ONYX

TECHNOLOGY POWERING A CLEANER FUTURE

SXi

OPERATOR MANUAL

SXi LFP LITHIUM-ION BATTERY BURNISHER

This Guide provides necessary instructions on machine operation and maintenance. Before operation or use of this machine, please carefully read and understand this Guide.

REVA 10/24

WARNING: Read and understand the Operator Manual before use. Failure to follow instructions may result in electrocution, fire, and/or serious injury.

Website: https://www.onyxsolutions.com

No further notice will be given for possible change of specification and parts.

Machine Information:

Please fill in when installing for future reference.

Model number: _____
Machine serial number: _____
Sales representative: _____
PO number: _____
Date PO placed: _____
Installation Date: _____

SXi
LFP LITHIUM-ION BATTERY BURNISHER

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12605 Commerce Station Dr • Suite 700
Huntersville, NC 28078
704.827.9368

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PARTS ORDERING

Replacement parts can be purchased by either: contacting your service center or dealer, purchasing directly from onyxsolutions.com/shop, calling us at 704-827-9368, or emailing us at sales@onyxsolutions.com.

When ordering replacement parts, please refer to the published Illustrated Parts List (IPL) located at onyxsolutions.com/support.

WARRANTY CLAIMS

ONYX Warranty Statement (policy) and Warranty Claim form can be found on the SUPPORT page of the ONYX website, onyxsolutions.com/support.

TECHNICAL SUPPORT

Technical support is available by submitting a Technical Ticket (helpdesk ticket) at onyxsolutions.com/support, or by contacting us at 704-827-9368.

PROTECT THE ENVIRONMENT

Please recycle or dispose the machine and/or packaging material, battery, toxic liquids, oils, etc. according to your local regulations on waste disposal. This is an important step to protect the environment and ensure the safety of others.

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SAFETY PRECAUTIONS

This machine is suitable for industrial and commercial burnishing, polishing, or stripping of indoor floors with hard surfaces. All other uses are not approved.

The following terms and symbols are used to identify statements of potential hazards which affect safety of yourself and others. Read and observe all safety statements found on this Operator Manual and on your machine.

DANGER: The signal word DANGER indicates a hazardous situation which, if not avoided according to the instruction found in this Operator Manual or on your machine, will result in death or serious bodily injury.

WARNING: The signal word WARNING indicates a hazardous situation which, if not avoided according to the instruction found in this Operator Manual or on your machine, could result in death or serious bodily injury.

CAUTION: The signal word CAUTION indicates a hazardous situation which, if not avoided according to the instruction found in this Operator Manual or on your machine, could result in minor or moderate injury or damage to your engine or property.

The following safety symbols are used on the product and in this manual to alert the operator of potential safety hazards. Read them carefully, and understand their meaning.

The following safety symbols are used on the product and in this manual to alert the operator of potential safety hazards. Read them carefully, and understand their meaning.

Indicates DANGER, WARNING, or CAUTION

WARNING: Read and understand the Operator Manual before use. Failure to follow instructions may result in electrocution, fire, and/or serious injury.

WARNING: This machine contains a Lithium Iron Phosphate (LFP) battery. Risk of fire and explosion if improperly handled or disposed of. Do not expose to high temperatures, open flames, or other sources of ignition. Do not disassemble, crush, puncture, or modify the battery. Do not use in series or parallel with unapproved batteries.

WARNING: Handle the battery with care. Avoid dropping or jarring. Inspect regularly for signs of damage or swelling. Never use a damaged battery.

WARNING: Do not use machine near flammable materials, liquids, vapors, or combustible dust.

WARNING: Keep the battery dry. Avoid moisture or water exposure to prevent electrical shorts or corrosion. Do not use if the battery or electrical components have been exposed to rain or water.

WARNING: Electrocution risk. Disconnect the battery power cord and charging power cord before servicing the machine.

WARNING: Rotating pads and parts under the machine frame can cause serious injury. Keep hands and feet away.

This battery is a maintenance free battery.

WARNING: Do not attempt to open the battery. Do not alter the battery in any way. Do not attempt any battery repair.

The battery is a non-spillable Lithium Iron Phosphate battery. The battery does not require adding of any fluid such as water or battery acid.

WARNING: The following information explains other safety precautions and potential hazards during machine operation:

- Do not operate the machine unless you have read and understood the operator manual.
- Do not operate unless you have been trained and authorized.
- Do not operate the machine unless all safety equipment such as guards and shrouds are in place.
- Do not operate the machine if the machine is not functioning normally.
- Stop the machine immediately and have the machine serviced by qualified personnel if you feel, hear, or experience any vibration or unusual noise.
- Do not operate the machine if the pad is off-center, damaged, or if the pad retainer is missing.

WARNING: (continued from prior page) The following information explains other safety precautions and potential hazards during machine operation:

- Take care to avoid slipping or falling.
- Do not operate the machine on sloped surfaces.
- Wear appropriate anti-skid shoes.
- Walk slowly, especially during turning and stopping. Avoid quick or sharp changes in direction.
- Pay attention for bystanders and keep distance.
- Proceed slowly and carefully when approaching a location of poor visibility, such as the end of an aisle or where walkways intersect.
- Look behind yourself prior to operating machine in reverse. Do not operate in reverse for extended periods.
- Turn off machine before attempting to replace pad or making adjustments to machine balance or pad pressure.
- This machine includes an Electrostatic Chain to dissipate static electricity and prevent electric shock or equipment damage. Never operate without the Electrostatic Chain.

WARNING: The following information explains other safety precautions and potential hazards during machine storage:

- Do not let children play on or around the machine.
- Do not leave the machine unattended in places populated with bystanders
- Do not store the machine in places where unauthorized or untrained personnel could access or use the machine.
- Turn off machine before storing.

