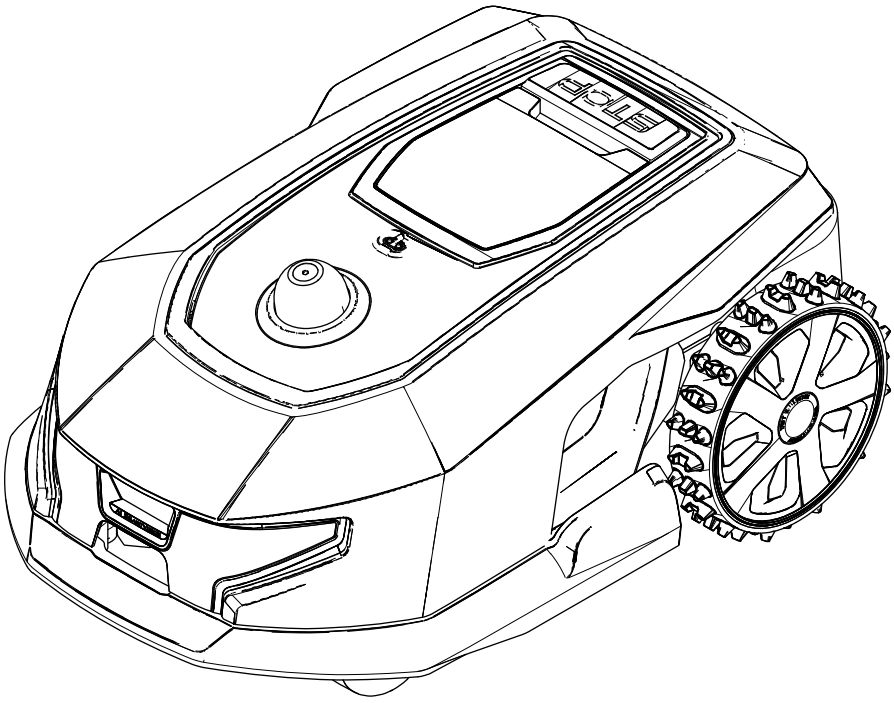
TORO®

Operator's Manual

Haven™ AM75 Autonomous Mower

Model—Serial Range

20512—327000101 and Up



3483-967-TA

Original Instructions (EN)

3483-967-T

Disclaimers and Regulatory Information

⚠ WARNING

CALIFORNIA
Proposition 65

The power cord on this product contains lead, a chemical known to the State of California to cause birth defects or other reproductive harm. Wash hands after handling.

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

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Chapter 1

Introduction

Intended Use

This autonomous lawnmower is intended to be used by residential homeowners for lawn care. It is designed primarily for cutting grass on well-maintained lawns or residential properties. This is a maintenance lawnmower that maintains the height of the grass consistently. Using the mower, battery, charging station, and power supply for purposes other than their intended use could endanger you and bystanders.

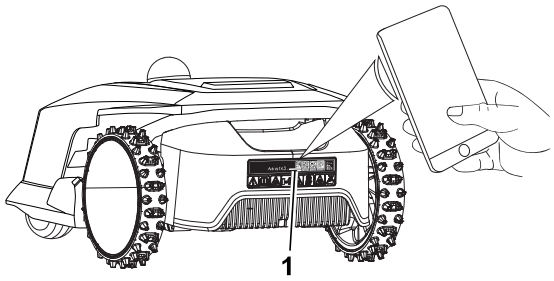
Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

Not Intended Use

Improper use encompasses, but is not limited to, transporting people, children, or animals on the mower; being transported by the mower; using the mower to pull or push loads; and employing the mower for cutting nongrass vegetation.

Getting Help

Visit www.Toro.com for product safety and operation training materials, accessory information, help finding a dealer, or to register your product.



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Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. These numbers are located on the serial plate on your product (1). Write the numbers in the space provided.

IMPORTANT

With your mobile device, you can scan the QR code on the serial number decal (if equipped) to access warranty, parts, and other product information.

Model Number:		**Serial Number:**	

Manual Conventions

This manual identifies potential hazards and has safety messages identified by the safety-alert symbol, which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



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This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

Safety Alert Classifications

The safety-alert symbol shown in this manual and on the machine identifies important safety messages that you must follow to prevent accidents.

Safety-alert symbol appears above information that alerts you to unsafe actions or situations and is followed by the word **DANGER**, **WARNING**, or **CAUTION**.

DANGER

Danger indicates an imminently hazardous situation which, if not avoided, *will* result in death or serious injury.

WARNING

Warning indicates a potentially hazardous situation which, if not avoided, *could* result in death or serious injury.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, *may* result in minor or moderate injury.

General Warnings

IMPORTANT

READ CAREFULLY BEFORE USE

KEEP FOR FUTURE REFERENCE

Wear protective gloves and eye goggles when conducting maintenance or replacing the blades in case of injuries.

⚠ WARNING ⚠

- **Do not touch hazardous moving parts before they have come to a complete stop.**
- **Keep the power cord, power supply unit, and all other electric cords which do not belong to the product outside of the cutting area to maintain their distance from hazardous moving parts and to prevent damage to cords which may come into contact with live parts. There is a risk of injury of death for operator or bystanders if the instructions in the manual are not obeyed.**
- **Save all warnings and instructions for future reference.**
- **Read all safety warnings, instructions, illustrations and specifications provided with this product. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.**
- **Do not allow children, persons with reduced physical, sensory or mental capabilities, lack of experience and knowledge, or people unfamiliar with these instructions to use the mower. Local regulations may restrict the age of the operator.**
- **Do not allow children to be in the vicinity or play with the mower when it is operating.**

General Safety

I. General Safety

- Read the instructions carefully. Be familiar with the controls and the proper use of the mower.
- Keep bystanders and children away from the mower, charging station, and power supply during operation.
- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.

- Do not operate equipment in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Equipment creates sparks which may ignite the dust or fumes.

II. Electrical Safety

- Mains plugs must match the outlet. Never modify the plug in any way. Unmodified plugs and matching outlets will reduce risk of electric shock.
- 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.
- Do not abuse power cords. Never use the power cord for carrying, pulling or unplugging a device. Keep power cords away from heat, oil, sharp edges, or moving parts. Damaged or entangled power cords increase the risk of electric shock.
- If the power supply to the charging station is malfunctioning or damaged, disconnect the power supply, and contact an Authorized Service Dealer to replace it.
- Do not connect a damaged power supply cord. Do not touch a live damaged cord.
- If it is unavoidable to operate the charging station in a damp location, use a residual current device (RCD) protected supply with a tripping current of not more than 30 mA, or use a class A ground fault circuit interrupter (GFCI). The use of an RCD or GFCI reduces the risk of electric shock.
- Periodically inspect the area where you will use the mower, and remove all stones, sticks, wires, and other obstacles that could interfere with the operation of the mower.
- Use only with the Toro approved power supply.
- Do not modify or use a modified power supply.
- Do not place any object on the power supply.
- Do not extend the cord between the power supply unit and charging station.
- Use only the battery and power supply approved by Toro for the mower.
- Do not use any battery that is not designed for use with the mower.

III. Personal Safety

- Do not allow children or persons unfamiliar with the mower or these instructions to operate the mower. Mowers are dangerous in the hands of untrained users.
- Stay alert, watch what you are doing and use common sense when operating the mower. Do not use the mower while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the mower may result in serious personal injury.
- Remove any adjusting key or wrench before operating the mower. A wrench or a key left attached to a rotating part of the mower may result in personal injury.
- Do not overreach. Keep proper footing and balance at all times. This enables better control of the mower in unexpected situations. Walk, never run when training the mower.
- Do not let familiarity gained from frequent use of mower allow you to become complacent and ignore mower safety principles. A careless action can cause severe injury within a fraction of a second.

IV. Use and Care

- Before servicing the mower, remove the battery from the mower. This preventive safety measure reduces the risk of unintended starting.
- Before servicing the charging station, disconnect the plug of the power supply from the electrical outlet.
- Maintain all equipment and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the operation of your equipment. If damaged, have the equipment repaired before use. Many accidents are caused by poorly maintained equipment and accessories.
- Use all equipment and accessories in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of equipment for operations different from those intended could result in a hazardous situation.
- Never operate equipment with defective guards, or without safety devices.
- Keep your hands and feet away from moving parts on and under the mower. Keep clear of the discharge opening.
- Never pick up or carry a mower while the motor is running.
- Carry the mower with the blade(s) away from your body.
- Turn off the mower, wait for all movement to stop, remove the battery, and disable the mower in the following situations:
  - Before clearing blockages on the mower
  - Before checking, cleaning, or maintaining the mower (especially the blades), and the charging station
  - After the mower strikes a foreign object, is in an accident, or breaks down; examine the mower for damage and make repairs before resuming operation
  - If the mower begins to vibrate abnormally; examine the mower for damage and make repairs before resuming operation
- Do not leave the mower to operate unattended if you know that there are pets, children, or people in the vicinity.

