



## OPERATOR'S MANUAL

A Division of Snow Joe®, LLC

# CORDLESS CHAIN SAW – CORE TOOL

## 48-VOLT MAX\* | 16-INCH

Model 24V-X2-CS16-CT

Form No. SJ-24V-X2-CS16-CT-880E-M

## IMPORTANT!

### Safety Instructions

### All Operators Must Read These Instructions Before Use

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference.

**⚠ DANGER!** This indicates a hazardous situation, which, if not followed, will result in serious injury or death.

**⚠ WARNING!** This indicates a hazardous situation, which, if not avoided, could result in serious injury or death.

**⚠ CAUTION!** This indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

### Intended Use

This cordless chain saw was designed and manufactured for trimming and pruning tree limbs and branches and for cutting smaller logs up to recommended 14.5 inch (36.8 cm), not to exceed a max. cut of 15.5 in. (39.4 cm) in diameter depending on type of wood. All of the wooden objects intended to be cut with this chain saw should be no thicker than the guide bar's maximum cutting capabilities.

### Improper Use

Any other use differing from the above mentioned applications poses a serious hazard to the user and may damage both the tool and your personal property. Examples of improper use include, but are not limited to:

- Trimming hedges;
- Carving;
- Sectioning pallets, crates, and various packing materials;
- Sectioning furniture or other materials with nails, screws, or other metal components;
- Butchering meat;
- Using the machine to lift, move, or split objects;
- Using the machine while fastened to fixed supports.

Improper use of the machine will invalidate the warranty, relieve the manufacturer from all liabilities. The user will consequently be liable for all and any damage or injury to himself/herself or others.

## General Safety

**⚠ WARNING!** When using cordless yard tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

### Work Area Safety

1. **Keep work area clean and well lit** – Cluttered or dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust** – Power tools create sparks which may ignite the dust or fumes.
3. **Keep children and bystanders away while operating a power tool** – Distractions can cause you to lose control.

### Electric Safety

1. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
2. **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.
3. **Do not expose power tools to rain or wet conditions** – Water entering a power tool will increase the risk of electric shock.
4. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
5. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
6. **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

## Personal Safety

1. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication** – A moment of inattention while operating power tools may result in serious personal injury.
2. **Use personal protective equipment. Always wear eye protection** – Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
3. **Prevent unintentional starting. Ensure the switch is in the off-position before connecting battery packs, picking up or carrying the tool** – Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
4. **Remove any adjusting key or wrench before turning the power tool on** – A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times** – This enables better control of the power tool in unexpected situations.
6. **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts** – Loose clothes, jewellery or long hair can be caught in moving parts.
7. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used** – Use of dust collection can reduce dust-related hazards.

## Power Tool Use and Care

1. **Do not force the power tool. Use the correct power tool for your application** – The correct power tool will do the job better and safer at the rate for which it was designed.
2. **Do not use the power tool if the switch does not turn it on and off** – Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
3. **Disconnect the battery packs from the power tool before making any adjustments, changing accessories, or storing power tools** – Such preventive safety measures reduce the risk of starting the power tool accidentally.
4. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool** – Power tools are dangerous in the hands of untrained users.
5. **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired**

**before use** – Many accidents are caused by poorly maintained power tools.

6. **Keep cutting tools sharp and clean** – Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
7. **Use the power tool, accessories etc. in accordance with these instructions, taking into account the working conditions and the work to be performed** – Use of the power tool for operations different from those intended could result in a hazardous situation.

## Battery tool use and care

1. **Recharge only with the charger specified by the manufacturer** – A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
2. **Use power tools only with specifically designated battery packs** – Use of any other battery packs may create a risk of injury and fire.
3. **When battery packs are not in use, keep them away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another** – Shorting the battery terminals together may cause burns or a fire.
4. **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help** – Liquid ejected from the battery may cause irritation or burns.

## Service

**Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained

## Chain Saw Safety Warnings

- Keep guards in place. Protective guards should be checked periodically to ensure they are properly fitted and in correct working order.
- Do not grasp the exposed cutting blade or cutting edges when picking up or holding the saw. Be sure to encase the cutting bar in its protective sheath when not in use.
- **Keep all parts of the body away from the saw chain when the chain saw is operating. Before you start the chain saw, make sure the saw chain is not contacting anything.** A moment of inattention while operating the chain saw may cause entanglement of your clothing or body with the saw chain.
- **Always hold the chain saw with your right hand on the rear handle and your left hand on the front handle.** Holding the chain saw with a reversed hand configuration increases the risk of personal injury and should never be done.

- **Hold the power tool by insulated gripping surfaces only, because the saw chain may contact hidden wiring.** Saw chains contacting a "live" wire may make exposed metal part of the power tool "live" and give the operator a electric shock.
- **Wear safety glasses and hearing protection. Further protective equipment for head, hands, legs and feet is recommended.** Adequate protective clothing will reduce personal injury by flying debris or accidental contact with the saw chain.
- **Do not operate the chain saw in a tree.** Operation of a chain saw while up in a tree may result in personal injury.
- **Always keep proper footing and operate the chain saw only when standing on a fixed, secured and level surface.** Slippery or unstable surfaces such as ladders may cause a loss of balance or control of the chain saw.
- **When cutting a limb that is under tension, be cautious of spring back.** When the tension in the wood fibers is released, the spring-loaded limb may strike the operator and/or throw the chain saw out of control.
- **Use extreme caution when cutting brush and saplings.** The slender material may catch the saw chain and be whipped toward you or pull you off balance.
- **Carry the chain saw by the front handle with the chain saw switched off and away from your body. When transporting or storing the chain saw, always fit the guide bar cover.** Proper handling of the chain saw will reduce the likelihood of accidental contact with the moving saw chain.
- **Follow instructions for lubricating, chain tensioning and changing accessories.** An improperly tensioned or poorly lubricated chain may either break or increase the chance for kickback.
- **Keep handles dry, clean and free from oil and grease.** Greasy, oily handles are slippery and can cause loss of control.
- **Cut wood only. Do not use the chain saw for any other purpose. For example, do not use the chain saw to cut plastic, masonry or non-wood building materials.** Using the chain saw in these incorrect ways could result in serious damage to you and your tool.

## Causes and operator prevention of kickback

Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut.

Tip contact in some cases may cause a sudden reverse reaction, kicking the guide bar up and back towards the operator.

Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back towards the operator.

Either of these reactions may cause you to lose control of the saw which could result in serious personal injury. Do not rely exclusively upon the safety devices built into your saw. As a chain saw user, you should take several steps to keep your cutting jobs free from accident or injury.

Kickback is the result of tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below:

- **Maintain a firm grip (right hand on the rear handle and left hand on the front handle with thumbs and fingers encircling the respective handles) and position your body and arms to allow you to resist kickback forces.** Kickback forces can be controlled by the operator if proper precautions are taken. Do not let go of the chain saw.
- **Do not overreach and do not cut above shoulder height.** This helps prevent unintended tip contact and enables better control of the unit in unexpected situations.
- **Only use replacement bars and chains specified by the manufacturer.** Incorrect replacement of bars and chains may cause chain breakage and/or kickback.
- Never use a dull or loose chain. Keep the chain sharp and properly tensioned.
- **Follow the manufacturer's sharpening and maintenance instructions for the saw chain.** Decreasing the depth gauge height can lead to increased kickback.

## Battery & Charger Safety Instructions

**NOTE:** The battery and the charger are not included and must be purchased separately. 24V-X2-CS16-CT is compatible with the following batteries (models 24VBAT-LTE, 24VBAT-LT, 24VBAT, and 24VBAT-XR) and chargers (models 24VCHRG-QC, 24VCHRG-DPC). See page 22 for more information.

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 cordless chain saw and cause it to malfunction, which can lead to serious personal injury.

**⚠️ WARNING!** Do not use a battery pack or appliance that is damaged or modified. Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.

Do not modify or attempt to repair the appliance or the battery packs except as indicated in the instructions for use and care.

Have your battery packs serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the battery pack is maintained.

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

- **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 pack, 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 a charging battery pack. Vented gases may explode.

**NOTE:** The safe temperature range for the battery is 41°F – 105°F (5°C – 40.5°C). Do not charge the battery 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 gauge 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.
- **Check the rated input for the charger before using** – 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, 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.
- **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 battery

1. The battery packs (models 24VBAT-LTE, 24VBAT-LT, 24VBAT, and 24VBAT-XR) must be purchased separately for use with this cordless chain saw 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 an aged battery pack are no longer capable of meeting the high power requirements needed for the proper operation of your chain saw, 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 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 pack appears 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.  
**IMPORTANT!** Do not press the ON/OFF switch any more if the protective cut-off has been activated. This may damage to the battery packs.
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 (sold separately). 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 supplied battery charger to charge other cordless tools.
6. During periods of heavy use, the battery packs will become warm. Allow the battery pack to cool to room temperature before connecting it to 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 a charged or partially charged battery pack 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 pack has 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.