WARNING: The following information explains other safety precautions and potential hazards during machine repair & maintenance:

- Turn off the key and disconnect the battery before conducting any machine repair.
- Do not attempt repair while any parts are rotating.
- Do not wear loose jacket, shirt, or over sleeve.
- Wear protective gloves and eye protection when conducting any machine repair, and especially when contacting battery, wires, or other electronic components.
- Do not attempt to open the battery.
- Use only the replacement parts provided or recognized by the manufacturer.
- All maintenance and repairs must be carried out by qualified personnel.
- Do not alter the machine in any way, other than advised by the manufacturer.
- Some parts including motor, motor controller, charger, belts, and pulleys, can become hot enough to cause burns. Allow these parts to cool before conducting any maintenance or repairs.

SAFETY PRECAUTIONS

WARNING: The following information explains other safety precautions and potential hazards during transportation:

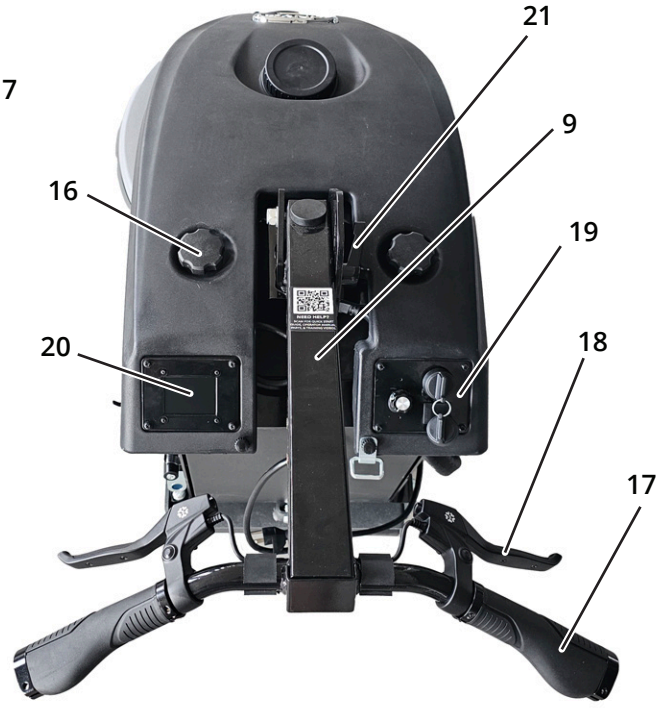
- Turn off the key and disconnect the battery before transporting the machine.
- This machine contains a Lithium Iron Phosphate battery. Observe and follow any and all rules, regulations, and ordinances when transporting the machine.
- Secure the machine with rope or straps, when transporting on truck or trailer.
- The machine is heavy. Take care when pushing the machine up or down a ramp. Do not attempt to use a ramp with excessive incline angle or a ramp that is wet or slippery.

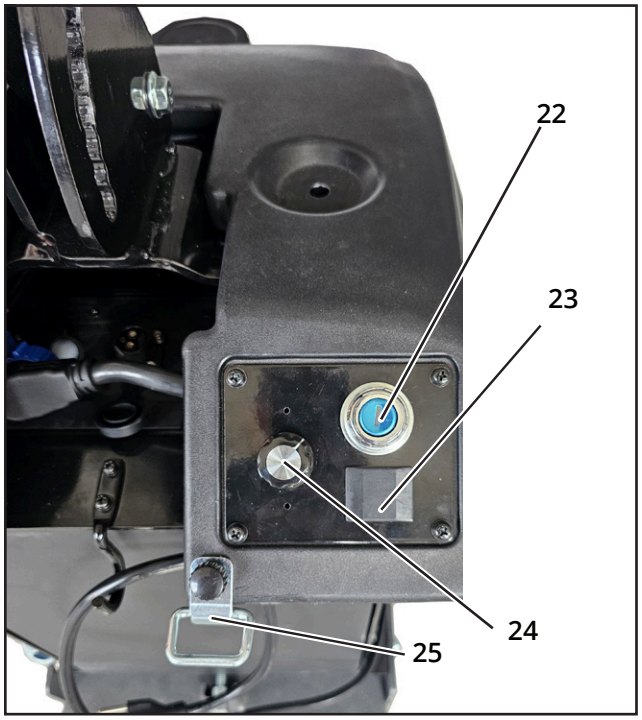
PROPOSITION 65 WARNING: Battery posts, terminals, and related accessories can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling. For more information go to www.P65Warnings.ca.gov.

MACHINE SPECIFICATIONS

Working Width	21, 24, 27 inches
Motor Power	5 HP (3.75 kw)
System Voltage	72 V
Battery Technology	Lithium Iron Phosphate (LFP)
Battery Capacity (Single Battery)	60 AH = 4.32 kWH
Battery Capacity (Dual Battery)	120 AH = 8.64 kWH
Battery Weight	80 lbs per battery
Battery Life	2,500 cycles
Runtime (Single Battery)	2.0 Hrs*
Runtime (Dual Battery)	4.0 Hrs*
Battery Charge Time	4.8 Hrs per battery (zero-to-full charge)
Productivity	Up to 34,000 Sq Ft Per Hour
Pad Speed	1,050 - 1,800 RPM (burnishing configuration)
Sound Level	<63 dBa
Pad Pressure (head weight)	20-120 lbs (variable)
Machine Dimensions	29”W x 64”L x 42”H
Machine Weight	245 lbs (1 battery), 325lbs (2 Batteries)
Water/Solution Tank	10 Gallons (disconnected in burnisher mode)

1.	Shroud
2.	Shroud Seal
3.	Lifting Handle
4.	Deck
5.	Front Bearing Housing
6.	LED Light Strip
7.	Machine Cover/Water Tank
8.	Water Fill Opening
9.	Handle
10.	Dust Chute
11.	Dust Chute Cover
12.	Water Level Gauge
13.	Kickstand
14.	Crank Tool
15.	Dust Bag Hook
16.	Cover Wingbolts
17.	Grips
18.	Grip Switch
19.	Control Panel
20.	LCD Display Screen
21.	Handle Adjustment Knob
22.	Key Switch
23.	Water Switch*
24.	Speed Dial
25.	Spray Bottle Hanger
26.	Battery Tray
27.	Battery Tray Crank
28.	Power Cord
29.	Power Cord Hook
30.	Battery Position Indicator
31.	Dust Bag
32.	Pad & Pad Driver
33.	Pad Retainer/Holder
34.	Front Wheels
35.	Rear Caster
36.	Electrostatic Chain
37.	Battery (Front)
38.	Battery (Rear)
39.	Battery Discharge Cable
40.	Battery Charge Cable
41.	Motor Controller
42.	Motor
43.	Converter
44.	Charger
45.	24V Voltage Regulator
46.	Tilt Switch
47.	Charger Splitter
48.	Belt Tensioner Bolt
49.	Battery Strap

