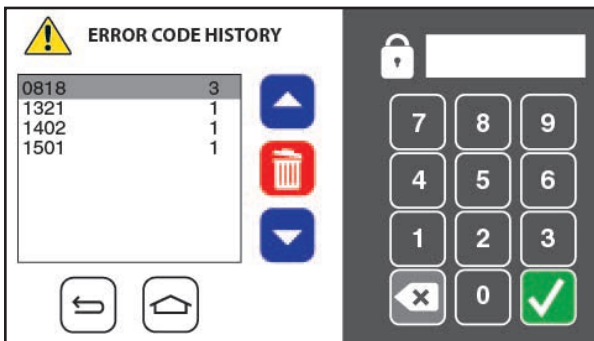
Figure 3. shows Zone 3 "Heavy Duty" Factory Configuration.

Water = 3
Downpressure = 4
Drive Speed = 100%
Vac Motor = 100%

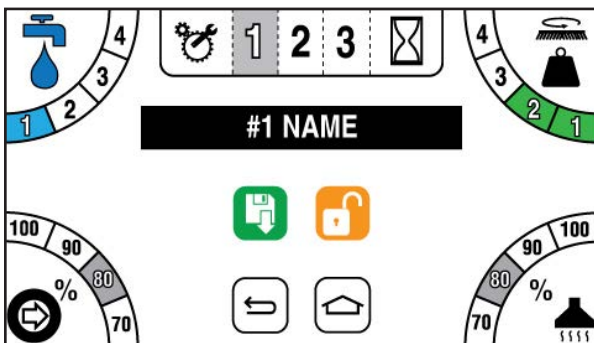
TOUCH SCREEN ZONE PROGRAMMING (OPTIONAL)



To program the 3 Zones, press



From here you will be prompted with a passcode screen. Enter the manager passcode 349 to get access to setup.



Once you have entered the password, you will see the Figure 3. screen where you can alter the name, solution output, down-pressure setting, scrubbing speed, and vacuum power.

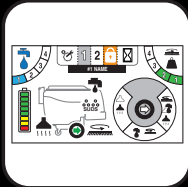
Alternatively you can lock the Zone out from this screen, to prohibit operator use.

Once any of the 3 "Zones" is locked the remaining zones are no longer adjustable either by the operator.

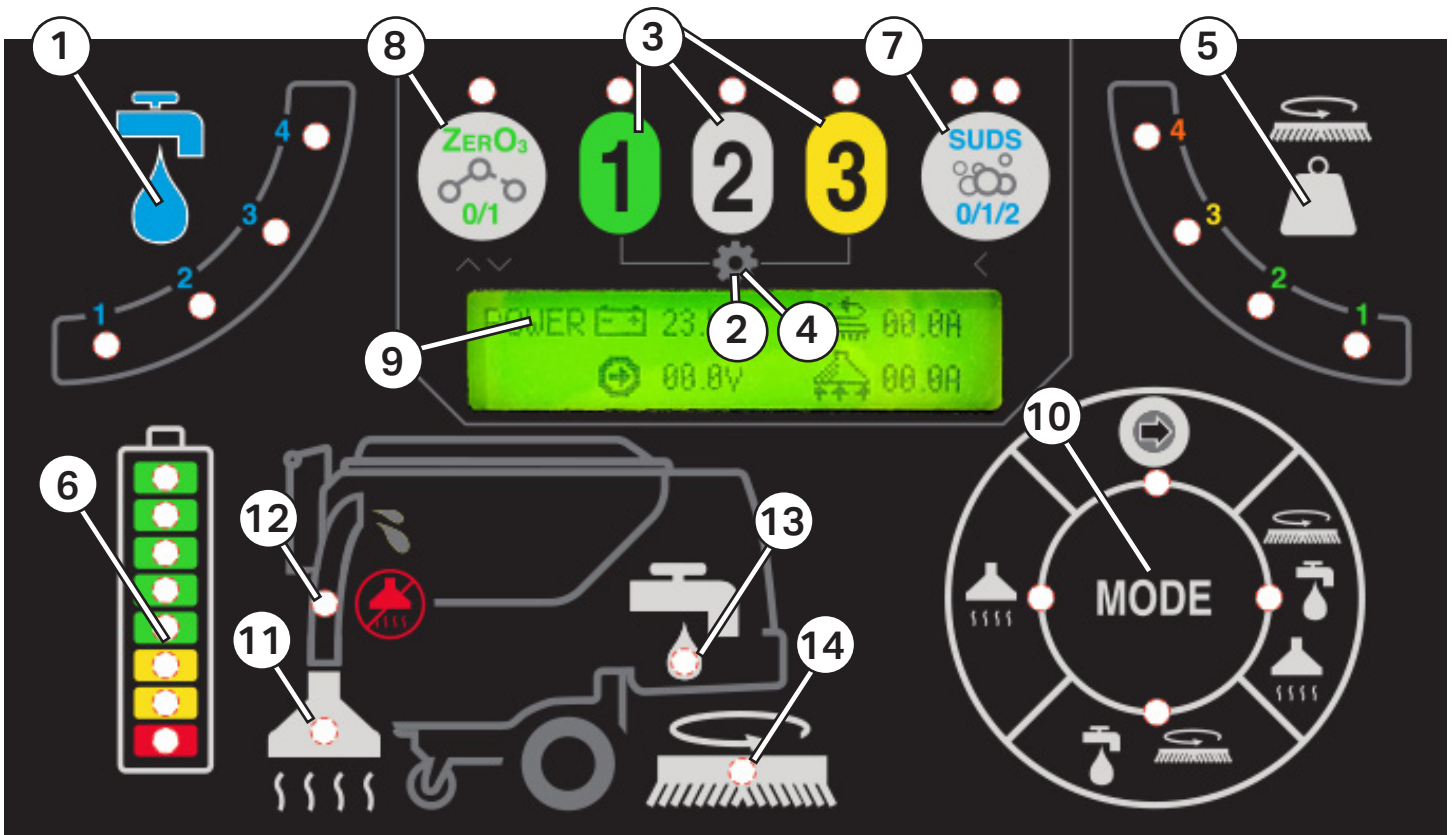


To alter the name of a Zone, simply click on the black name box and a full keyboard will appear as Figure 4. shows. Enter new name and save your work with the Green save icon.





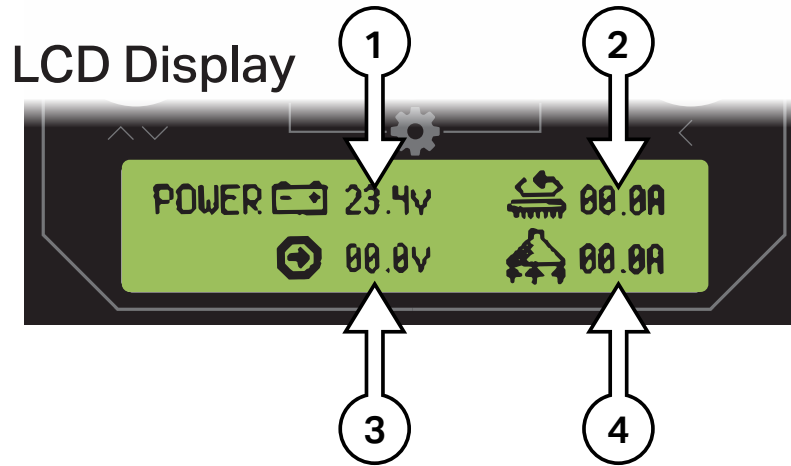
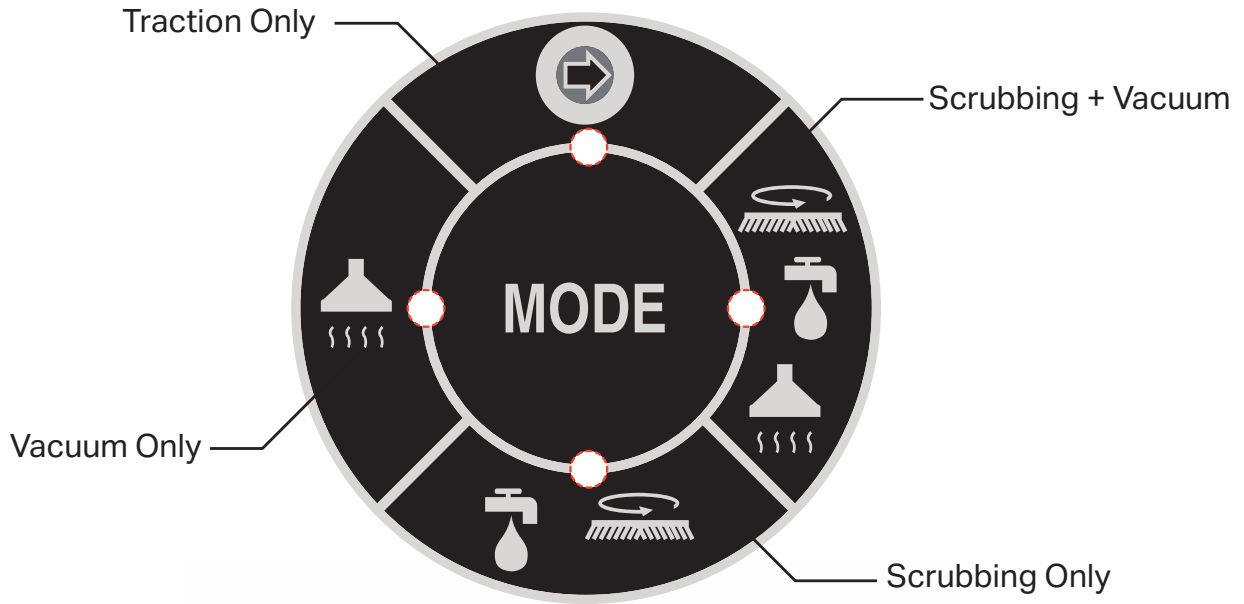
NIDEC MEMBRANE



1. SOLUTION OUTPUT - Indicates the level of solution that is being dispensed when in operation, (0 = off, 1 = Low, 4 = High).
2. TECHNICAL / MANAGER SETUP - Access 'Error Code History' and Manager Programming (Press and Hold 1 & 3 for 5 seconds).
3. PROGRAMMED ZONES - Switch between preset solution and downpressure settings for varying applications
4. HOUR METERS - Displays all of the hour meters of the machine: Key Switch, Transport, Scrub Motors, and Vacuum Motor
5. DOWN PRESSURE OUTPUT - Indicates the level of downpressure that is being applied to the floor surface (1 = low, 4 = high).
6. BATTERY GAUGE - Indicates the level of battery charge available and volt meter
7. SUDS - (Onboard Chemical Dilution) indicator (OFF, Normal, 2x Dose)
8. ZERO3 - (Chemical Free Aqueous Ozone) indicator
9. ACTIVE VOLT & AMP DRAW - Indicates the live DC Volts (under battery gauge) and Amp draw (under systems) when machine is running
10. OPERATION MODE SELECTOR - Cycle through and select which operation mode you would like to work in
11. VAC LIGHT- Indicates when vacuum is on
12. VAC CLOG LIGHT- Indicates when vacuum is clogged
13. SOLUTION LIGHT- Indicates active solution to scrub deck
14. SCRUB DECK LIGHT- Indicates active scrub deck

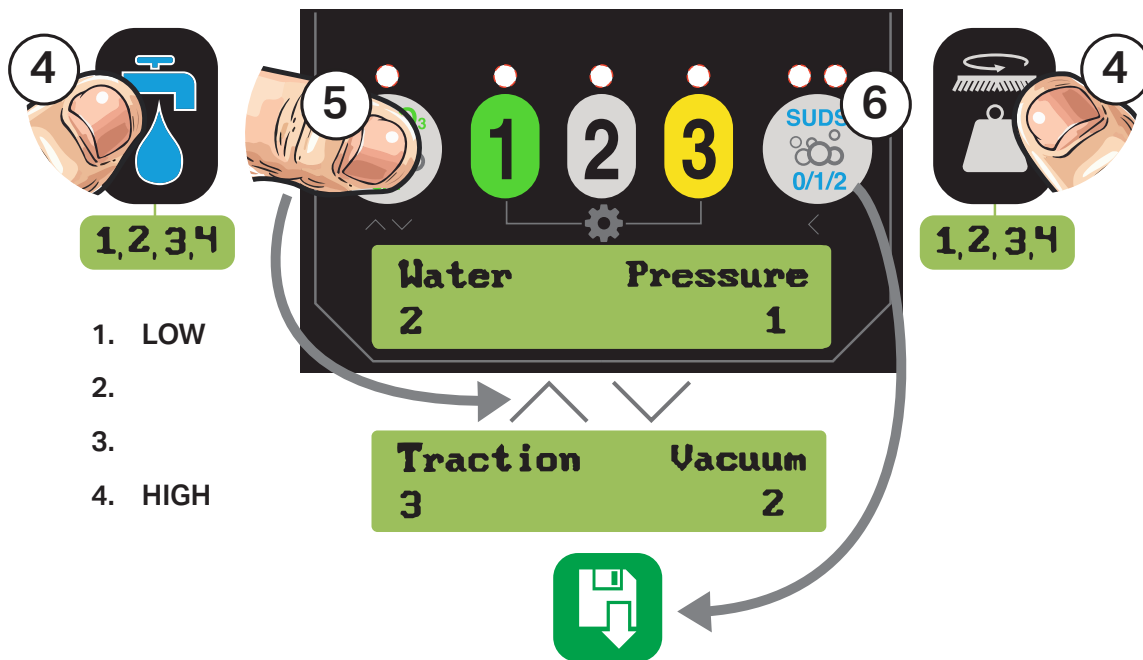
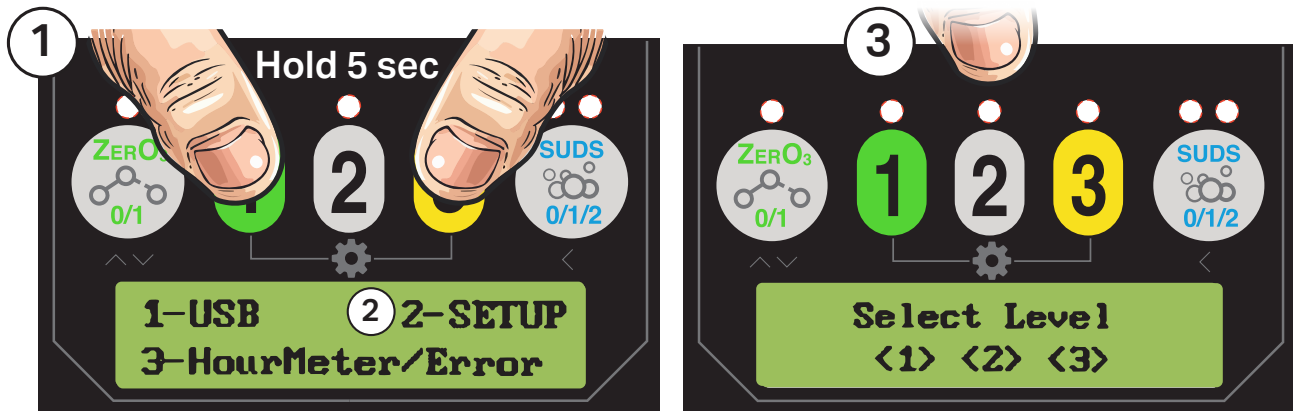


Mode Wheel



1. BATTERY VOLTAGE READOUT
2. SCRUBDECK AMPERAGE READOUT
3. TRACTION VOLTAGE READOUT
4. VACUUM AMPERAGE READOUT

Programming Zones



1. LOW
- 2.
- 3.
4. HIGH

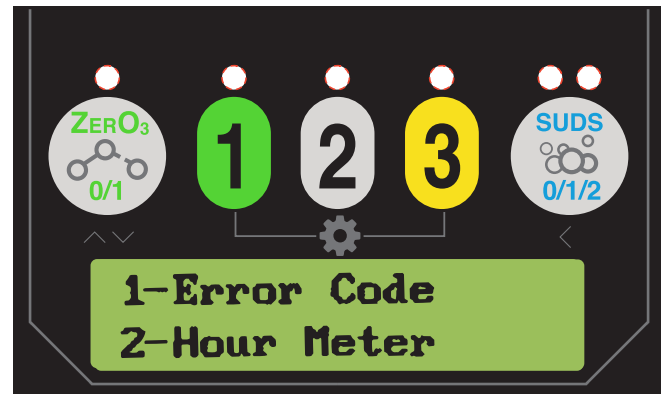
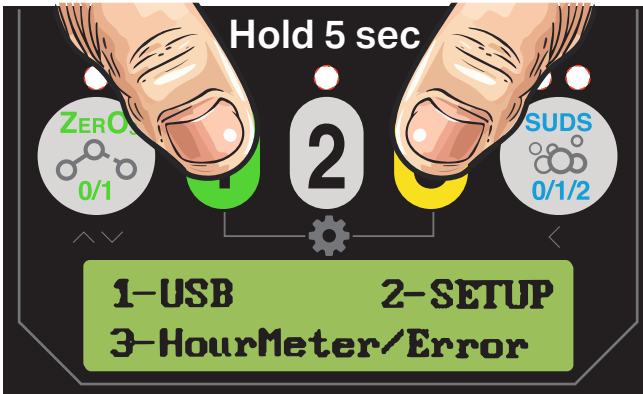
Operator Video