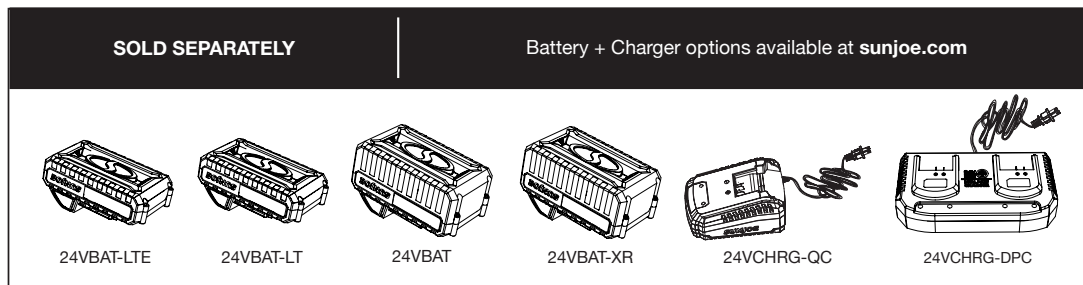
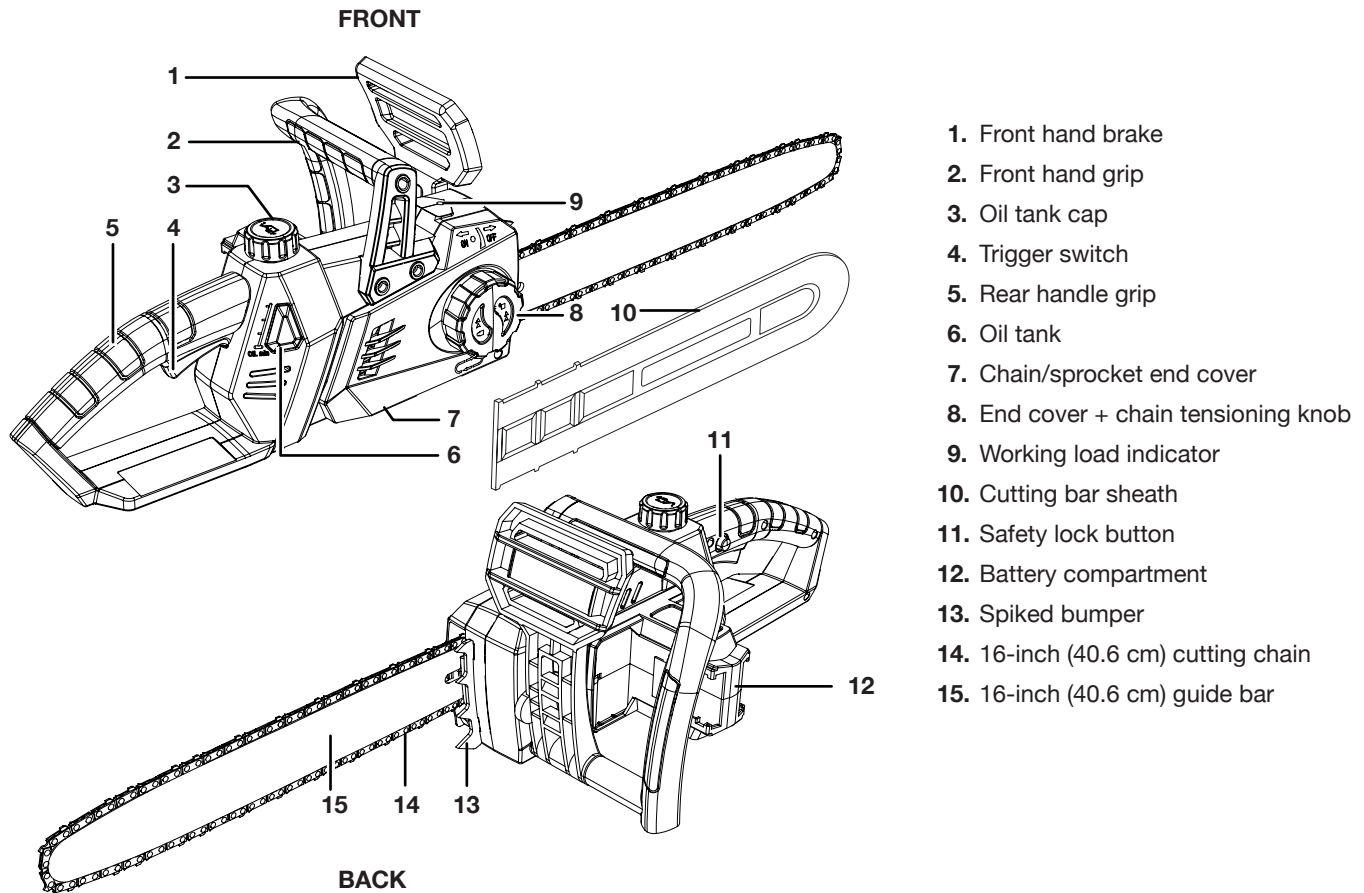
# Safety Symbols

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
	<b>READ THE OPERATOR'S MANUAL(S)</b> – Read, understand and follow all instructions in the user manual(s) before attempting to assemble and operate.		<b>DANGER! ROTATING BLADES</b> – Keep hands and feet away from openings while the saw is running.
	<b>SAFETY ALERT</b> – Indicates a precaution, a warning or a danger.		<b>WEAR EYE AND HEARING PROTECTION</b> – For protection against injury, wear ear defenders, safety goggles, and head protection.
	<b>WARNING!</b> Do not expose the unit to rain or wet conditions.		The moving part will continuously run for several seconds after you turn off the machine.
	Wear safety gloves during use to protect hands.		Wear safety footwear at all times to provide protection against objects that may accidentally fall on feet.
	<b>CAUTION!</b> Avoid contacting the guide bar tip with any object. Tip contact may cause the guide bar to move suddenly upward and backwards, which may cause serious injury to the user.		<b>WARNING!</b> Two hands are always to be used when operating the chain saw.
	Keep bystanders and children a safe distance away.		Correct direction of cutting teeth.
	Indoor use only. Only use battery charger indoors.		

# Know Your Cordless Chain Saw

Read the owner's manual and safety instructions carefully before operating cordless chain saw. Compare the illustration below to the cordless chain saw in order to familiarize yourself with the location of the various controls and adjustments. Save this manual for future reference.



**⚠ WARNING!** The chain saw can only be powered by two batteries together. Use 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 capacity will cause damage to the batteries.



## Technical Data

Battery Voltage Max* .....	48 V D.C. (2 x 24 V D.C.)
Battery Capacity .....	See page 22 for battery options and specifications
Battery Runtime Max .....	See page 22 for battery options and specifications
Charge Time Max .....	See page 22 for battery options and specifications
Motor .....	1200 W brush
Bar/Chain Length .....	16 inch (40.6 cm)
Oil Tank Capacity .....	5 fl oz (150 ml)
Cutting Thickness .....	Max: 15.5 in. (39.4 cm) Recommended: 14.5 in. (36.8 cm)
Weight (chain saw alone) .....	9.5 lbs (4.3 kg)

\*Initial no-load voltage, when fully charged, peaks at 48 volts; nominal voltage under typical load is 43.2 volts.

## Unpacking

### Carton Contents

- Cordless chain saw with chain and bar
- Cutting bar sheath
- Manuals with registration card

## CORE TOOL

### BATTERY + CHARGER SOLD SEPARATELY

In order to operate this cordless chain saw you will need iON+ 24V System batteries (models 24VBAT-LTE, 24VBAT-LT, 24VBAT, and 24VBAT-XR) and chargers (models 24VCHRG-QC, 24VCHRG-DPC). Battery and charger options available at [sunjoe.com](http://sunjoe.com).

1. Carefully remove the cordless chain saw 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. If you find damaged or missing parts, DO NOT return the unit to the store. Please call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).

**NOTE:** Do not discard the shipping carton and packaging material until you are ready to use your new cordless chain saw. 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 2 lithium-ion batteries. The battery packs are completely sealed and maintenance free.

## CORE TOOL

### BATTERY + CHARGER SOLD SEPARATELY

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**WARNING!** The chain saw can only be powered by both of the batteries together. Use 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 capacity will cause damage to the batteries.

## 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 battery into the charger and charge as needed.

**NOTE:** Immediately after using the battery packs, the charge level buttons may display a lower charge than they will if checked a few minutes later. The battery cells “recover” some of their charge after resting.

## Charger Operation

### CORE TOOL

#### BATTERY + CHARGER SOLD SEPARATELY

In order to operate this cordless chain saw you will need iON+ 24V System batteries (models 24VBAT-LTE, 24VBAT-LT, 24VBAT, and 24VBAT-XR) and chargers (models 24VCHRG-QC, 24VCHRG-DPC). Battery and charger options available at [sunjoe.com](http://sunjoe.com).

**⚠ 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.

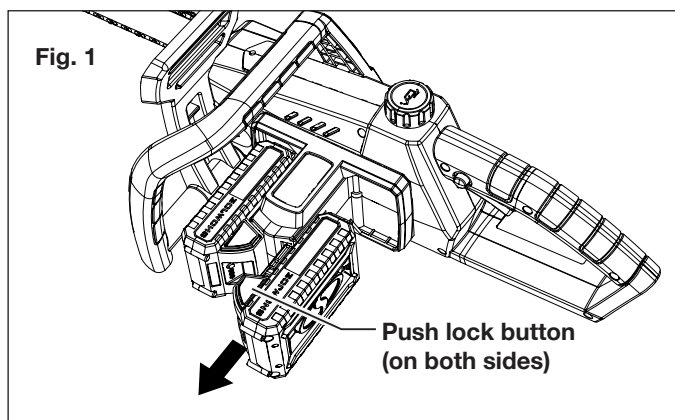
### When to Charge the iON+ 24V Lithium-Ion Battery

**NOTE:** The iON+ 24V 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 pack before placing it into the charger.

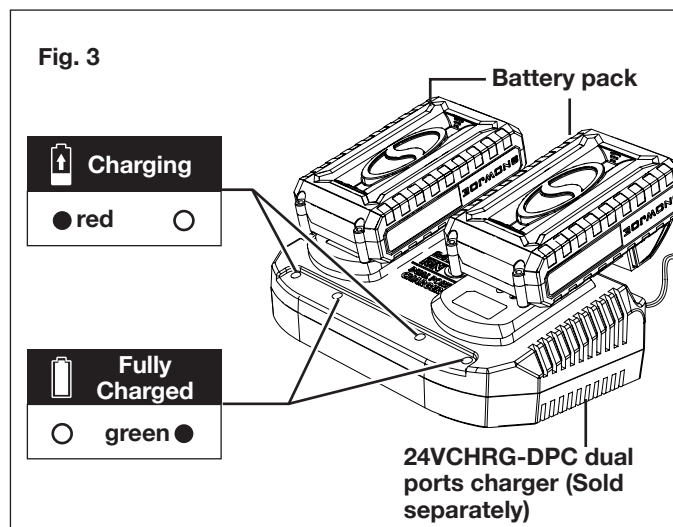
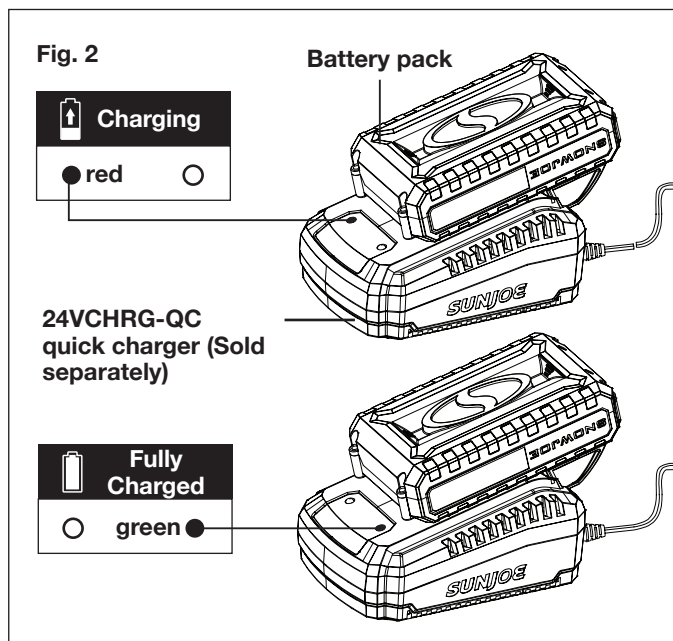
- Use the battery charge indicator lights to determine when to charge your iON+ 24V lithium-ion battery.
- You can “top-off” your battery packs’ charge before starting a big job or after a long day of use.