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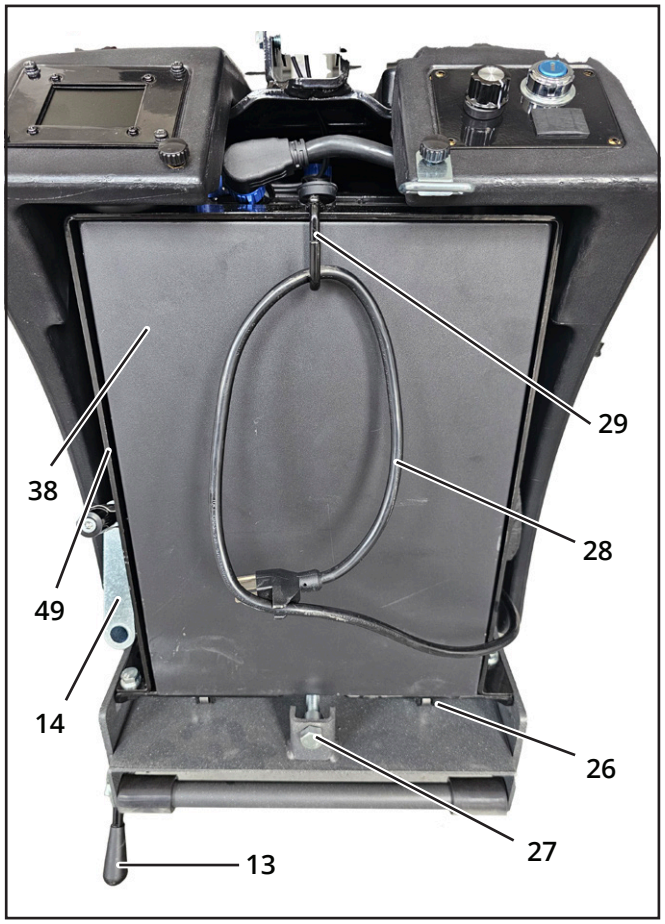
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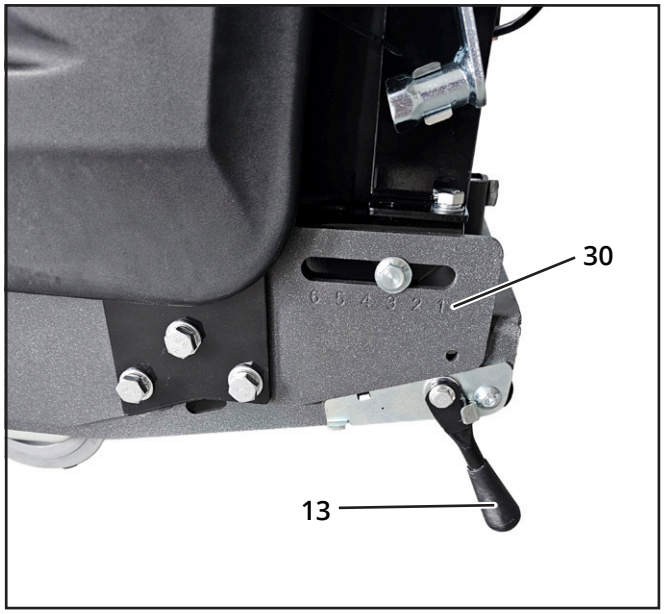
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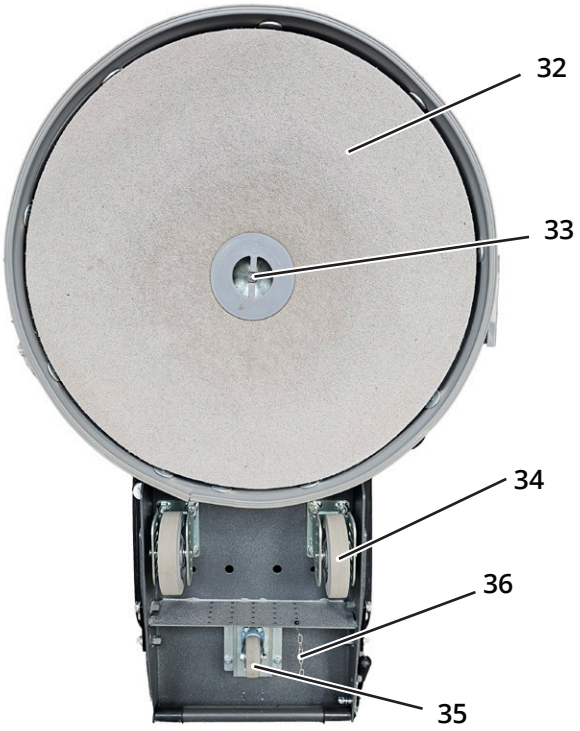
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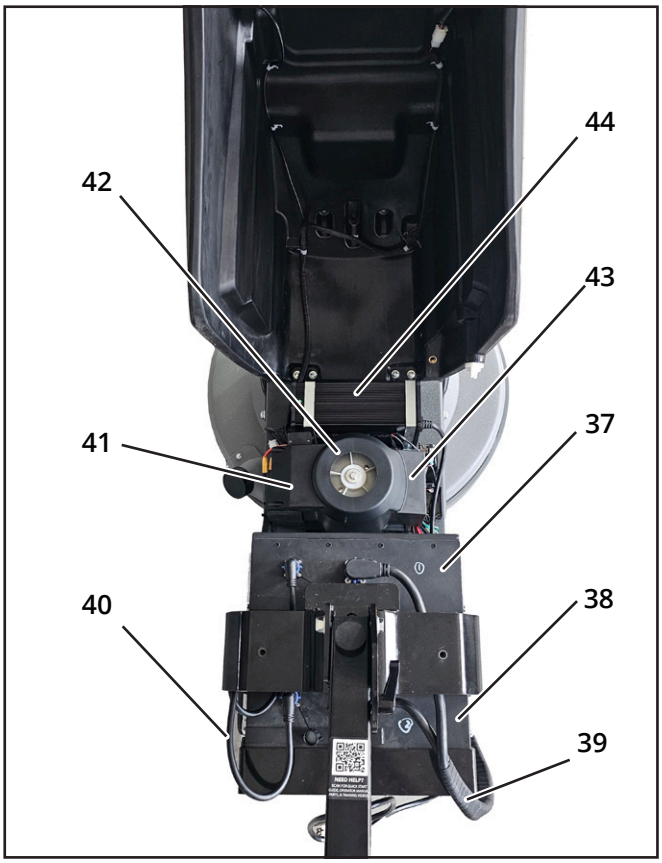