V. Maintenance Safety

- Before servicing the mower, turn off the mower and wait for all movement to stop.
- Have your equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained.
- For best performance, use only genuine Toro replacement parts and accessories. Other replacement parts and accessories could be dangerous, and could void the product warranty.
- Keep all nuts, bolts, and screws tight to ensure the mower is in safe working condition.
- Inspect the mower often to ensure that the blades are not worn or damaged.
- Replace worn or damaged parts for safety.
- Ensure that the batteries are charged using the correct charger approved by Toro. Incorrect use may result in electric shock, overheating, or leakage of corrosive liquid from the battery.
- In the event of leakage of electrolyte, flush with water/neutralizing agent. Seek medical help if it comes into contact with the eyes or skin.
- Servicing of the mower should be according to manufacturers' instructions.

VI. Battery Tool Use and Care

- Recharge only with the charger approved by Toro. A charger that is suitable for one type of battery may create a risk of fire when used with another battery.
- Use only the battery and power supply approved by Toro for the mower. Do not use any battery that is not designed for use with the mower. Use of any other battery may result in fire, explosion, or risk of injury.
- When the battery is not in use, keep it 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.
- 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.
- Do not use a damaged or modified battery, which may exhibit unpredictable behavior that results in fire, explosion, or risk of injury.
- Do not expose a battery or tool to fire or excessive temperature. Exposure to fire or temperature above 130° C (266° F) may cause explosion.
- Follow all charging instructions and do not charge the battery or tool outside the temperature range specified in the instructions. Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.
- Disconnect and remove the battery from the mower before storing the mower and/or its battery inside your home.

Safety Instructions for Installation

- Do not install the charging station, including any accessory, at a location that is below or within 61 cm (24 inches) from any combustible material. In case of malfunction, heating of the charging station and the power supply may occur and create a potential risk of fire.
- Do not put the power supply at a height where there is a risk it can be put in water. Do not put the power supply on the ground.
- Do not add additional protection to the power supply. Condensed water can harm the power supply and increase the risk of electrical shock.
- If it is unavoidable to operate the charging station in a damp location, use a residual current device (RCD) protected supply with a tripping current of not more than 30 mA, or use a class A ground fault circuit interrupter (GFCI). The use of an RCD or GFCI reduces the risk of electric shock.
- Do not install the charging station in an area prone to standing or rushing water.

Safety Instructions for Daily Operation

- Check the blades, blade screws, and cutter assembly regularly for wear or damage Replace worn or damaged blades and bolts in sets to preserve balance.
- Keep your hands and feet away from moving parts on and under the mower. Do not put your hands or feet near or below the mower when it is set to On.

- Stop the mower or set the mower to OFF when persons, especially children or animals, are in the work area.
- Make sure that there are no objects such as stones, branches, tools, or toys on the lawn. The blades can be damaged if they hit such objects.
- Do not lift the mower or move it when it is set to ON.
- Do not let the mower collide with persons or animals. If a person or animal comes in the way of the mower, stop the mower immediately.
- Do not put objects on top of the mower or the charging station.
- Do not use the mower if the STOP button does not work.
- Always set the mower to OFF when it is not in operation.
- Do not use the mower and a pop-up sprinkler at the same time; use the Schedule function so they do not operate at the same time.
- Do not let the mower operate when there is standing water in the work area, such as an area with pools of water formed by heavy rain.

⚠ WARNING ⚠

- **Never use a damaged power supply for operation. To prevent a hazard, the damaged supply cord must be replaced by the manufacturer, its service agent, or other appropriately-qualified individuals. If the power supply is faulty, replace it with a genuine Toro replacement part.**
- **Never touch a damaged cord before it has been unplugged from the power source or connect it to the power supply. A damaged cord may cause contact with electrical components.**
- **The power supply should not be used with any other device or battery as this increases the risk of electrical shock, fire, or personal injury. If you use anything other than original batteries, product safety cannot be guaranteed.**
- **Do not charge when the battery is leaking.**
- **Keep the power supply and cord away from moving hazardous parts to avoid damage, which can lead to contact with live parts.**
- **Regularly examine the cord, plug, enclosure, and other parts. If any damage or signs of aging are found, stop using immediately.**

Safety Instructions for Maintenance

- Set the mower to OFF when you do maintenance on the mower.
- Do not pressure wash the mower; high-pressure water can damage the electronics. Do not use solvents to clean the mower or the charging station.
- Disconnect the plug from the charging station before cleaning or doing maintenance on the charging station.

Battery Safety

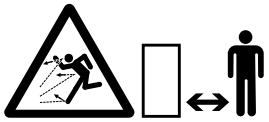
- Lithium-ion batteries can explode or cause fire if disassembled, short-circuited, or exposed to water, fire, or high temperatures. Handle carefully and do not dismantle or open the battery or use any type of electrical/mechanical abuse.
- Avoid storage in direct sunlight.
- Dispose of a used battery properly.
- Do not dispose of the battery in a fire. The cell may explode. Check with local codes for possible special disposal instructions.

Safety Symbols



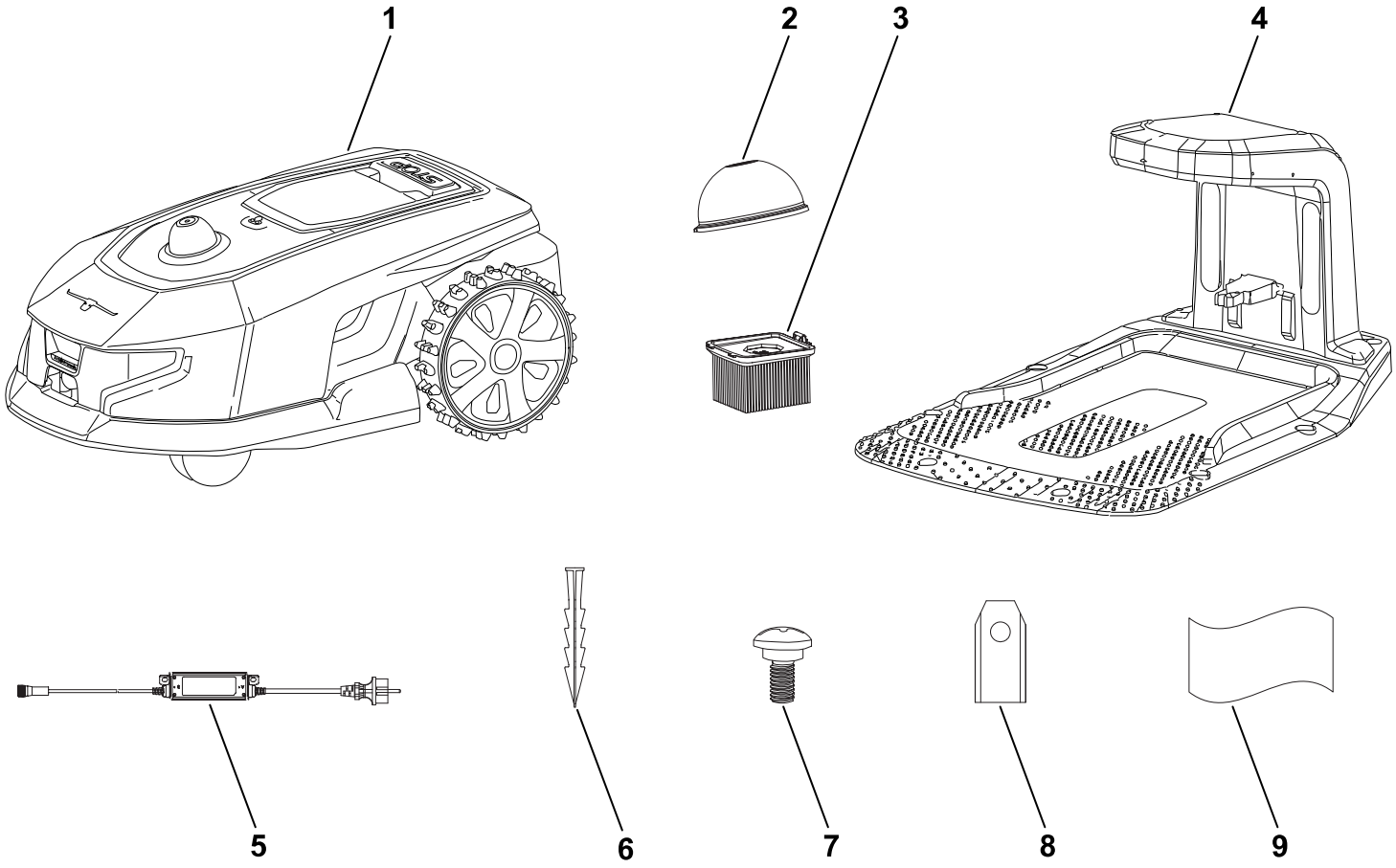
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger.