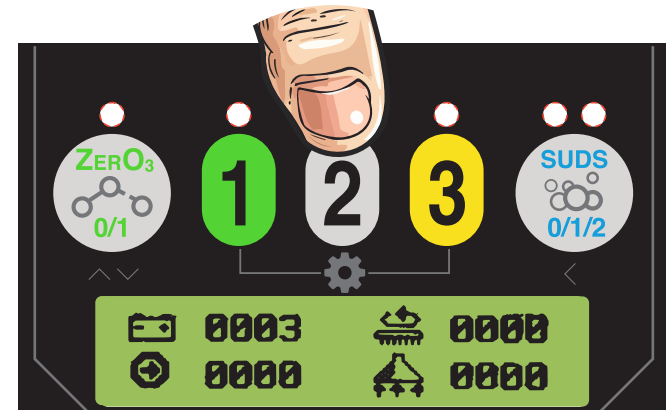
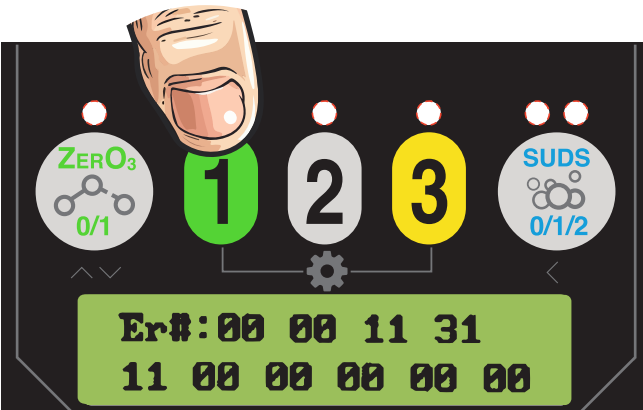
- 1** HOLD (1) & (3) FOR 5 SEC
- 2** SELECT SETUP (2)
- 3** SELECT LEVEL
- 4** WATER/DOWNPRESSURE CHANGES VALUES
- 5** PUSH ZERO3 TO SWAP SCREENS
- 6** PUSH SUDS TO SAVE



Checking Hour Meters & Error Codes



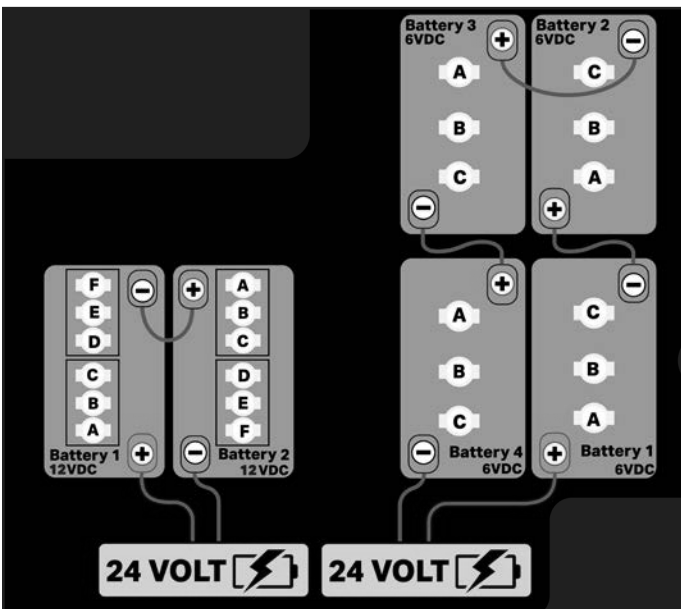
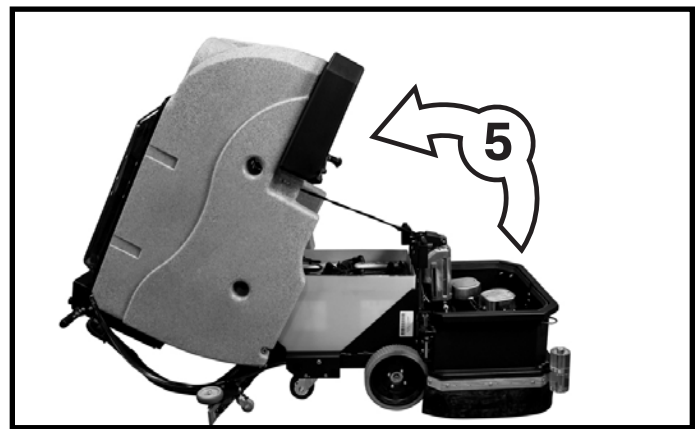
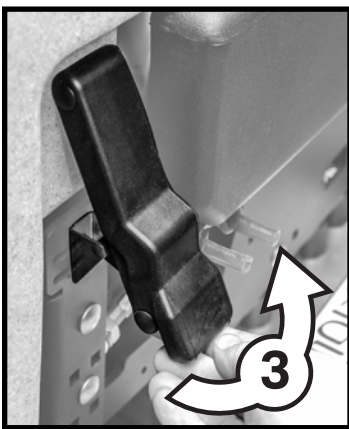
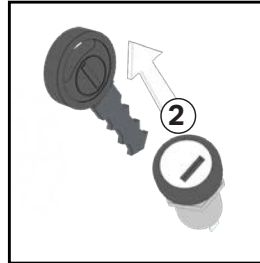
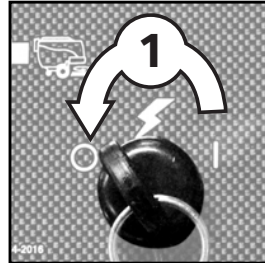
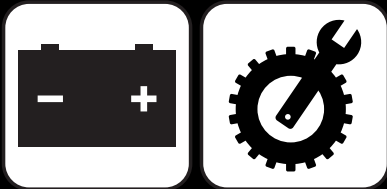
Select (3)



Membrane Zones Factory Default



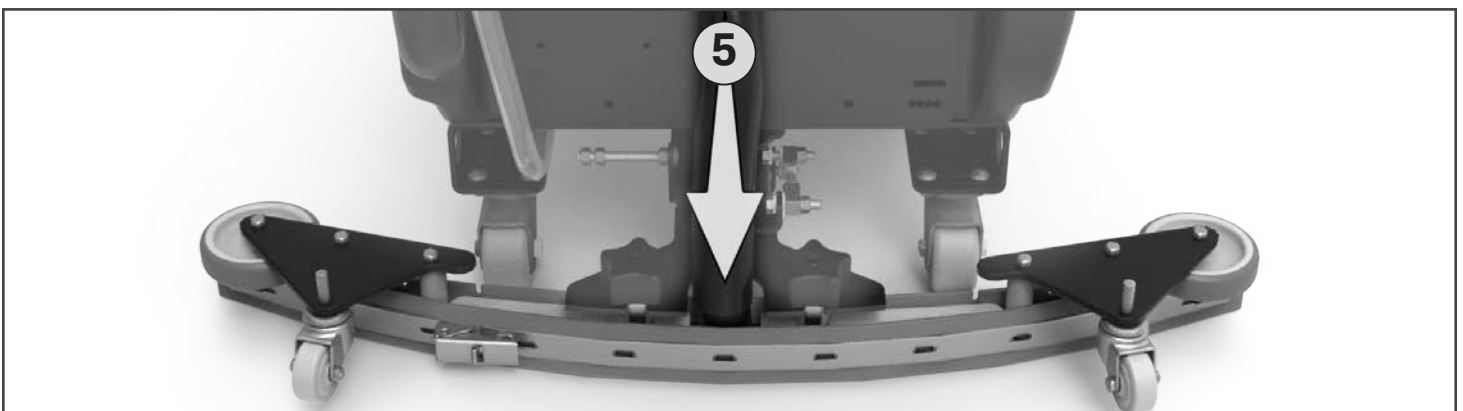
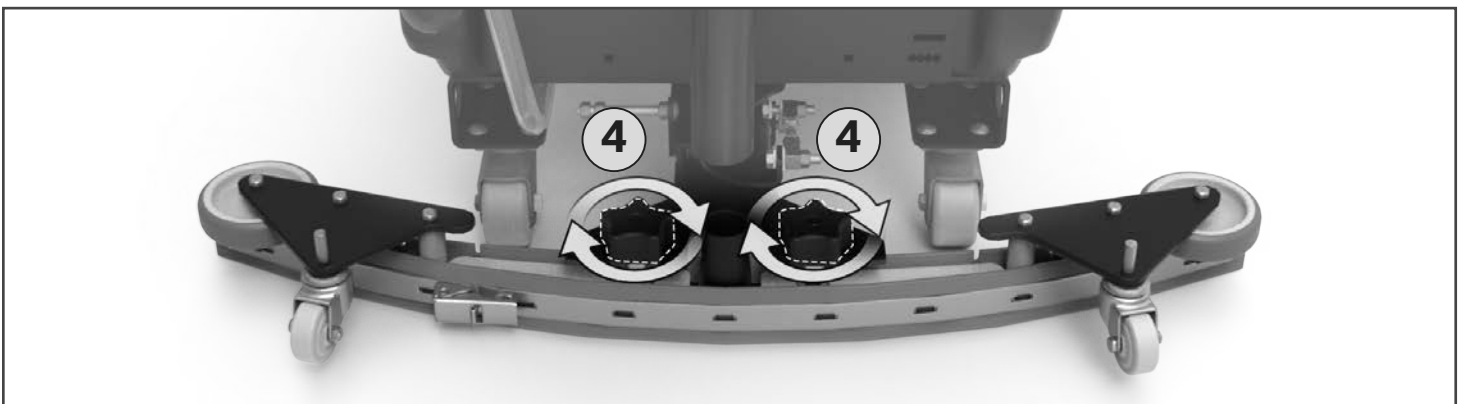
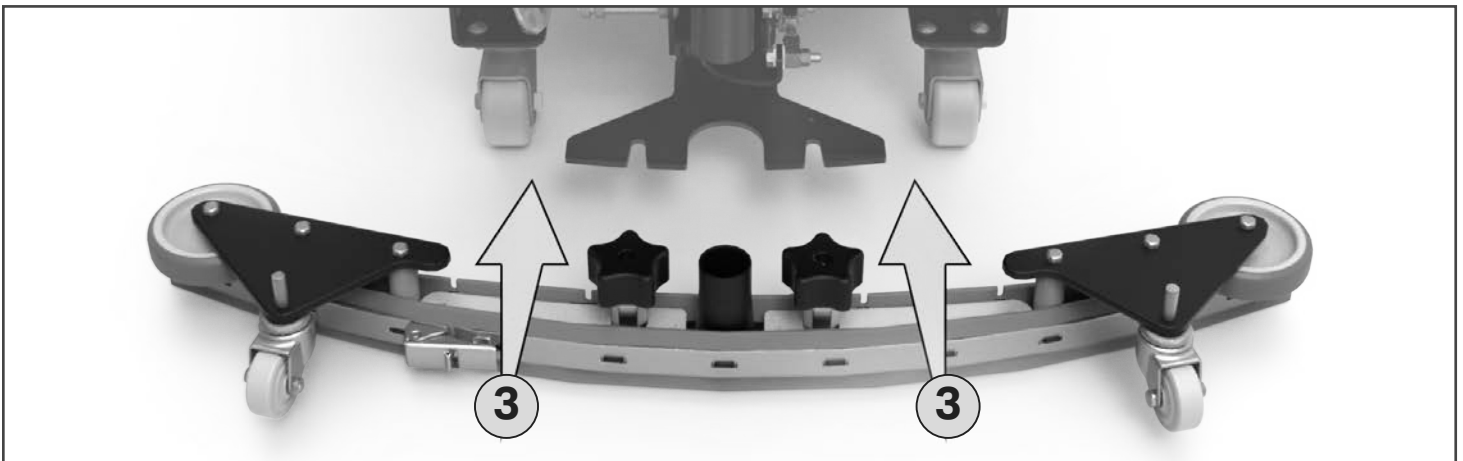
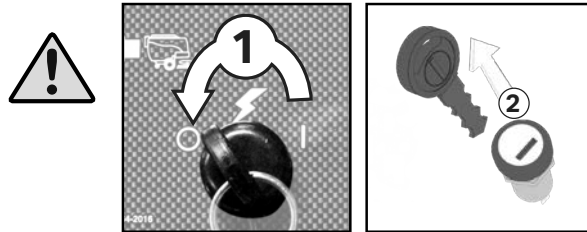
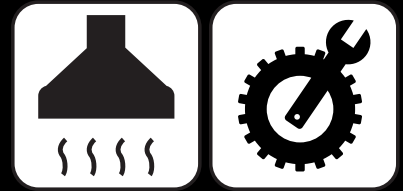
BATTERY SETUP



NOTICE
Batteries are a possible environmental hazard. Consult your Battery supplier for safe disposal methods.