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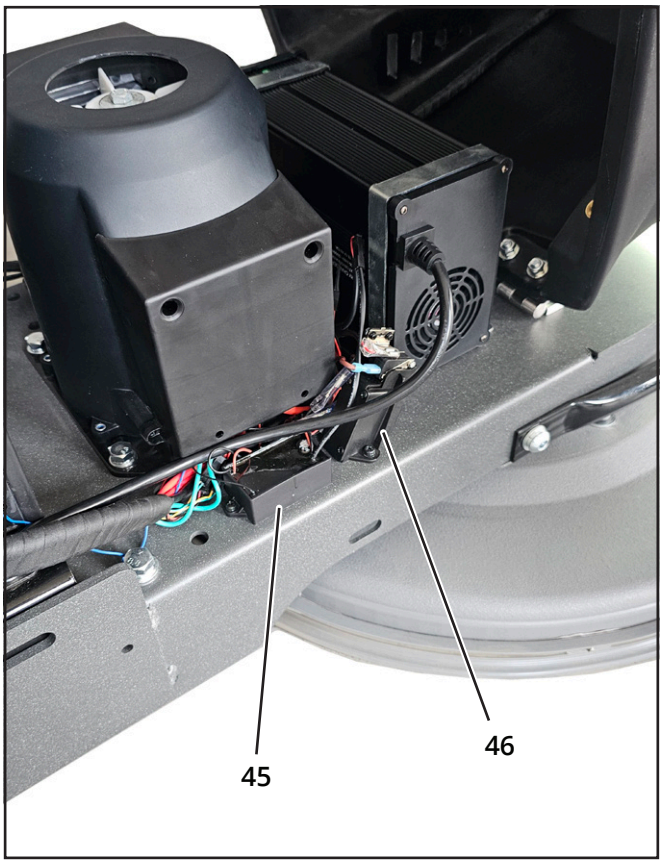
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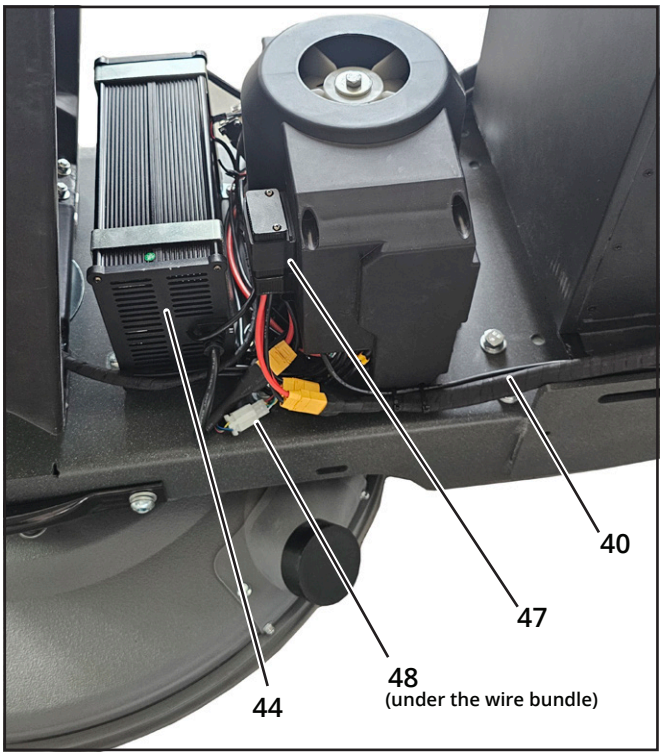
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(under the wire bundle)
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MACHINE UNPACKING

