



OPERATOR'S MANUAL

A Division of Snow Joe®, LLC

CORDLESS LAWN MOWER

48V MAX* | 4.0 Ah | 21-INCH

Model 24V-X2-21LM-RM

Form No. SJ-24V-X2-21LM-RM-880E-MR1-V2

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IMPORTANT! Safety Instructions

All Operators Must Read These Instructions Before Use

Always follow these safety guidelines. Failure to do so may result in serious bodily injury or death.

General Safety WARNINGS!

When using this cordless lawn mower, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury. These precautions include:

⚠️ WARNING! Do not operate without the entire grass collection bag, discharge guard, rear guard or other safety protective devices in place and in proper working order.

⚠️ WARNING! The use of any other accessory or attachment might increase the risk of injury.

⚠️ WARNING! To reduce the risk of injury, inspect the grass collection bag assembly frequently and replace with recommended replacement if there are signs of wear or deterioration.

Before using the mower, take the time to familiarize yourself with the controls, especially how to stop the mower in an emergency. The only individuals who should use the mower are those who have a thorough understanding of the instructions and who knows how to operate the machine. Children should never be allowed access to the mower.

Retain this manual for future reference and reread it at the start of each mowing season.

⚠️ WARNING! Contact with moving parts may cause entanglement, dismemberment or other serious bodily injury. Always keep body parts (i.e. hands, feet) a safe distance away from moving parts. Ensure all covers and guards are securely in place before use.

Hot surfaces (i.e. the motor) may ignite flammable or combustible items and cause a fire or explosion, which can result in serious bodily injury. Keep the mower a safe distance away from flammable or combustible items until surfaces that are hot have completely cooled. Do not store the mower near flammable or combustible items.

A damaged blade or worn blade nut may break off the mower assembly and cause serious injury. Replace the damaged blade or blade nut before using the mower.

- 1. Avoid dangerous conditions** – Do not use the mower in the rain or when the grass is damp or wet.
- 2. Keep children, bystanders and pets away** – Always keep children and spectators a safe distance away from the mower during operation and as the machine cools.
- 3. Dress properly** – Always wear personal safety gear (i.e. glasses, rubber gloves, protective footwear and dust masks) and proper clothing when using the mower. Loose clothing, long hair or jewelry may get caught in the moving parts.
- 4. Use the right appliance** – Do not use the lawn mower for any applications other than those for which it was intended.
- 5. Do not force the lawn mower** – It will perform better with less likelihood of personal or mechanical injury if it is used at the rate for which it was designed.
- 6. Do not overreach** – Keep proper footing and balance at all times.
- 7. Stay alert** – Always be alert and watch what you are doing. Use common sense. Do not operate the lawn mower when you are tired or under the influence of alcohol or drugs.
- 8. Disconnect the lawn mower** – Turn OFF and remove the batteries and the safety key when the mower is not in use, before servicing it, when changing accessories and when performing any other maintenance task.
- 9. Store idle lawn mower indoors** – When not in use, the lawn mower should be stored indoors in a dry, locked place out of the reach of children.
- 10. Maintain the lawn mower with care** – Keep cutting edges sharp and clean for best and safest performance.
- 11. Use personal protective equipment. Always wear eye protection** – Protective equipment such as safety glasses, a dusk mask, non-skid safety shoes, a hard hat, and hearing protection, when used for appropriate conditions, will reduce the possibility of personal injuries.
- 12. Avoid unintentional starting** – Ensure the switch is in the OFF position before insert the batteries or the safety key, or before picking up or carrying the tool. Carrying power tools with your finger on the switch or charging power tools with the switch ON can lead to accidents.
- 13. Remove any adjusting key or wrench before starting the power tool** – A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

14. **Keep cutting blade sharp and clean** – Properly maintained cutting blades with sharp edges are less likely to bind and are easier to control.
15. **Keep all parts of the body away from the cutting blade** – Do not remove cut material or hold material to be cut when blade is moving. Make sure the switch is off when clearing jammed material. A moment of inattention while operating the product may result in serious personal injury.
16. If the lawn mower strikes a foreign object, follow these steps:
 - i) Stop the lawn mower by releasing the switch lever.
 - ii) Remove the batteries and the safety key.
 - iii) Inspect for damage.
 - iv) Repair any damage before restarting and operating the lawn mower.
17. Only use identical replacement blades and other genuine parts.
18. Keep guards in place and in proper working order.

Electrical Safety

1. If the battery charger cable is damaged, please call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).
2. If charging the power tool in a damp location is unavoidable, use a residual current device (RCD) protected power supply. The using of an RCD reduces the risk of electric shock.
3. Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
4. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
5. **Do not abuse the charging cord.** Never use the cord for carrying, pulling or unplugging the charger. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
6. Battery charger is for indoor use only. Do not charge batteries in rain, or in wet locations.

Battery + Charger Safety Instructions

We pay a great deal of attention to the design of every battery pack to ensure that we supply you with batteries that are safe, durable and have a high energy density. The battery cells have a wide range of safety devices. Each individual cell is initially formatted and its electrical characteristic curves are recorded. This data is then used exclusively to be able to assemble the best possible battery packs.

Despite all the safety precautions, caution must always be exercised when handling batteries. The following points must be obeyed at all times to ensure safe use. Safe use can only be guaranteed if undamaged cells are used. Incorrect handling of the battery pack can cause cell damage.

IMPORTANT! Analyses confirm that incorrect use and poor care of high-performance batteries are the main factors responsible for personal and/or product damage.

⚠️ WARNING! Use only approved replacement batteries; other batteries may damage the lawn mower and cause it to malfunction, which can lead to serious personal injury.

⚠️ CAUTION! To reduce the risk of injury, charge the iON+ 24V lithium-ion battery packs only in the designated iON+ 24V lithium-ion charger. Other types of chargers present risk of fire, personal injury and damage. Do not wire the battery packs to a power supply plug or car cigarette lighter. Such misuse will permanently disable or damage the battery packs.

- **Avoid dangerous environments** – Do not charge the battery packs in rain, snow or in damp or wet locations. Do not use the battery packs or charger in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials) because sparks may be generated when inserting or removing the battery packs, which could lead to a fire.
- **Charge in a well-ventilated area** – Do not block the charger vents. Keep them clear to allow for proper ventilation. Do not allow smoking or open flames near charging battery packs. Vented gases may explode.

NOTE: The safe temperature range for the batteries are 41°F (5°C) to 104°F (40.5°C). Do not charge the batteries outside in freezing weather; charge it at room temperature.
- **Maintain charger cord** – When unplugging the charger, pull the plug, not the cord, from the receptacle to reduce the risk of damage to the electrical plug and cord. Never carry the charger by its cord or yank it by the cord to disconnect it from the receptacle. Keep the cord away from heat, oil and sharp edges. Make sure the cord will not be stepped on, tripped over or subjected to damage or stress when the charger is in use. Do not use the charger with a damaged cord or plug. Replace a damaged charger immediately.

- **Do not use an extension cord unless it is absolutely necessary** – Using the wrong, damaged or improperly wired extension cord poses a risk of fire and electric shock. If an extension cord must be used, plug the charger into a properly wired 16 AWG or larger extension cord with the female plug matching the male plug on the charger. Make sure that the extension cord is in good electrical condition.
- **Charger 24VCHRG-DPC is rated for 120 volt AC only** – The charger must be plugged into an appropriate receptacle.
- **Use only recommended attachments** – Use of an attachment not recommended or sold by the battery charger or battery pack manufacturer may result in risk of fire, electric shock or personal injury.
- **Unplug charger when not in use** – Make sure to remove battery packs from unplugged chargers.

⚠ WARNING! To reduce the risk of electric shock, always unplug the charger before performing any cleaning or maintenance. Do not allow water to flow into the charger. Use a Ground Fault Circuit Interrupter (GFCI) to reduce shock hazards.

- **Do not burn or incinerate battery packs** – Battery packs may explode, causing personal injury or damage. Toxic fumes and materials are created when battery packs are burned.
- **Do not crush, drop or damage battery packs** – Do not use the battery packs or charger if they have sustained a sharp blow, been dropped, run over or have been damaged in any way (i.e. pierced with a nail, hit with a hammer, stepped on, etc.).
- **Do not disassemble** – Incorrect reassembly may pose a serious risk of electric shock, fire or exposure to toxic battery chemicals. If the batteries or charger are damaged, please contact an authorized Snow Joe® + Sun Joe® dealer or call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).
- **Battery chemicals cause serious burns** – Never let a damaged battery pack contact the skin, eyes or mouth. If a damaged battery pack leaks battery chemicals, use rubber or neoprene gloves to safely dispose of it. If skin is exposed to battery fluids, wash the affected area with soap and water and rinse with vinegar. If eyes are exposed to battery chemicals, immediately flush with water for 20 minutes and seek medical attention. Remove and dispose of contaminated clothing.
- **Do not short circuit** – A battery pack will short circuit if a metal object makes a connection between the positive and negative contacts on the battery pack. Do not place a battery pack near anything that may cause a short circuit, such as paper clips, coins, keys, screws, nails and other metallic objects. A short-circuited battery pack poses a risk of fire and severe personal injury.
- **Store your battery packs and charger in a cool, dry place** – Do not store the battery packs or charger where temperatures may exceed 105°F (40.5°C), such as in direct sunlight or inside a vehicle or metal building during the summer.