The following table describes the safety and instructional symbols that appear on the mower.

Safety Symbol	Explanation
	Warning—read the *Operator's Manual*.
	Thrown object hazard—keep bystanders away.
	Cutting/dismemberment hazard of hands or feet, mower blade —stop the machine and read the *Operator's Manual* before performing maintenance.
	Cutting/dismemberment hazard of hands or feet, mower blade —do not ride on the mower.

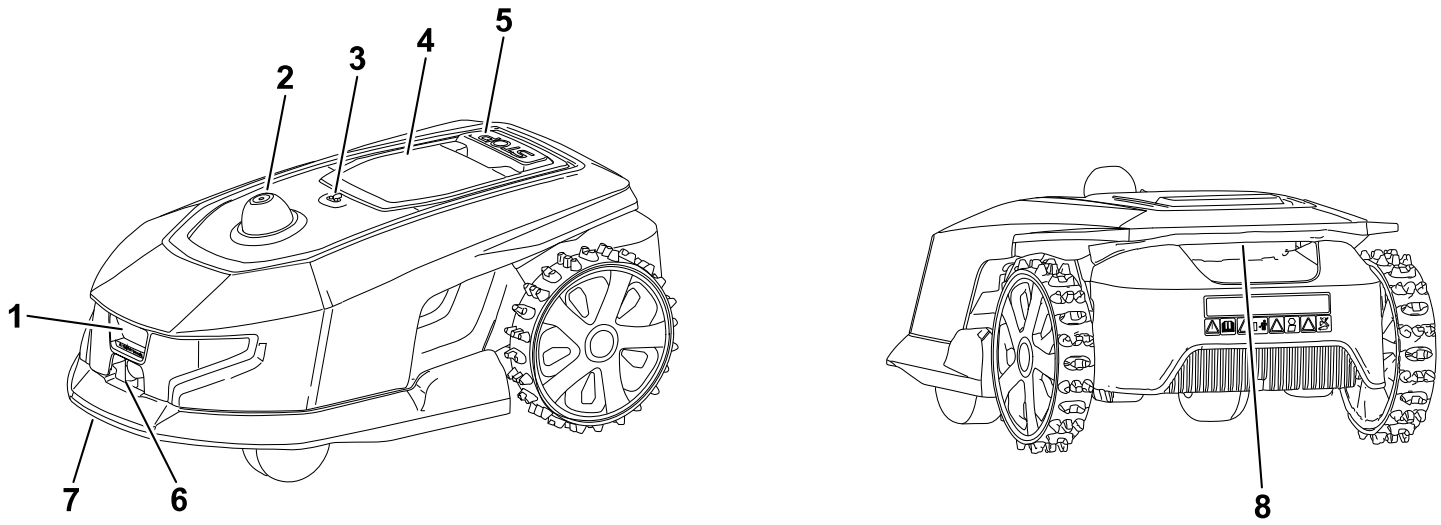
Product Overview

Box Contents



1. Autonomous mower
2. LiDAR cover
3. Cleaning brush
4. Charging station and base
5. Power supply and cord
6. Ground stake (8)
7. Replacement blade screw (12)
8. Replacement blade (12)
9. Cleaning cloth

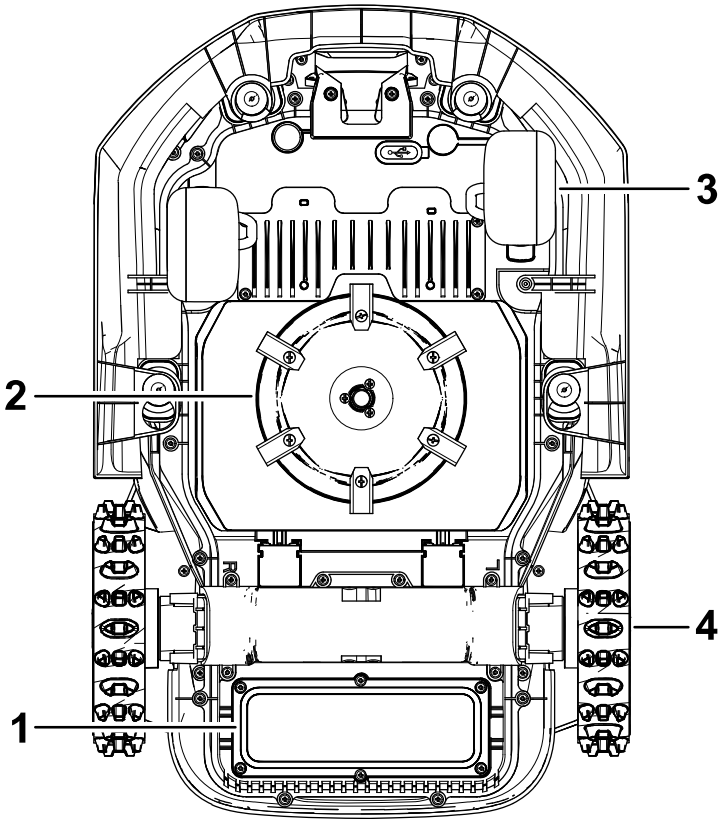
Top View



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1. Monocular camera: The AI-assisted monocular camera helps the mower detect and avoid obstacles.
2. LiDAR: Obstacle avoidance and path planning via lasers.
3. Rain sensor: The rain sensor can detect rain and the mower can return to the charging station automatically to avoid rain according to the settings of the users.
4. Keypad display: The keypad to turn the power on and off for the mower and to command the mower to work or return home, etc. The keypad is located beneath the protective cover. Close the protective cover after using the keypad display.
5. STOP button: Pressing the STOP button immediately stops the mower.
6. Charging electrodes: The charging electrodes on the mower connect to those on the charging station electrodes to charge the battery of the mower.
7. Collision bumper: When visual positioning is not available, the collision bumper can ensure the normal operation of the mower.
8. Handle: Comfort grip handle.

Bottom View



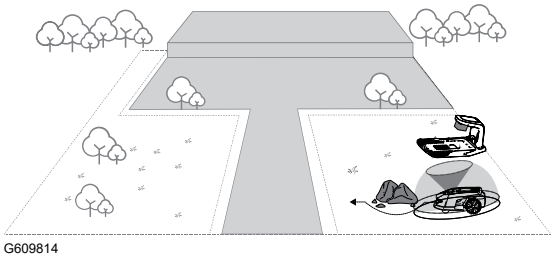
1 Battery compartment: The compartment for storing the battery.

2 Cutting disk: Device for trimming the lawn when the mower is in operation.

3 Caster wheel: Rotates to assist with movement and direction.

4 Drive wheel: Power output for movement with off-road capabilities.

Autonomous Mower Overview



Toro’s advanced hardware and software significantly enhances environmental recognition, accuracy during positioning, and overall performance of the mower. With a 3D-sensing system using 3D LiDAR-SLAM (Light Detection And Ranging-Simultaneous Localization And Mapping) visual technology, the autonomous mower can perform positioning and navigation tasks in various scenarios and under complex environments, ensuring high-quality lawn maintenance.

3D LiDAR-SLAM technology, which scans the garden environment in real-time to generate a 3D map and to perform real-time positioning, enables users to set virtual boundaries for their mowers, eliminating the need for traditional boundary wires. With a 3D map and real-time positioning, the mower can plan its mowing paths with high precision and efficiency, achieving optimal mowing coverage.

Specifications

Note: Specifications and design are subject to change without notice.