Note: The machine ships with three main elements of packing:

- Base pallet, to which machine is strapped
- Wooden frame, which is screwed to base pallet
- Corrugated carton, which is stapled to the wooden frame

To unpack the machine:

1. Unscrew the screws which attach the wooden frame to the base pallet.
2. With two people, lift the wooden frame & corrugated carton up and over the machine.
3. Cut any strapping which secures the machine to the base pallet.
4. Put the handle in the uppermost position, and secure with the handle adjustment knob.
5. Maneuver the machine all the way to the rear of the base pallet, so that the front wheels are very close to the edge, and the rear of machine sticks out beyond the base pallet.
6. Press downward on the grips to fully rock the machine back. Once fully rocked back, the tail end of the frame and the grips will be resting on the floor.
7. At this point, the machine is not touching the base pallet, and the base pallet can be slid out of the way.
8. Lift up the grips, to rock the machine forward, so it returns to its normal operation position on the floor.

BATTERY INSTALLATION

The machine can be configured with single or dual batteries. During shipping, the battery(s) is/are already installed. But, during shipping, the battery discharge cord(s) and battery charge cord(s) is/are not connected.

To connect the battery discharge and charge cord(s):

1. Put the kickstand in the down position, to keep the deck parallel with the floor.
2. Remove the cover wingbolts.
3. Rotate the machine cover forward, to gain access to the battery(s).
4. Locate the two battery discharge cables. The longer battery discharge cable goes to the front battery. The shorter cable goes to the rear battery.
5. Connect each battery discharge cable to the battery outlet. Note that the connector and outlet are directional, and must match directions so individual pins are aligned.
6. Once the connector of battery discharge cable is properly connected, you will hear and feel a “click” and the locking ring will click into the locked position.
7. Repeat steps 4-6 for the battery charge cord(s).
8. Lower the machine cover back into normal position, and secure with the two cover wingbolts.

To physically replace a battery on the battery tray:

1. Put the kickstand in the down position, to keep the deck parallel with the floor.
2. Remove the cover wingbolts.
3. Rotate the machine cover forward, to gain access to the battery(s).
4. Disconnect both the battery discharge cable and battery charge cable from top of old battery. Both cable connectors have a locking ring that must be rotated as you disconnect the connector.
5. Remove the two bolts that secure the steel battery strap to the battery tray, and remove the strap.
6. Remove the two bolts that secure the battery mounting flange to the battery tray.
7. Remove the old battery. There are two lifting handles on each side of the battery.

8. Place the new battery onto the battery tray.
9. Loosely install the two bolts which secure the battery mounting flange to battery tray.
10. Install the battery strap, and loosely install the two bolts that secure the battery strap to the battery tray.
11. Tighten all 4 bolts.
12. Install both the battery discharge cable and battery charge cable.

(If adding a second battery, follow the same steps above, but disregard any notes about removing old battery).

PAD INSTALLATION

1. Loosen the handle adjustment knob.
2. Put the handle in the top position and tighten the handle adjustment knob.
3. Push down on the grips to rock the entire machine rearward. Continue pushing down until the grips are resting on the floor.

WARNING: Ensure the machine is stable while it is rocked back. Do not allow bystanders near the machine, who might tip the machine forward.

4. Remove the plastic pad retainer by rotating it counterclockwise. The pad retainer has a male thread, which will unscrew from the female threaded hole.
5. Remove old pad, if applicable.
6. Install new pad, especially paying attention that the center hole of the pad is exactly concentric with the female threaded hole.
7. Re-install the plastic pad retainer by screwing the male threaded portion into the female threaded hole, and turning it clockwise.
8. As you turn the pad retainer clockwise, the flange of the pad retainer will squeeze the center of the pad.
9. Hand tighten only. Do not over tighten.
10. To put the machine back on the floor in its normal operation position, lift up on the grips to slowly rock the entire machine forward.

DUST BAG INSTALLATION

If dust collection is required, the dust bag must be installed into the dust chute.

1. Remove the rubber dust chute cover from the dust chute.
2. Press the plastic tapered tube fitting of the dust bag into the dust chute. Rotate the tube as you press, with the goal of making a very secure connection.
3. The top corner of the dust bag has a rope loop. Hang the rope loop onto the dust bag hook, on the side of the machine cover.

ADJUST HANDLE POSITION

The handle on this machine can be adjusted to several positions, to accommodate different sized operators and different operator preferences. To adjust the handle:

1. Loosen the handle adjustment knob, until the handle is can pivot freely. Note: Do not fully remove this knob.
2. Adjust the handle to desired position. Typically, the handle height should be set to operator's belt height.
3. Tighten the handle adjustment knob.

TURN MACHINE ON

Simply turn the key switch clockwise. Within 1-2 seconds, the LCD display screen will illuminate.

TURN MACHINE OFF

Simply turn the key switch counterclockwise to the off position.

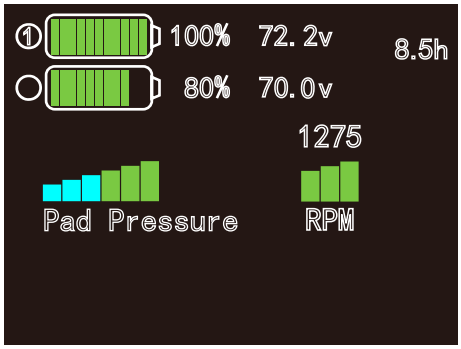
LCD DISPLAY SCREEN

When machine is first turned on, the LCD display screen will display a Welcome screen, with firmware revision number at the top:

Then, after a few seconds, the LCD display screen will enter the operational screen.

The operational screen displays the following information:

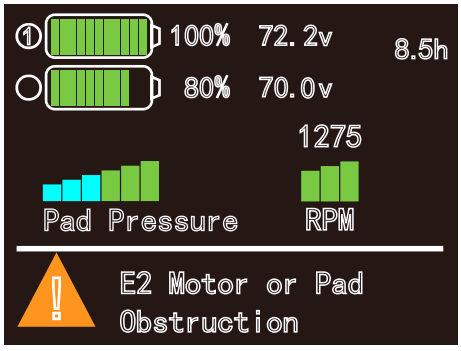
1. Battery charge level of Battery 1: both a visual image and % remaining (100%)
2. Voltage of Battery 1 (72.2v)
3. Battery charge level of Battery 2: both a visual image and % remaining (80%)
4. Voltage of Battery 2 (70.0v)
5. Machine Hours (8.5h)
6. Real-Time Pad Pressure: shown in a 10 bar color code, with more bars indicating greater pad pressure (shown 5 of 10 bars, which indicates roughly 50% of motor load)
7. Real-Time RPM: shown with a 5 bar code with actual RPM (1275)



Any messages would be shown in the lower part of the operational screen:

The message will include both a code (E2) and message text (Motor or Pad Obstruction).

For a list of all message/error codes, please refer to the “Screen Codes” section of this Operator Manual.



ENGAGE MOTOR

To engage motor, pull back on either/both of the grip switches.

DISENGAGE MOTOR

To disengage motor, release both grip switches.

UNDERSTANDING BATTERY DISCHARGE

When the machine is configured with a single battery, the discharge is straight-forward and intuitive: the single battery will be discharged and then must then be recharged when it is depleted.

However, when the machine is configured with dual batteries, the machine will discharge from one battery at a time, and when that battery becomes depleted, the machine will automatically switch over to the other battery. This "switching" function is carried out by the converter.