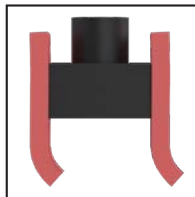
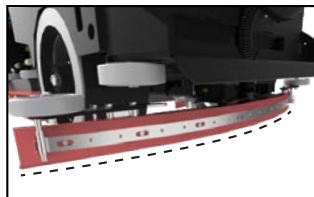
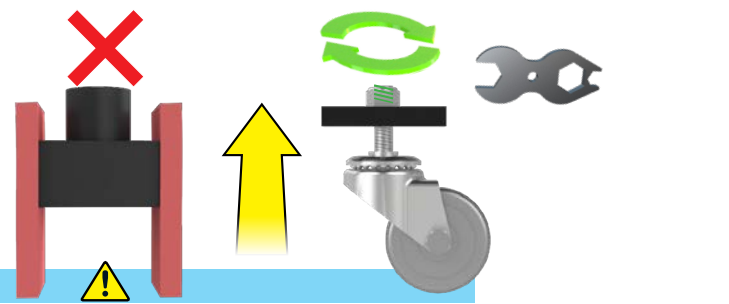
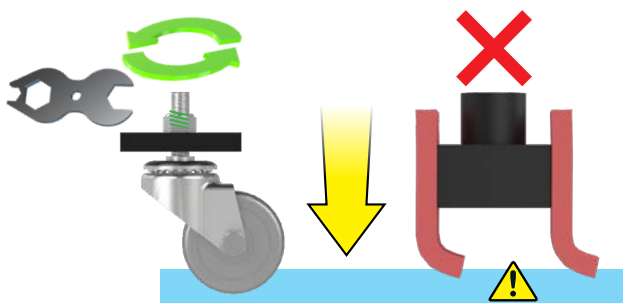
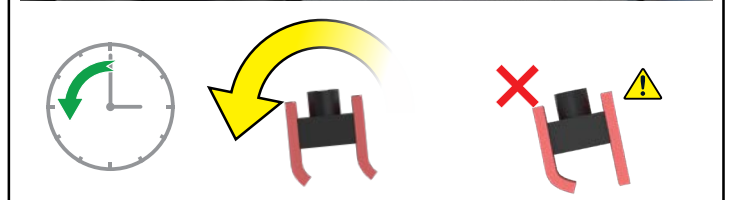
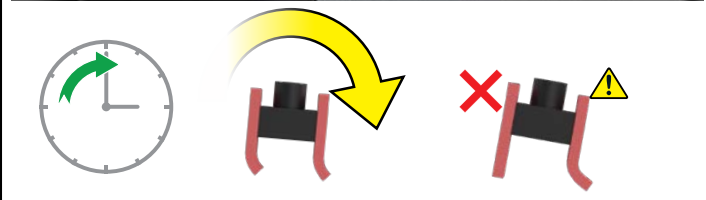
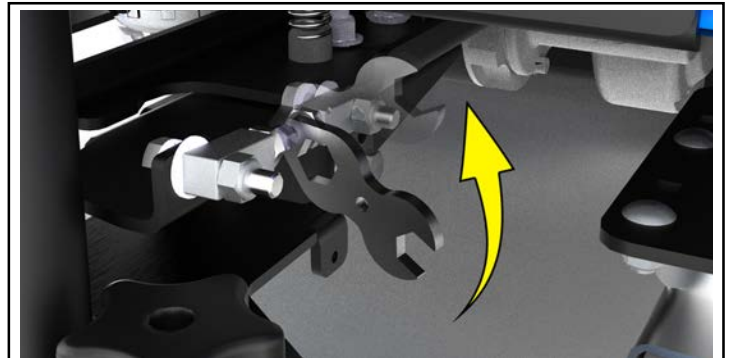
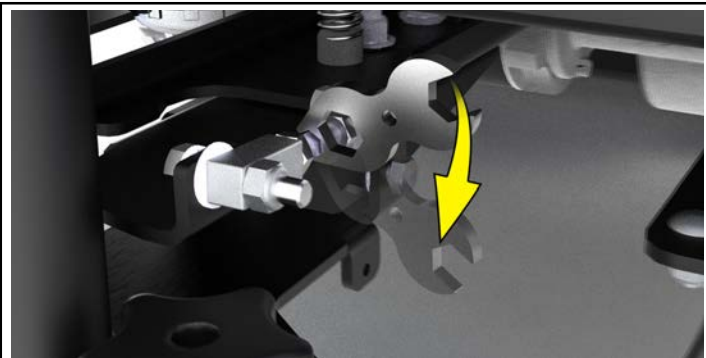
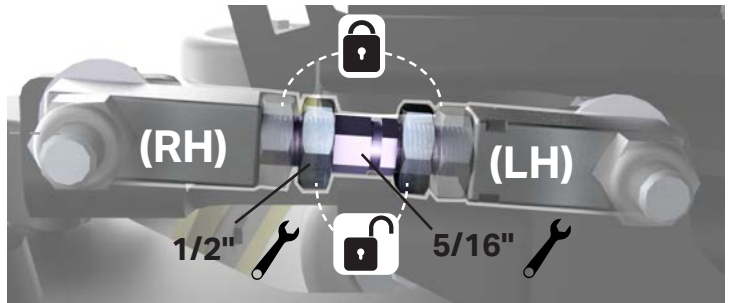
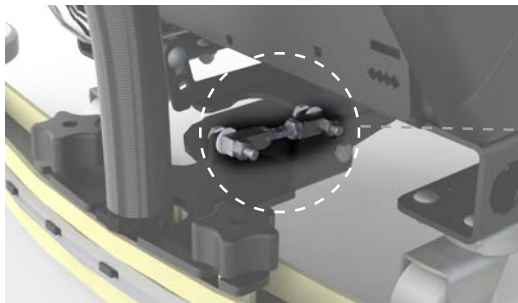
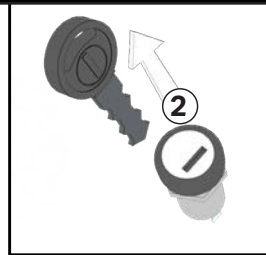
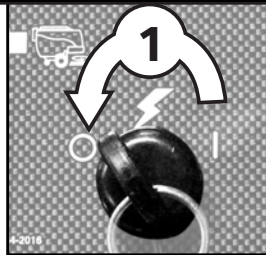
NOTICE
Orientation of Batteries is critical for cables to reach. Ensure proper torque values when installing batteries. (Between 8 - 12 ft/lbs)

INSTALL SQUEEGEE

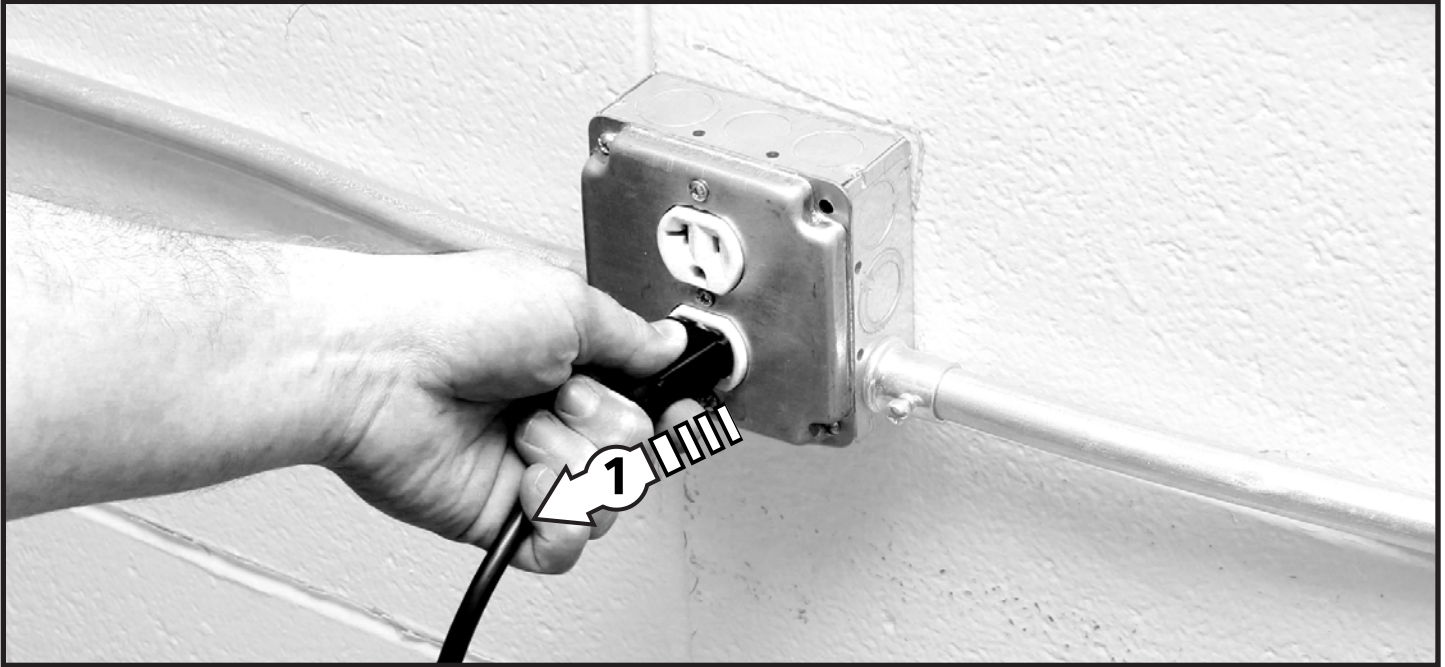
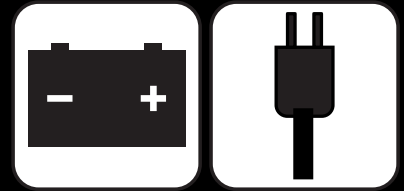




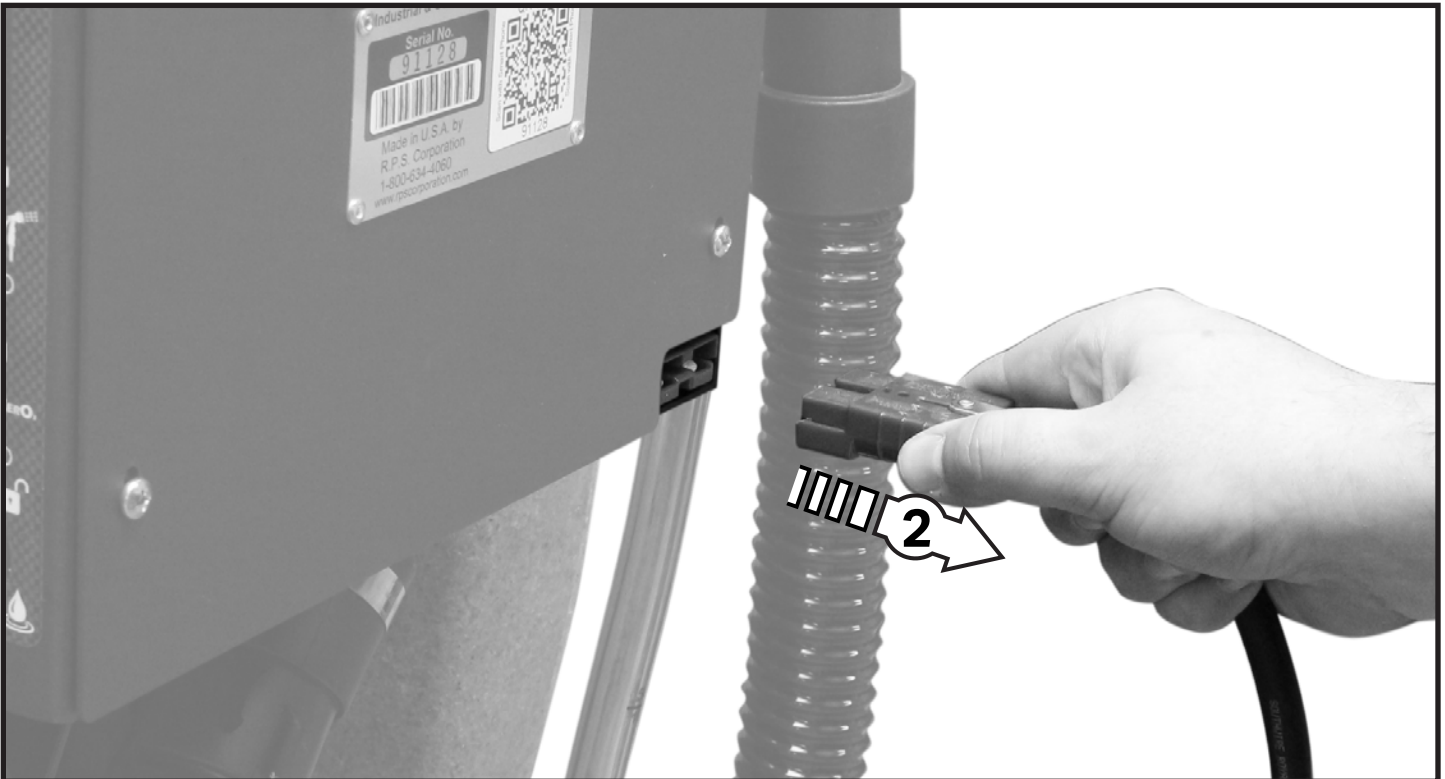
ADJUST SQUEEGEE



REMOVE FROM BATTERY CHARGER



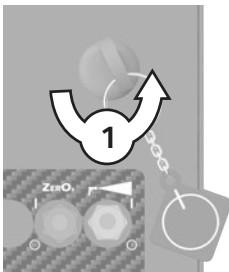
Please refer to OEM Charger Operating Instructions for more information.