Mower:

Width	43 cm (17 inches)
Length	64 cm (25 inches)
Height	28 cm (11 inches)
Weight	11.8 kg (26 lb)
Cutting width	20.1 cm (7.9 inches)
Maximum working area	1618 m^2 (0.4 acres)
Battery capacity	5ah, 18VDC
Maximum slope	42% (22°)
Cutting height	4 cm (1.6 inches)–8 cm (3.2 inches)
IP-code	IPX6

Charging Station:

Width	50.2 cm (19-3/4 inches)
Length	79.4 cm (31-1/4 inches)
Height	40 cm (15-3/4 inches)
Input	20VDC, 3.0A
Output	20VDC, 3.0A
IP-code	IPX4

Power Supply:

Width	6 cm (2-3/8 inches)
Length	11.5 cm (4-1/2 inches)
Height	4 cm (1-9/16 inches)
Input	100–240VAC, 50/60Hz, 76W
Output	20VDC, 3.0A
IP-code	IP67

Features:

Multi-zones	Up to 100
Wire-free mapping	Yes
Path planning options	Automatic, Manual, App editing
3D LiDAR-SLAM	Yes
FOTA (Firmware Over The Air)	Yes
Quick return to the charging station	Yes
Working schedule	Schedule setting in the app
Bump sensor	Yes
Lift and tilt sensor	Yes
Rain sensor	Yes
Water wash	Yes
GPS and 4G module	Optional
Google® Assistant™ and Amazon® Alexa®	Yes
PIN code	Yes

Attachments/Accessories

A selection of Toro approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your Authorized Service Dealer or authorized Toro distributor or go to www.Toro.com for a list of all approved attachments and accessories.

To ensure optimum performance and continued safety certification of the machine, use only genuine Toro replacement parts and accessories.

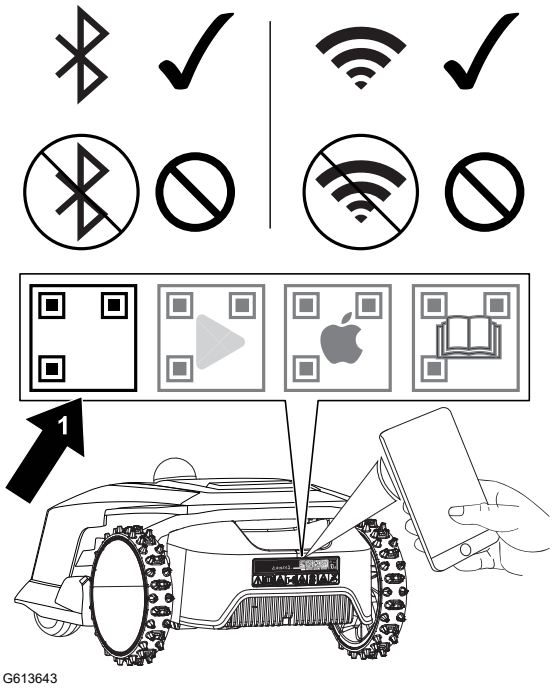
Installing the App

Note: When necessary, the app will request Bluetooth® and Wi-Fi network access. To ensure proper setup and future functionality, grant access to these features using your smartphone.

Scan the QR code on the mower to download the app, or search for “Toro Haven” in the Google Play™ Store (Android™) or the Apple® App Store® (iOS®). After it has been downloaded, create a new account and sign in.

Preparing the Mower

Ensure that Bluetooth and Wi-Fi on your phone are turned on, and scan the QR code 1 on the serial decal of the mower to identify the model and proceed with the corresponding installation guide.

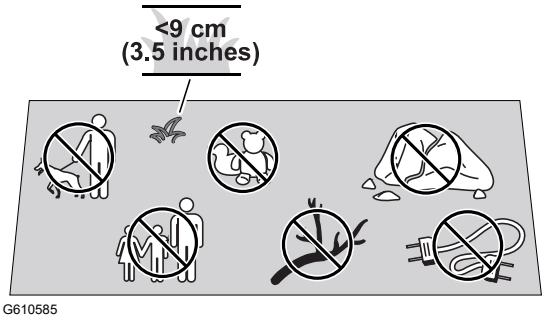


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Preparing the Lawn

The mower has a maximum working area of 1618 m^2 (0.4 acres).

1. Clear away any debris, piles of leaves, toys, wires, stones, or other obstacles.
2. To ensure their safety, make sure that children and pets are off the lawn.
3. Before using the mower, mow the lawn to a height of no more than 9 cm (3.5 inches).
4. If there are narrow passages within the working area, ensure that the passages are wider than 80 cm (32 inches).



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Installing the Charging Station

Note: The charging station is IPX4-rated. It should be installed in an area where it is protected from jets of water from sprinklers or heavy rain.

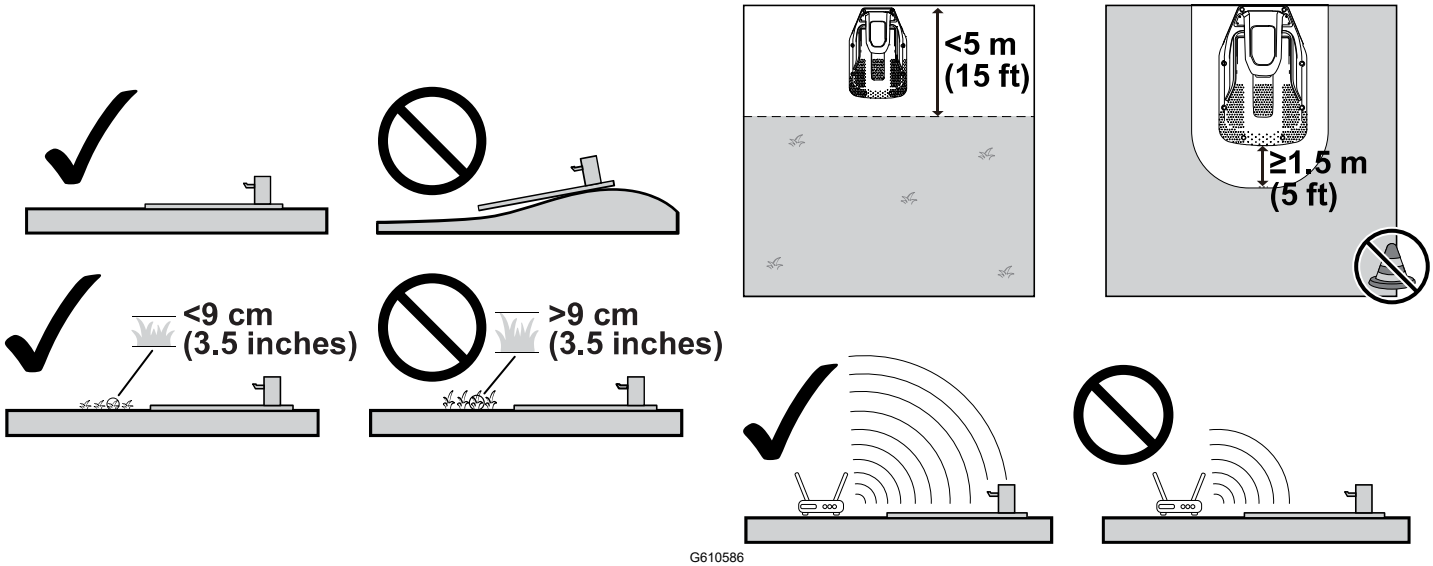
Determining a Location for the Charging Station

- To ensure that the mower can successfully exit and return to the charging station, install the charging station on open, flat, and non-hardened ground.
- The charging station should be within the coverage area of the household Wi-Fi and near a power source.
- The charging station can be placed either inside or outside the working area for the mower.

⚠ WARNING ⚠

Keep the power cord outside of the mowing area.

- There should be no obstacles within 1.5 m (5 ft) of the front of the charging station.
- Mow the lawn around the charging station location to a height of no more than 9 cm (3.5 inches).



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Installing the Charging Station

⚠ WARNING ⚠

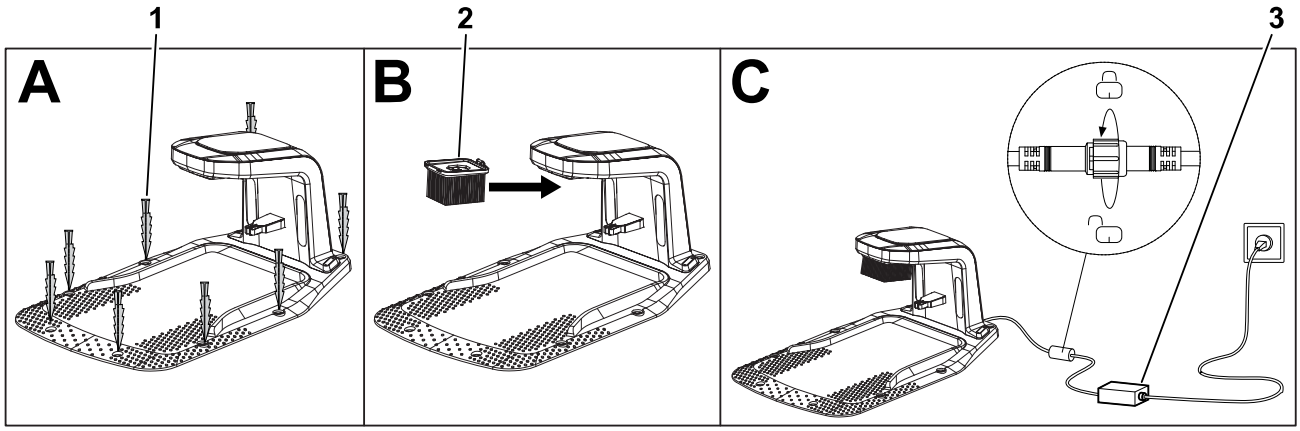
Do not extend the cord between the power supply unit and the charging station.