Information about the batteries

1. The battery packs supplied with your cordless lawn mower are only partially charged. The battery packs have to be charged completely before you use the tool for the first time.
2. For optimum battery performance, avoid low discharge cycles by charging the battery packs frequently.
3. Store the battery packs in a cool place, ideally at 77°F (25°C) and charged to at least 40%.
4. Lithium-ion batteries are subject to a natural aging process. The battery packs must be replaced at the latest when its capacity falls to just 80% of its capacity when new. Weakened cells in aged battery packs are no longer capable of meeting the high power requirements needed for the proper operation of your cordless lawn mower, and therefore pose a safety risk.
5. Do not throw battery packs into an open fire as this poses a risk of explosion.
6. Do not ignite the battery packs or expose them to fire.
7. Do not exhaustively discharge batteries. Exhaustive discharge will damage the battery cells. The most common cause of exhaustive discharge is lengthy storage or non-use of partially discharged batteries. Stop working as soon as the performance of the batteries falls noticeably or the electronic protection system triggers. Place the battery packs in long-term storage only after they have been fully charged.
8. Protect batteries and the tool from overloads. Overloads will quickly result in overheating and cell damage inside the battery housing even if this overheating is not apparent externally.
9. Avoid damage and shocks. Immediately replace batteries that have been dropped from a height of more than one meter or those that have been exposed to violent shocks, even if the housing of the battery packs appear to be undamaged. The battery cells inside the battery may have suffered serious damage. In such instances, please read the waste disposal information for proper battery disposal.
10. If the battery packs suffer overloading and overheating, the integrated protective cutoff will switch off the equipment for safety reasons. If this situation happens, stop the tool and let the batteries cool down for a few minutes before restarting.
11. Use only original battery packs. The use of other batteries poses a fire risk and may result in injuries or an explosion.

Information about the charger and the charging process

1. Please check the data marked on the rating plate of the battery charger. Be sure to connect the battery charger to a power supply with the voltage marked on the rating plate. Never connect it to a different mains voltage.
2. Protect the battery charger and its cord from damage. Keep the charger and its cord away from heat, oil and sharp edges. Have damaged cords repaired without delay by a qualified technician at an authorized Snow Joe® +

Sun Joe® dealer or call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).

3. Electrical plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded appliances. Unmodified plugs and matching outlets will reduce the risk of electric shock.
4. Keep the battery charger, battery packs and the cordless tool out of the reach of children.
5. Do not use the battery charger to charge other cordless tools.
6. During periods of heavy use, the battery packs will become warm. Allow the battery packs to cool to room temperature before inserting them into the charger to recharge.
7. Do not overcharge batteries. Do not exceed the maximum charging times. These charging times only apply to discharged batteries. Frequent insertion of charged or partially charged battery packs will result in overcharging and cell damage. Do not leave batteries in the charger for days on end.
8. Never use or charge batteries if you suspect that it has been more than 12 months since the last time they were charged. There is a high probability that the battery packs have already suffered dangerous damage (exhaustive discharge).
9. Charging batteries at a temperature below 41°F (5°C) will cause chemical damage to the cells and may cause a fire.
10. Do not use batteries that have been exposed to heat during the charging process, as the battery cells may have suffered dangerous damage.
11. Do not use batteries that have suffered curvature or deformation during the charging process or those that exhibit other atypical symptoms (gassing, hissing, cracking, etc.)
12. Never fully discharge the battery packs (maximum recommended depth of discharge is 80%). A complete discharge of the battery packs will lead to premature aging of the battery cells.

Protection from environmental influences

1. Wear suitable work clothes. Wear safety goggles.
2. Protect your cordless tool and the battery charger from moisture and rain. Moisture and rain can cause dangerous cell damage.
3. Do not use the cordless tool or the battery charger near vapors and flammable liquids.
4. Use the battery charger and cordless tools only in dry conditions and at an ambient temperature of 41°F – 105°F (5°C – 40.5°C).

5. Do not keep the battery charger in places where the temperature is liable to reach over 105°F (40.5°C). In particular, do not leave the battery charger in a car that is parked in the sunshine.
6. Protect batteries from overheating. Overloads, overcharging and exposure to direct sunlight will result in overheating and cell damage. Never charge or work with batteries that have been overheated – replace them immediately, if possible.
7. Store the charger and your cordless tool only in dry locations with an ambient temperature of 41°F – 105°F (5°C – 40.5°C). Store your lithium-ion battery packs in a cool, dry place at a temperature of 77°F (25°C). Protect the battery packs, charger and cordless tool from humidity and direct sunlight. Only place fully charged batteries in storage (charged to at least 40%).
8. Prevent the lithium-ion battery packs from freezing. Battery packs that were stored below 32°F (0°C) for more than 60 minutes must be discarded.
9. When handling batteries, be wary of electrostatic charge. Electrostatic discharges can damage the electronic protection system and the battery cells. Avoid electrostatic charging and never touch the battery poles.

IMPORTANT!

Safety Instructions for Walk-Behind Mowers

General Operation

- Read, understand and follow all instructions on the machine and in the manual(s) before starting.
- Do not put hands or feet near or under the machine. Always stay clear of the discharge opening.
- Only responsible adults who are familiar with the instructions should be allowed to operate this machine.
- Clear the mowing area of foreign objects such as rocks, wire, toys and other miscellaneous articles, which could be picked up and thrown by the blade. Stay behind the handle when the engine (motor) is running.
- Make sure that the mowing area is clear of bystanders before starting the machine. Stop the machine if anyone enters the area.
- Do not operate the machine barefooted or while wearing sandals. Always wear substantial footwear.
- Always look down and behind before and while moving backward with the mower.
- Never direct discharged material toward anyone. Avoid discharging material against a wall or other obstruction.

- Do not operate the machine without the entire grass catcher, discharge guard, rear guard or other safety protective devices in place and in proper working order.
- Never leave a running machine unattended.
- Stop the engine (motor) and wait until the blade comes to a complete stop before cleaning the machine, removing the grass catcher or unclogging the discharge guard.
- Operate the machine only in daylight or in good artificial light.
- Do not operate the machine when you are tired or under the influence of alcohol or drugs.
- Never operate the mower in wet grass. Always be sure of your footing; walk, never run, with the mower.
- If the machine should start to vibrate abnormally, stop the engine (motor) and immediately check the machine to ascertain the cause. Vibration is generally a signal of trouble.
- Keep the blade sharp.
- Keep hands and feet away from the cutting area.
- Always wear eye protection when operating the machine.
- Objects struck by the lawn mower blade can cause severe injuries. The mowing area should always be carefully examined and cleared of all objects prior to each mowing.

Slope Operation

Slopes are major factors related to slip and fall accidents, which can result in severe injury. Operation on all slopes requires extra caution. If you feel uneasy on a slope, do not mow it.

- Mow across the face of slopes; never mow slopes following an up and down traverse. Exercise extreme caution when changing direction on a slope.
- Watch for holes, ruts, bumps, rocks or other hidden objects. These may cause an unexpected slip or fall.
- Do not mow on wet grass or excessively steep slopes. Poor footing could cause a slip and fall accident.
- Do not mow near drop offs, ditches or embankments. You could lose your footing or balance.

Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.













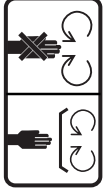


- Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
- Stay alert and turn the mower off if a child enters the area.
- Never let children operate the machine.
- Use extra care when approaching blind corners, shrubs, trees or other objects that may block your view of a child.

Service

- Stop the machine and remove the batteries and the safety key before servicing, cleaning, or removing grass from the lawn mower.
- Keep all nuts and bolts tight.
- Never tamper with safety devices. Regularly check to ensure these devices are in place and in proper working order.
- Keep the mower free from grass, leaves or other debris buildup.
- If you strike a foreign object, stop and inspect the machine. Repair, if necessary, before restarting.
- Never make any adjustments or repairs with the engine (motor) running. Always remove the batteries before adjusting, cleaning or repairing.
- Check the grass bag components and the discharge guard frequently and replace with manufacturer's recommended parts when necessary.
- Mower blade is sharp. Wrap the blade or wear gloves, and use extra caution when servicing it.
- Maintain or replace safety and instruction labels, as necessary.
- If your power tool requires service, contact an authorized Snow Joe® + Sun Joe® dealer or call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563). Only identical replacement parts should be utilized for repairs. This will ensure that the safety of the power tool is maintained.
- If the battery charger cable is damaged, it must be immediately replaced to avoid a hazard. Contact the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563) for assistance.