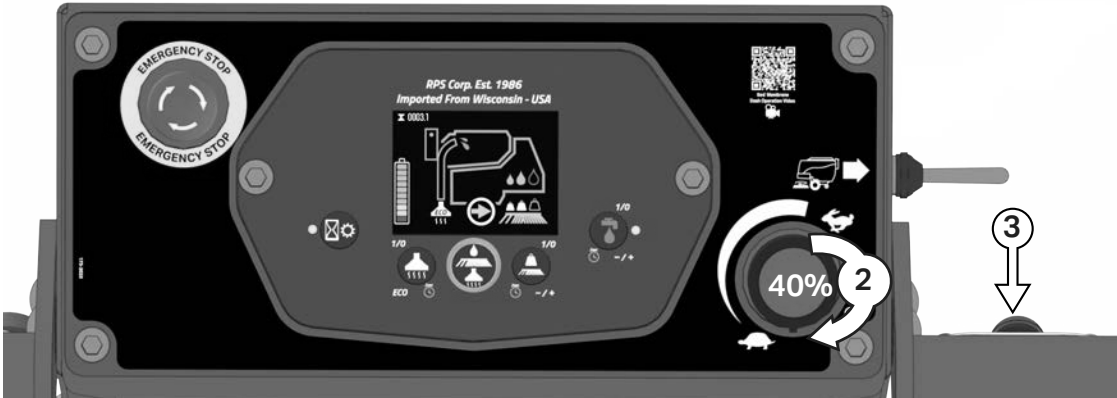


TRANSPORTATION - FORWARD

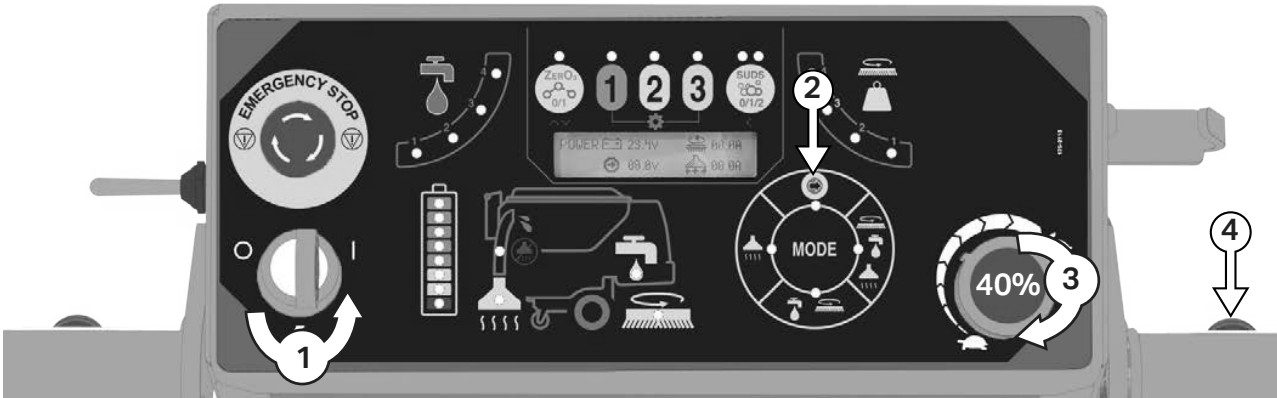
3" Color LCD - Membrane



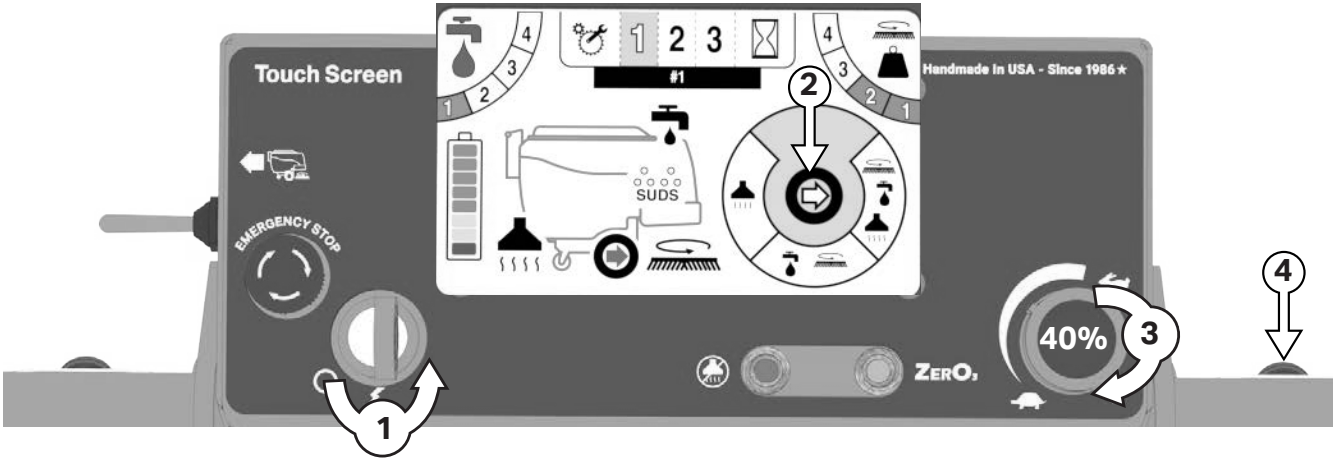
Left Side Panel



Nidec Membrane w/ Plain LCD



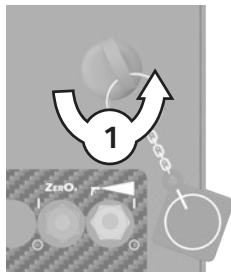
Nidec Touch Screen Black



TRANSPORTATION - REVERSE



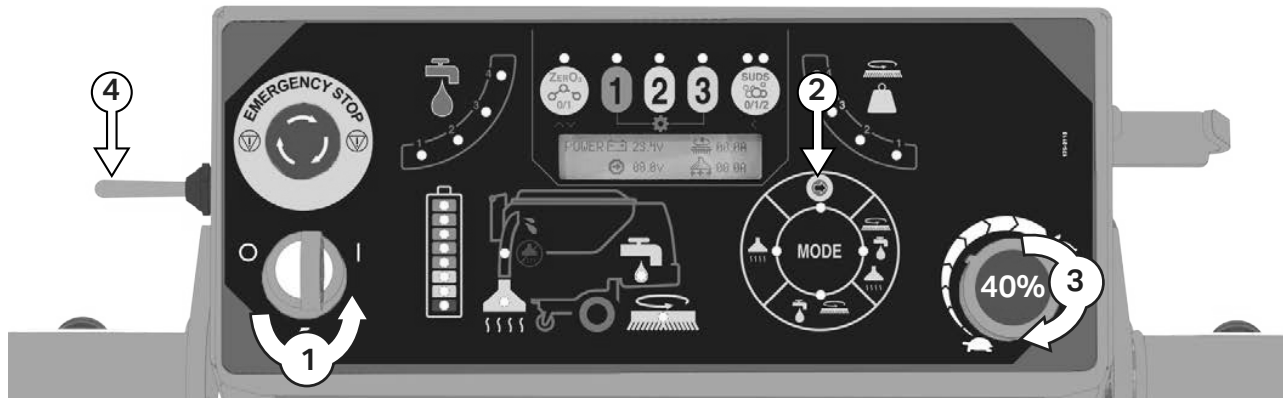
3" Color LCD - Membrane



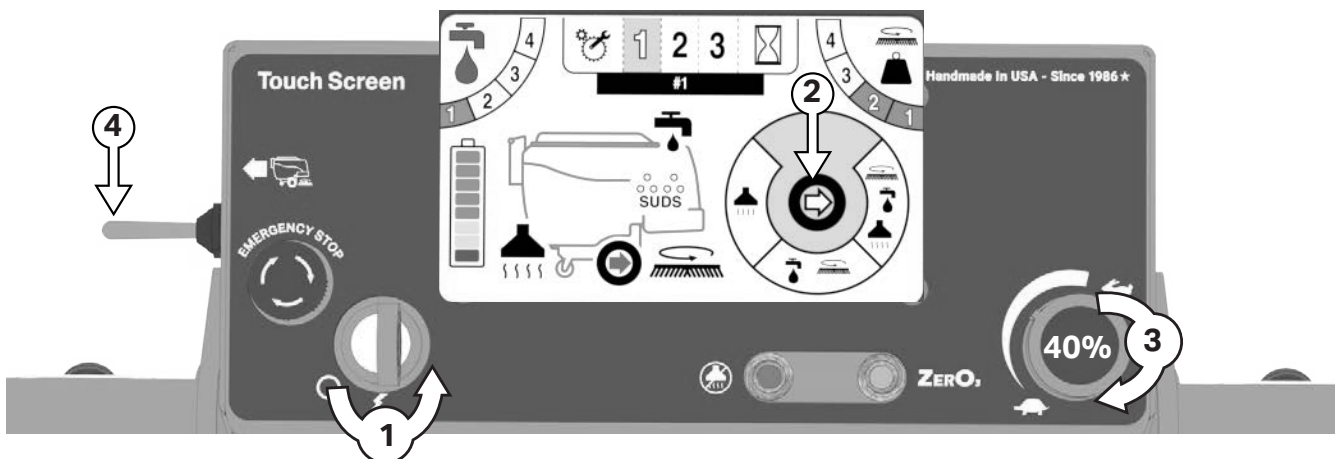
Left Side Panel



Nidec Membrane w/ Plain LCD

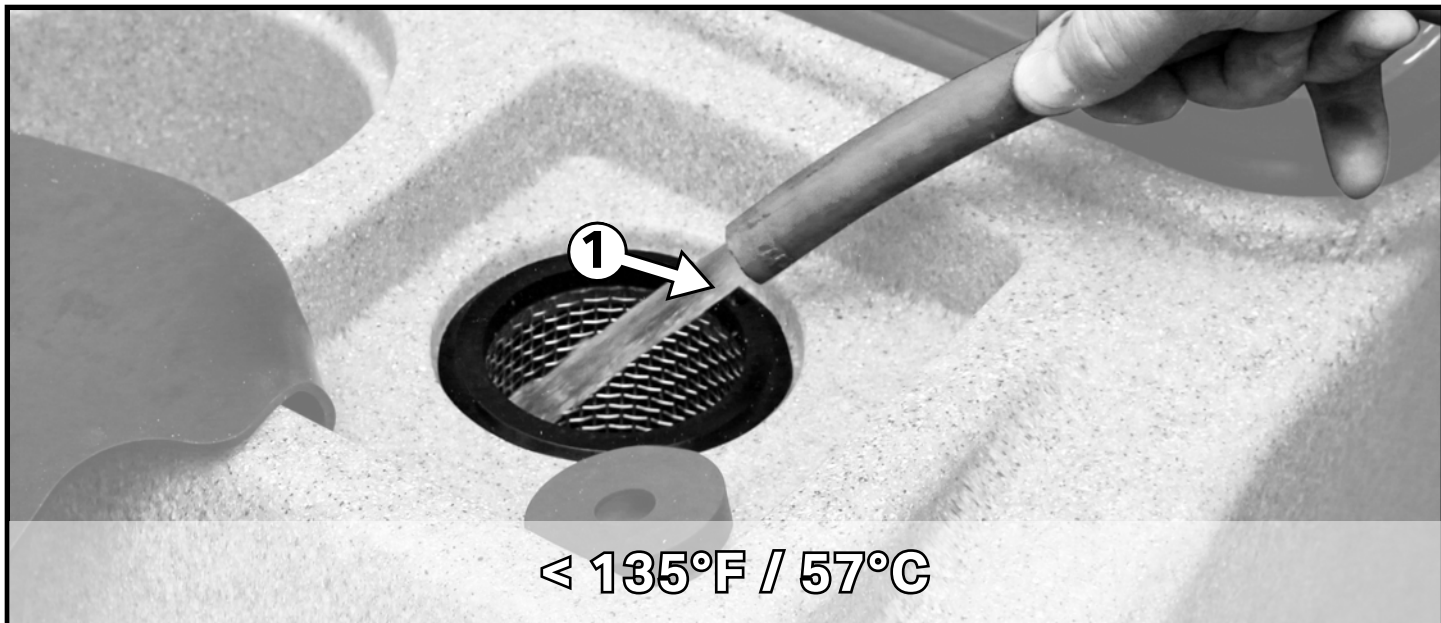


Nidec Touch Screen Black





FILL SOLUTION TANK



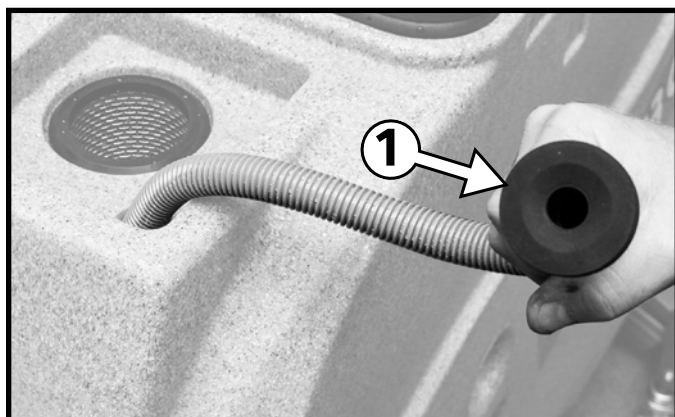
⚠ DANGER

EXPLOSION RISK! Flammable materials can cause an explosion or fire. Do NOT use flammable materials in Tank or pick up.

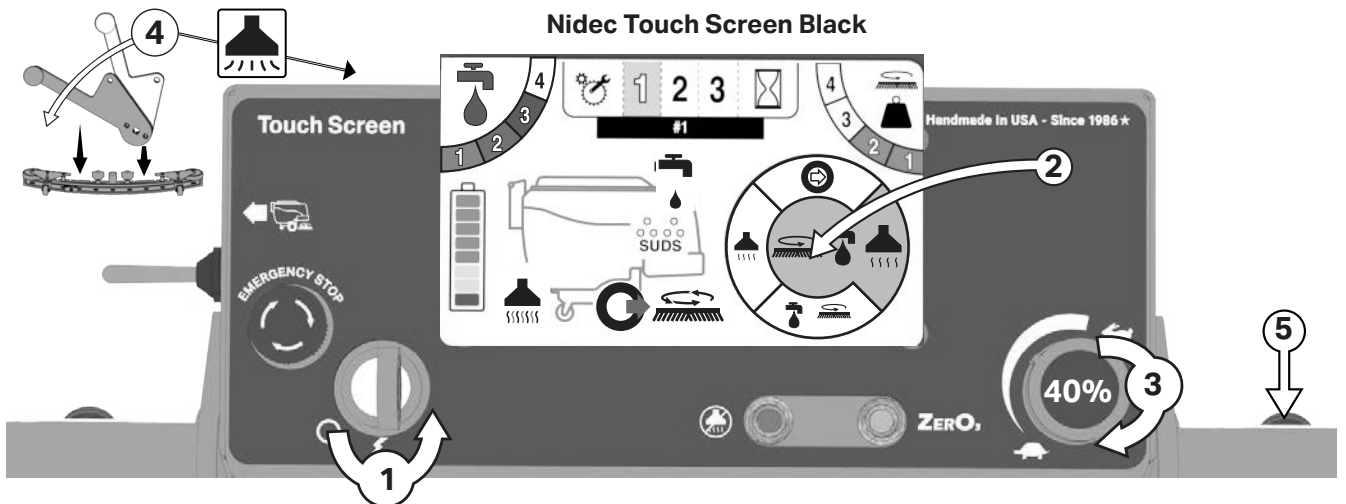
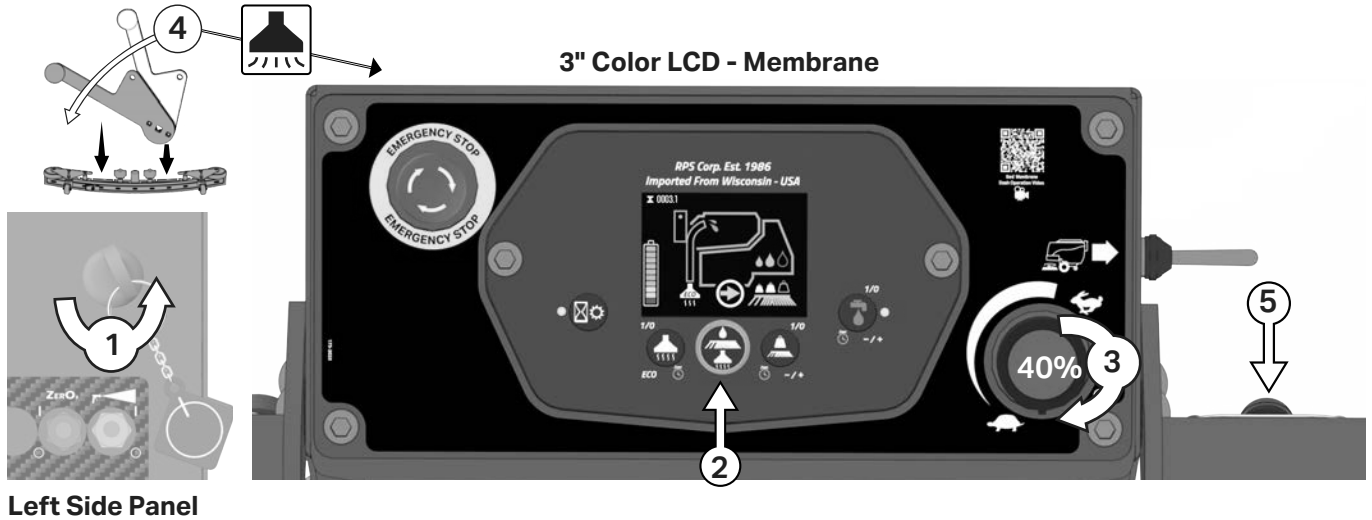
⚠ CAUTION

TO AVOID DAMAGE TO THIS MACHINE:

- Use APPROVED detergents only
- Water temperature must not exceed 135 °F/57 °C
- Do NOT use high-percentage Bleach mixture

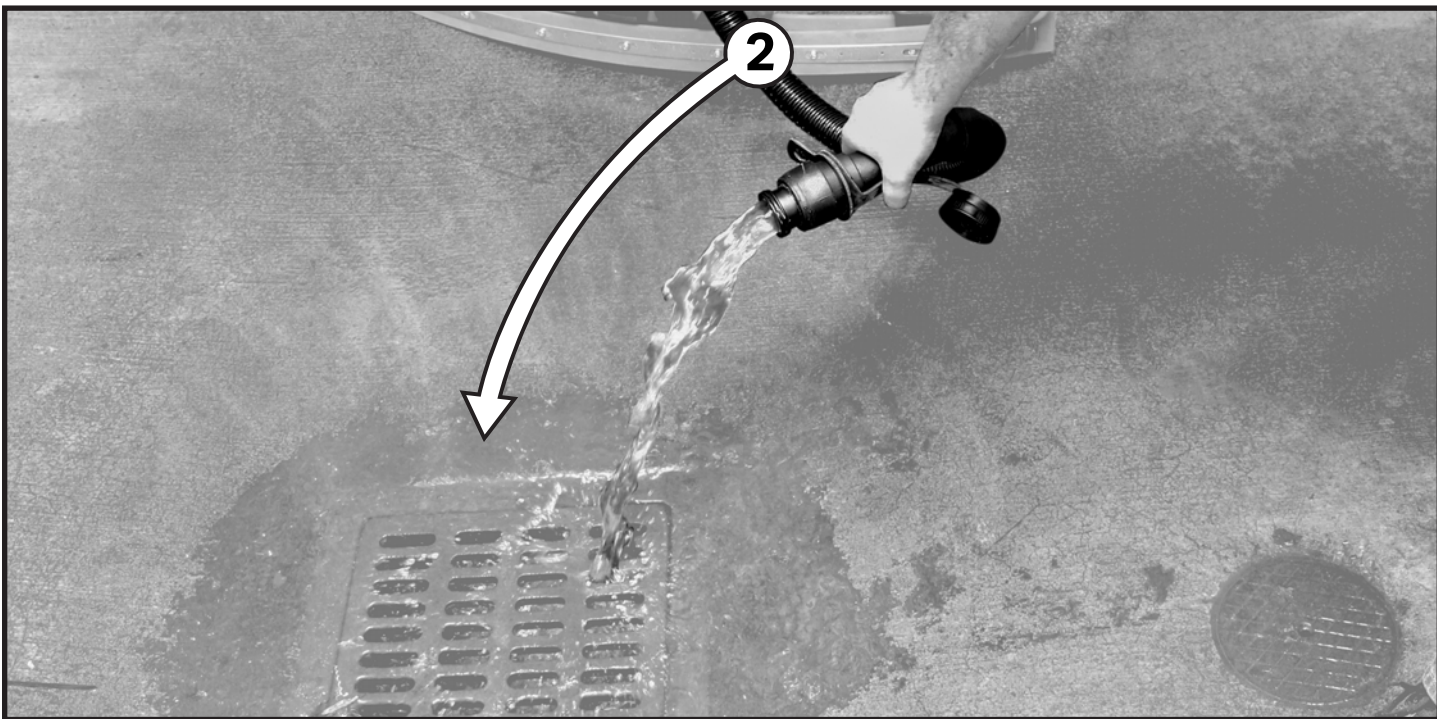
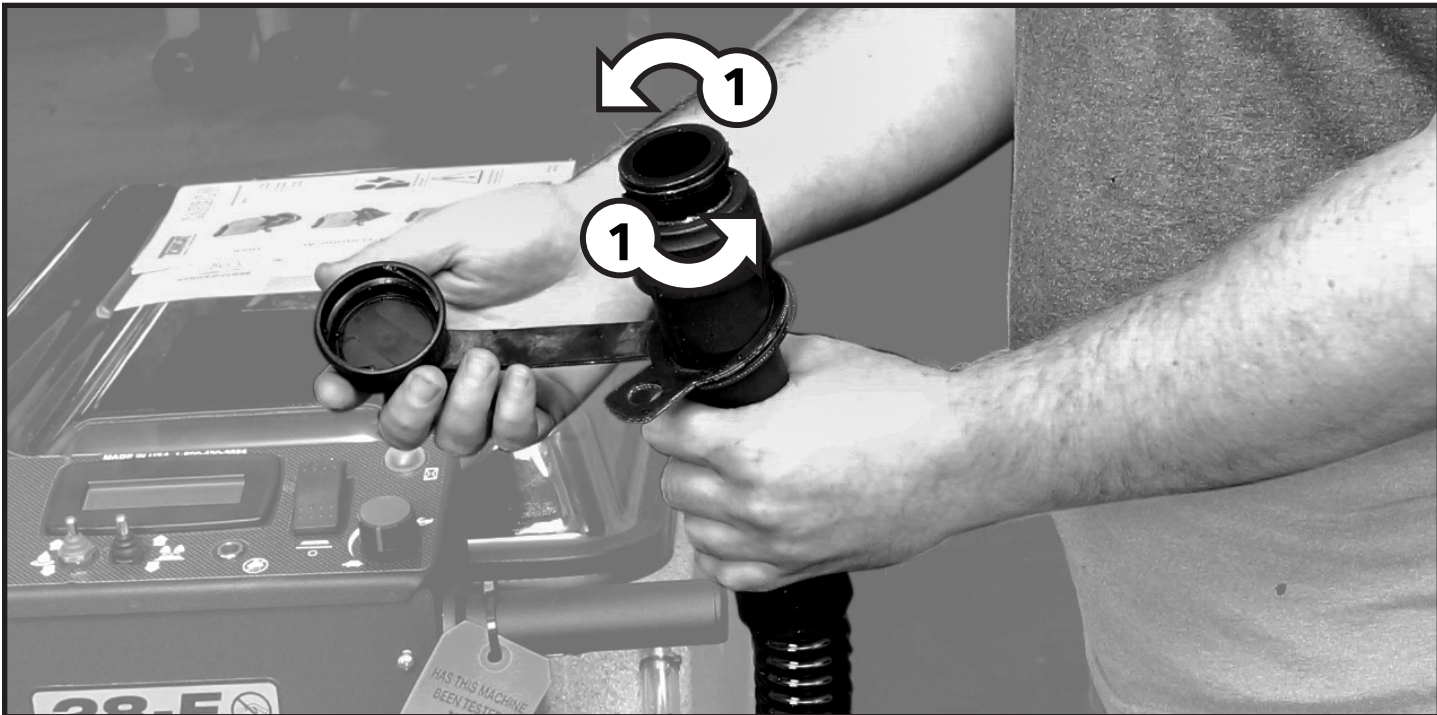