Parts Required

1	Charging station
8	Ground stake
1	Hex wrench
1	Cleaning brush
1	Power supply and cord

1. Secure the base plate to the ground using the supplied ground stakes ① and hex wrench.
2. Align the cleaning brush ② with the charging-dock slot.
3. Connect the power supply and cord ③, then plug it into a power outlet.

   The LED indicator light on the charging dock will remain a steady color when powered on.



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⚠ WARNING ⚠

If it is unavoidable to operate the charging station in a damp location, use a residual current device (RCD) protected supply with a tripping current of not more than 30 mA, or use a class A ground fault circuit interrupter (GFCI). The use of an RCD or GFCI reduces the risk of electric shock..

Do not put the power supply at a height where there is a risk it can be put in water. Do not put the power supply on the ground.

Installing the Charging Station (continued)

4. Remove the LiDAR protective cover and place the mower into the charging dock to charge. Ensure that the charging contacts of the mower and the charging dock are properly connected.

   In case of charging station failure, purchase a new charging station from either a local store or an online platform. Using a non-Toro certified charging station may cause charging malfunctions.

Activating the Mower

Preparing to Activate the Mower

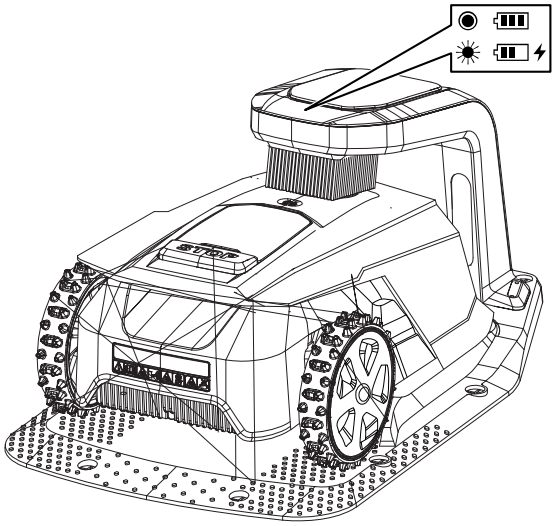
Ensure that the charging station has been properly installed and connected to the power supply.

Activating the Mower

1. Push the mower into the charging station and ensure that the charging electrodes are properly connected. The light on the charging station flashes to indicate normal charging. When the mower is fully charged, the light will remain solid.

   If the light remains off even when the charging station is connected to power, contact an Authorized Service Dealer.

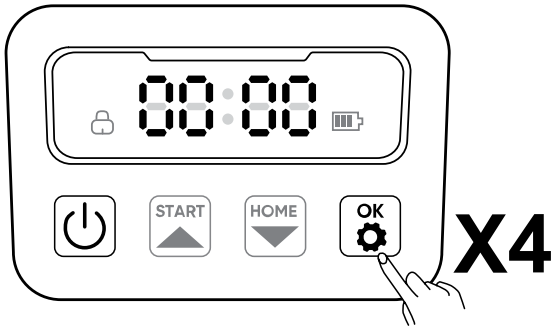
2. Once the mower has been charged successfully on the charging station, it will power on automatically. You can also manually power it on by pressing and holding the POWER button.



G613417

3. Enter the default PIN code 0000. Press OK each time you enter 0 to complete the process.

   After you enter the default PIN code, the mower will make you create a new PIN code.



G613418

App Connection

Note: The following illustrations regarding the app are for demonstration purposes only. Options available may vary depending on software version.

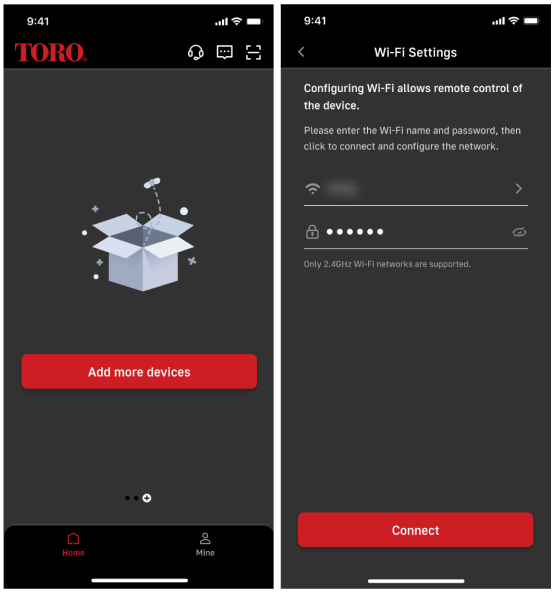
Preparing for App Connection

1. Make sure that the mower is on the charging station, charging properly, powered on, and that the PIN code has been entered.
2. Ensure that Bluetooth on your phone is turned on. For easier network configuration, it is recommended that your phone and mower remain connected to the same Wi-Fi network.

Connecting to the App

1. On the back of your mower, scan the QR code on the serial decal to add your autonomous mower. If scanning is not available, you can also connect via Bluetooth.

   If you have already scanned the QR code on the serial decal of the mower, the mower will automatically pair to the app when Bluetooth is enabled on your phone, which eliminates the need for another scan.
2. After pairing is successful, enter the default PIN code `0000`. The PIN code can be changed on the phone.
3. Configure your Wi-Fi for the mower in the app.



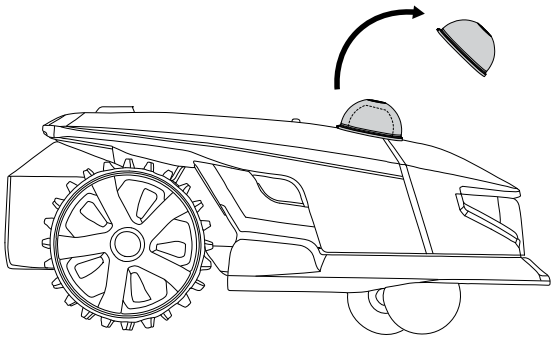
G613130

Mapping

Note: The following illustrations regarding the app are for demonstration purposes only. Options available may vary depending on software version.

Preparing for Mapping

To have the mower mow the lawn, you first need to scan and map your yard to create a virtual map.


G613419

Ensure that the following steps have been completed:

- The mower has entered the charging dock and is powered on.
- The battery level is above 50%.
- You have connected to the mower via the Toro Haven app.
- The LiDAR protective cover is removed.
- The front camera on the mower is clean and unobstructed.

  Remove the protective film from the front camera before use. If the lens gets dirty during subsequent use, wipe it with a soft cloth.
- The firmware is updated.

Automatic Mapping

The robot can independently assess and map your lawn using advanced 3D LiDAR scanning and visual recognition technology. During automatic mapping, the robot will do the following:

- Identify boundaries: Precisely recognize the lawn edges.
- Scan the terrain: Travel along the boundaries to collect environmental details.
- Generate a virtual map: Create an accurate digital layout for efficient mowing.

Preparing for Automatic Mapping

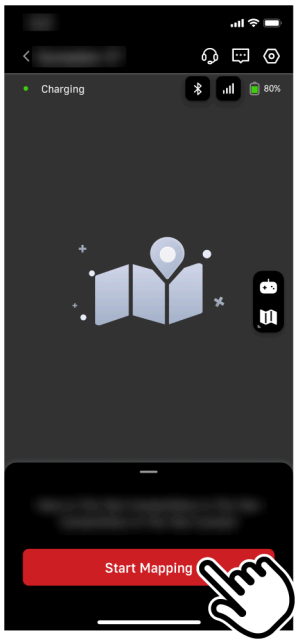
- Clear any weeds from the boundaries of your lawn to ensure that the boundaries are clearly visible.
- If there are cliffs or steep areas along the boundaries of your lawn, get ready to take control of the mower before it reaches these areas while boundary searching. Navigate through these sections using manual remote-controlled mapping.
- For lawns without clear boundaries, manual remote-controlled mapping is required to create the map boundaries.
- The mower cannot pass through spaces or passages narrower than 0.8 m (2.6 ft). Ensure that there are no spaces narrower than 0.8 m (2.6 ft) inside the boundaries of the lawn that you want to map.