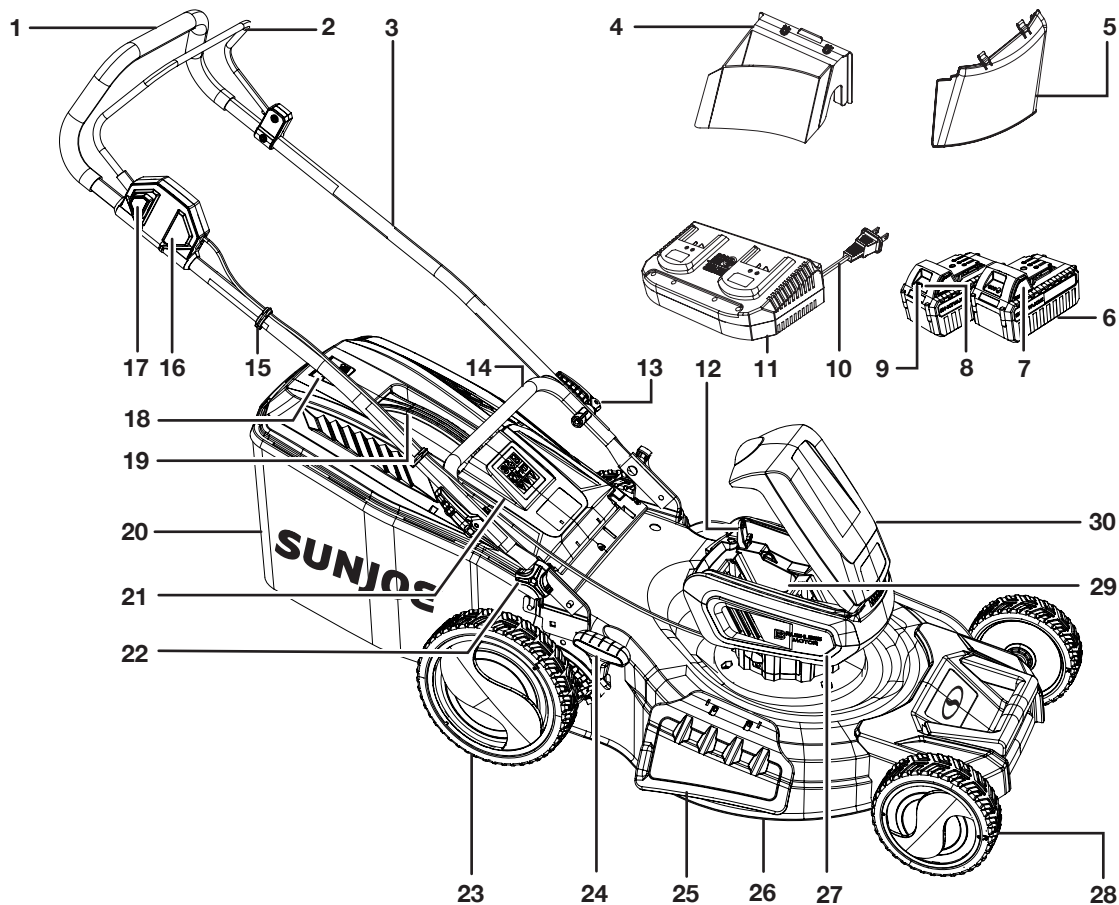
Safety Symbols

The following table depicts and describes safety symbols that may appear on this product. Read, understand and follow all instructions on the machine before attempting to assemble and operate.

Symbols	Descriptions	Symbols	Descriptions
	DANGER! Rotating blades. Keep hands and feet away.		Keep bystanders and children a safe distance away.
	Safety Alert. Caution. To reduce the risk of injury, user must read instruction manual.		Wear eye and hearing protection. For protection against injury, wear ear defenders and safety goggles.
	WARNING! Do not expose or operate the unit in rain or wet conditions. Keep dry.		Wear protective gloves and non-slip footwear when using the machine and handling debris.
	Slip on slope hazard – Use extra caution when mowing on slopes to prevent slip and fall accidents.		Severing of toes or fingers by rotary mower blade.
	Thrown objects and rotating blade can cause severe injury.		Keep bystanders a safe distance away from the work area.
	Blades continue to rotate after machine is switched off.		WARNING! Always turn the machine OFF and remove the safety key before conducting inspection, cleaning and maintenance.
	Rotating blades. Keep hands and feet away from the opening while the machine is running.		Look behind when backing up with the lawn mower.
	Indoor use only. Only use battery charger indoors.		

Know Your Cordless Lawn Mower

Read the owner's manual and safety instructions carefully before operating the mower. Compare the illustration below to the mower in order to become familiar with the location of the various controls and adjustments. Save this manual for future reference.



- | | | |
|---|--|-------------------------------|
| 1. Soft grip | 10. Charger plug | 20. Grass collection bag |
| 2. Switch lever | 11. iON+ 24V lithium-ion dual-port charger (24VCHRG-DPC) | 21. Ejector flap |
| 3. Upper handle frame | 12. Safety key | 22. Handle knob + bolt (2) |
| 4. Mulching plug | 13. Handle latches (2) | 23. Rear wheel |
| 5. Side discharge chute | 14. Lower handle frame | 24. Height adjustment lever |
| 6. iON+ 24V lithium-ion battery (2 x 24VBAT) featuring exclusive EcoSharp® technology | 15. Cable clips (2) | 25. Side discharge door |
| 7. Push lock button | 16. Switch box | 26. Mower deck |
| 8. Push button for battery indicator | 17. Safety lock button | 27. Motor housing |
| 9. Battery indicator | 18. Grass indicator window | 28. Front wheel |
| | 19. Grass collection bag handle | 29. Battery compartment |
| | | 30. Battery compartment cover |

Technical Data

Brushless Motor	Input: 1100 W Output: 900 W
Battery Voltage Max*	48V D.C. (2 x 24V)
Battery Capacity	4.0 Ah
Charge Time Max	1 hr 50 mins
Charger Input	120V AC, 60Hz, 160 W
Charger Output	26 V DC, 2 x 2.2 A
Charge Time Max	1 hr 50 mins
Cutting Width Max	20 in. (51 cm)
Cutting Height	1.2 in. to 3.5 in. (30 mm to 90 mm)
Deck Size	21 in. (53.3 cm)
Grass Bag Capacity	13.2 gal (50 L)
No Load Speed	2500 rpm
Net Weight	54 lbs (24.5 kg)

* Generates 48 V max with two 24 V lithium-ion batteries. Initial no-load voltage, per fully charged battery, peaks at 24 V. Nominal voltage under typical load is 21.6 V.

Unpacking

Carton Contents

- Cordless lawn mower
 - Upper handle frame
 - Handle latch set (2)
 - Safety key
 - Grass collection bag
 - Side discharge chute
 - Mulching plug (inserted in rear discharge opening)
 - Cable clips (2)
 - 24V iON+ lithium-ion batteries (2)
 - 24V iON+ lithium-ion dual port charger
 - Manual and registration card
1. Carefully remove the lawn mower and check to see that all of the above items are supplied.
 2. Inspect the product carefully to make sure no breakage or damage occurred during shipping.

NOTE: Do not discard the shipping carton and packaging material until you are ready to use your new cordless lawn mower. The packaging is made of recyclable materials. Properly dispose of these materials in accordance with local regulations.

IMPORTANT! The equipment and packaging material are not toys. Do not let children play with plastic bags, foils, or small parts. These items can be swallowed and pose a suffocation risk!

Battery Pack Operation

The equipment is powered by two lithium-ion batteries. The battery packs are completely sealed and maintenance free.





⚠️WARNING! The cordless lawn mower can only be powered by both of the batteries together. One battery cannot provide sufficient power to the tool. Make sure to use two batteries of the same voltage and the same capacity. Using the tool with batteries of different capacities will cause damage to the batteries.

⚠️WARNING! Before first use, the batteries require 1 hr 50 min charge time to be fully charged. When the batteries are at low capacity, recharge for 1 hr 50 min again before resuming operation.

Battery Charge Level Indicator

The battery packs are equipped with a push button for checking the charge level. Simply press the push button to read off the battery charge level from the LEDs of the battery indicator:

- All 3 level monitoring LEDs are lit: Battery charge level is high.
- 2 level monitoring LEDs are lit: Battery charge level is decreasing. Stop work as soon as possible.
- 1 level monitoring LED is lit: Battery is flat. Stop work IMMEDIATELY and charge the battery. Otherwise the battery's service life will be greatly shortened.