### Charging the Batteries

1. Press the push lock buttons on the batteries to pull them out of the equipment (Fig. 1).



2. Depending on your Snow Joe® + Sun Joe® charger model, how to recharge your lithium-ion battery will vary. You may either insert your 24-volt battery into the 24VCHRG-QC Quick Charger (sold separately) or the 24VCHRG-DPC Dual Port Charger (sold separately) (Figs. 2 – 3).



3. The battery indicator LEDs will twinkle and illuminate one by one during the charging process. Unplug the charger immediately when the 3 LEDs are all illuminated.
4. The 24VCHRG-QC Quick Charger (sold separately) and the 24VCHRG-DPC Dual Port Charger (sold separately) are also equipped with additional charging indicating light which will indicate the charging status (Figs. 2 – 3).

**⚠ CAUTION! FIRE HAZARD.** When disconnecting the charger from the battery, be sure to unplug the charger from the outlet first, then disconnect the charger from the battery.

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

5. Timely recharging of the battery will help prolong the battery's 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.

## Preparing To Work

### Checking the Machine

**⚠ WARNING!** Before performing any checks, adjustments, repairs or maintenance on the machine, make sure the batteries are not inserted in the compartments.

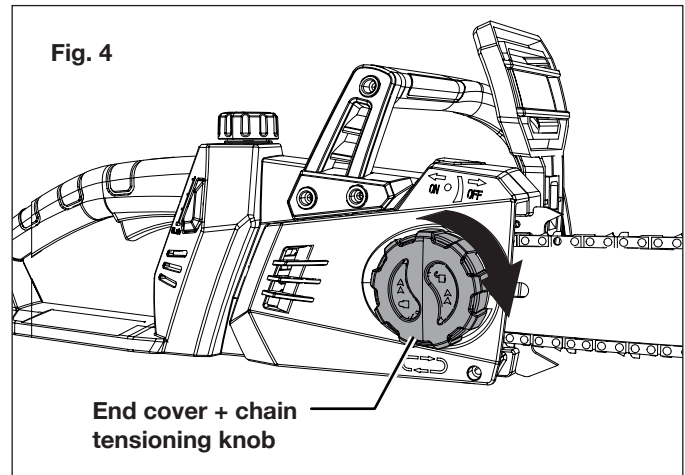
Before starting work please:

- Check that all the screws on the machine and the guide bar are tightly fastened;
- Check that the chain is tensioned correctly, sharp and there are no signs of any damage;
- Check that hand grips and protection devices are clean and dry, correctly mounted and securely fastened to the machine;
- Check that the chain brake is working efficiently;
- Check that the trigger switch and the safety button move freely without forcing and return automatically and rapidly back to their neutral positions;
- Check that the trigger switch remains locked until the safety button is pressed;
- Make sure the cooling air vents are not clogged with sawdust or debris;
- Check that the chain's oil level is not below the "OIL min" level mark; if necessary, top up the oil to 1 cm from the rim of the filler.

**NOTE:** You must fill the chain oil tank with bar and chain oil before using your chain saw.

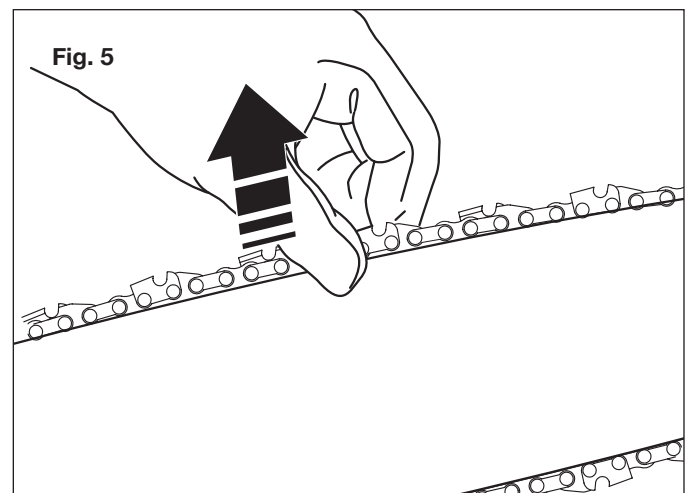
### Adjusting the Chain Tension

1. Tension the chain by turning the end cover + chain tensioning knob clockwise (Fig. 4). A cold chain will be correctly tensioned when there is no slack on the underside of the guide bar; the chain is snug, but it can be turned by hand without binding.

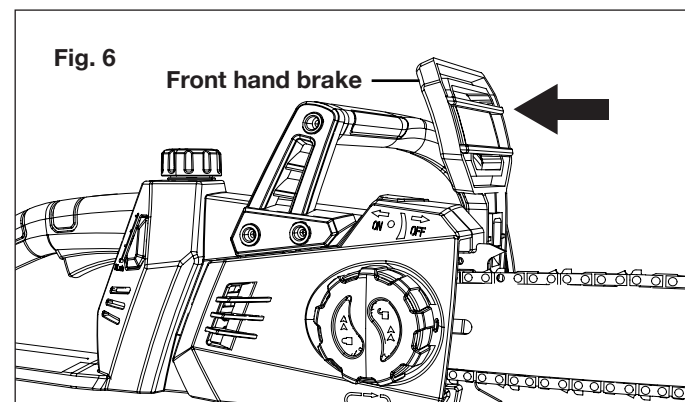


**NOTE:** Pay attention when loosening the chain by turning the end cover + chain tensioning knob counterclockwise. If loosened excessively, the knob and end cover may come off.

2. The tension is correct when the drive links on the chain do not slip out of the chain guide on the bar when the chain is pulled up from the middle of the bar (Fig. 5).



3. Pull the front hand brake towards the front handle in the OFF position (Fig. 6). Using a screwdriver, run the chain along the guide to check that it moves smoothly.

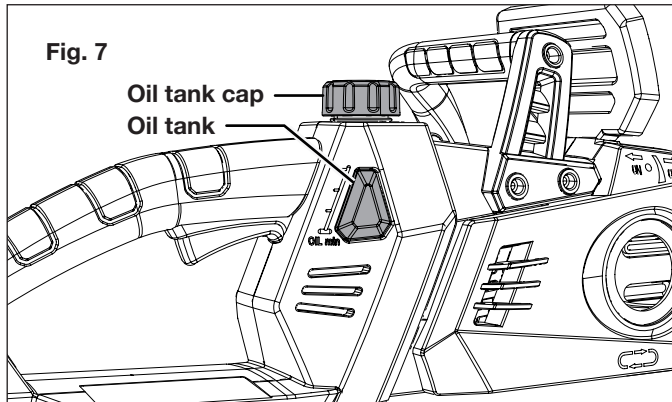


## Chain Lubricant

**IMPORTANT!** Only use a good quality bar and chain oil designed specifically for use with chain saws to ensure optimal lubrication of the cutting parts. Do not use oil containing impurities to avoid clogging the tank filter and permanently damaging the oiler.

**IMPORTANT!** The chain lubricating oil is bio-degradable. The use of mineral oil or engine oil can have a serious impact on the environment. It is essential that you use good quality oil to lubricate the cutting parts effectively. Used or poor quality oil does not guarantee good lubrication and reduces the lifespan of the chain and bar.

**IMPORTANT!** Before each use, the oil level should be checked and topped up to 1 cm from the rim of the filler. To fill the oil tank, remove the oil tank cap and add the recommended bar and chain oil. The oil level must not drop below the "OIL min" level mark, as indicated on the oil tank (Fig. 7).



## Operation

### Starting and Stopping

**⚠CAUTION!** Starting, stopping, and restarting an electric motor repeatedly within a few seconds can generate a great deal of heat and damage the motor. To protect the life of your cordless chain saw, always wait at least five seconds after stopping before restarting the saw.

**⚠WARNING!** Be sure that the chain is not in contact with any object when you start the motor.

**⚠WARNING!** Keep hands away from chain. Keep hands on handles. Do not overreach.

A good, firm grip on the tool using both hands will help you maintain control. Maintain a firm grip by place your right hand on the rear handle and left hand on the front handle with thumbs and fingers encircling the respective handles. A firm grip combined with proper positioning of the handle against your body will help you maintain control of the saw. Do not let go of the saw while it is in operation.

**⚠WARNING!** Do not operate the cordless chain saw in a tree, on a ladder, or on a scaffold. Using the tool under such circumstances is extremely dangerous.

**⚠CAUTION!** The chain will continue to run for several seconds after turning off the tool.

Do not use the chain saw under wet conditions. Use extreme caution when cutting small brush, saplings, or limbs under tension because slender and tense material may catch the saw and be whipped toward you, pull you off balance, or spring back.

Do not use the chain saw to cut vines and/or small underbrush.