OPERATION - SCRUBBING

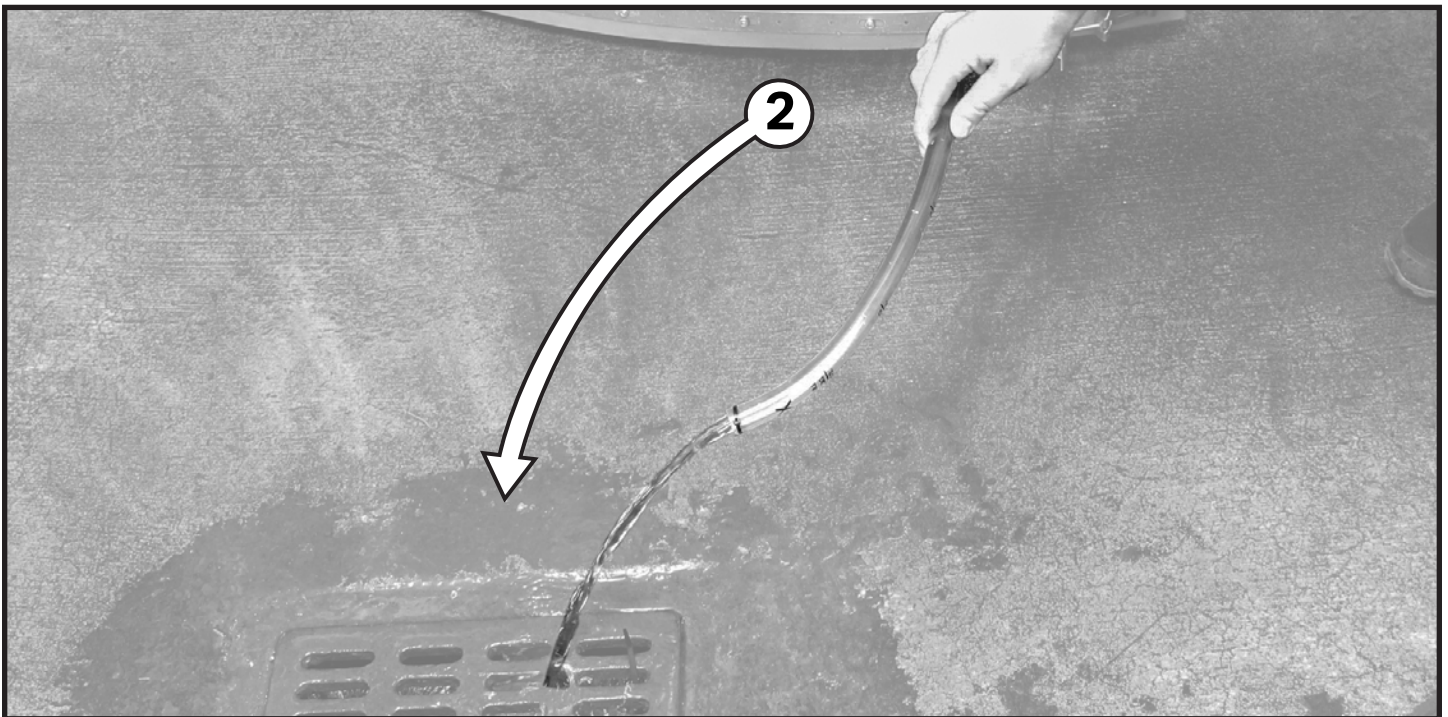
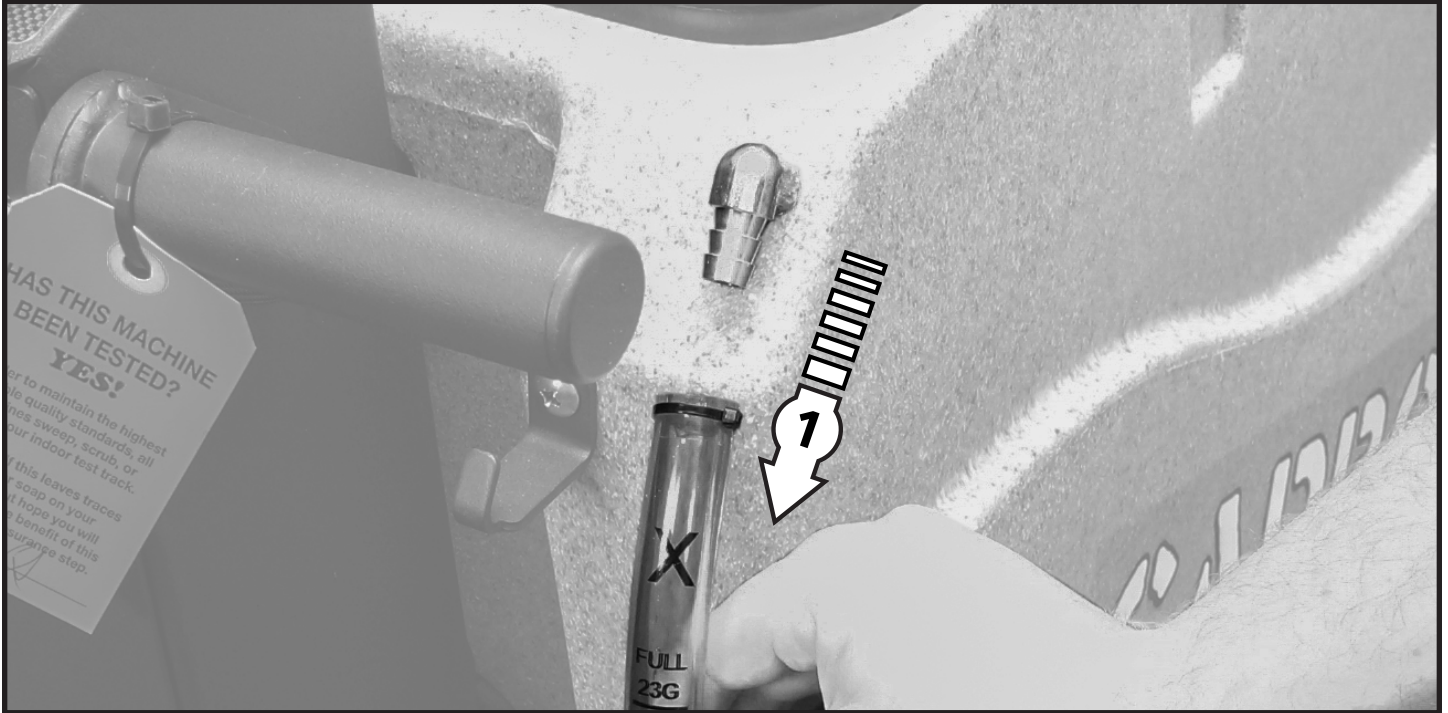




DRAINING RECOVERY TANK



DRAINING SOLUTION TANK

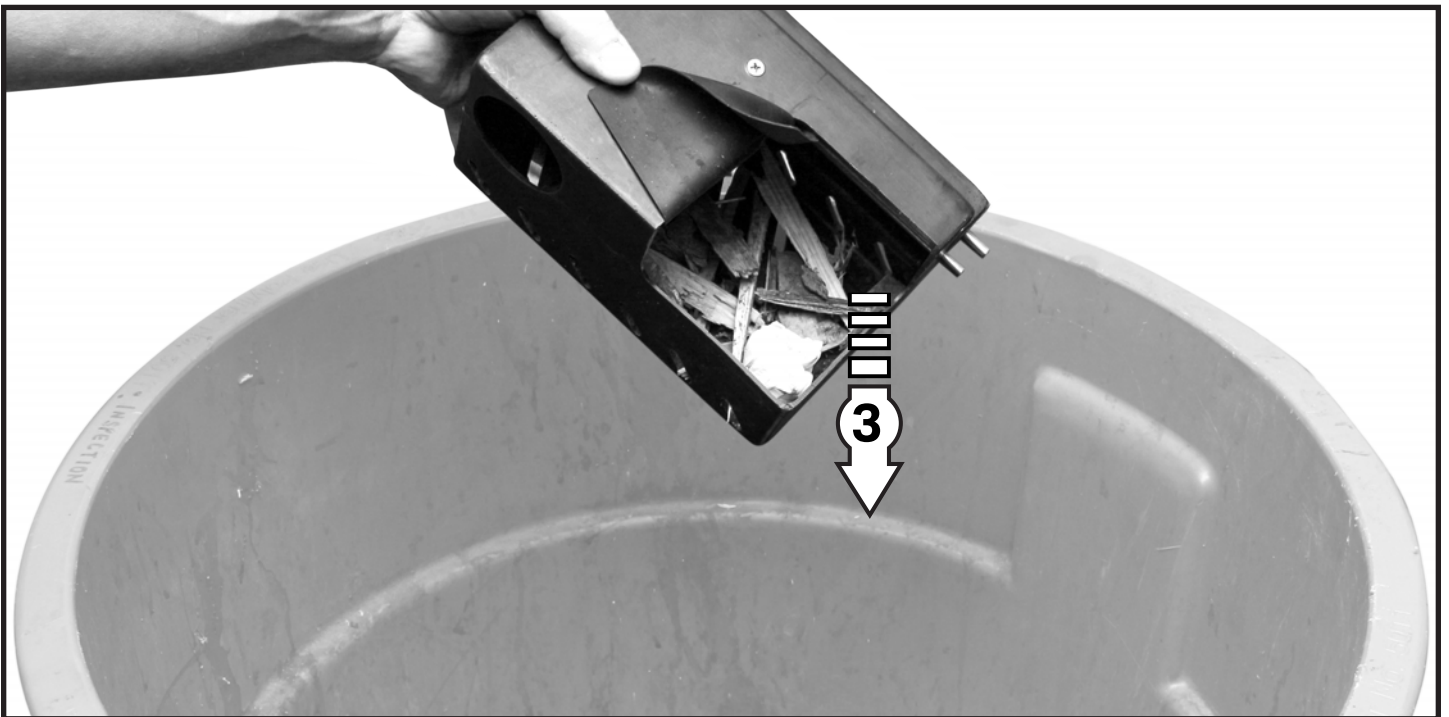
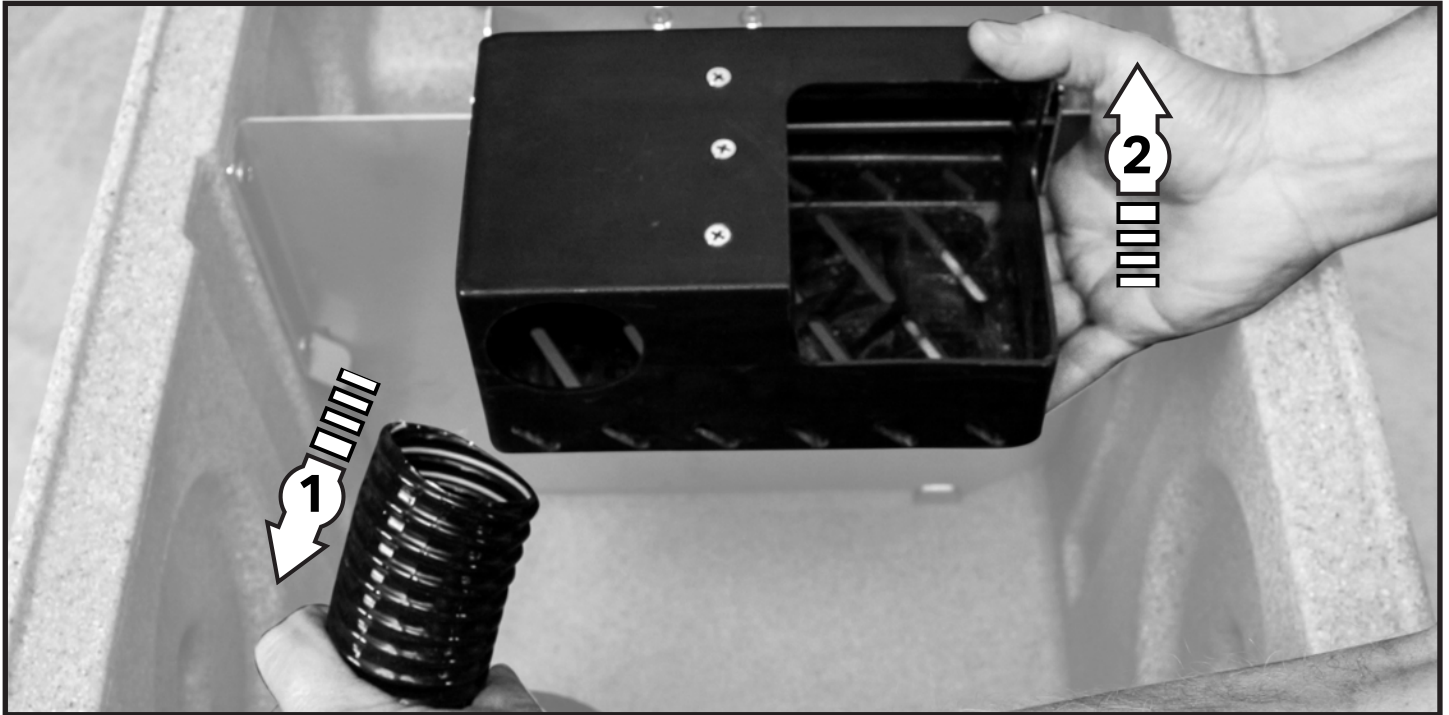