Lights	Light Indicators
	Charge level button
	The battery is at 30% capacity and requires charging
	The battery is at 60% capacity and requires charging soon
	The battery is at full capacity

NOTE: If the charge level button does not appear to be working, insert the batteries into the charger and charge as needed.

NOTE: Immediately after using the battery pack, the charge level button may display a lower charge than it will if checked a few minutes later. The battery cells "recover" some of their charge after resting.

Charger Operation

⚠ WARNING! Charge only iON+ 24V lithium-ion battery packs with their compatible iON+ 24V lithium-ion charger. Other types of batteries may cause personal injury and damage.

To reduce the risk of electric shock, do not allow water to flow into the charger's AC/DC plug.

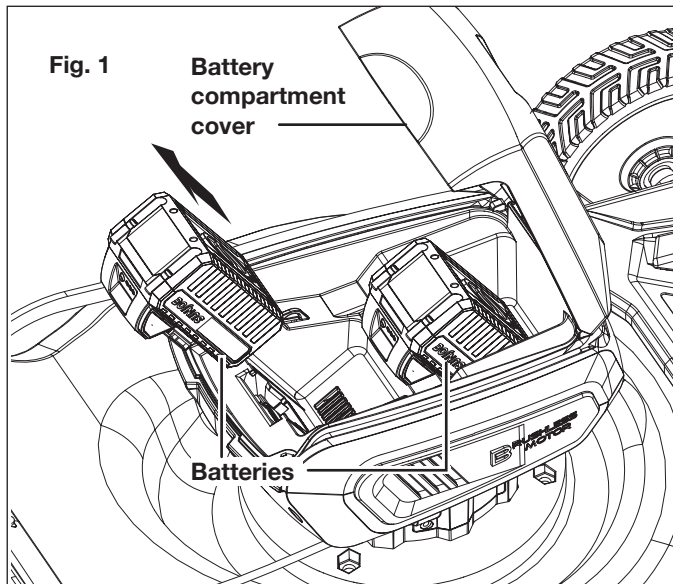
When to Charge the iON+ 24VBAT Lithium-Ion Batteries

NOTE: The iON+ 24VBAT lithium-ion battery packs do not develop a "memory" when charged after only a partial discharge. Therefore, it is not necessary to run down the battery packs before placing them into the charger.

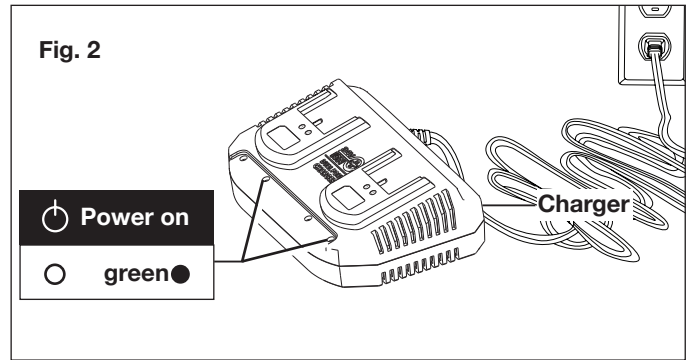
- Use the battery charge indicator lights to determine when to charge your iON+ 24VBAT lithium-ion battery packs.
- You can "top-off" your battery packs' charge before starting a big job or after a long day of use.

Charging the Batteries

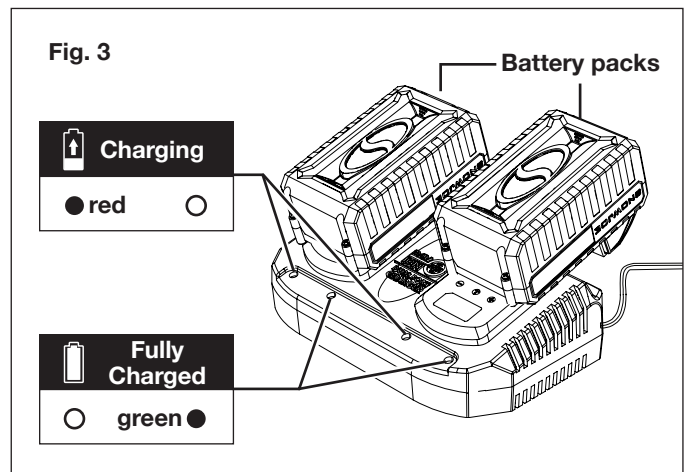
1. Open the battery compartment cover, and push the push lock buttons on the batteries to pull the battery packs out from the battery compartment (Fig. 1).



2. Check that the mains voltage is the same as that marked on the rating plate of the battery charger. Then, insert the charger's plug into the electrical wall outlet. When you plug in the charger, two green lights will illuminate and stay green (Fig. 2).



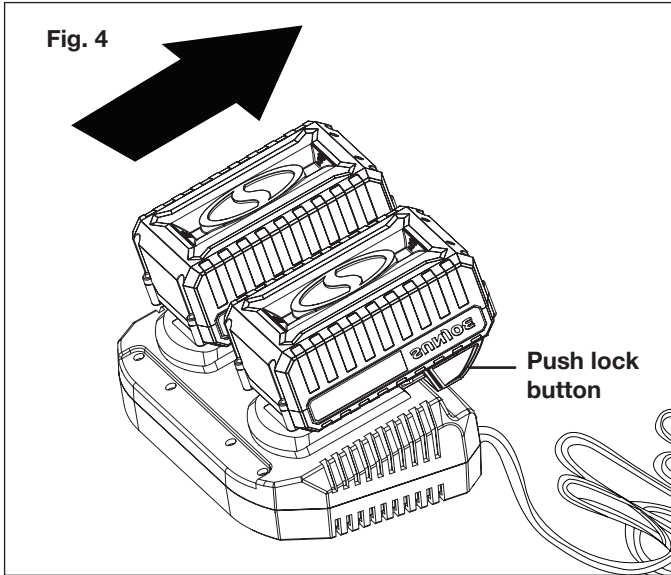
3. Place the battery packs into the charger by sliding the packs to lock them into position. When you insert the batteries into the charger, the two green lights will go off, and the red lights will illuminate to indicate that the batteries are charging (Fig. 3).



4. When the charger lights turn green, the batteries are fully charged (Fig. 3).

NOTE: A fully discharged pack with an internal temperature in the normal range will fully charge in 1 hr 50 min (between 32°F/0°C and 113°F/45°C).

5. If the light indicators do not come on at all, check that the battery packs are fully seated into the bay. Remove the battery packs and reinsert. If the problem persists, contact an authorized Snow Joe® + Sun Joe® dealer or call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563) for assistance.
6. When charging is complete, remove the batteries from the charger by pressing the push lock buttons and sliding the batteries backward to unlock them from the charger (Fig. 4).



⚠ CAUTION! FIRE HAZARD. When removing the batteries from the charger, be sure to unplug the charger from the outlet first, then remove the batteries from the charger.

⚠ WARNING! This charger does not automatically turn off when the batteries are fully charged. Please take care not to leave the batteries in the charger. Switch off or unplug the charger at the mains when charging is complete.

7. Timely recharging of the batteries will help prolong the batteries' life. You must recharge the battery packs when you notice a drop in the equipment's power.

IMPORTANT! Never allow the battery packs to become fully discharged as this will cause irreversible damage to the batteries.

Charging a Hot or Cold Battery Pack

The green indicator lights on the charger base indicates that the battery packs' temperatures are outside the charging range. Once the packs are within the acceptable range, normal charging will take place and the red light will be continuous. Hot or cold battery packs may take longer to charge.

Lithium-Ion Charging Status			
Battery Pack Temperature	Charger Base Indicator Light	Battery Pack Indicator Light	Charging Status
Too hot	Green	Flashing together	Not charging
Normal range	Red	Flashing one by one	Normal charging
Too cold	Green	Flashing together	Not charging

Assembly

⚠ WARNING! Do not insert the batteries until assembly is complete. Failure to comply could result in accidental starting and serious personal injury.

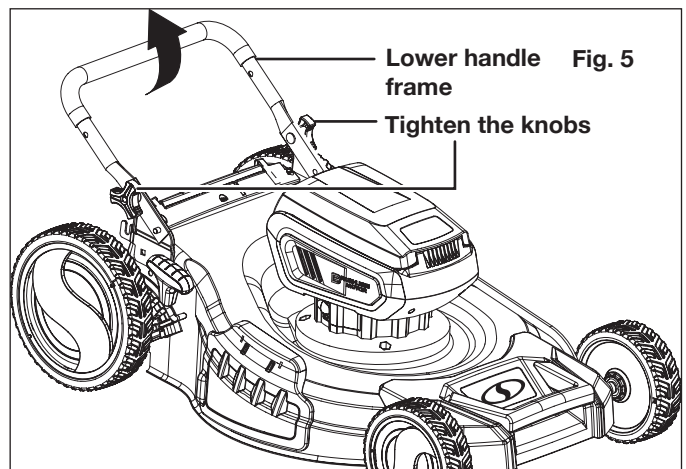
⚠ WARNING! Before performing any maintenance, make sure the batteries and the safety key are removed from the unit. Failure to heed this warning could result in serious personal injury.