Automatic Mapping (continued)

Starting Automatic Mapping

You can start automatic mapping using one of the following methods:

- In the app, select **Start Mapping**.
- On the keypad display of the mower, press START and OK successively.



G613131

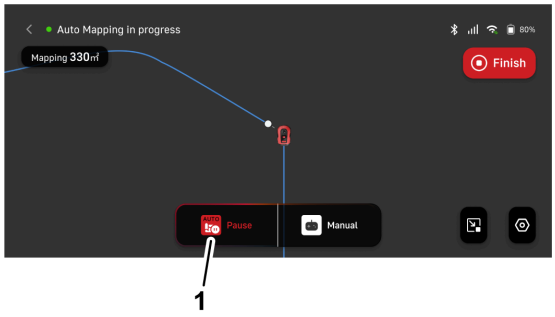
Pausing and Resuming Automatic Mapping

Under the following scenarios, automatic mapping will be paused:

- The STOP button on the mower was pressed.
- The **Pause** button was selected on the app interface.
- Mower anomalies, such as the wheels getting stuck, excessive tilting of the body, or the body overturning.

After checking and ensuring that the mower is functioning normally without errors, resume automatic mapping by selecting the **AUTO** (1) button in the app interface.

We recommend that you follow the mower during mapping. If the robot fails to accurately detect the boundaries, you can exit automatic mapping mode and switch to manual control at any time.



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Manual Remote-Controlled Mapping

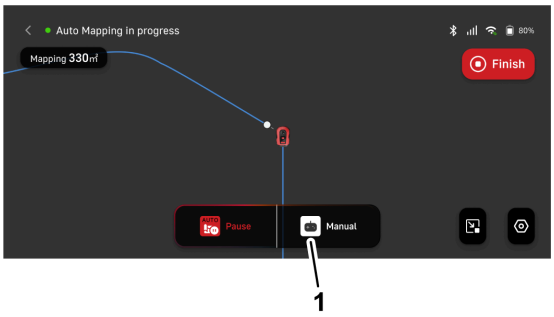
The ability of the robot to automatically recognize boundaries is limited by system performance and the lawn environment. There may be scenarios where the robot cannot successfully complete automatic mapping. In such cases, you need to resort to manual remote-controlled mapping to help the robot finish scanning and mapping the lawn.

Manual Remote-Controlled Mapping (continued)

Entering Remote-Controlled Mapping Mode

You can enter manual remote-control mapping mode from automatic mapping mode in the following ways:

1. If the mower fails to recognize the lawn boundaries for an extended period during the automatic mapping process, the mower will automatically switch to manual remote-controlled mapping mode, prompting you to take over and remotely control the mower to continue mapping.
2. You can also proactively switch to manual remote-controlled mapping mode by selecting the **Manual** (1) button on the automatic mapping interface.

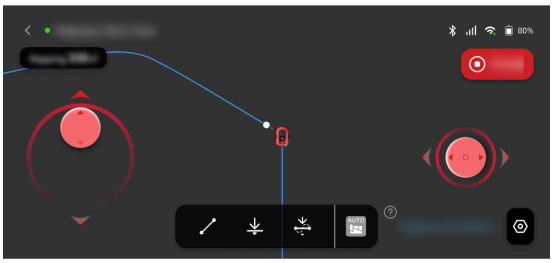


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Starting Remote-Controlled Mapping

Ensure that the mower is near the lawn boundary. Otherwise, remotely control the mower until it is near the lawn boundary, then ensure the boundary is on the right side of the mower.

Operate the remote control panel on the app interface to remotely control the mower and drive along the lawn boundary for mapping.



G611745

Important Notes for Mapping

- Do not manually move the mower when creating the boundary; otherwise, it may result in a mapping failure.
- When beginning mapping, do not remotely dock the mower to the charging dock before the mapping process is completed. Otherwise, the LiDAR may be blocked, leading to a mapping failure.
- When using the remote control, stay within 5 m (16 ft) behind the mower.
- The mower can navigate slopes with a gradient of up to 42% (22°). Keep the gradient of the working area below this limit.
- If the lawn is more than 4 cm (1.6 inches) higher than the adjacent ground, keep the mower at least 5 cm (2 inches) away from the edge. If your lawn is flush with the adjacent

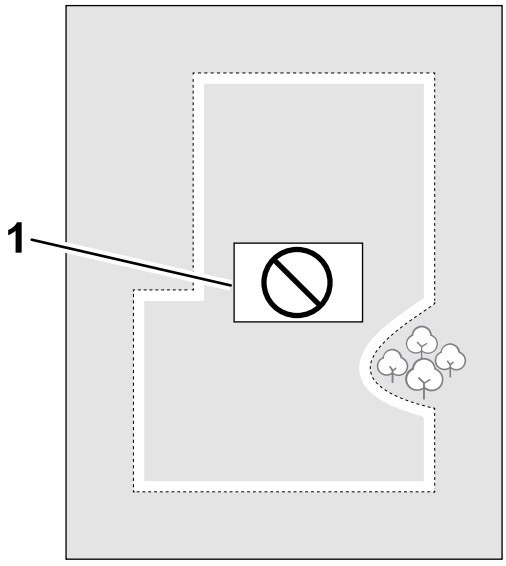
ground, the mower can cross the boundary line to achieve the best mowing results for the edge areas.

- Ensure that the turning angle is greater than 90°. Angles less than 90° may cause the mower to have difficulty achieving clean cuts.

No-Go Zones

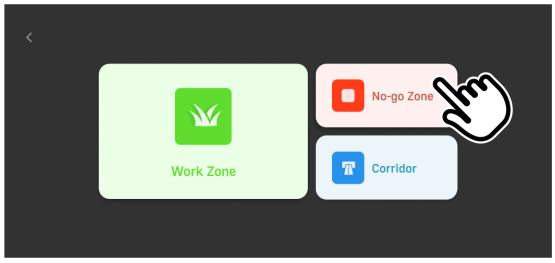
Creating No-Go Zones

If your work area contains a pool or other no-mow zones, it is recommended to create a no-go zone (1) to generate a virtual boundary and protect these areas.



G610587

1. Select **No-go Zone**.
2. Remotely control the mower to the starting point where the no-go zone needs to be created.
3. Select **Start Mapping**.
4. Remotely control the mower to close the area, then select **Finish**.



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Creating Night No-Go Zones

A map must have already been created before creating night no-go zones.

Night no-go zones are no-go zones that the mower will **only avoid during the night.** The obstacle avoidance ability of the mower is greatly reduced during the nighttime, so it is therefore recommended to use night no-go zones to surround hazardous areas.

To enable this zone option, from the main page select the **Settings** button, scroll down the **Work** tab, and enable **Night Work Mode**.

Note: Night Work Mode is disabled by default.

No-Go Zones (continued)

1. From the map editing screen, select **No-go Zone** > **Add**.
2. Using your fingers, map out the night no-go zone in your working area.

Trapped Risk Zones

Trapped risk zones are areas where the mower has previously gotten stuck on an obstacle. A no-go zone is automatically created and shown on your map so that the mower does not pass through this area again.

If the obstacle from that area has been removed or the area is now safe, you can delete this zone so that the mower can pass through it normally during its next task.

Creating Safe Zones

If the mower detects areas that it detects as hazards, it will try and avoid these areas in the future. If you would like the mower to mow these areas, use safe zones to permit the mower to mow these areas.

Common scenarios that require safe zones are the following:

- **Slopes and shadows**. The camera gets confused by high-contrast lighting, shadows, or strong sunlight shifts.
- **Discolored or thin grass**. Bare spots, yellow patches, or thin grass are wrongly flagged as hazards.
- **Debris and textures**. Fallen leaves or uneven patches prompt false avoidance behavior.
- **Surface fixtures**. Areas containing manhole covers, flush lawn grids, or flat stone plates that the mower should drive over.

1. Select **Safe Zone**, or select an automatic risk zone on your map that can be converted into a safe zone.
2. Using your fingers, map out the safe zone in your working area.

Creating Virtual Walls

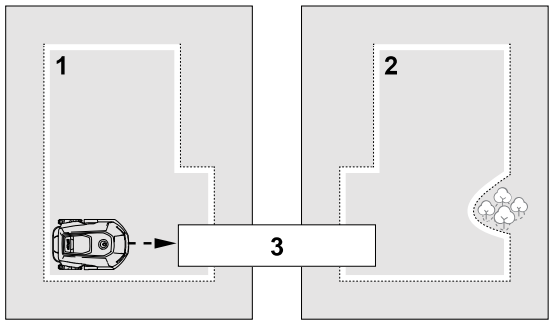
Virtual walls are user-created lines on the map that the mower will not cross. Using virtual walls prevents the mower from traveling into certain areas, e.g. over street curbs or into hazardous areas.