During use, the battery that is actively being discharged is identified on the LCD display screen by the circled number (either 1 or 2) colored red

Furthermore, the machine is designed to alternate which battery is initially discharged. This alternation occurs when the key switch is cycled off and back on. So, if the machine first discharges from battery ① during the current use, the next time the machine is used (assuming the key was cycled off and back on), the machine will initially discharge from battery ②. This alternation will balance the usage of the batteries which will maximize the lifespan of both batteries.

UNDERSTANDING THE TILT SWITCH

This machine is equipped with a "tilt switch", which functions to prevent the machine from operating when the machine is fully tilted rearward with the grips resting on the floor, as it would be positioned during pad installation.

When machine is fully rocked back, the tilt switch will activate and completely power off the machine, equivalent to turning the key switch off:

- The LCD display screen will become dark.
- Motor will be unresponsive when the grip switches are engaged.
- Battery(s) will not discharge.

⚠ **WARNING:** The Tilt Switch is a safety feature designed to prevent accidental motor engagement when the machine is rocked back, which could cause serious injury due to machine instability and/or physical contact with rotating parts. Do NOT bypass or disable the Tilt Switch.

When machine is returned to operator position, the tilt switch will deactivate and machine will become powered on, equivalent to turning the key switch on.

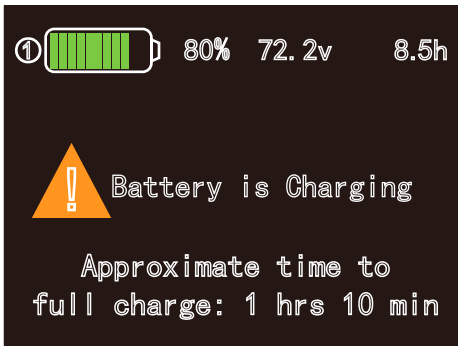
Note: Only fully rocking the machine back (such that the grips contact the floor) will activate the tilt switch. A minor rock back to the transport position will not activate the tilt switch.

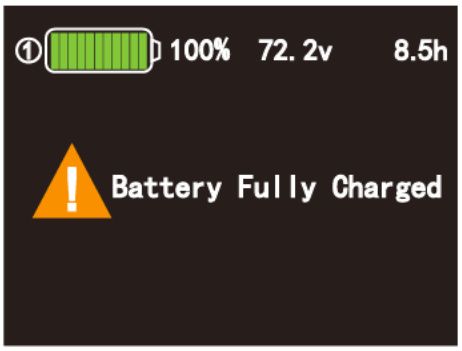
DISPENSE WATER

If equipped with a water dispensing system, the water flow can be activated by turning on the water switch in the control panel. When the switch is turned on, the 24v water solenoid valve water will automatically open and flow water whenever the grip switch is engaged. When the grip switch is disengaged, water flow will automatically stop. To change the flow rate, refer to the "Machine Adjustments" section.

CHARGING THE BATTERY(S)

1. Turn the key switch counterclockwise to the off position.
2. Locate the power cord, near the rear of machine.
3. Plug the power cord into the wall's electrical outlet.
4. You should hear the charger fan automatically turn on. This fan will continue operating throughout the full duration of charging.
5. Within a few seconds, the LCD display screen will illuminate to the charging screen, shown below:
6. Information included on the charging screen is as follows:
   a. Note that "Battery is Charging"
   b. The current charge level of the battery(s)
   c. The approximate time remaining until full charge
7. When the batteries are charging, the LED Light Strip will slowly "pulse" between bright and dark, to visually indicate the machine is charging.
8. The charger inside the machine also has a colored LED indicator light:
   a. A solid red light indicates the battery is charging.
   b. A solid green light indicates the battery is fully charged.
   c. Any blinking light indicates an error.
9. The charger will automatically stop charging once full charge is achieved. It is normal behavior that the charger may cycle on/off a few times when the battery is at full charge.
10. Once the battery(s) is/are determined to be fully charged, the LCD display screen displays the fully charged screen:





Notes on charging:

1. When dual batteries are installed, the charger automatically splits the charging current and charges both batteries simultaneously.
2. Charge time from 0% to 100% is roughly 4-5 hours for a single battery configuration, and 8-10 hours for a dual battery configuration.

Best practices for battery charging:

1. Charge the batteries immediately after every use, even if the depletion was minimal.
2. Leave the battery plugged in until next use. The charger will monitor the battery and will not over-charge it.
3. It is acceptable to "opportunity charge" which means to charge for a short duration in-between machine uses.
   a. For example, if the battery(s) is/are fully depleted, you can charge for a short duration, and immediately return to using the machine.
   b. The ratio charge time to run-time is roughly 2:1.
   c. Once your use of the machine is completed, fully charge the battery.
4. The most unhealthy condition for the battery is to remain in a fully deplete state for an extended duration of time (multiple days or weeks).

CAUTION: Recharge a depleted battery right away. Never allow a battery to remain depleted for extended periods of time. Failure to promptly recharge the battery can cause the battery to be unable to be recharged, and will void all warranty.

MACHINE ADJUSTMENTS

OPTIMATION TIPS

It is important that you, the operator, understand the various factors that impact burnishing performance, and the effect those factors have on machine function and battery run-time.
Each of the following can all result in better burnishing performance, but each also come at the expense of increased motor power consumption and shorter battery runtime:

1. Faster pad speed
2. More pad pressure
3. More aggressive pad systems

Furthermore, different types of floor and floor finish may require different levels of the above variables. Instead of attempting to provide a "one-size-fits-all" solution, this machine was designed to allow a wide range of variation of both speed and pad-pressure. Ultimately, it is you, the operator, who must be comfortable making these adjustments to optimize the performance of this machine for your particular combination of floor, floor finish, and pad system.

ADJUST PAD SPEED

The pad speed can be adjusted by adjusting the speed dial on the control panel.
Turning the speed dial clockwise will increase the pad speed.
Turning the speed dial counterclockwise will decrease the pad speed.

Note: To access the speed dial, you may need to remove the tamper proof cap by removing the two attachment screws. The purpose of the tamper proof cap is to allow an equipment manager to set the pad speed and then prevent end-users from making unauthorized adjustments to pad speed.