⚠ WARNING! The product must be fully assembled before operation. Do not use a product that is only partially assembled or assembled with damaged parts.

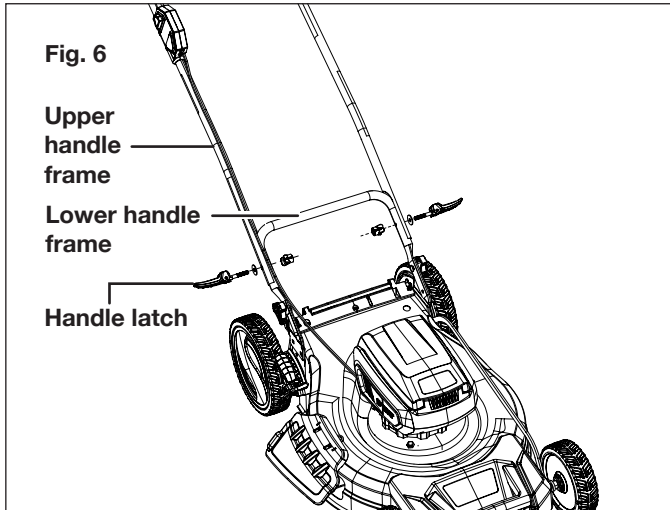
NOTE: Before using the mower, follow these instructions to assemble the handle and grass bag.

Handle Assembly

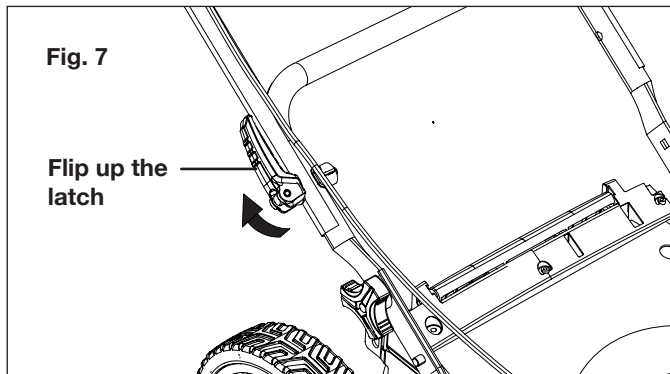
1. The unit arrives with the lower handle frame in the storage position and the upper handle detached. Lift the lower handle to the desired height and tighten the preassembled knobs (Fig. 5).



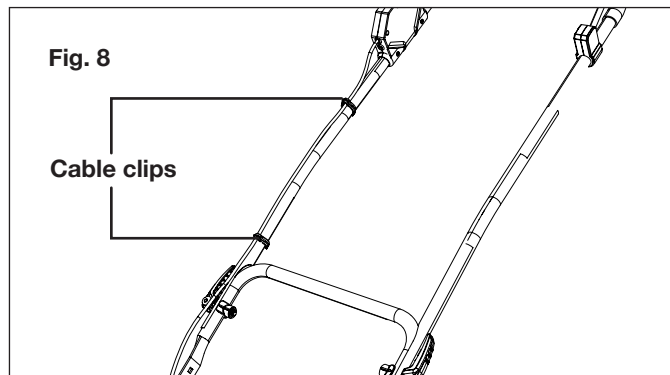
2. Fit the upper handle frame onto the lower handle. Insert the provided latches into the washers and the aligned holes on the handles and secure the latches on the handle frame (Fig. 6).



3. Flip up the latches to lock the handle in place (Fig. 7).

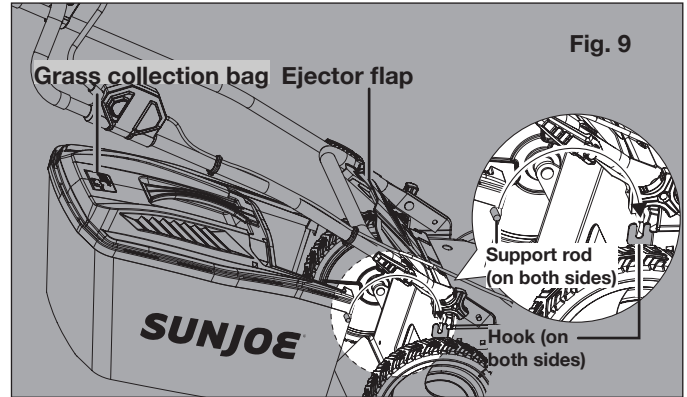


4. Use the cable clips to secure the cable on the handle frame (Fig. 8).

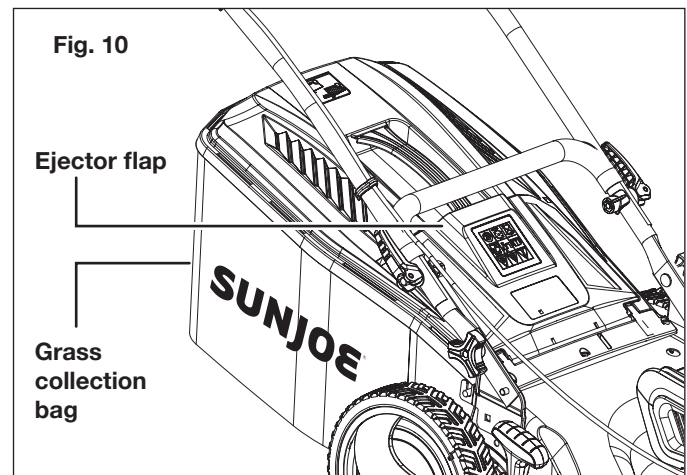


Grass Collection Bag Fitting

1. Lift the ejector flap up, and remove the mulching plug inserted in the rear discharge opening.
2. With the ejector flap lifted up, hold the grass collection bag by the handle and hook the ends of the support rod on the hooks on both sides (Fig. 9).



3. Release the ejector flap so that it rests on the grass bag. (Fig. 10).

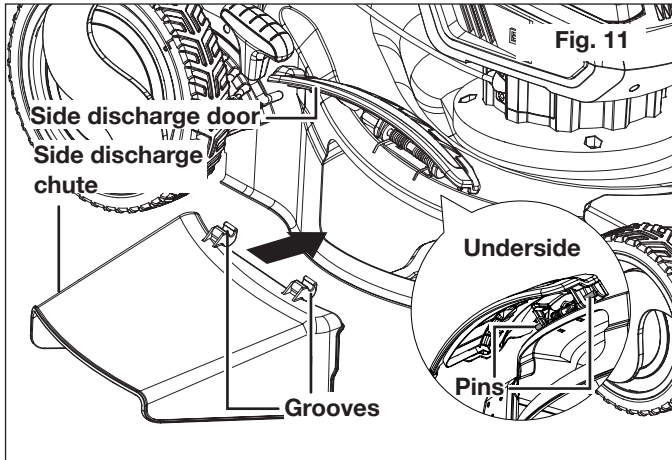


Side Discharge Chute Assembly + Fitting

Use the side discharge chute on your mower when the grass is too tall to mulch or when side discharging is preferred. The grass clippings produced by the side discharge chute are noticeably larger than those produced by the mulching plug.

NOTE: When using the side discharge chute, do not assemble the grass collection bag. Insert the mulching plug in the rear discharge opening.

1. Lift up the side discharge door.
2. Align the grooves on the side discharge chute with the pins on the underside of the door, and hook the grooves on the pins (Fig. 11).



3. Release the side discharge door.

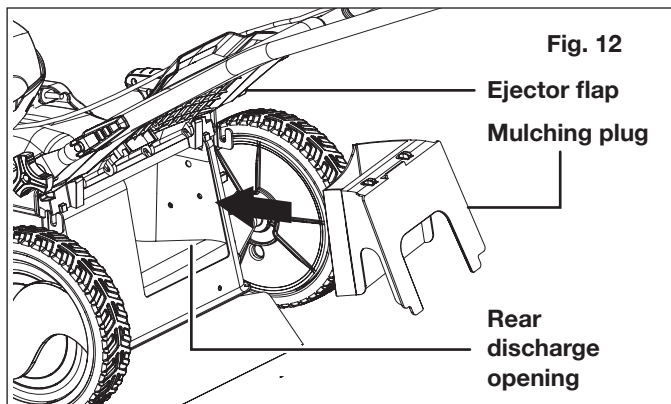
Mulching Plug Assembly + Fitting

Your mower is equipped with a mulching plug to allow the blade to cut and recut the grass for finer clippings.