FLUSHING RECOVERY TANK

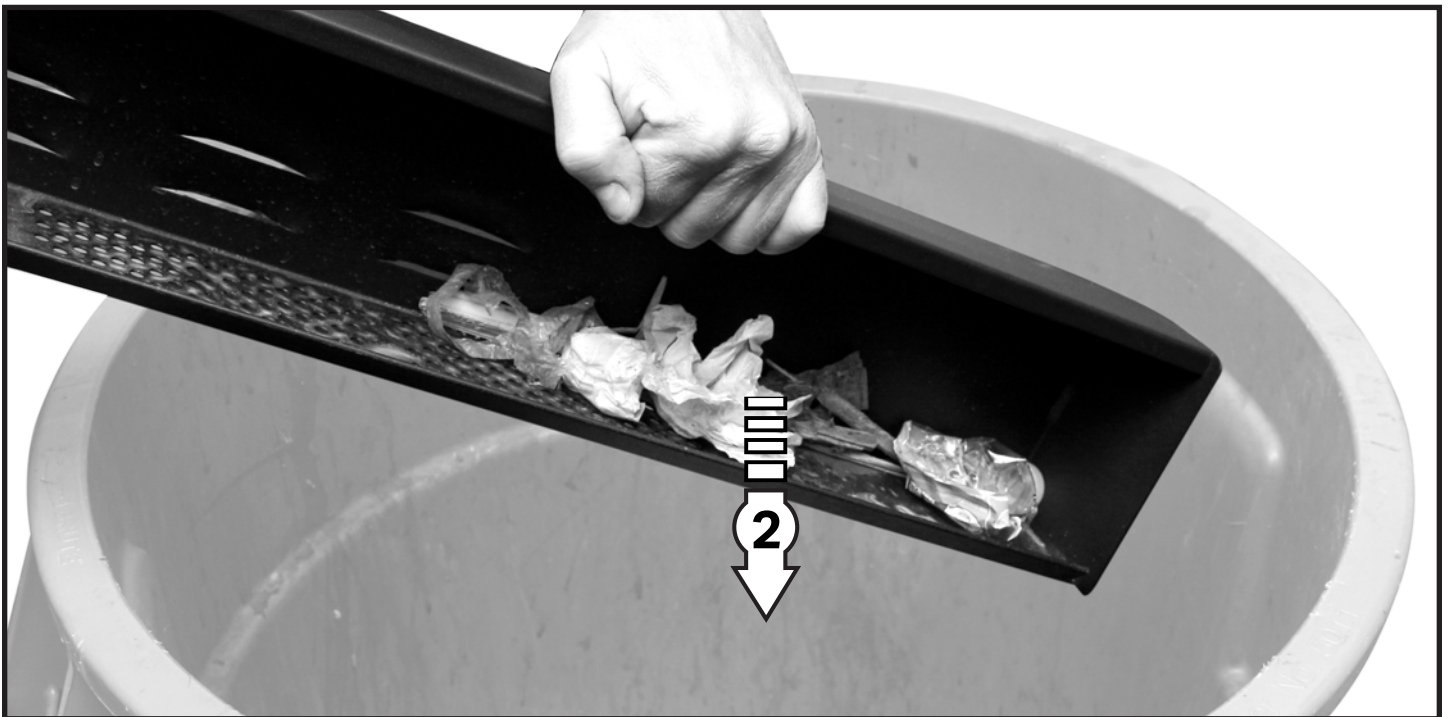
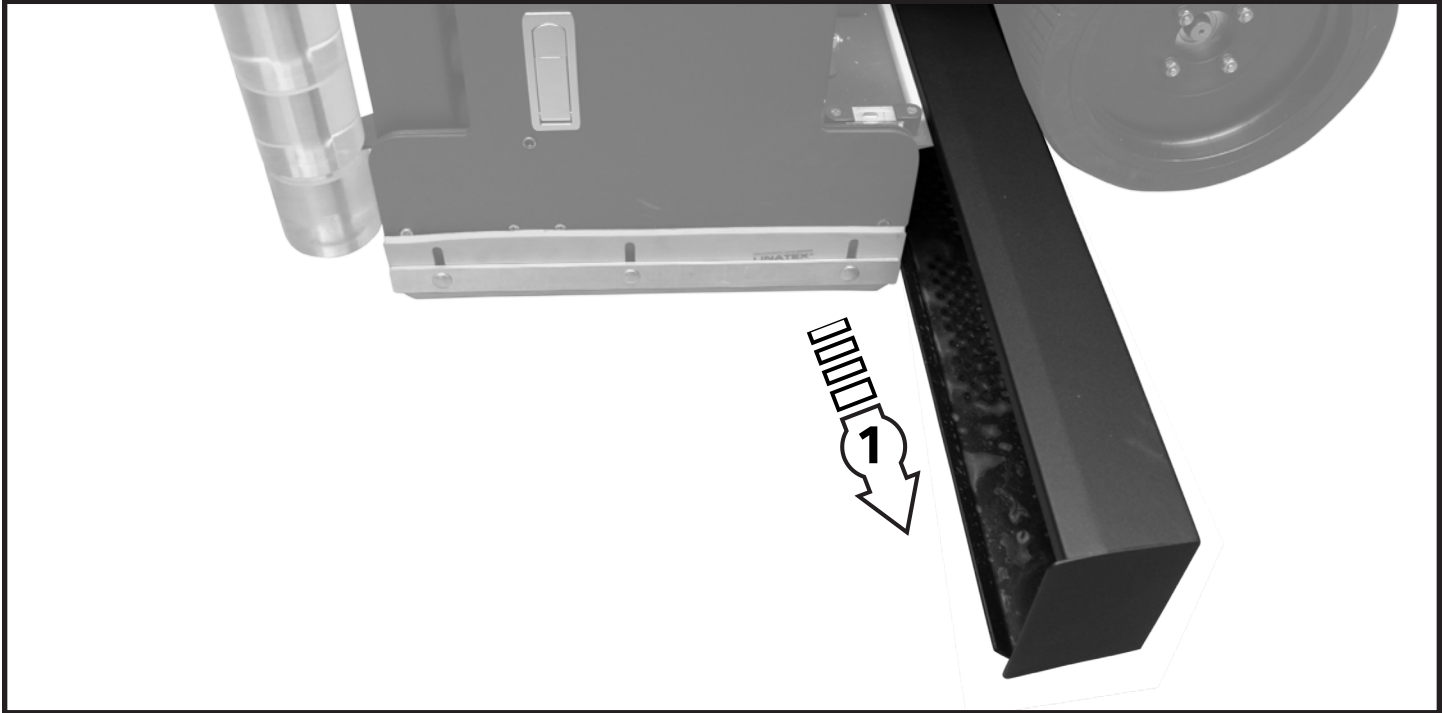


CLEAN DRAIN SAVER

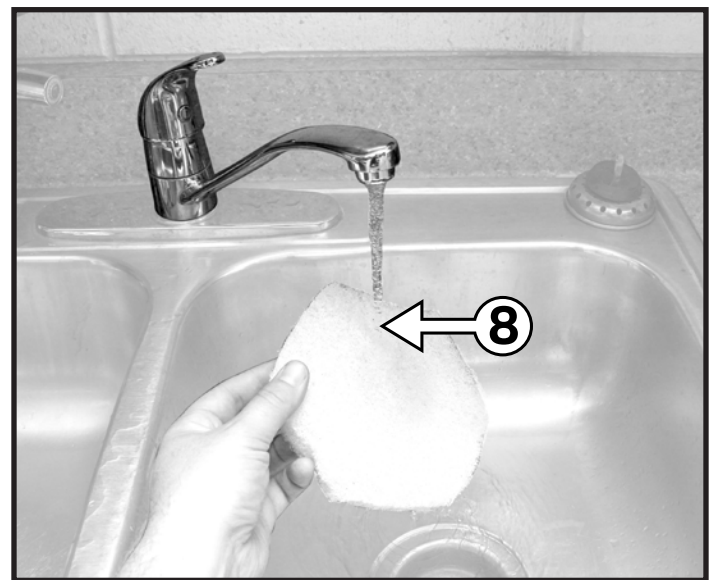
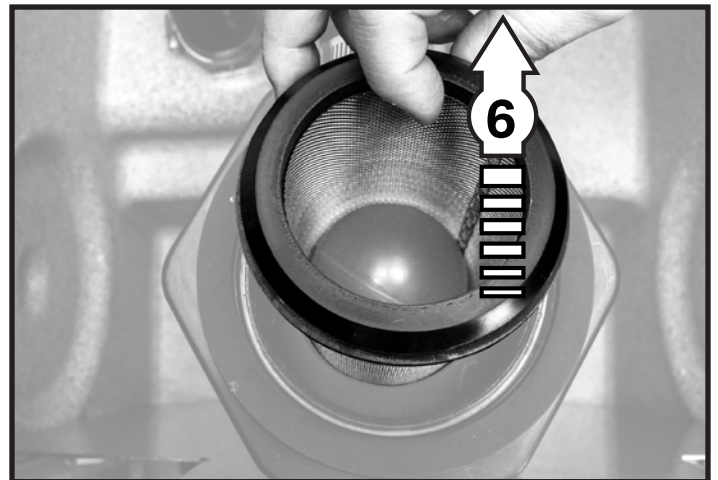
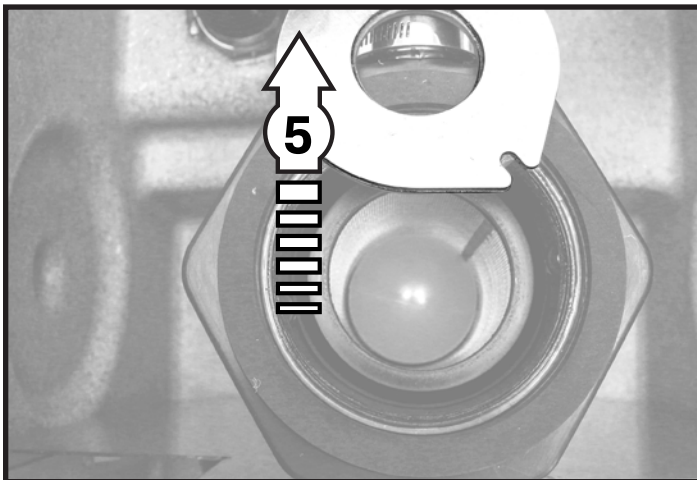
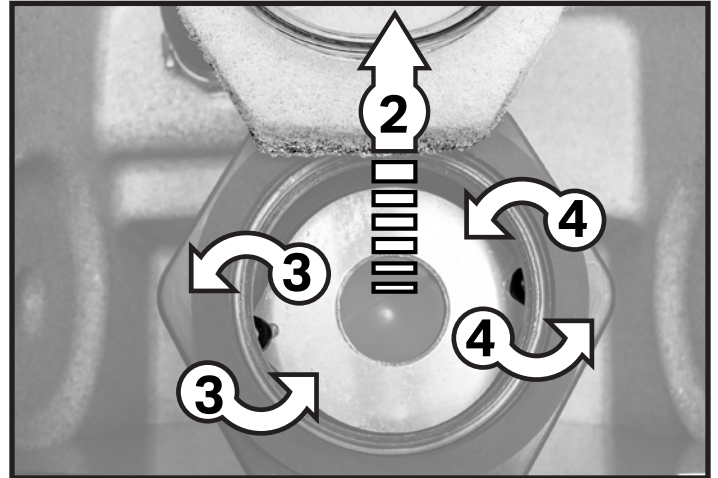
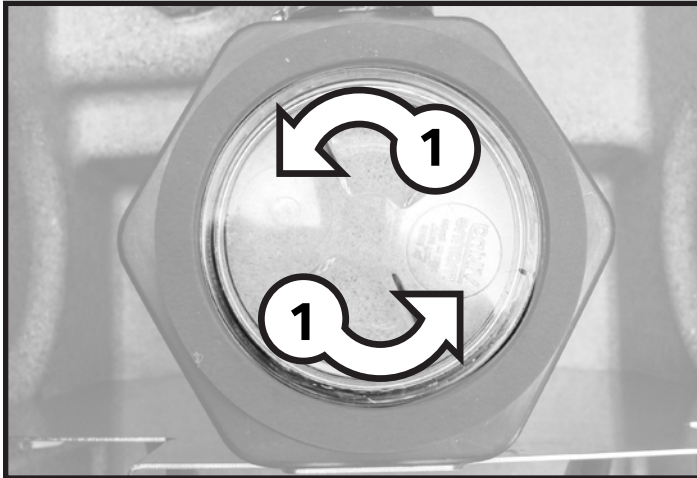