Note: Consider the pad size when determining the appropriate pad speed. The higher range of pad speed is appropriate for a 21" or 24" pad, but is likely not appropriate for a 27" pad.

CAUTION: Although increased pad speed can improve burnishing performance in some conditions, make sure you do not exceed the speed recommended by the pad manufacturer, as this could lead to damaged pads or short pad life. Further, do not exceed pad speed recommendations from floor finish manufacturer, as this could damage the floor finish.

CAUTION: Increasing pad speed exponentially increases the required motor power, due to inherent physics of power and rotation as well as increased air resistance, air movement, and a greater vacuum effect which pulls the pad against the floor. If you are overloading the motor's capability, you are likely attempting to operate the machine at an excessive pad speed.

ADJUST HEAD PRESSURE

The easiest way to adjust head pressure is to adjust the battery tray position:

1. Put the kickstand in the down position, to keep the deck parallel with the floor.
2. Use the crank tool to rotate the battery tray crank.
    a. Turning clockwise will move the tray rearward and reduce pad pressure.
    b. Turning counterclockwise will move the tray forward and increase pad pressure.
3. The battery tray position can be monitored in the battery position indicator on the side of the machine.
    a. There are 6 positions numbered 1 thru 6.
    b. Position 6 is the furthest forward, resulting in maximum head pressure.
    c. Position 1 is the furthest rearward, resulting in minimum head pressure.

Additional adjustments to head pressure can be made by adjusting the wheels, as described in the following section:

ADJUST WHEEL POSITION

The position of the two front wheels has significant affect on the performance and handling of the machine, including:

Pad pressure = The amount of force the pad has against the floor
Forward propulsion = The feeling of forward pull or drive caused by pad friction
Machine torque = The feeling that the machine wants to constantly turn, usually toward the left

When your machine was assembled, the wheels were installed in positions determined to allow for best performance under most conditions. However, depending on floor type, floor finish type, pad type, and operator preference, these wheel positions can be changed to affect machine performance.

MACHINE ADJUSTMENTS

For the purpose of clarity, the following terms will be used in this section:

Forward = closer to the front of the machine
Rearward = closer to the rear of the machine
Up = closer to the sky
Down = closer to the ground
Left = the left side when viewed from the Operator's position
Right = the right side when viewed from the Operator's position

Through wheel adjustment, the following changes can be made to the machine performance:

Desired Change	Adjustment to Make
Increase pad pressure	Move both wheels (left and right) Rearward
Decrease pad pressure	Move both wheels (left and right) Forward
Increase forward propulsion	Offset the two wheels, so the right wheel is Higher (more "up") than left
Decrease forward propulsion	Align the two wheels, so the left and right wheel are the same height
Increase machine torque	Move both wheels (left and right) Down
Decrease machine torque	Move both wheels (left and right) Up

To change the wheel position:

1. Stop the motor and turn off machine.
2. Adjust handle position to highest position and rock machine back, until handle grips are resting on ground.

CAUTION: Whenever working on a machine in the rocked back position, ask an assistant to hold the handle and prevent the machine from falling forward.

3. Remove the small cotter pin / hair pin from the wheel axle.
4. Remove the wheel axle.
5. Remove the wheel and any spacer.
6. Reposition the wheel and spacer in desired hole.
7. Insert the wheel axle.
8. Insert the cotter pin / hair pin.

ADJUST WATER FLOW

If equipped with a water dispensing system, the water flow rate can be adjusted.
1. Locate the quarter-turn ball valve in the water hose.
2. Incrementally turn the valve to make water flow adjustments:
    a. Turning the valve more closed will restrict the water flow.
    b. Turning the valve more open will increase the water flow.

MACHINE TRANSPORT

The machine includes a single rear caster for the purpose of machine transport. To transport the machine, lightly rock the machine back so that the pad & shroud are lifted off the floor and the rear caster rests on the floor. This position in which all three wheels (two front wheels and single rear caster) are rolling on the ground is called the “transport position”.

With the machine in the transport position, you can roll the machine along the floor and transport the machine within a facility.

Note: The rear caster is a fixed (non-swivel) caster. To make tight turns, lightly lift up on the grips, allowing the rear caster to easily slide along the floor.

MACHINE STORAGE

1. Store the machine in indoor, cool, climate-controlled locations with low humidity and out of direct sunlight.
2. Never store the machine in a location susceptible to flooding, rain, or other opportunities to become wet.
3. Store the machine with the key in the off position.
4. Store the machine with the both the battery discharge cable and battery charge cable disconnected.
5. Charge the battery prior to storage. Never store a depleted battery.
6. Every 3-6 months, check the battery and recharge if the battery level falls lower than 50%.

CAUTION: Never store a battery that is depleted or near depleted. Allowing a depleted battery to remain depleted for extended periods of time can damage the battery, and will void all warranty.

SCREEN CODES

The LCD display screen will display helpful messages and diagnostics on the screen, as applicable.

- “M” coded messages stand for “message” and are typical during normal use.
- “E” coded messages stand for “error” and indicate a problem.

The following table lists all Screen Codes:

Code	Screen Text	Detailed Explanation
M1	Battery Depleted: Must Charge	Total battery capacity is fully depleted, and the motor cannot turn. The battery(s) must be charged.
M2	Battery Low: Recharge Soon	The remaining battery charge is lower than 5%, and the motor can still turn. The battery(s) must be promptly charged.
M3	Battery is Charging	The battery(s) are in the process of being charged.
M4	Battery Fully Charged	The battery(s) have reached 100% charge, and the charger has stopped providing additional charge.
E1	Charging Failure	Battery not charging due to failure, including: battery failure, charger failure, short circuit in splitter, battery temp high/low.
E2	Motor or Pad Obstruction	Motor or pad is physically obstructed and cannot turn.
E3	Controller Overheat	Motor Controller has overheated, likely due to motor fan failure, excessive load causing very slow motor speed, or controller failure.