NOTE: When using the mulching plug, do not assemble the grass collection bag or the side discharge chute.

NOTE: When the grass collection bag is not attached, the mulching plug must be inserted in the rear discharge opening.

1. Lift up the ejector flap.
2. Insert the mulching plug fully into the rear discharge opening and make sure it's seated securely (Fig. 12).



3. Release the ejector flap.

Operation

This lawn mower is intended for private residential use to cut grass in small lawns and gardens. This lawn mower is not intended to cut grass in public parks, playing fields, farms or forests. Do not use this lawn mower for any application other than that for which it is intended.

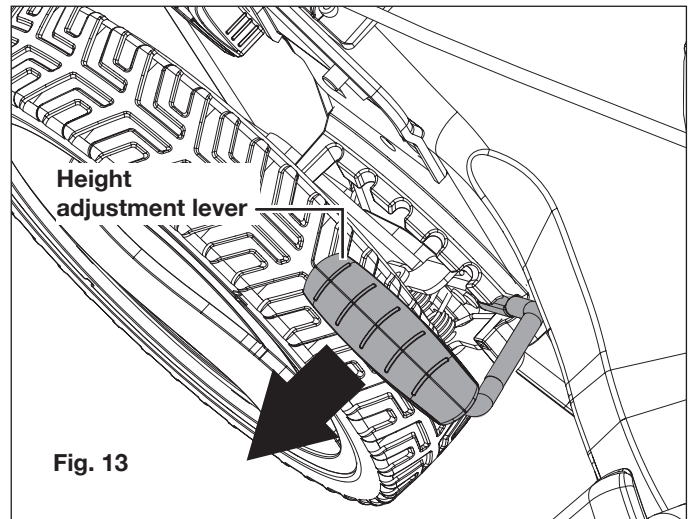
Adjusting the Cutting Height

This cordless lawn mower is equipped with a 7-position height adjustment lever to tailor grass cutting heights from 1.2 in. to 3.5 in. (30 mm to 90 mm). To change the cutting height of the grass, follow the instructions below.

⚠️ WARNING! Before making these adjustments, remove the batteries and the safety key from the lawn mower and wait until the rotating blade has come to a complete standstill.

ALWAYS FOLLOW ALL SAFETY PRECAUTIONS AND RECOMMENDATIONS LISTED PREVIOUSLY IN THIS MANUAL.

1. Power off the lawn mower and remove the batteries and the safety key.
2. Push the cutting height adjustment lever to the outside of the original slot (Fig. 13).



3. Insert the lever into the desired slot.

7-Position Height Adjustment (From front to rear):

- (1) 1.2 in. (30 mm)
- (2) 1.6 in. (40 mm)
- (3) 2.0 in. (50 mm)
- (4) 2.4 in. (60 mm)
- (5) 2.8 in. (70 mm)
- (6) 3.1 in. (80 mm)
- (7) 3.5 in. (90 mm)

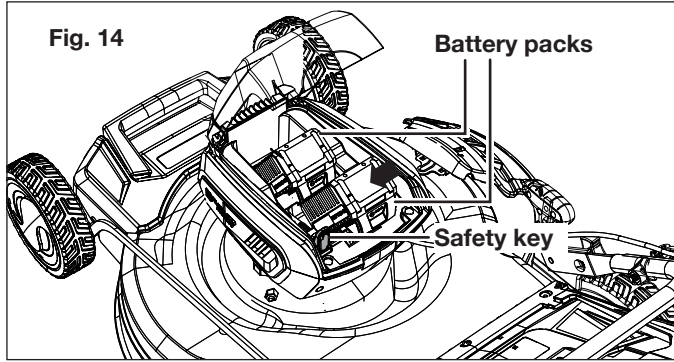
4. Reinsert the batteries and the safety key to the lawn mower and resume normal use.

Starting + Stopping

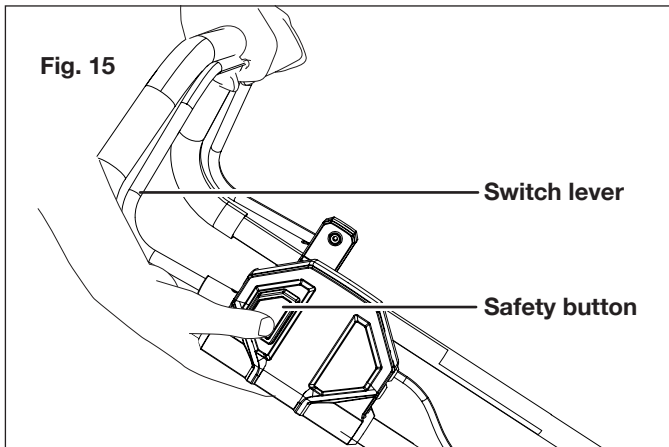
⚠️ WARNING! Before switching on the mower, make sure that it is not in contact with any foreign objects. Keep your hands and feet a safe distance away from the rotating mower blade and the ejector opening. Failure to comply with these warnings can result in severe personal injury.

IMPORTANT: Do not start the mower in tall grass.

1. Make sure the unit's switch lever is not squeezed on. Insert the batteries and the safety key in their slots (Fig. 14). Close the battery compartment cover.



2. To start the machine, press and hold the safety lock button while pulling the switch lever toward you (Fig. 15).

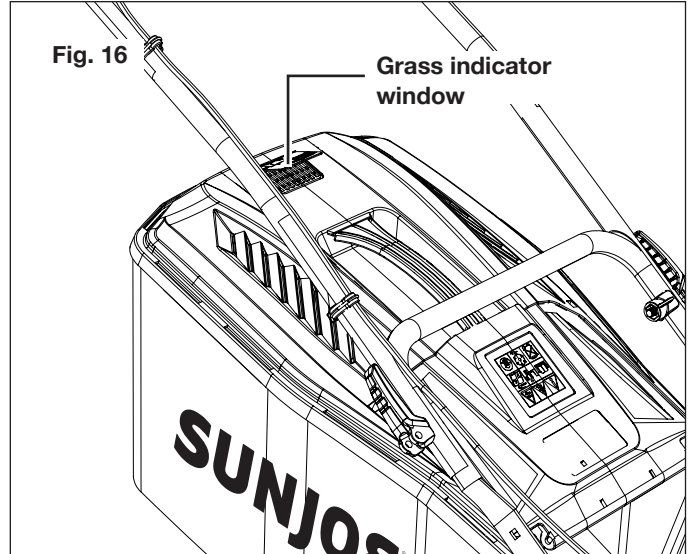


3. Once the machine powers on, release the safety lock button and proceed with operation.
4. To stop the mower, release the switch lever.

⚠ WARNING! The mower blade will continue to rotate for a brief period after the unit has been switched off. Do not tilt or carry the unit while the motor is still running and do not touch the blade while it is still rotating. Failure to comply could result in severe personal injury.

Grass Bag Filling Level Indicator

1. The grass bag is equipped with a filling level indicator window that is opened by the airflow that the lawn mower generates during operation (Fig. 16).
2. If the flap closes during mowing, this indicates that the grass bag is full and must be emptied.



NOTE: To ensure that the filling level indicator functions properly, keep the holes under the flap clean and permeable.

Mowing Tips

⚠ WARNING! Inspect the area prior to mowing and remove all the stones, sticks, wires and other foreign objects that could be picked up and thrown by the rotating blade. Failure to comply not only will damage the mower blade, but can also lead to serious personal injury.

- Be sure to check the mowing blade periodically for signs of wear and replace as needed, as described in the maintenance section.

NOTE: A sharp blade will greatly enhance the performance of the mower, especially when cutting tall blades of grass.
- When cutting thick grass, reduce your walking speed in order to allow for a more effective cut and a proper discharge of the clippings. For a healthy lawn, always cut off one-third or less from the total length of the grass. The average lawn should be approximately 1.5 in. to 2 in. (3.8 cm to 5 cm) long during cool months, and more than 2 in. (5 cm) long during hot months. If there is growth, the lawn should be cut in the fall.
- The lawn will look better if it is always cut to the same height and in alternate directions.
- When crossing any gravelled surfaces, release the switch bar lever to turn off the mower. The stones can be picked up and thrown by the rotating blade.
- Set the mower to the highest cutting height when mowing on uneven ground or in tall weeds.

⚠ WARNING! If you strike a foreign object, stop the motor and remove the batteries. Thoroughly inspect the mower and repair any damage before resuming work.

- **IMPORTANT!** Never open the ejector flap when the grass collection bag has been detached (to be emptied) and the motor is still running. A rotating blade can cause serious injuries!