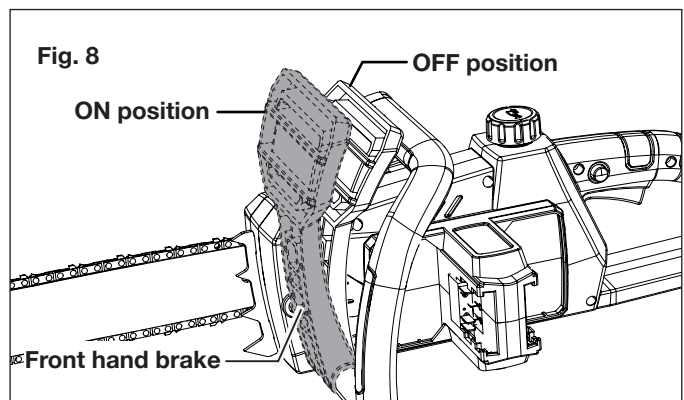
**⚠WARNING!** Do not let familiarity with this type of tool prevent you from taking all necessary precautions. Remember that a careless fraction of a second is sufficient to inflict serious injury.

**⚠WARNING!** Do not cut trees near electrical wires.

**⚠WARNING!** Failure to lubricate the chain will cause damage to the bar and chain. Use only a good quality bar and chain oil designed specifically for use with chain saws.

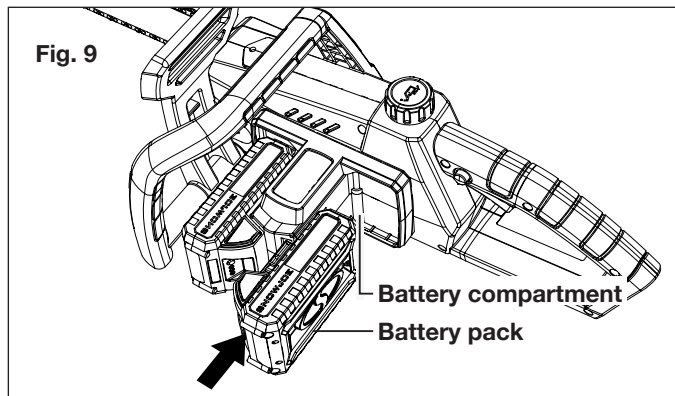
**NOTE:** It is normal for oil to seep from the saw when not in use. To prevent seepage, empty the oil tank after each use. When storing the unit for a long period of time (3 months or longer), be sure the chain is lightly lubricated; this will prevent rust on the chain and bar sprocket.

1. Prior to each cutting session, run through the daily checklist (see pg. 20).
2. In the event of an accidental activation, the front hand brake will engage in the ON position to stop the machine. Reset the safety brake function by returning the front hand brake to the OFF position (Fig. 8).

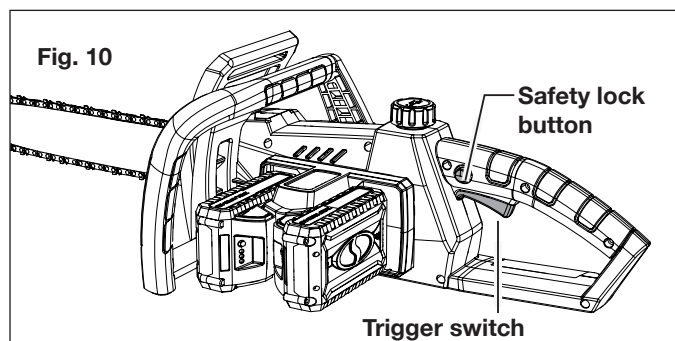




3. Insert both the batteries in the battery compartment (Fig. 9).



4. To turn the tool on, hold the chain saw firmly with both hands on the handles. Press the safety lock button, then squeeze the trigger switch. When the chain saw is running, you can release the safety lock button (Fig. 10).

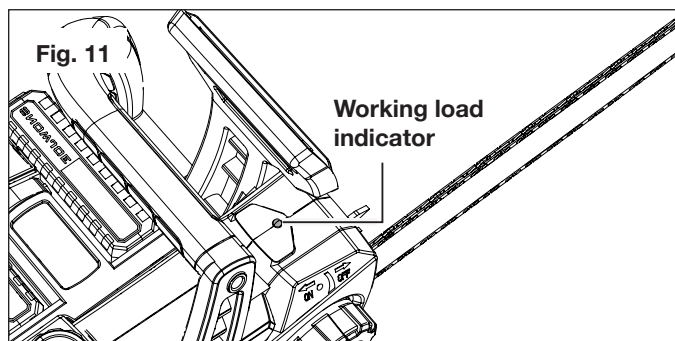


5. To turn the tool off, simply release the trigger switch.

**NOTE:** Do not squeeze the trigger switch until you are ready to make a cut.

## Working Load Indicator

The machine is equipped with an working load indication system located behind the front hand brake (Fig. 11), which will be illuminated immediately when battery is installed. Consult to the table below for the indication of the working status of the chain saw.



Lights	Light Indicators
Yellow	The saw is ready to make a cut
Green	The saw is working properly
Red	The saw is overloaded. Stop working immediately; Otherwise the circuit is going to cut off automatically in 2 seconds

**NOTE:** If an overload situation happens and the machine cuts off automatically, switch the machine off and remove the batteries. Let the machine and batteries cool down for a while before resuming work.

## Operating Tips

**⚠ WARNING!** For your safety and that of others:

1. Do not use the machine without reading the instructions carefully. Become acquainted with the controls and the proper use of the machine. Learn how to stop the machine quickly.
2. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
3. Always wear suitable clothing when using the machine. Wear anti-vibration gloves and other personal protective equipment.

All the above-mentioned precautions do not, however, guarantee the prevention of certain risks – i.e. Raynaud's phenomenon or Carpal tunnel syndrome. For operators who use this machine for prolonged periods, it is therefore recommended to have periodic checkups on their hands and fingers. If any of the above mentioned symptoms should appear, please contact a physician immediately.

4. Work only in daylight or good artificial light.
5. Take utmost care when working near metal fences.
6. Take care not to hit the bar hard against foreign objects or flying debris caused by the movement of the chain.
7. Stop the motor and remove the batteries from the compartment:
  - Whenever you leave the machine unattended;
  - Before cleaning, checking or servicing the machine;
  - After striking a foreign object. Inspect the machine for any damage and make repairs before restarting it again;
  - If the machine begins to vibrate abnormally, immediately look for the cause of the vibrations and have the machine inspected 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) for assistance;

- When the machine is not in use.

**IMPORTANT!** Always remember that an incorrectly used chain saw may disturb others and have a serious impact on the environment.

To respect people and the environment:

- Avoid using the machine in environments or at times of the day when it may disturb others.
- Scrupulously comply with local regulations and provisions for the disposal of waste materials after sawing.
- Scrupulously comply with local regulations and provisions for the disposal of oils, damaged parts or any elements which have a strong impact on the environment.
- A certain amount of chain lubricating oil is released into the environment when the machine is running, so only use biodegradable oils made specifically for this use.
- To avoid the risk of fire, do not leave the machine with the motor hot on leaves or dry grass.

**⚠ WARNING!** It takes specific training to use the machine for felling and delimbing.

## Checks During Work

- **Checking the chain tension**

The chain tends to stretch gradually as you work, so you need to check its tension frequently.

**IMPORTANT!** During the first period of use (or after replacing the chain), the chain tension must be checked more frequently due to settling of the chain.

**⚠ WARNING!** Never work with the chain loose, as it can be hazardous if the chain slips out of its guide.

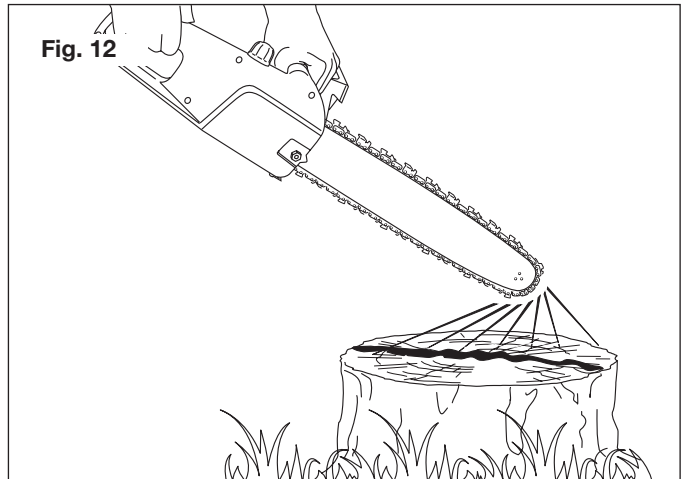
To adjust the chain tension, follow the instructions in "Adjust Chain Tension" on pages 9.

- **Checking the oil delivery**

**IMPORTANT!** Never use the machine without lubrication! You can check the oil level in the tank through the transparent gauge. Make sure you fill up the oil tank every time you use the machine. For best results, use only a good quality bar and chain oil designed specifically for use with chain saws.

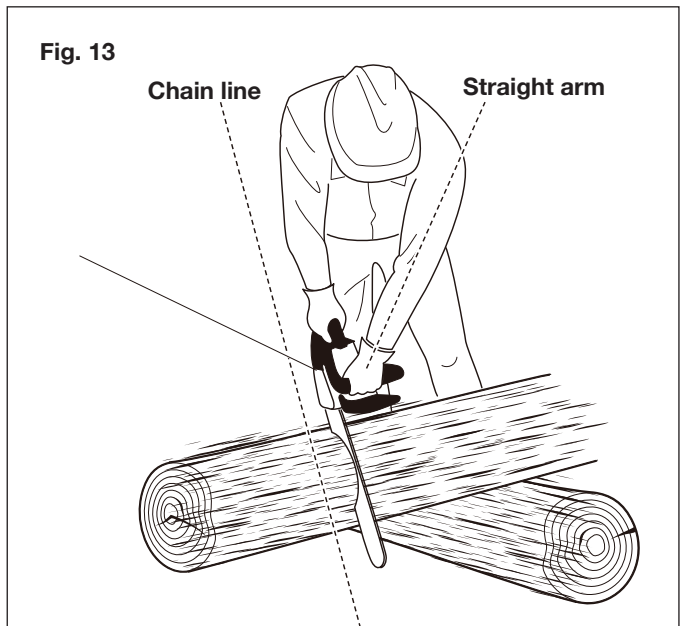
**⚠ WARNING!** Make sure the bar and the chain are in place when you check the oil delivery.