TROUBLESHOOTING GUIDE - ELECTRICAL

Problem	Potential Reason	Solution
Nothing happens when key switch turned on.	Battery(s) is/are depleted.	Charge battery(s).
	Battery cable(s) is/are not connected.	Connect battery cables(s).
	Battery(s) is/are faulty.	Replace battery(s).
	Key switch is faulty.	Check/replace key switch.
	Tilt switch is activated (open), or faulty.	Check/replace tilt switch.
	Converter is faulty.	Check/replace converter.
	Loose or disconnected wire.	Check harness and electrical connections, and reconnect any loose wire.
Motor will not start when grip switch is engaged (but LCD display illuminates)	Grip switch wires are disconnected.	Check and reconnect grip switch wire connection.
	Grip switch is faulty.	Check/replace grip switch.
	Motor or pad driver are physically obstructed and cannot turn.	Check that motor and pad driver rotate freely. If obstructed, clear obstruction. If physically damaged, take machine to authorized service center.
	Speed dial (potentiometer) is disconnected or faulty.	Check potentiometer connections; replace potentiometer if required.
	Motor controller has loose wire or connection.	Check wire connections at motor controller, and reconnect any loose wires.
	Motor controller is faulty.	Check/replace motor controller.
	Motor is faulty.	Check/replace motor.
	Other loose or disconnected wire.	Check harness and electrical connections, and reconnect any loose wire.
	Grip switch was engaged during start up, which causes LED light strip to flash	Turn key off and back on, making sure the grip switch is not engaged during start up
LCD display screen does not illuminate (but motor does turn when engaged).	LCD display screen wire is loose or disconnected.	Check LCD display screen wires, connect any loose or disconnected wires.
	LCD display screen is faulty.	Check/replace LCD display screen.
	Other loose or disconnected wire.	Check harness and electrical connections, and reconnect any loose wire.
LCD display screen illuminates, but no information is displayed.	Disconnected/Loose CAN bus wires.	Check that CANH & CANL wires are properly connected throughout CAN bus system.
	CAN bus system is faulty.	Check/replace CAN bus components.
LED light strip does not illuminate.	Loose or disconnected wire, especially at 24v voltage regulator or LED light strip.	Check wire connections, connect any loose or disconnected wires.
	24v voltage regulator is faulty.	Check/replace 24v voltage regulator.
	LED light strip is faulty.	Check/replace LED light strip.
Water solenoid does not open.	Loose or disconnected wire/connection, especially at 24v voltage regulator or water solenoid valve.	Check wire connections, connect any loose or disconnected wires.
	24v voltage regulator is faulty.	Check/replace 24v voltage regulator.
	Water solenoid valve is faulty.t	Check/replace water solenoid valve.
Machine shuts down repeatedly.	Motor is overheating.	Check motor fan. Check motor can free-spin smoothly when machine is off. Check motor & motor controller. Replace any faulty parts.
	Battery discharge limit exceeded.	Check motor & motor controller. Replace any faulty parts.
	Motor power demand is excessive.	Reduce head weight and/or pad speed.
Runtime is short.	Faulty battery(s).	Check/replace battery(s).
	Motor power demand is excessive.	Reduce head weight and/or pad speed.
	Improper pad for the floor finish.	Use proper pad based on floor finish manufacturer's recommendation.

TROUBLESHOOTING GUIDE - ELECTRICAL

Problem	Potential Reason	Solution
Machine does not charge.	Battery(s) is/are already fully charged.	No action necessary. Use machine for a period, and confirm that machine properly re-charges battery.
	Loose or disconnected wire/connection, especially at charger, charger splitter, or battery.	Check wire connections, connect any loose or disconnected wires.
	Faulty or damaged power cord.	Check/replace power cord.
	Faulty or unpowered wall outlet.	Check that wall outlet is functional. If not, consult electrician to repair/replace wall outlet.
	Faulty charger.	Check/replace charger.
	Faulty battery(s).	Check/replace battery(s).
	Disconnected/Loose CAN bus wires	Check that CANH & CANL wires are properly connected throughout CAN bus system.

TROUBLESHOOTING GUIDE - MECHANICAL

Problem	Potential Reason	Solution
Poor burnishing performance.	Pad pressure is too high/low.	Properly adjust machine balance and pad pressure by adjusting front wheels and/or battery tray position.
	Pad speed is too high/low.	Properly adjust pad speed.
	Pad is dirty/worn.	Replace pad.
	Incorrect pad.	Use proper burnishing pad. Refer to floor finish manufacturer's recommendations.
Machine shakes or vibrates.	Pad is not centered.	Remove and reinstall pad, paying attention that it is perfectly centered. Replace pad if required.
	Pad is damaged.	Replace pad.
	Damage to rotating parts such as pad driver or pulleys.	Check for damage, replace damaged parts.
	Pad speed is excessive.	Reduce the pad speed, especially if the machine is configured with 27 inch pad.
	Motor is damaged.	Check motor for damage, especially bent or damaged shaft. Replace if necessary.
	Wheel has flat spot or other damage.	Check/replace wheel(s).
Rattling noise is observed.	Fastener(s) is/are loose.	Check machine for loose fasteners and tighten.
	Belt is loose.	Check belt and belt tensioner, add tension and tighten if required.
Machine pulls to one side or requires excessive manual pushing.	Wheels not properly adjusted.	Wheels not properly adjusted.
	Wheel is not freely spinning.	Check/replace wheel, axle pin, or wheel bracket.
	Damaged component such as wheel, wheel bracket, shroud, or pad driver.	Check for damage, replace damaged parts.
	Component dragging on floor and causing friction.t	Check for any such component and repair/replace.
Dust is not collecting in dust bag.	Dust bag is full.	Empty dust bag.
	Dust bag is excessively dirty and blocks air flow.	Empty and clean dust bag. Replace if necessary.
	Dust bag is not securely inserted into dust chute.	Insert dust bag inlet tube securely into the dust chute opening.
	Shroud seal is damaged, allowing dust/air to escape under seal.	Check/replace shroud seal.
	Shroud is not "floating" on the floor.	Check/replace shroud components or hardware.

NOTES

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MORE INFORMATION

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