- Always carefully fasten the ejector flap and grass collection bag. Switch off the motor before emptying the grass collection bag. Always ensure that a safe distance (provided by the length of the long handles) is maintained between the user and the mower housing. Be especially careful when mowing and changing direction on slopes and inclines.
- Maintain a solid footing and wear sturdy, non-slip footwear and long trousers. Always mow across an incline (not up and down).
- For safety reasons, the lawn mower may not be used to mow inclines with gradients exceeding 15 degrees.
- Use special caution when backing up and pulling the lawn mower towards you as such maneuvering of the machine poses a tripping hazard.
- For effective mulching, do not cut wet grass; it tends to stick to the underside of the deck, preventing the proper mulching of grass clippings. The best time to mow grass is in the late afternoon, when the grass is dry and the newly cut area will not be exposed to direct sunlight.
- For the best mulching performance, set the cutting height to remove approximately one third of the grass length, ideally no more than 1.5 in. at one time. If the grass is overgrown, it may be necessary to increase the cut height to make it easier to mow and to prevent overloading the motor. Slow your cutting pace in tall or thick grass conditions. For mulching extremely thick or tall grass, it is advisable to first cut at a high cut-height setting, and then re-cut to the final cut height. Otherwise, make narrower cuts and mow slowly. ALWAYS MAKE SURE THAT THE BLADE IS SHARP

Maintenance + Care

⚠️ WARNING! Before cleaning, repairing or inspecting the mower, stop the machine, remove the batteries and the safety key. Verify that all moving parts have come to a complete stop.

General

- Always keep the mower clean and free of grass, dirt or other debris.
- Keep the handles dry, clean and free of oil and grease.
- After each cutting session, remove accumulated grass clippings and debris using either a dry cloth or handbrush. You may also clean the equipment with a damp cloth and some soft, non-abrasive soap. Do not use cleaning agents or harsh solvents as they may damage the equipment's plastic components. Make sure that no water penetrates the equipment's interior as intake of water can destroy the switch mechanism and the electric motor.
- Do not clean the lawn mower with running water, particularly with high-pressure water.
- Check all nuts, bolts and screws for proper tightness before each use.
- Frequently inspect the grass collection bag assembly for signs of wear and replace immediately with a genuine part if damage is found.

- Replace excessively worn or damaged parts immediately.
- To maximize your mower's longevity, all screwed parts, including the wheels and axles, should be cleaned and lubricated. There are no parts inside the equipment which require additional maintenance or lubrication.

Blade Maintenance

IMPORTANT: The mower blade is sharp and can cause severe personal injury if handled incorrectly. Wrap the blade or wear protective gloves, and use extra caution when handling.

The steel blade is designed to provide a fine cut in long or tough grass. Deterioration in the quality of cut indicates blade wear or damage. Follow these steps to determine if the blade needs to be resharpened or replaced:

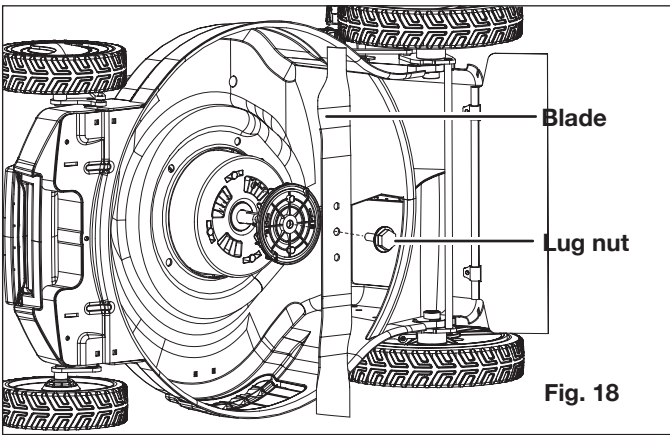
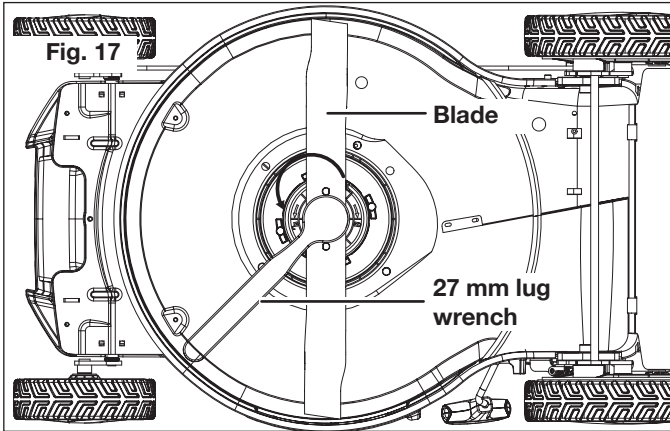
1. Disconnect the power supply to the mower by removing the batteries and the safety key.
2. Turn the mower on its side to expose the underside of the blade housing.
3. Check the blade.
 - a. If the blade is blunt or has minor wear, then resharpen.
 - b. If the blade shows signs of major wear or damage (i.e. gouged, bent), replace.

⚠️ WARNING! An excessively vibrating mower indicates that the blade is not properly balanced or has become deformed from striking an object. In this case, the blade must be repaired or replaced. Please follow the proper maintenance procedures for blade care.

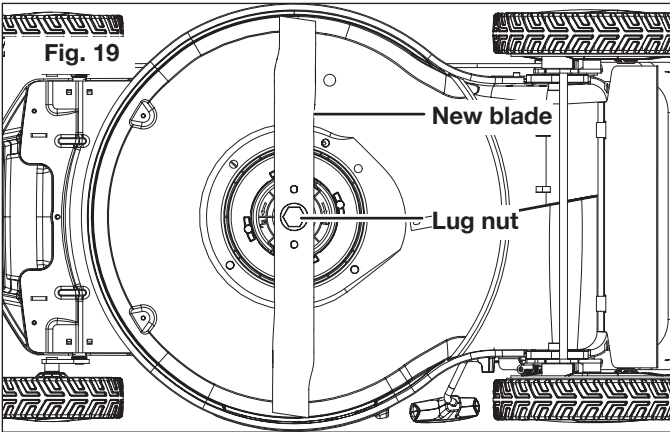
Blade Replacement

IMPORTANT: Only use original replacement parts specified for this mower. The use of parts that do not meet the original equipment specifications may lead to improper performance of the lawn mower, may compromise operator safety.

1. Remove the batteries and the safety key from the mower.
2. Turn the mower on its side to expose the underside of the blade housing.
3. Use a cloth to grip the blade or wear heavy-duty gloves.
4. Using a 27 mm lug wrench (not provided), remove the lug nut securing the blade by turning the lug nut counterclockwise, then carefully remove the blade (Figs. 17 to 18).



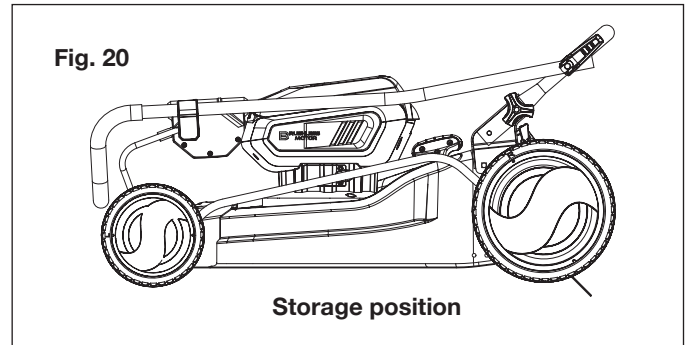
5. Fit the new blade on the same position and secure with the original lug nut (Fig. 19).



Storage

Follow the steps below to prepare the lawn mower for storage:

1. Remove the batteries and the safety key from the battery compartment.
2. Remove the grass collection bag. Engage the height adjustment lever in the lowest cutting height slot.
3. Clean the mower with a damp cloth or hand brush.
4. Inspect the mower carefully for worn, loose or damaged parts. Check connections and screws and tighten if necessary. Pay special attention to the mower blade and replace/sharpen if it shows signs of wear. Refer to the Maintenance and Care section.
5. Store the mower indoors in a dry, clean and cool area out of the reach of children. Do not store the unit next to corrosive materials, such as fertilizer and rock salt.
6. Do not cover the lawn mower with a solid plastic sheet. Plastic coverings trap moisture around the mower, which can damage the unit.
7. Press down the handle releasing button located on the middle bar of the handle frame, meanwhile push the upper handle frame to insert it into the lower handle frame.
8. Press and hold the handle latch. Gently pivot the handle frame toward the front of the mower until you hear and feel the handle frame locks in the storage position (Fig. 20).



Disposal

Recycling + Disposal

The product comes in a package that protects it against damage during shipping. Keep the package until you are sure that all parts have been delivered and the product is functioning properly. Recycle the package afterwards or keep it for long-term storage.