Start the motor and check if the chain oil is delivered as shown below (Fig. 12).



## Proper Cutting Stance

- Weight should be balanced with both feet on solid ground.
- Keep your left arm and elbow locked in a "straight arm" position to withstand any kickback force (Fig. 13).



- Your body should always be to the left of the chain line.

## Basic Cutting Procedures

**⚠ WARNING!** This unit is designed for trimming branches and limbs up to recommended 14.5 in. (36.8 cm), not to exceed a max. cut of 15.5 in. (39.4 cm) in diameter depending on type of wood. Practice cutting a few small limbs using the following technique to get the "feel" of using the saw before you begin a major sawing operation.

- Take the proper stance in front of the wood with the saw turned off (Fig. 13).
- Squeeze the trigger switch and let the chain accelerate to full speed before entering the cut.
- Hold the saw with both hands firmly. Always keep your left hand on the front handle and your right hand on the rear handle so that your body is to the left of the chain line.
- Keep the unit running the entire time you are cutting, maintaining a steady speed.
- Let the chain do the work; exert only light downward pressure. If you force the cut, damage to the bar, chain, or unit can result.
- Do not put the pressure on the saw at the end of the cut.
- Always cut with both feet on solid ground to prevent falling.
- Do not cut above chest height since it is difficult to control kickback forces with a saw held high.

## Cutting Techniques

Before felling or delimbing for the first time, practice sawing logs on the ground or on trestles, so that you can get familiar with the machine and the most suitable sawing techniques.

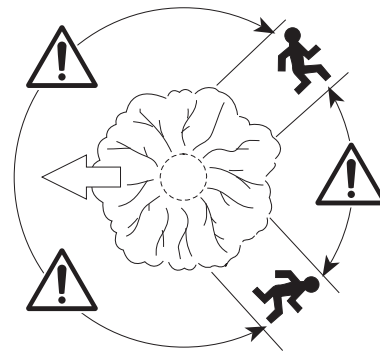
**⚠ WARNING!** Always hold the machine with both hands when sawing.

**⚠ WARNING!** Stop the motor immediately if the chain stops during sawing. Beware of kickback, which can occur if the bar contacts an obstacle.

### • Felling a tree

- When bucking and felling are performed by two or more people at the same time, the felling operation should be separated from the bucking operation by a distance of at least twice the height of the tree being felled. Trees should not be felled in a manner that would endanger any person, strike any utility line or cause any property damage. If the tree does make contact with any utility line, the company should be notified immediately.
- The chain saw operator should keep on the uphill side of the terrain as the tree is likely to roll or slide downhill after it is felled.
- An escape path should be planned and cleared as necessary before cuts are started. The escape path should extend back and diagonally to the rear of the expected line of fall as illustrated (Fig. 14).

Fig. 14



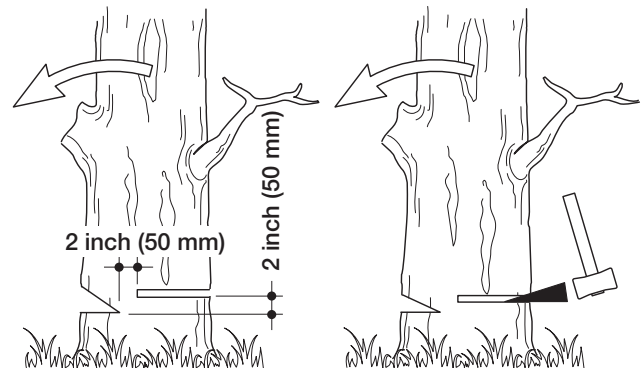
iv) Before felling is started, consider the natural lean of the tree, the location of larger branches and the wind direction to help you judge which way the tree will fall.

v) Remove dirt, stones, loose bark, nails, staples and wire from the tree.

### • Notching undercut

Make the notch 1/3 the diameter of the tree, perpendicular to the direction of the fall as illustrated (Fig. 15).

Fig. 15



Make the lower horizontal notching cut first. This will help to avoid pinching either the saw chain or the guide bar when the second notch is made.

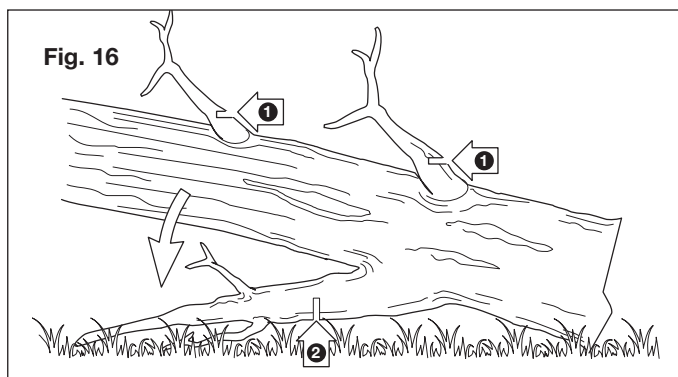
### • Felling back cut

- Make the felling back cut at least 2 in. (50 mm) higher than the horizontal notching cut as illustrated (Fig. 15). Keep the felling back cut parallel to the horizontal notching cut. Strategically position the felling back cut so that enough wood is left to act as a hinge. The hinge wood keeps the tree from twisting and falling in the wrong direction. Do not cut through the hinge.
- As the felling gets close to the hinge, the tree should begin to fall. If there is any chance that the tree may not fall in the desired direction or it may rock back and bind the saw chain, stop cutting before the felling back cut is complete and use wedges of wood, plastic or aluminium to open the cut and drop the tree along the desired line of fall.

- iii) When the tree begins to fall, remove the chain saw from the cut, stop the motor, put the chain saw down, then use the retreat path planned. Be alert for overhead limbs falling and watch your footing.

- **Limbing**

Limbing is the process in which branches are removed from a fallen tree. When limbing, leave larger lower limbs to support the log off the ground. Remove the small limbs in one cut as illustrated (Fig. 16). Branches under tension should be cut from the bottom up to avoid binding the chain saw.



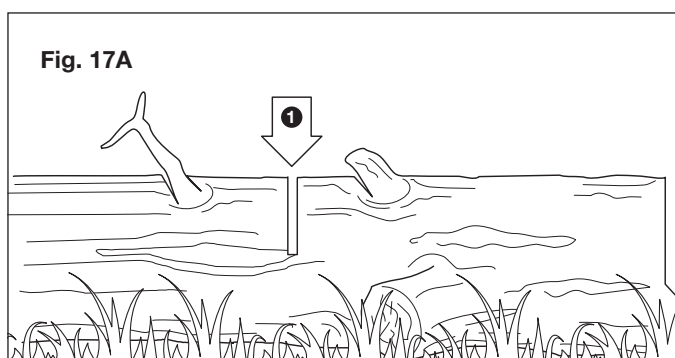
**⚠ WARNING!** Pay special attention to where the branches are lying on the ground and recognize the following risks: 1). the branches may be under tension; 2). the direction in which the branch will fall may differ from that anticipated; 3). the tree may be unstable after the branch has been cut.

- **Bucking a log**

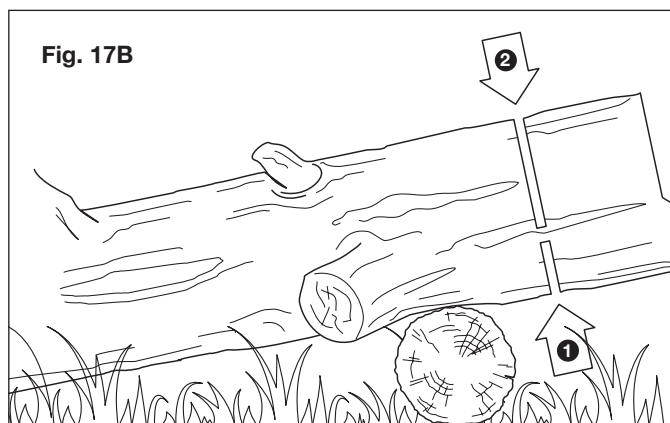
**⚠ WARNING!** Do not buck logs that are larger than the maximum cutting thickness.

Bucking is the process in which a log is cut into lengths. It is important to make sure your footing is firm and your weight is evenly distributed on both feet. When possible, the log should be raised and supported by the use of limbs, logs, or chocks. Follow these simple directions for easy cutting:

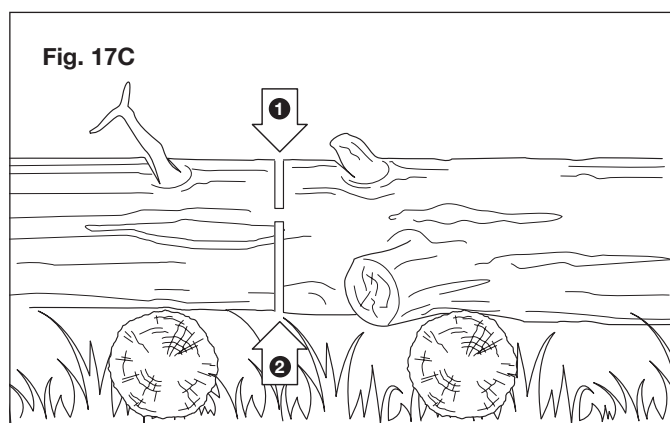
- When the log is supported along its entire length as illustrated (Fig. 17A), cut from the top (overbuck).



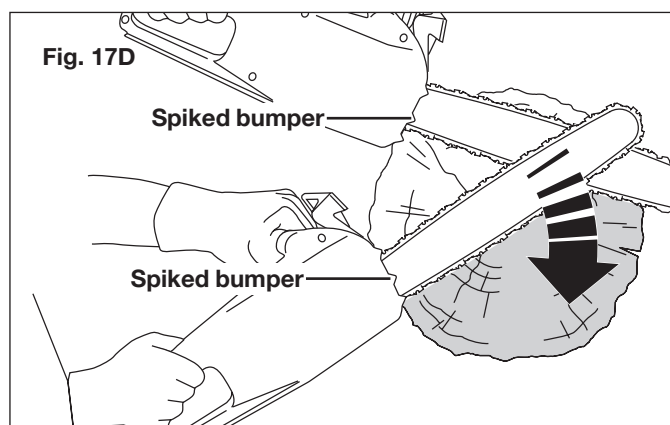
- When the log is supported on one end (Fig. 17B), cut 1/3 the diameter from the underside (underbuck). Then make the finishing cut by overbucking to meet the first cut.