Note: Virtual walls are bidirectional, so the mower will not cross them from either direction.

1. Select **No-go Zone**.
2. Select **Virtual Wall**.
3. Using your fingers, map out the virtual wall in your working area.
4. Select **Confirm** and wait for the virtual wall to save.

Creating a Multi-Zone

If your lawn needs to be divided into multiple work zones ① and ②, you can create multiple work zones and connect them through corridors ③.



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There are 2 options for creating multi-zones: creating the second work zone first and then the corridor, or creating the corridor first and then the second work zone.

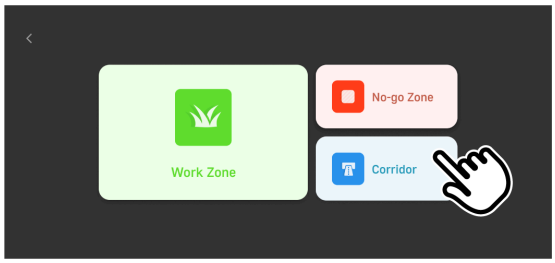
Note:

- When creating multiple work zones, it is best not to have the second work zone overlap with the first. If the overlap is too large, the two zones will be automatically merged into one work zone.
- If the corridor does not overlap with the work zone or if no corridor is established between the two work zones, the mower may have difficulty returning to the charging station or completing its tasks.

Creating Corridors Before Creating Additional Work Zones

1. Select **Corridor**.
2. Remotely control the mower to the location where the corridor needs to be created, then select **Start Mapping**.

   Make sure that the corridor overlaps with the first work zone.
3. Remotely control the mower to the end of the corridor, then select **Finish**.



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4. Create the second work zone, ensuring that the corridor overlaps with the second work zone.

Creating Additional Work Zones Before Creating Corridors

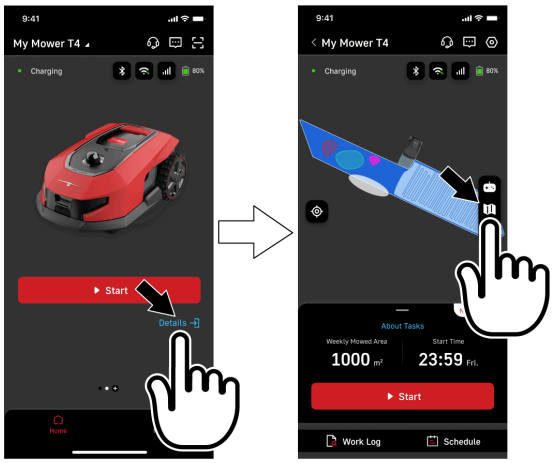
1. Select **Work Zone**.
2. Remotely control the mower to the location where the second work zone needs to be created and create the second work zone.
3. Create a corridor between the two work zones, ensuring that the corridor overlaps with both work zones.

Managing Zones and Corridors

You can also merge, split, rename, and delete work zones, and delete corridors or no-go zones.

Managing Zones and Corridors (continued)

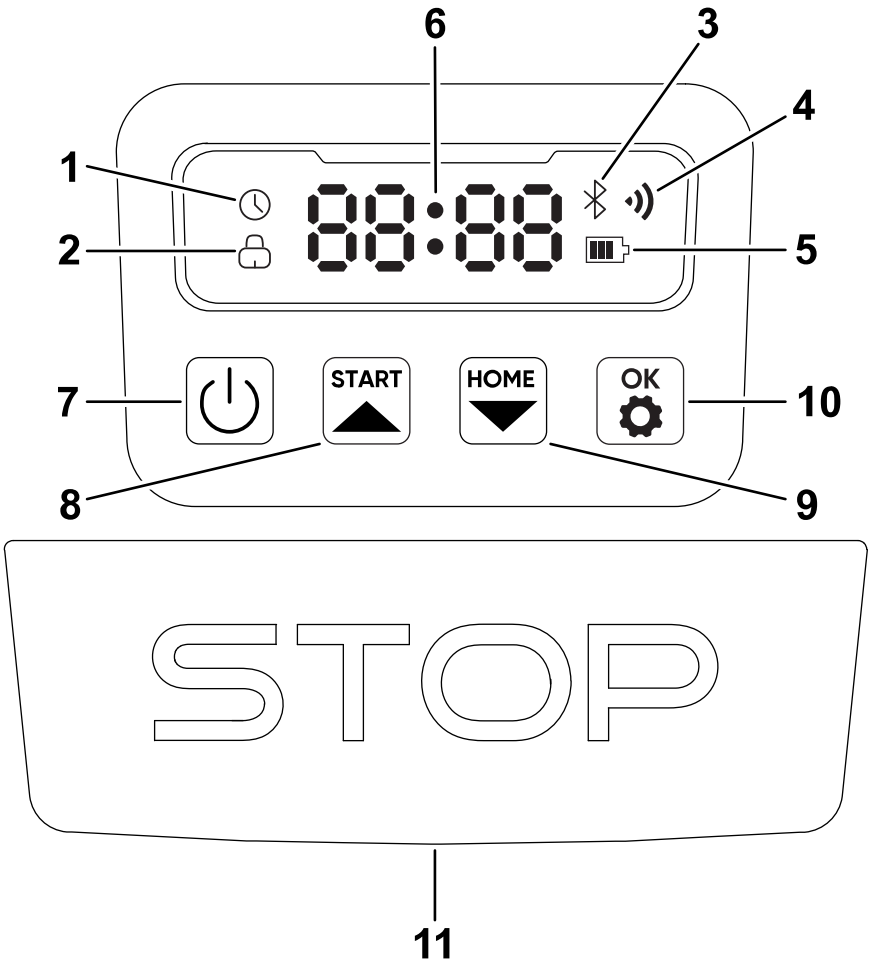
From the main page, perform these operations under **Details** > **Map Management** > **Manage**.



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Display Overview

Display



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1. **Time setting icon**: The time setting icon indicates that the mower has entered time setting mode.
2. **Password setting icon**: The lock icon lighting up indicates that you need to enter the password or change the password for the mower.
3. **Bluetooth icon**: The Bluetooth icon indicates whether the mower is successfully connected to Bluetooth or not.
4. **Wi-Fi icon**: The Wi-Fi icon indicates whether the mower is successfully connected to Wi-Fi or not.
5. **Power icon**: The battery power icon shows the remaining power of the mower. 1 bar displayed indicates that the power is 30% or under, 2 bars indicate that the remaining power is between 31-66%, and 3 bars indicate that the power is 67% and higher.
6. **Dashboard display**: The dashboard display shows the different states and modes the mower is in.
7. **Power button**: Pressing the Power button turns on and turns off the mower.

Display (continued)

(8) **Start/Increase button**: Pressing the Start/Increase button tells the mower to start working and increases the digit when entering a PIN.

(9) **Home/Decrease button**: Pressing the Home/Decrease button tells the mower to go back to the charging station and decreases the digit when entering a PIN.

(10) **Ok button**: Pressing the Ok button confirms the Start and Home buttons and confirms the digit when entering a PIN.

(11) **Stop button**: Pressing the Stop button immediately stops the mower.

Dashboard Display

The dashboard display (6) shows the different states and modes the mower is in:

- `. idle`: The mower is in standby mode and there are no tasks being executed at this time.
- **. Running lights**: A series of dashes runs around the display. The mower is in working mode. At this time, the cutting disk is rotating at high speed. Please keep away from it.
- `. - - - -`: When the rain delay is turned on, the mower recognizes that it is raining at this moment, ends the current work, and returns to the charging station.
- `. stop`: The stop button was pressed on the mower.

Basic Control

Turn on: Press and hold the Power button (7) for 2 seconds.

Turn off: Press and hold the Power button for 3 seconds.

Note: When the mower is turned off, you will see the word `bye` displayed on the dashboard and then the screen will turn off.

Start working: Press the Start button (8) and then Ok (10).

Back to station: Press the Home button (9) and then Ok (10).

Stop mower operation: Press the Stop button (11).

Exit STOP mode: Press the Start button and then Ok, or press the Home button and then Ok.

Time setting: Press and hold the Start button for 3 seconds.

Restart the mower: Press and hold the Power button for 10 seconds to turn off the mower, then turn it on again. **Or**, manually push the mower into the charging station and connect it to the charging electrodes on the station.