WEEE symbol. Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority or local store for recycling regulations.

Battery Caution + Disposal

Always dispose of your battery packs according to federal, state, and local regulations. Contact a recycling agency in your area for recycling locations.

⚠️ CAUTION! Even discharged battery packs contain some energy. Before disposing, use electrical tape to cover the terminals to prevent the battery pack from shorting, which could cause a fire or explosion.

⚠️ WARNING! To reduce the risk of injury or explosion, never burn or incinerate a battery pack even if it is damaged, dead or completely discharged. When burned, toxic fumes and materials are emitted into the surrounding atmosphere.

1. Batteries vary according to device. Consult your manual for specific information.
2. Install only new batteries of the same type in your product (where applicable).
3. Failure to insert batteries in the correct polarity, as indicated in the battery compartment or manual, may shorten the life of the batteries or cause batteries to leak.
4. Do not mix old and new batteries.
5. Do not mix Alkaline, Standard (Carbon-Zinc) or Rechargeable (Nickel Cadmium, Nickel Metal Hydride, or Lithium-Ion) batteries.
6. Do not dispose of batteries in fire.
7. Batteries should be recycled or disposed of as per state and local guidelines.

Service + Support

If your Sun Joe® 24V-X2-21LM-RM cordless lawn mower requires service or maintenance, please call 1-866-SNOWJOE (1-866-766-9563) for assistance.

Model + Serial Numbers

When contacting the company or reordering parts, you will need to provide the model and serial numbers of your product. These are found on the decal affixed to the housing or handle of your mower. Copy these numbers into the space provided below.

Record the following numbers from the housing or handle of your new product:	
Model #:	
2 4 V - X 2 - 2 1 L M - R M	
Serial #:	

24VCHRG-DPC-2

Federal Communications Commission (FCC)

⚠️ WARNING! Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Class B device:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

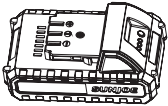
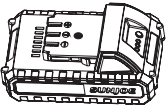



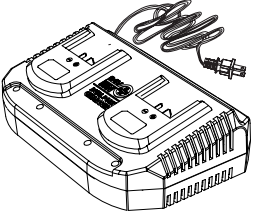
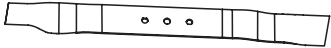
Troubleshooting

- Remove the batteries and the safety key before carrying out maintenance on the machine or when checking that its parts are in proper working order.
- To avoid unnecessary hassles, consult the following table before contacting a qualified repair person with any mechanical issues.

Fault	Possible Cause	Remedy
Mower fails to start	<ul style="list-style-type: none"> a) The safety key is not inserted b) The batteries are flat c) The batteries are not inserted securely d) The motor/blade control is disengaged e) The mower deck is clogged with grass or debris f) The grass is too tall 	<ul style="list-style-type: none"> a) Insert the safety key b) Charge the batteries c) Attach the battery packs to the mower; press it until you hear a click d) Press safety lock button first ,then the switch lever e) Clean the mower deck. Make sure the blade is free to move f) Set the mower to a high cutting height. Lift the front wheels slightly by pressing down on the handle bar
Mower stops while mowing	<ul style="list-style-type: none"> a) The batteries are flat b) The grass is too tall c) The mower deck is clogged with grass or debris d) The batteries or the mower circuitry is too hot 	<ul style="list-style-type: none"> a) Charge the batteries b) Reset the cutting height c) Clean the mower deck. Make sure the blade is free to move d) Cool down the batteries and the machine
The mower cannot cut grass evenly	<ul style="list-style-type: none"> a) The lawn is rough or uneven b) The blade is not sharp enough 	<ul style="list-style-type: none"> a) Adjust cutting height b) Sharpen or replace the blade
The mower cannot mulch properly	<ul style="list-style-type: none"> a) The mower deck is clogged with grass or debris b) The grass is too wet c) The grass is too tall d) The blade is not sharp enough 	<ul style="list-style-type: none"> a) Clean the mower deck. Make sure the blade is free to move b) Wait until the grass is dry c) Adjust the cutting height to the high position to mow for the first time, and mow again at the desired height setting d) Sharpen or replace the blade
The mower is difficult to push	<ul style="list-style-type: none"> a) The grass is too tall to cut b) The blade or the mower rear is dragged by heavy grass 	<ul style="list-style-type: none"> a) Adjust cutting height higher
The mower is vibrating at high speed	<ul style="list-style-type: none"> a) The motor shaft is bent b) The blade is unbalanced c) The blade lug nut is loose 	<ul style="list-style-type: none"> a) Stop the motor, remove the batteries, and inspect the damage. Contact with a qualified repair person. b) Balance the blade by grinding each cutting edge equally or replace a new one c) Tighten the blade lug nut

Optional Accessories

⚠️ WARNING! ALWAYS use only authorized Snow Joe® + Sun Joe® replacement parts and accessories. NEVER use replacement parts or accessories that are not intended for use with this tool. Contact Snow Joe® + Sun Joe® if you are unsure whether it is safe to use a particular replacement part or accessory with your tool. The use of any other attachment or accessory can be dangerous and could cause injury or mechanical damage.

Accessories	Item	Model
	24V iON+ 2.0 Ah Lithium-Ion Battery	24VBAT-LTE
	24V iON+ 2.5 Ah Lithium-Ion Battery	24VBAT-LT
	24V iON+ 4.0 Ah Lithium-Ion Battery	24VBAT
	24V iON+ 5.0 Ah Lithium-Ion Battery	24VBAT-XR
	24V iON+ Lithium-Ion Battery Quick Charger	24VCHRG-QC
	24V iON+ Lithium-Ion Dual-port Battery Charger	24VCHRG-DPC
	Cutting Blade Replacement	iON100V-21LM-BLD

NOTE: Accessories are subject to change without any obligation on the part of Snow Joe® + Sun Joe® to provide notice of such changes. Accessories can be ordered online at sunjoe.com or via phone by contacting the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).



SNOW JOE® + SUN JOE® REFURBISHED GOODS WARRANTY

GENERAL CONDITIONS:

Snow Joe® + Sun Joe® operating under Snow Joe®, LLC warrants this refurbished product to the original purchaser for 90 days against defects in material or workmanship when used for normal residential purposes. If a replacement part or product is needed, it will be sent free of charge to the original purchaser except as noted below.

The duration of this warranty applies only if the product is put to personal use around the household. It is the owner's responsibility to correctly perform all maintenance and minor adjustments explained in the owner's manual.

HOW TO OBTAIN YOUR REPLACEMENT PART OR PRODUCT:

To obtain a replacement part or product, please visit snowjoe.com/help or email us at help@snowjoe.com for instructions. Please be sure to register your unit beforehand to speed up this process. Certain products may require a serial number, typically found on the decal affixed to the housing or guard of your product. All products require a valid proof of purchase.

EXCLUSIONS:

- Wearing parts like belts, augers, chains and tines are not covered under this warranty. Wearing parts can be purchased at snowjoe.com or by calling 1-866-SNOWJOE (1-866-766-9563).
- Batteries are covered in full for 90-days from the date of purchase.

Snow Joe® + Sun Joe® may from time to time change the design of its products. Nothing contained in this warranty shall be construed as obligating Snow Joe® + Sun Joe® to incorporate such design changes into previously manufactured products, nor shall such changes be construed as an admission that previous designs were defective.

This warranty is intended to cover product defects only. Snow Joe®, LLC is not liable for indirect, incidental or consequential damages in connection with the use or misuse of the Snow Joe® + Sun Joe® products covered by this warranty. This warranty does not cover any cost or expense incurred by the purchaser in providing substitute equipment or service during reasonable periods of malfunction or non-use of this product while waiting for a replacement part or unit under this warranty. Some states do not allow exclusions of incidental or consequential damages so the above exclusions may not apply in all states. This warranty may give you specific legal rights in your state.

HOW TO REACH US:

We're here to help Monday through Friday from 9AM to 7PM EST and Saturday and Sunday 9AM to 4PM. You can reach us at 1-866-SNOWJOE (1 866-766-9563), online at snowjoe.com, via email at help@snowjoe.com or tweet us @snowjoe.

EXPORTS:

Customers who have purchased Snow Joe® + Sun Joe® products exported from the United States and Canada should contact their Snow Joe® + Sun Joe® distributor (dealer) to obtain information applicable to your country, province or state. If for any reason, you are not satisfied with the distributor's service, or if you have difficulty obtaining warranty information, contact your Snow Joe® + Sun Joe® seller. If in the event your efforts are unsatisfactory, please reach out to us directly.



A series of 20 horizontal lines for writing, arranged in 10 pairs.



A series of horizontal lines providing a writing area. There are 19 lines in total, evenly spaced across the page.



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sunjoe.com