- When the log is supported on both ends (Fig. 17C), cut 1/3 the diameter from the top (overbuck). Then make the finishing cut by underbucking the lower 2/3 to meet the first cut.



- It is easier to saw a log using the spiked bumper (Fig. 17D).
  - Dig the spiked bumper into the log and use it as a pivot. Cut with an arched motion to make the bar penetrate the wood.
  - Repeat several times if necessary, changing the point where you plant the spiked bumper.



- When bucking on a slope, always stand on the uphill side of the log. When cutting through the log, maintain control by releasing the cutting pressure near the end of the cut without relaxing your grip on the chain saw handles. Do not let the chain contact the ground.

After completing the cut, wait for the saw chain to stop before you move the chain saw. Always stop the motor before moving from tree to tree.

## Maintenance

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) for all maintenance operations not foreseen in this manual. Any operation performed in an unauthorized service center or by unqualified personnel will completely invalidate the warranty.

**⚠ WARNING!** For your safety and that of others:

- Correct maintenance is essential to maintain the original efficiency and safety of the machine over time.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never use the machine with worn or damaged parts. Damaged parts are to be replaced and never repaired.
- Only use original Snow Joe® + Sun Joe® replacement parts. Parts that are not of the same quality can seriously damage the equipment, compromise safety, and invalidate the warranty.

**⚠ WARNING!** Always remove the batteries before performing any adjustments, maintenance, or repairs to your cordless chain saw.

- Use protective gloves when handling the bar and chain.
- Keep the bar encased in its sheath, except when working directly on the bar or the chain.
- Never dispose of oils or other polluting materials in unauthorized places.

## Motor Cooling

To avoid overheating and damage to the motor, always keep the cooling air vents clean and free of sawdust and debris.

## Replacing the Guide Bar and Chain

**NOTE:** When replacing the guide bar and chain, use only identical replacement parts. Make sure the batteries are not inserted in the compartment before proceeding with operation.

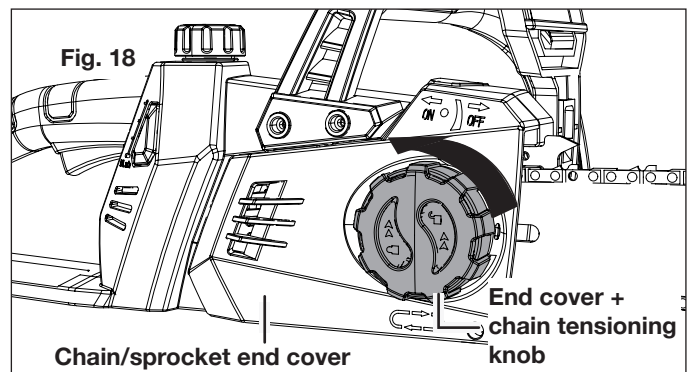
**⚠ WARNING!** Always wear heavy-duty gloves when handling the bar and chain. Mount the bar and chain very carefully so as not to impair the safety and efficiency of the machine. If in doubt, contact an authorized Snow Joe® + Sun Joe® dealer or call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).

**⚠ WARNING!** The operation should be completed on a flat and stable surface, with adequate space for moving the machine and its components.

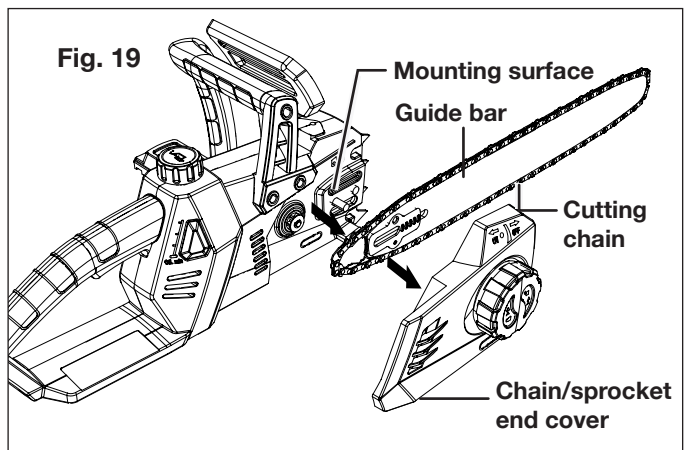
**⚠ DANGER!** Never start the motor before installing the guide bar, chain, and sprocket cover. Without all these parts in place, the clutch can fly off or explode, exposing the user to potentially serious injuries.


When you first purchase your chain saw, the chain and bar will come pre-assembled on the saw. Should you need to replace the chain in the future, follow the steps below.

1. Unscrew the end cover + chain tensioning knob counterclockwise to unlock to the end and remove the chain/sprocket end cover (Fig. 18).

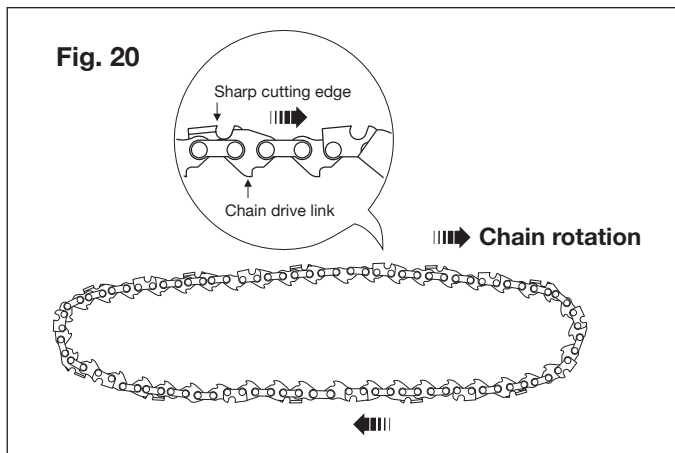


2. Remove the cutting bar and chain from the mounting surface (Fig. 19).



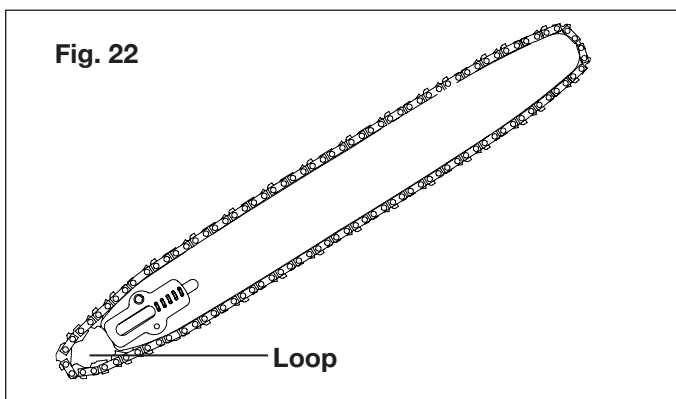
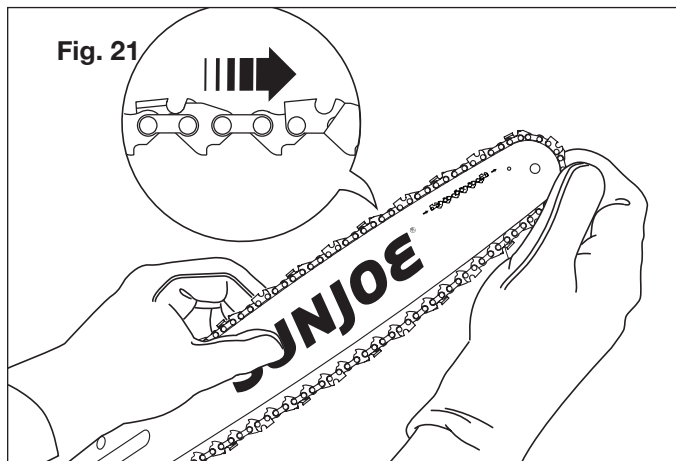
3. Remove the old chain from the bar.
4. Lay out the new saw chain in a loop and straighten any kinks. **THE SHARP SIDE OF THE TEETH MUST FACE AWAY FROM YOU IN THE DIRECTION OF THE CHAIN ROTATION INDICATED ON THE GUIDE BAR** →  →. If the teeth face backwards, turn the loop over (Fig. 20).



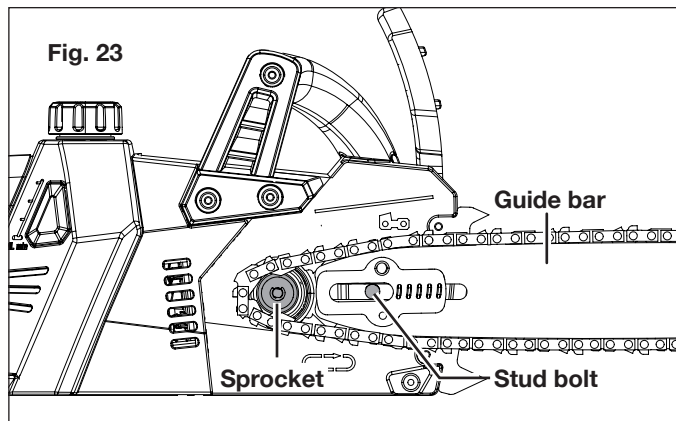


5. Starting at the tip, mount the chain drive links into the bar groove, leaving a loop at the back of the bar. The chain will loosely fit until it is placed on the sprocket (Figs. 21 & 22).