CLEAN CYLINDRICAL HOPPER

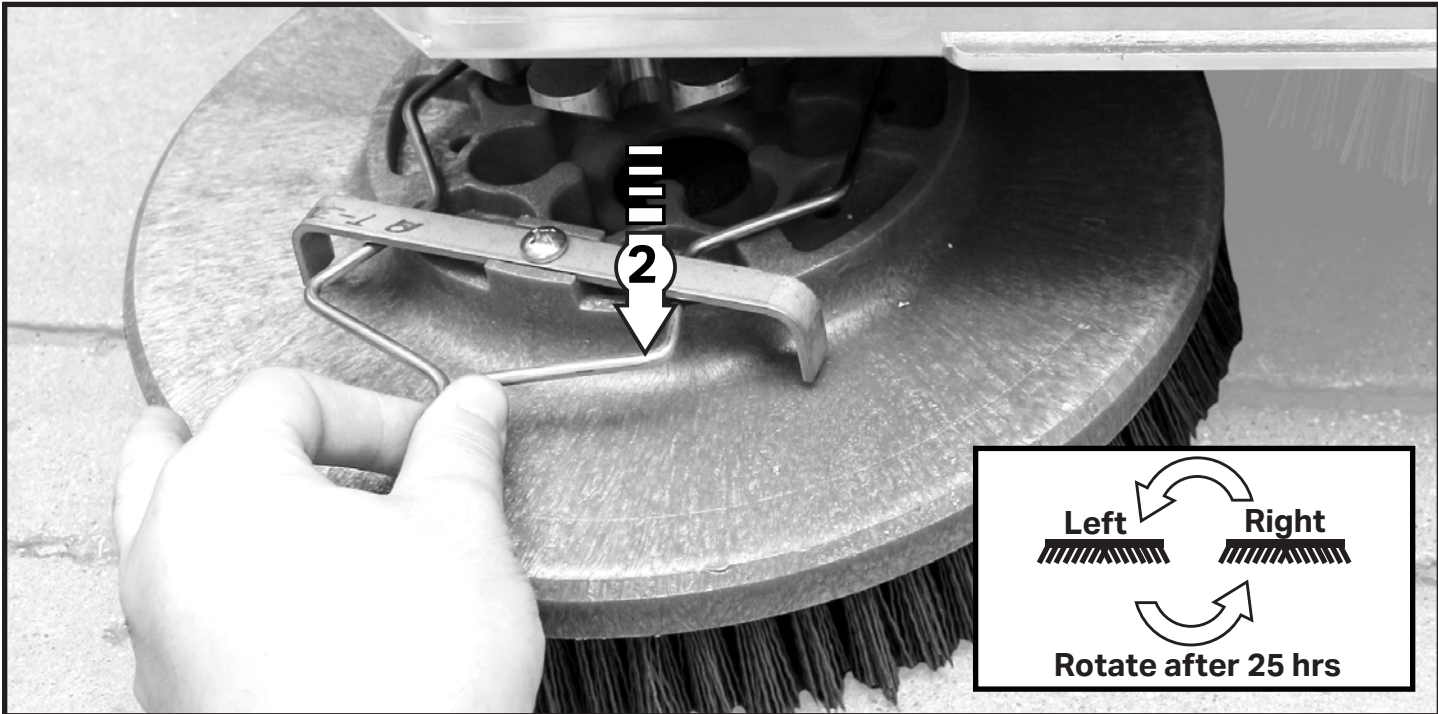


CLEAN VAC BOX SYSTEM

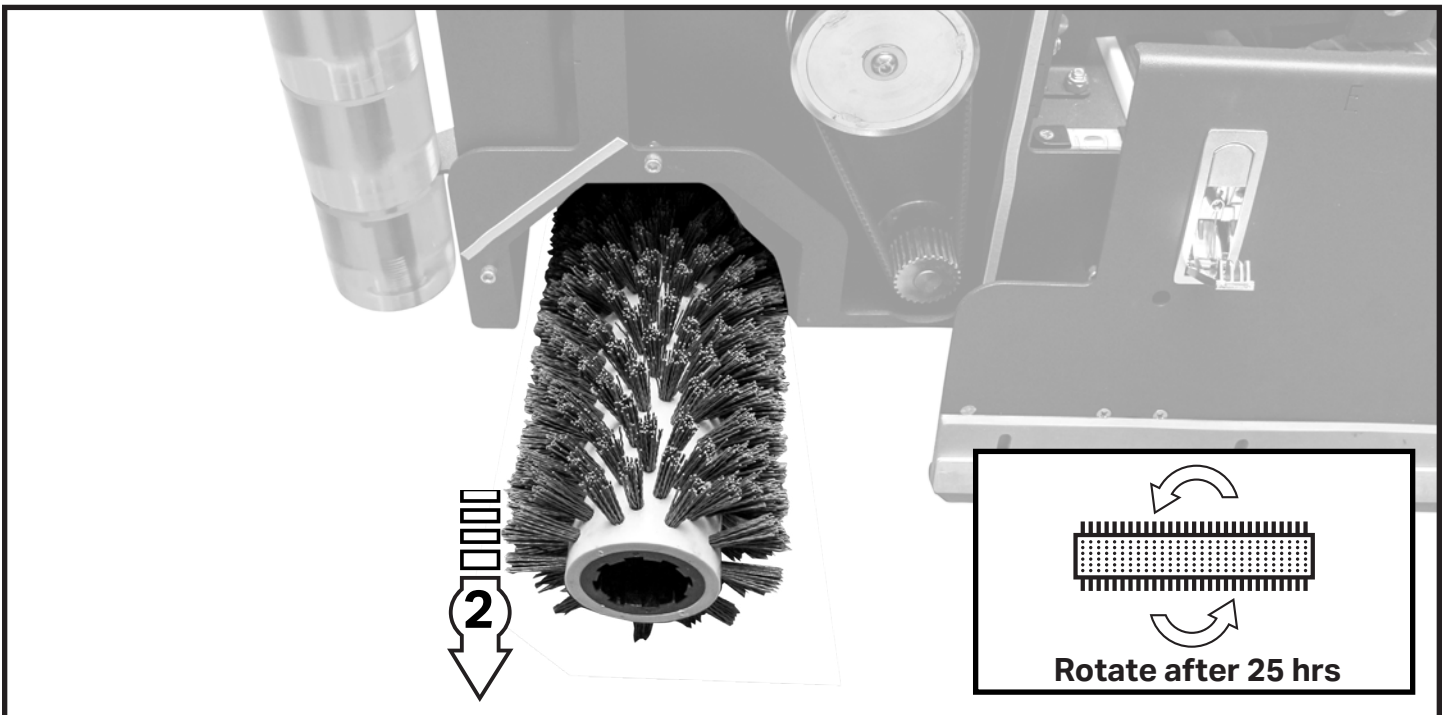
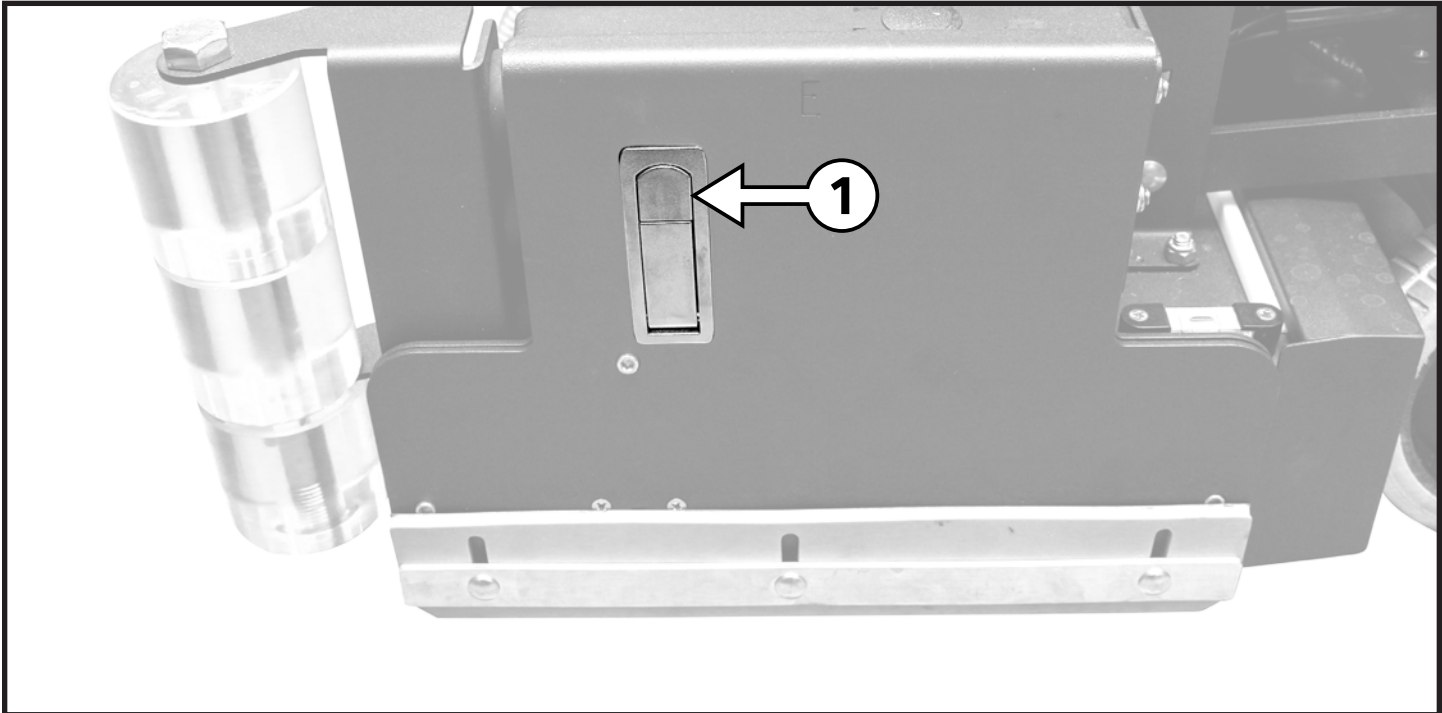
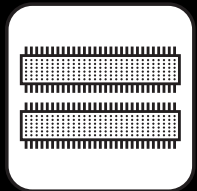


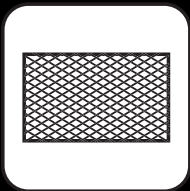


REMOVE DISK BRUSHES

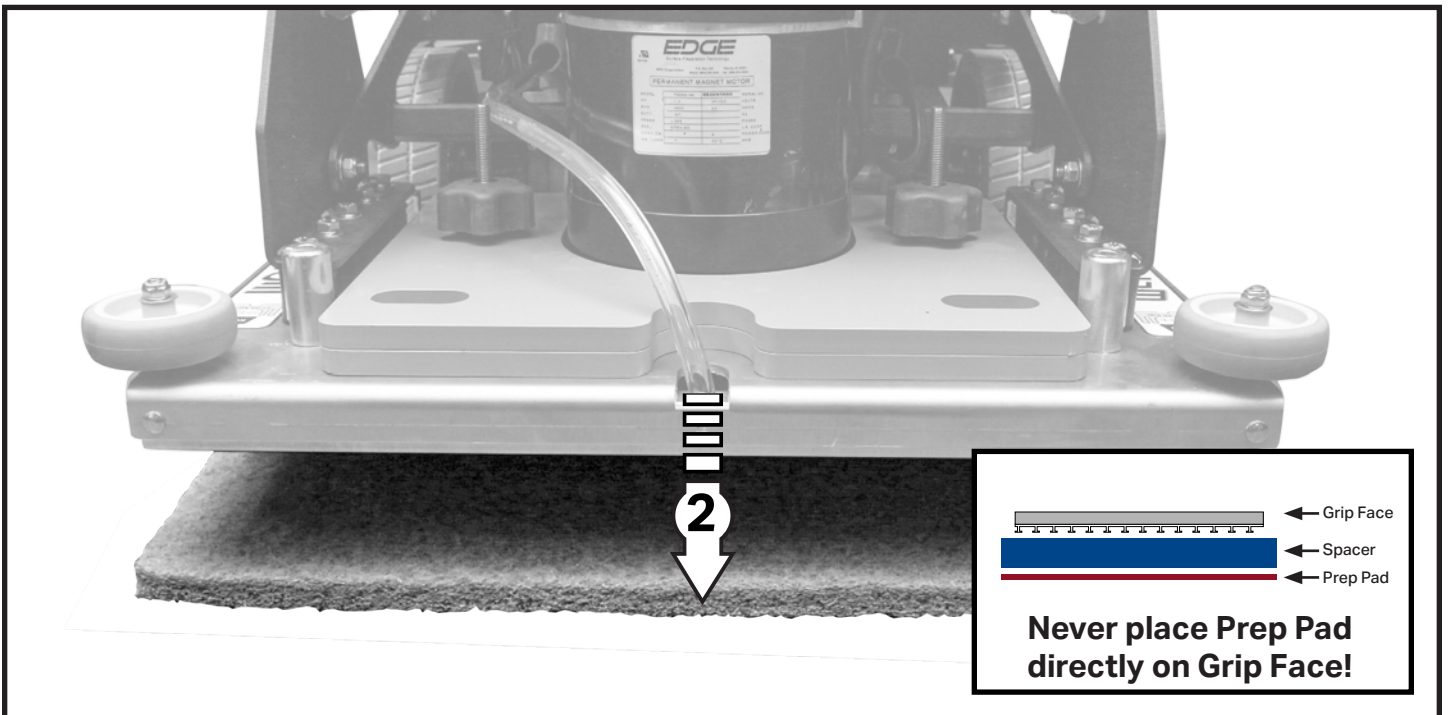
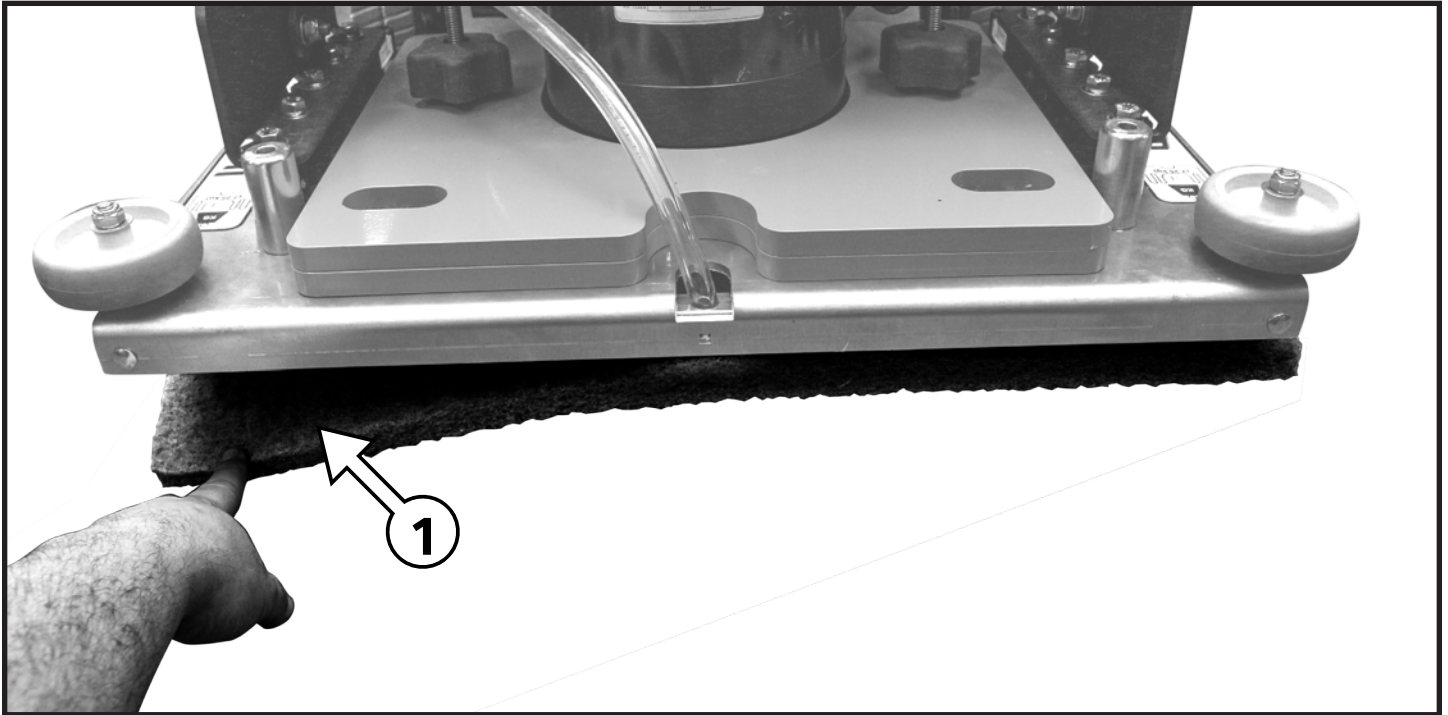


REMOVE CYLINDRICAL BRUSHES

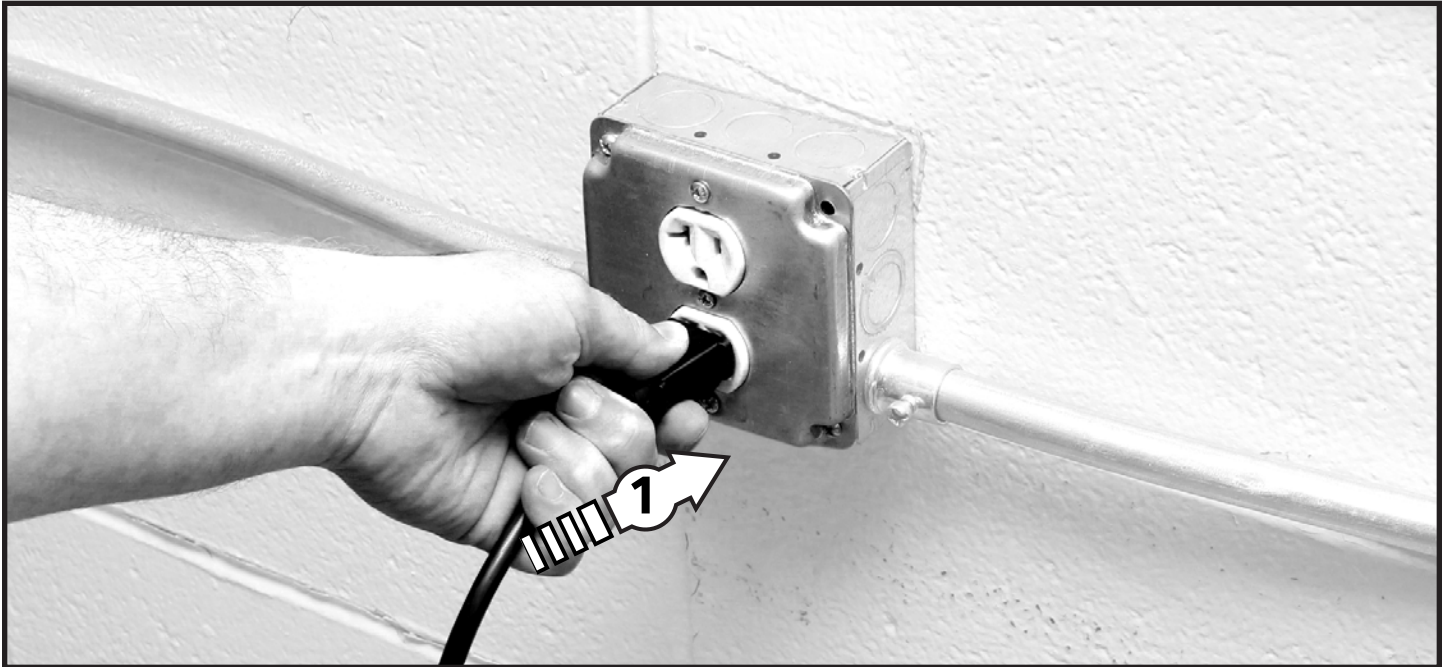
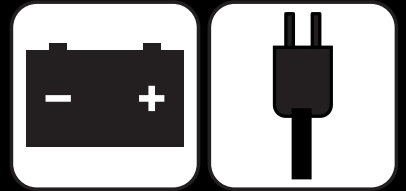




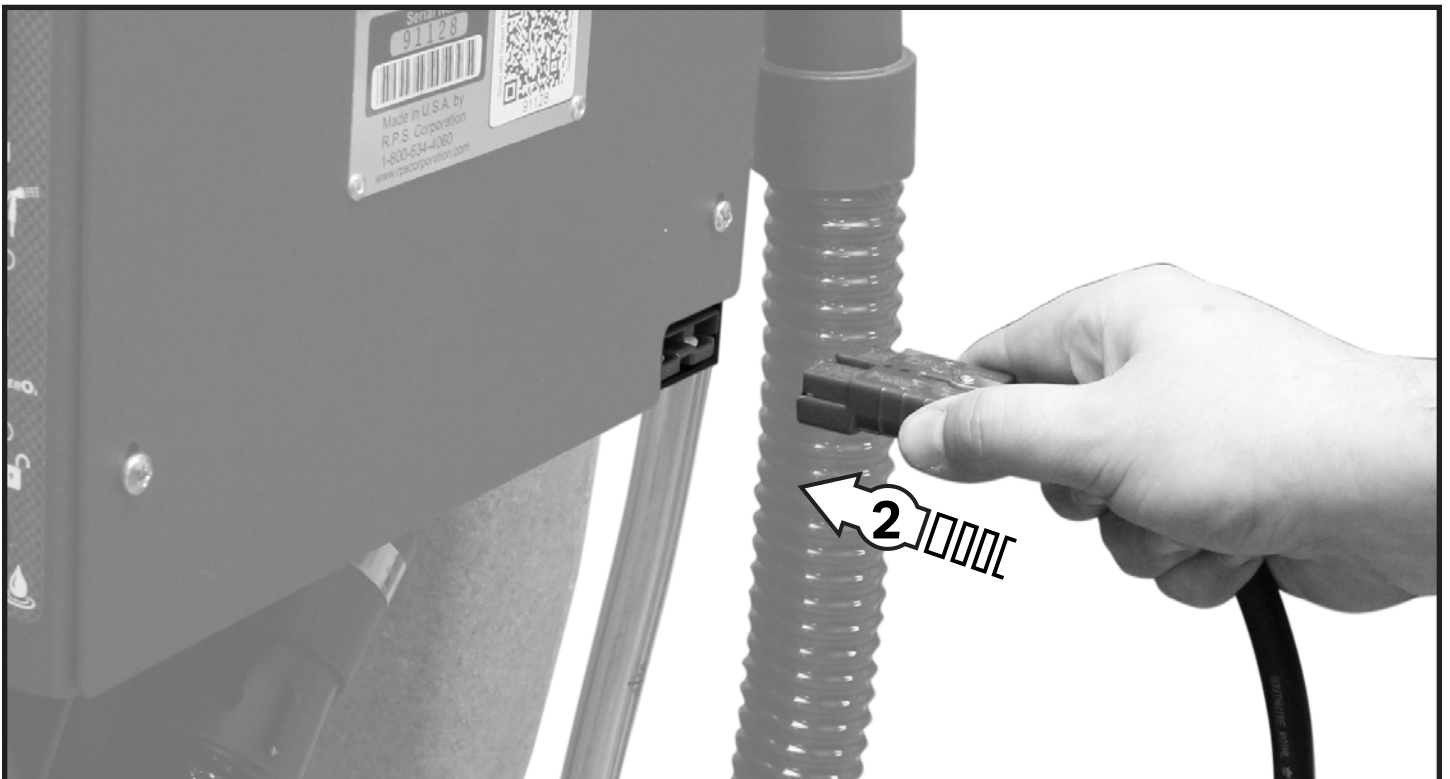
REMOVE EDGE PADS



CHARGE BATTERIES



Please refer to OEM Charger Operating Instructions for more information.