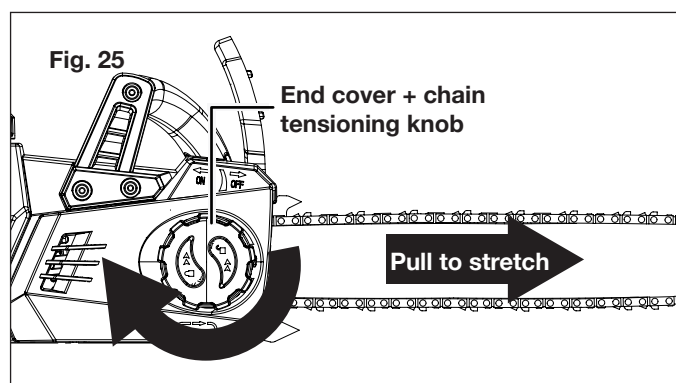
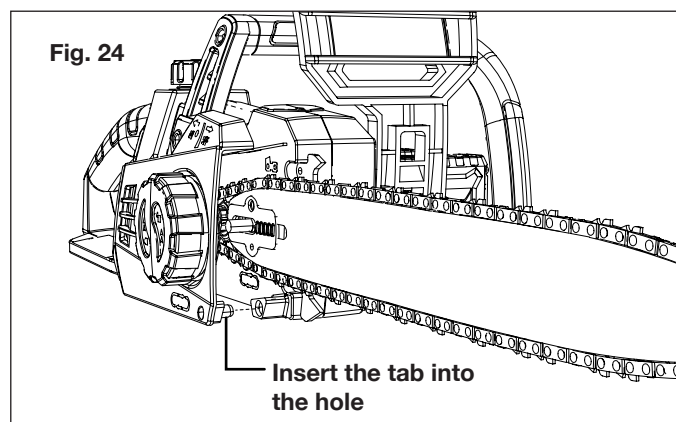
**NOTE:** Make certain of the direction of the chain  
 → → → → →. If the chain is mounted backwards, the saw will vibrate abnormally and will not cut.



6. Mount the guide bar by inserting the stud bolt into the long slot on the guide bar; arrange the chain loop on the back of the bar to ensure the sprocket is inserted in the loop (Fig. 23).



7. Adjust the chain tension by pulling the guide bar + chain forward, and make sure the chain is fully stretched. Using your other hand, fit the chain/sprocket end cover back on by inserting the small tab located on the right bottom of the end cover into the hole on the machine body. Turn the end cover + chain tensioning knob clockwise until you find the right chain tension (Figs. 24 – 25).



**NOTE:** The chain is correctly tensioned when there is no sag on the underside of the guide bar; the chain is snug, but can be rotated by hand without binding.

**NOTE:** If the chain is too tight, it will not rotate. Loosen the end cover + chain tensioning knob slightly by 1/4 turn counterclockwise. Ensure that the chain can be rotated by hand without binding. Do not loosen the end cover + chain tensioning knob too much otherwise the chain + bar assembly will come loose.

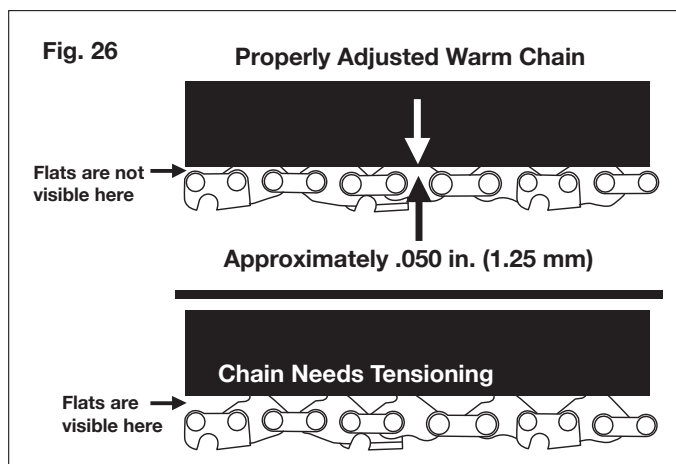


**NOTE:** A new chain tends to stretch; check the chain tension frequently, and adjust tension as required.

## Chain Tension

Check the chain tension before using the saw when the chain is cold. The correct tension of a cold chain is when there is no slack on the underside of the guide bar; the chain is snug, but you can rotate it by hand without binding.

During normal saw operation, the temperature of the chain will increase. The drive links of a correctly tensioned warm chain will hang approximately 0.050 in. (1.25 mm) out of the bar groove (Fig. 26). Be aware that a chain tensioned while warm, may be too tight upon cooling. Check the “cold tension” before next use. The chain must be re-tensioned whenever the flats on the drive links hang out of the bar groove (Fig. 26).



**NOTE:** A new chain tends to stretch. Check the chain tension frequently and re-tension as needed.

## Chain Sharpening

**⚠ WARNING!** To ensure that the saw works safely and efficiently, it is essential that the cutting components are well-sharpened. **It is highly recommended to replace the chain once it loses its ability to cut cleanly and safely.** It is possible, however, to sharpen the existing chain if the sharpening is carefully performed. Any work on the chain and bar requires specific experience and special tools. For safety purposes, we recommend you 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).

Sharpening is necessary when:

- The sawdust looks like dust;
- Cutting becomes more difficult;
- The cut is not straight;
- Vibrations increase.

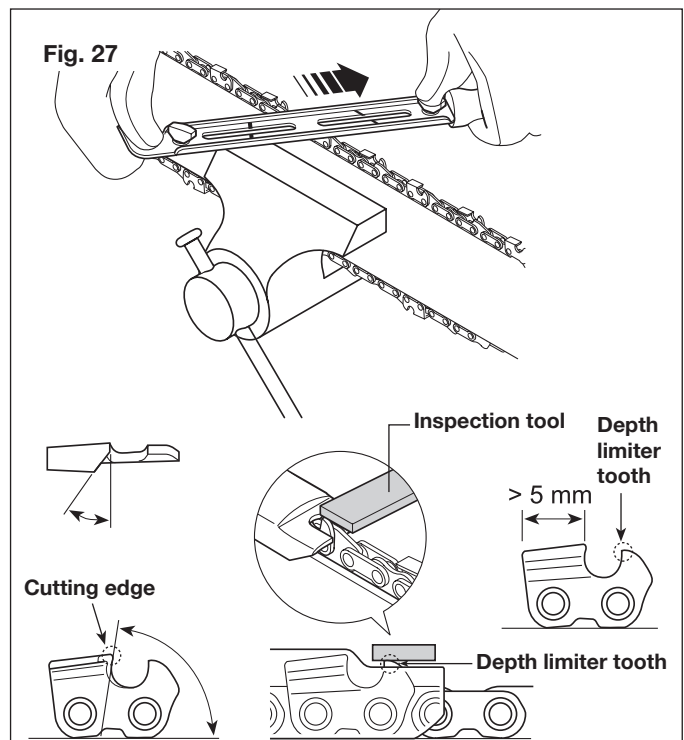
An authorized service center will sharpen the chain using the right tools to ensure minimum removal of material and even sharpness on all the cutting edges.

If you sharpen the chain by yourself, it's recommended to purchase Sun Joe® 24V-CSSHRP-LTE chain saw sharpener, which can be powered by the same 24V iON+ battery with this cordless chain saw. Visit [sunjoe.com](http://sunjoe.com) or call the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563) to order.

Otherwise, use special round-section files with the right diameter depending on the type of chain (see “Chain Maintenance Table” pg. 23). You need a certain amount of skill and experience to avoid damaging the cutting edges.

Sharpen the chain as follows (Fig. 27):

- Secure the bar firmly, with the chain mounted, in a suitable vise.
- Tighten the chain if it is loose.
- Mount the file in the guide and then insert it in the tooth at a constant angle from the cutting edge.
- Sharpen in a forward motion a few times and repeat this on all the cutting edges facing the same way (right or left).
- To move the chain forward, use a screwdriver.
- Turn the bar over in the vise and repeat on all the other cutting edges.
- Check that the depth limiter tooth does not stick out farther than the inspection tool and file any projecting parts with a flat file, rounding off the edges (Fig. 27).
- After sharpening, remove all traces of filing and dust and lubricate the chain in an oil bath. Replace the chain whenever:
  - The length of the cutting edges decreases to 5 mm or less;
  - There is too much play between the links and the rivets.



## Guide Bar Maintenance

When the guide bar shows signs of wear, turn it over on the saw to distribute the wear for maximum bar life. Feathering or burring of the bar rails is a normal process of bar wear. You should smooth such faults with a file as soon as they occur.

Replace a bar with any of the following faults:

- wear inside the bar rails permitting the chain to lay over sideways
- bent guide bar
- cracked or broken rails
- spread rails

Turn the saw over, check the underside of the guide bar, and make sure that the lubrication holes and chain groove are free from impurities.

You can purchase replacement parts for your Sun Joe® 24V-X2-CS16-CT cordless chain saw by ordering online at [sunjoe.com](http://sunjoe.com) or, to order by phone, contact Snow Joe® + Sun Joe® customer service at 1-866-SNOWJOE (1-866-766-9563).

## Chain Sprocket

Regularly check the condition of the sprocket and replace it when wear exceeds 0.5 mm (Fig. 28).

Do not mount a new chain with a worn sprocket or vice-versa.

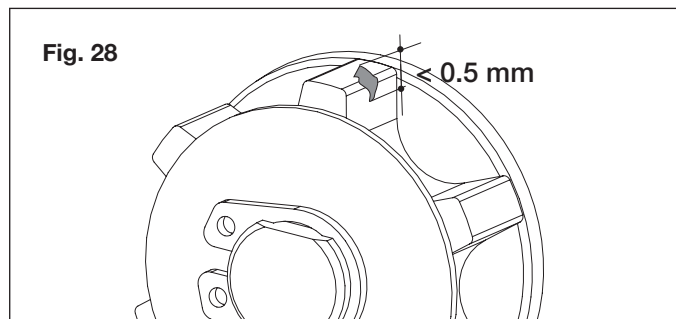


Fig. 28

## Troubleshooting

### Troubleshooting Tips

Most difficulties are easy to fix. Consult the troubleshooting table for common problems and their solutions. If you continue to experience problems or need repairs beyond these minor adjustments, please call 1-866-SNOWJOE (1-866-766-9563) for assistance.

**⚠ WARNING!** Always remove the batteries before performing any adjustments, maintenance, or repairs to your cordless chain saw.

## Troubleshooting Table

Problems	Corrective Action
The saw motor fails to start	<ul style="list-style-type: none"><li>• Make sure that the batteries are inserted correctly</li><li>• Check charge status and recharge the batteries</li></ul>
The saw stops during operation	<ul style="list-style-type: none"><li>• Make sure that the batteries are inserted correctly</li><li>• Check charge status and recharge the batteries</li><li>• The machine is overloaded</li></ul>
The saw runs, but the chain speed is low	<ul style="list-style-type: none"><li>• The chain is too tight; re-tension.</li></ul>
Bar and chain running hot and smoking	<ul style="list-style-type: none"><li>• The chain tension is too tight; re-tension.</li><li>• The chain oil tank is empty; refill.</li><li>• The lubrication holes are plugged; clean them out.</li></ul>
The saw motor runs, but the chain is not turning	<ul style="list-style-type: none"><li>• The chain tension is too tight; re-tension.</li><li>• The guide bar or chain is damaged; inspect and replace the damaged part.</li></ul>

## Daily Checklist, Cleaning and Storage

### Daily Checklist

To help maintain your cordless chain saw for optimum performance, we recommend you complete this checklist prior to each work session.

**⚠ WARNING!** Do not insert the batteries until you have completed all of the daily checks.

- Inspect for any visible damage to the chain, guide bar, or motor housing.
- Inspect the oil port and guide bar rails and clean them to remove any debris.
- Check the chain tension.
- Check the chain teeth for sharpness.
- Check the bar and chain oil level; fill with only new chain oil specifically formulated for chain saws.

**NOTE:** If you notice anything unusual, such as a vibration or odd sound, shut the saw OFF immediately. Remove the batteries and check the saw for any damage.

If you cannot find the cause of the problem or are uncertain what to do, then have the saw inspected by 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) before using it.

### **CAUTION!**

- Remove the batteries and wait at least five minutes for the saw to cool before servicing or storing your unit.
- If you drop the saw, carefully inspect it for damage. If the guide bar is bent, the housing is cracked, the handle is broken, or if you see any other condition that may affect the saw's operation, **DO NOT USE** the tool. Instead, have it serviced 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).

## Cleaning


Use only mild soap and a damp cloth to clean the cordless chain saw. Never let any liquid get inside the motor housing and **NEVER** immerse any part of the saw housing in liquid.


## Storage

- Ensure that the guide bar cover is in place when storing.
- Do not store cordless chain saw near chemicals, such as fertilizers or other harsh solvents. Do not expose the plastic parts of the unit to brake fluids, gasoline, petroleum-based products, penetrating oils, or the like. These products are often highly corrosive and may cause permanent damage, weaken, or destroy the plastic parts of your unit.
- When not in use, your machine should be stored indoors in a dry and high or locked-up place, out of the reach of children.

## Battery Caution + Disposal

Always dispose of your battery pack 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 and Support

If your Sun Joe® 24V-X2-CS16-CT cordless chain saw requires service or maintenance, please call 1-866-SNOWJOE (1-866-766-9563) for assistance.

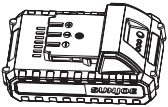
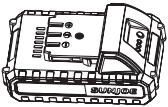
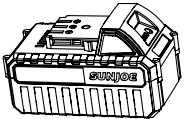


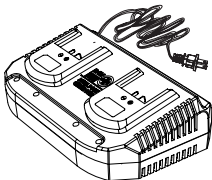
## Model and Serial Numbers



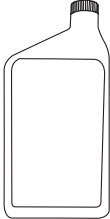
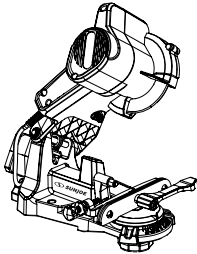
When contacting the company, reordering parts, or arranging service from an authorized dealer, you will need to provide the model and serial numbers, which can be found on the decal located on the housing of the unit. Copy these numbers into the space provided below.

Record the following numbers from the housing or handle of your new product:																			
Model #:																			
2	4	V	-	X	2	-	C	S	1	6	-	C	T						
Serial #:																			

## 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 saw. Contact Snow Joe® + Sun Joe® if you are unsure whether it is safe to use a particular replacement part or accessory with your saw. The use of any other attachment or accessory can be dangerous and could cause injury or mechanical damage.

Accessories	Item	Model
<b>1</b> 	24V iON+ 2.0 Ah Lithium-Ion Battery <i>Battery Charge Time Max:</i> 24VCHRG-AC: 1 hr 20 min   24VCHRG-QC: 55 min   24VCHRG-DPC: 55 min <i>Battery Runtime Max: 15 min</i>	24VBAT-LTE
<b>2</b> 	24V iON+ 2.5 Ah Lithium-Ion Battery <i>Battery Charge Time Max:</i> 24VCHRG-AC: 1 hr 40 min   24VCHRG-QC: 1 hr 10 min   24VCHRG-DPC: 1 hr 10 min <i>Battery Runtime Max: 18 min</i>	24VBAT-LT
<b>3</b> 	24V iON+ 4.0 Ah Lithium-Ion Battery <i>Battery Charge Time Max:</i> 24VCHRG-AC: 2 hr 40 min   24VCHRG-QC: 1 hr 50 min   24VCHRG-DPC: 1 hr 50 min <i>Battery Runtime Max: 30 min</i>	24VBAT
<b>4</b> 	24V iON+ 5.0 Ah Lithium-Ion Battery <i>Battery Charge Time Max:</i> 24VCHRG-AC: 3 hrs 20 min   24VCHRG-QC: 2 hr 20 min   24VCHRG-DPC: 2 hr 20 min <i>Battery Runtime Max: 36 min</i>	24VBA-XR
<b>5</b> 	24V iON+ Lithium-Ion Battery Quick Charger	24VCHRG-QC
<b>6</b> 	24V iON+ Lithium-Ion Battery Charger	24VCHRG-DPC

Accessories	Item	Model
<b>7</b> 	Sun Joe® 16-inch replacement bar	24V-CS16-BAR
<b>8</b> 	Sun Joe® 16-inch replacement chain	SWJ-16CHAIN
<b>9</b> 	Bar and chain oil	SWJ-OIL Sold online at <a href="http://sunjoe.com">sunjoe.com</a> or you can purchase equivalent bar and chain oil at your local hardware store
<b>10</b> 	Sun Joe® 24V iON+ Cordless Chain Saw Sharpener	24V-CSSHRP-LTE

**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](http://sunjoe.com) or via phone by contacting the Snow Joe® + Sun Joe® customer service center at 1-866-SNOWJOE (1-866-766-9563).

## Chain Maintenance Table

Drive Links	Chain Pitch		Chain Gauge		File Diameter	
	inches	mm	inches	mm	inches	mm
56	3/8	9.5	0.050	1.3	5/32	4



## NOTES

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## NOTES

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## NOTES

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## SNOW JOE® + SUN JOE® CUSTOMER PROMISE

**ABOVE ALL ELSE**, Snow Joe® + Sun Joe® are dedicated to you, our customer. We strive to make your experience as pleasant as possible. Unfortunately, there are times when a product does not work or breaks under normal operating conditions. We think it's important that you know what you can expect from us. That's why we created the Snow Joe® + Sun Joe® promise.

**OUR PROMISE:** Snow Joe® + Sun Joe® warrant new products for two years from the date of purchase. If your product does not work, or there's an issue with a specific part, we will fix this by either sending you a free replacement part or by sending you a new or comparable product at no charge. How cool is that! Before you know it, you'll be back in action cutting, sawing, mowing, washing and...?

### PRODUCT REGISTRATION:

Snow Joe®, LLC ("Snow Joe® + Sun Joe®") strongly encourages you to register your purchase. You can register online at [snowjoe.com/ProductRegistration](http://snowjoe.com/ProductRegistration), or by printing and mailing in a registration card available online from our website, or calling our Customer Service Department at **1-866-SNOWJOE (1-866-766-9563)**, or by e-mailing us at [help@snowjoe.com](mailto:help@snowjoe.com). Failure to register your product purchase will not diminish your warranty rights. However, registering your purchase will allow Snow Joe® + Sun Joe® to better serve you with any of your customer service needs.

### WHO CAN SEEK WARRANTY COVERAGE?

This Warranty is extended by Snow Joe® + Sun Joe® to the owner of this Machine (a "Machine" consists of a product powered by a motor) for residential and personal household use only. This Warranty does not apply to products used for commercial, rental or re-sale purposes. Should ownership of this machine change during the 2-year period, please update the Machine's owner information at [snowjoe.com/ProductRegistration](http://snowjoe.com/ProductRegistration).

### WHAT IS COVERED?

Snow Joe® + Sun Joe® warrants to the owner that if this Machine fails within 2 years from the date of purchase due to a defect in material or workmanship or as a result of normal wear and tear from ordinary household use, Snow Joe® + Sun Joe® will send a replacement part or product, as needed, free of charge and with free shipping to the original purchaser.

If, in Snow Joe® + Sun Joe®'s sole discretion, the failed Machine cannot be repaired with a part, Snow Joe® + Sun Joe® will elect to either (A) send a new Machine at no charge and with free shipping or (B) refund the full purchase price to the owner.

### WHAT IS NOT COVERED?

This Warranty does not apply to the Machines that have been used commercially or in non-household applications. This Warranty does not cover cosmetic changes that do not affect performance. This Warranty is only valid if the Machine is used and maintained in accordance with the instructions, warnings and safeguards contained in the owner's manual. Snow Joe® + Sun Joe® will not be responsible for the cost of any unauthorized warranty repairs. 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.

Wearing parts like belts, augers, chains and tines are not covered under this warranty, and can be purchased at [snowjoe.com](http://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.

Repair, replacement or refund of the purchase price are the exclusive remedies of purchaser and the sole liability of Snow Joe® + Sun Joe® under this warranty. No employee or representative of Snow Joe® + Sun Joe® is authorized to make any additional warranty or any modification to this warranty which may be binding upon Snow Joe® + Sun Joe®. Accordingly, purchaser should not rely upon any additional statements made by any employee or representative of Snow Joe® + Sun Joe®. In no event, whether based on contract, indemnity, warranty, tort (including negligence), strict liability or otherwise, shall Snow Joe® + Sun Joe® be liable for any special, indirect, incidental, or consequential damages, including, without limitation, loss of profit or revenue.

Some states do not allow limits on warranties. In such states, the above limitations may not apply to you.

Outside the USA, other warranties may apply.



**[sunjoe.com](http://sunjoe.com)**