BATTERY CHARGERS

Console / WET / Domestic Chargers:



AC Power IN: 120VAC / 60Hz

DC Power OUT:

Sport: 24VDC / 12A

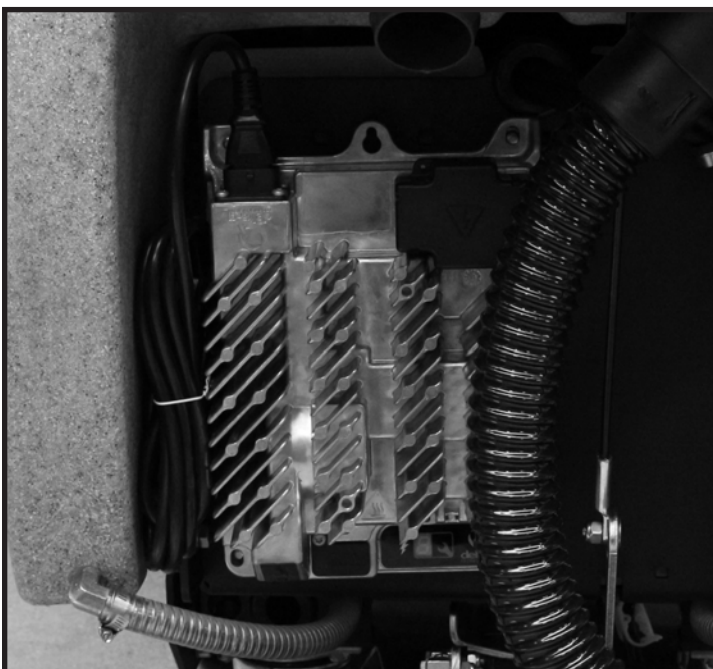
Carbon: 24VDC / 25A

Hero: 24VDC / 30A



Please refer to OEM Charger Operating Instructions for more information.

Onboard / AGM / International Chargers:



AC Power: 80-270VAC / 50-60Hz

DC Power OUT: 24VDC / 27A

Please refer to OEM Charger Operating Instructions for more information.



PM SHEET

CUSTOMER & MACHINE INFORMATION			
Customer:			Email:
Address:			Phone:
City:	State:	Zip:	Contact:
Serial #:	Model #:	Work Order #:	

NOTE: Start with Machine filled at least with ½ Tank of water. Turn ON Machine and Test Functionality of Machine

CHECK OPERATION & CONDITION OF	IN SPEC	REPAIR	PROBLEM
Key Switch			
Battery Gauge			
Deck Up / Down – Brush Switch			
Brush Pressure +/- Toggle (Optional)			
Vacuum Switch - ON / OFF			
Squeegee Lever - Up/Down			
Solution Switch - ON/OFF			
Solution Flow Lever +/-			
Green Drive Buttons - L & R			
Reverse Toggle Switch			
E-Stop (Optional)			

NOTE: Drain Solution & Recovery Tank fully. Rinse out Recovery Tank

CLEAN & INSPECT – SOLUTION TANK	IN SPEC	REPAIR	PROBLEM
Solution Fill Screen - Mesh			
Solution Fill Hose (Optional)			
Solution Inline Filter			
Vacuum Muffler Drain Hose			
Battery Drain Hose			

BRUSH CONDITION – SCRUB DECK			
Deck Curtains/Wipers	Good	Worn	Needs Replacement
Brush Sockets: (2-Disk)/(4-Cylindrical)	Good	Worn	Needs Replacement
Brush Drivers: (2-Disk)/(4-Cylindrical)	Good	Worn	Needs Replacement
Scrub Brush Fiber Length	Brush 1 Length:	Brush 2 Length:	Rotated Brushes: Y / N

CLEAN & INSPECT – SCRUB DECK	IN SPEC	REPAIR	PROBLEM
Scrub Deck Linkage Pivot Points			
Scrub Deck Lift Actuator			
Scrub Deck Level (Orbital Only)			
Scrub Motor Wires			

CLEAN & INSPECT - SQUEEGEE	IN SPEC	REPAIR	PROBLEM
Remove and Wipe off Squeegee			
Check and Rotate Blades as Needed			
Caster Wheels and Height			
Pitch Adjust			
Check Pivot and Knobs			
Squeegee Vac Hose			

CLEAN & INSPECT – RECOVERY TANK	IN SPEC	REPAIR	PROBLEM
Recovery Tank Lid & Gasket			
Vacuum Float Ball Screen			
Vacuum Box White Filter			
solution Site Tube			

CLEAN & INSPECT – DRIVE	IN SPEC	REPAIR	PROBLEM
Drive Wheels & Casters Condition			
Grease Caster Swivel			

3" COLOR LCD - MEMBRANE -ERROR CODES

Pg 1 of 2

When there is some kind of malfunctioning, the display can show an error with a short description of it.

-250: Traction shutdown

Whether the error is non-blocking (warning) or blocking, it is displayed as a single line of text in the upper part of the main screen, overriding the hour counter

Following there is the full list of errors and warnings that can appear on the display.

Such errors are divided in 2 tables showing first the blocking ones and non-blocking (warning) next.

Figure 5: Alarm and warning screen example

ERROR NUMBER	ERROR TYPE	ERROR DESCRIPTION	POSSIBLE SOLUTION
3	Blocking	The machine detected too high voltage coming from the battery cables and halted the functions	Check that the battery or the supply of power is around the range of 24V and restart the machine
4	Blocking	The machine detected voltage too low to function correctly and halted the functions	Check that the battery is correctly charged before using it and restart the machine
7	Blocking	The machine detected that the battery is charging and halted the functions	Take out the charging cable before using the machine
10	Blocking	It has passed too much time since someone touched the machine and is entered the standby mode	Restart the machine
211	Blocking	The Orion detected the potentiometer out of the allowed range	Check the potentiometer cables and the parameters value
214	Blocking	The Orion detected a temperature too high on the motors and halted the functions	Make the machine cool down for a bit and check the Orion board for any possible issue that could cause a temperature rising
230	Non blocking	There is some condition preventing the machine from starting, depending on which controls are enabled at startup	Release the pedal or the OPC input
40, 240	Blocking	There are issues between the Orion and Display CANbus communication	Check the CANbus cable and the resistance parameter on each board
250	Blocking	The traction drivers detected a current spike too high and halted the functionalities related to said motor	Check the cable and the motor itself and restart the machine
251	Blocking	The traction maximum current was too high for too much time and the functionalities were halted	Check the motor and the cables as well as the I2T parameters if everything is correct and restart the machine

3" COLOR LCD - MEMBRANE -ERROR CODES

Pg 2 of 2

253	Blocking	The traction current limitation went on for too much time and the functionalities were halted	Check if the current parameters are correct and restart the machine
254	Blocking	The Orion did not detect the traction motor at startup	Check the wirings and restart the machine
256	Blocking	The battery reached its minimum value of charge and the traction was halted to prevent wearing	Recharge the battery
290	Non blocking	The brushes drivers detected a current spike too high and halted the functionalities related to said motor	Check the cable and the motor itself and restart the machine
291	Non blocking	The brushes maximum current was too high for too much time and the functionalities were halted	Check the motor and the cables as well as the I2T parameters if everything is correct and restart the machine
293	Blocking	The brushes current limitation went on for too much time and the functionalities were halted	Check if the current parameters are correct and restart the machine
296	Non blocking	The battery reached its minimum value of charge and the brushes were halted to prevent wearing	Recharge the battery
310	Non blocking	The vacuum drivers detected a current spike too high and halted the functionalities related to said motor	Check the cable and the motor itself and restart the machine
311	Non blocking	The vacuum maximum current was too high for too much time and the functionalities were halted	Check the motor and the cables as well as the I2T parameters if everything is correct and restart the machine
313	Blocking	The vacuum current limitation went on for too much time and the functionalities were halted	Check if the current parameters are correct and restart the machine
316	Non blocking	The battery reached its minimum value of charge and the vacuum was halted to prevent wearing	Recharge the battery

NIDEC TOUCH SCREEN / MEMBRANE ERROR CODES

Membrane Panel Code	Touch screen Code	Error	Type	Description	Action	Remedy
10	100A	Bad Personality	hard/soft	Incompatible options programmed or a checksum failure	The machine is disabled or continues operating with factory default parameters	Check programming options and/or reprogram EEPROM
11	110A	Initial throttle fault	soft	Throttle is engaged at power up preventing a successful return to idle state	Machine remains in a pre-idle condition until the active throttle condition goes away	Take your foot off the gas
12	120A		hard			
13	130A	Memory fault	hard/soft	An error was detected during an EEPROM read access	The machine is disabled or continues operating with factory default parameters	Cycle keyswitch. If problem persists change control board
14	140A	Dead battery	hard	The battery voltage has dropped below NN.n Volts	The machine is disabled	Charge or replace batteries
15	150A	Low battery charge	soft	The battery voltage has dropped below NN.n Volts and all but the transport motor have been disabled	All but the transport motor are disabled	Charge battery
16	160A	Overheat CPU	hard	The microcontroller hardware has had an over temperature failure	The controller is switched off	Keyswitch off, wait ten minutes, keyswitch on. If problem persists change control board
17	170A					
18	180A	Transport idle current fault	hard	An abnormally high idle current has been detected in the transport motor (operational motor)	The machine is disabled	
19	190A	Brush idle current fault	soft	An abnormally high idle current has been detected in the brush motor (operational motor)	Brush, deck actuator and water/suds are disabled	
20	200A	Vacuum idle current fault	soft	An abnormally high idle current has been detected in the vacuum motor (operational motor)	Vacuum motor is disabled	
21	210A	Squeegee idle current fault	soft	An abnormally high idle current has been detected in the squeegee motor (operational motor)	Squeegee motor is disabled	
22	220A		soft			
23	230A	Transport motor relay not open	hard	The main traction relay was detected closed during power on	The machine is disabled	Keyswitch off, wait ten seconds, keyswitch on. If problem persists change control board
24	240A	Transport motor relay not closed	hard	The main traction relay was detected open after being energized during power on	The machine is disabled	
25	250A	Throttle fault	hard	An illegal voltage has been read from the throttle feedback circuit	The machine is disabled	Check throttle action and voltages
26	260A	Brake fault	hard	An illegal voltage has been read from the brake feedback circuit	The machine is disabled	
27	270A	Alarm fault	soft			
28	280A	Auxilliary output 1 fault	soft			
29	290A	Auxilliary output 2 fault	soft			
68	680A	Auxilliary output 3 fault	soft			
30	300A	Deck actuator idle current over limit	soft	An abnormally high idle current has been detected in the deck actuator motor	Brush, deck actuator and water/suds are disabled	

NIDEC TOUCH SCREEN / MEMBRANE ERROR CODES

Membrane Panel Code	Touch screen Code	Error	Type	Description	Action	Remedy
31	310A	Transport motor stalled	hard	An energized transport motor is not rotating		
32	320A	Transport motor circuit current over limit	hard	There is excessive current in the transport motor drive circuit		
33	330A	Transport motor circuit current over limit	hard	There is excessive current in the transport motor drive circuit	The machine is disabled	
34	340A	Brush motor current over software limit	soft	The brush motor current has exceed the software limit	Brush, deck actuator and water/suds are disabled	
35	350A	Brush motor current over hardware limit	soft	The brush motor current has exceed the absolute hardware limit	Brush, deck actuator and water/suds are disabled	
36	360A	Open circuit detected in brush motor	soft	An electrically open condition has been detected in the brush motor circuit	Brush, deck actuator and water/suds are disabled	
37	370A					
38	380A					
39	390A					
40	400A	Transport motor current over hardware limit	hard	The transport motor current has exceed the absolute hardware limit	The machine is disabled	
41	410A	Transport motor current over hardware limit	hard	The transport motor current has exceed the absolute hardware limit	The machine is disabled	
42	420A					
43	430A	12VDC power supply outside acceptable limits	hard	The 12VDC supply voltage is less than 11.75V or greater than 12.25 volts	The machine is disabled	check batteries
44	440A					
45	450A	Deck actuator motor current over software limit	soft	The deck actuator current has exceed the software limit	Brush, deck actuator and water/suds are disabled	
46	460A	Vacuum motor current over hardware limit	soft	The vacuum motor current has exceed the software limit	The vacuum motor is disabled	
47	470A	Deck actuator motor current over hardware limit	soft	The deck actuator current has exceed the absolute hardware limit	Brush, deck actuator and water/suds are disabled	
48	480A	Squeegee motor current over software limit	soft	The squeegee motor current has exceed the software limit	The squeegee actuator is disabled	
49	490A	Vacuum motor current over software limit	soft	The vacuum motor current has exceed the software limit	The vacuum motor is disabled	
50	500A	Squeegee motor current over hardware limit	soft	The squeegee motor current has exceed the absolute hardware limit	The squeegee actuator is disabled	
51	510A					
52	520A	Open circuit detected in vacuum motor	soft	An electrically open condition has been detected in the vacuum motor circuit	The vacuum motor is disabled	
53	530A					
54	540A					
55	550A	Open circuit detected in deck actuator	soft	An electrically open condition has been detected in the deck actuator circuit	Brush, deck actuator and water/suds are disabled	
56	560A					
23	570A	Transport motor relay not open	hard	The main traction relay was detected closed during power on	The machine is disabled	Keyswitch off, wait ten seconds, keyswitch on. If problem persists change control board
23	580A	Transport motor relay not open	hard	The main traction relay was detected closed during power on	The machine is disabled	Keyswitch off, wait ten seconds, keyswitch on. If problem persists change control board
59	590A	Squeegee motor stalled	soft	An energized squeegee actuator is not moving	The squeegee actuator is disabled	
60	600A	Deck actuator stalled	soft	An energized deck actuator is not rotating	Brush, deck actuator and water/suds are disabled	
61	610A					
62	620A	Brush motor stalled	soft	An energized brush motor is not rotating	Brush, deck actuator and water/suds are disabled	
63	630A	vacuum motor stalled	soft	An energized vacuum motor is not rotating	The vacuum motor is disabled	
64	640A					
65	650A					
66	660A	Overheat MOSFET	hard	The transport motor drive circuit has had an over temperature failure	The machine is disabled	
67	670A	Battery over voltage	hard	The battery voltage is above acceptable limits	The machine is disabled	check batteries / wiring

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