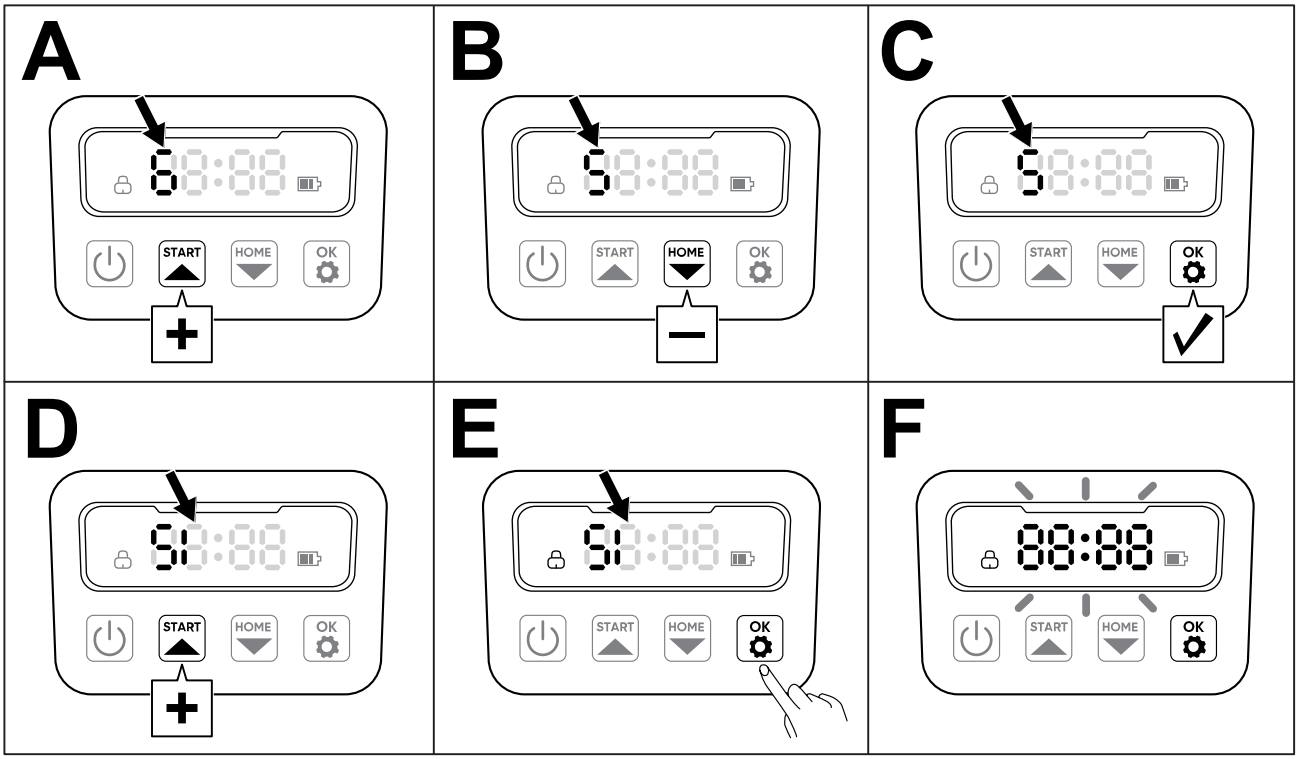
Note:

- If the mower restarts, ensure there is at least 1.5 m (5 ft) of flat, obstacle-free space in front of it.
- If the work area includes drop hazards such as pools or elevated edges, it is recommended to keep the mower in the charging station during a restart, or let it return to the station after a restart to calibrate its position.

Changing the PIN Code

If the mower is locked, enter the PIN code before manually operating the mower. The default code also be changed via the Toro Haven app.

1. Long press the START and HOME buttons for 3 seconds.
2. When `PIN1` is displayed, and after `0–` appears, input the old password.
3. When `PIN2` is displayed, and after `0–` appears, input the new password. Press OK to confirm.



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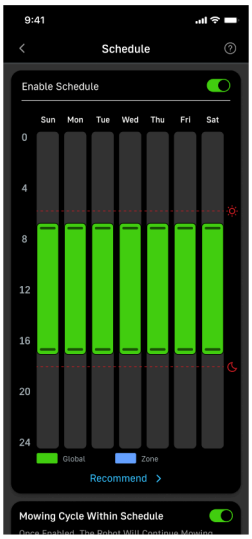
Note: If the PIN code is entered wrong, then the display will show `ERR`.

Schedule Setting

Note: The following illustrations regarding the app are for demonstration purposes only. Options available may vary depending on the software version.

Recommended Schedule

The mower will intelligently generate a mowing schedule based on the sunrise and sunset times in your location. Recommend Schedule will be enabled by default.



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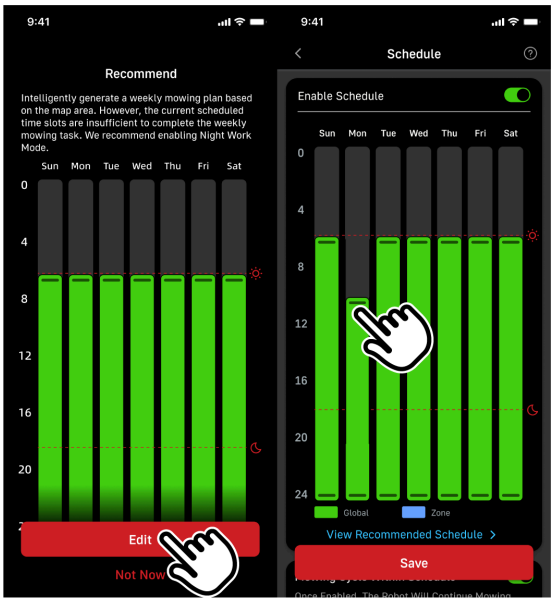
Custom Schedule

If you wish to modify the recommended schedule, you may also choose to set a custom schedule.

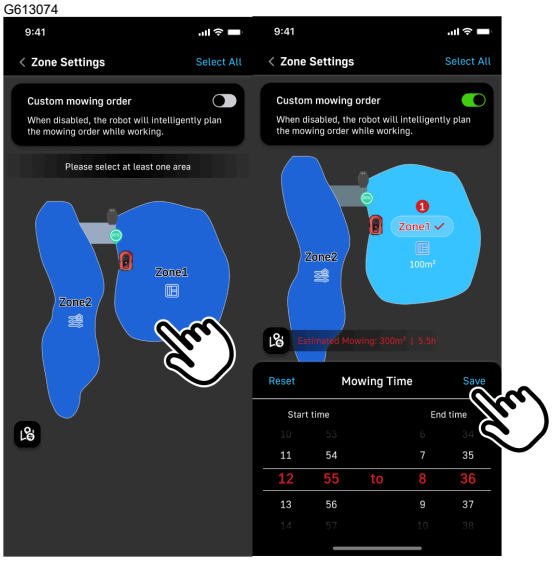
Custom Schedule (continued)

1. Select the **Adjust** or **Custom** buttons to enter custom settings.
2. Select the day you want the mower to work.
3. Choose the areas where you want the mower to work on that day.
4. Set the start and end times for the operation of the mower.

   Note: If the custom schedule time does not fall within the daytime working hours, which is based on local sunrise and sunset times, the mower will not leave the charging station to mow during those times.



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App Introduction

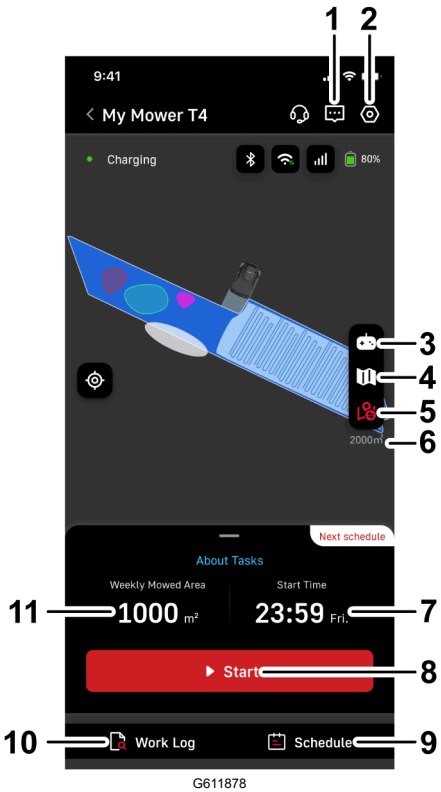
Note: The following illustrations regarding the app are for demonstration purposes only. Options available may vary depending on the software version.

Main Page Introduction



G611877

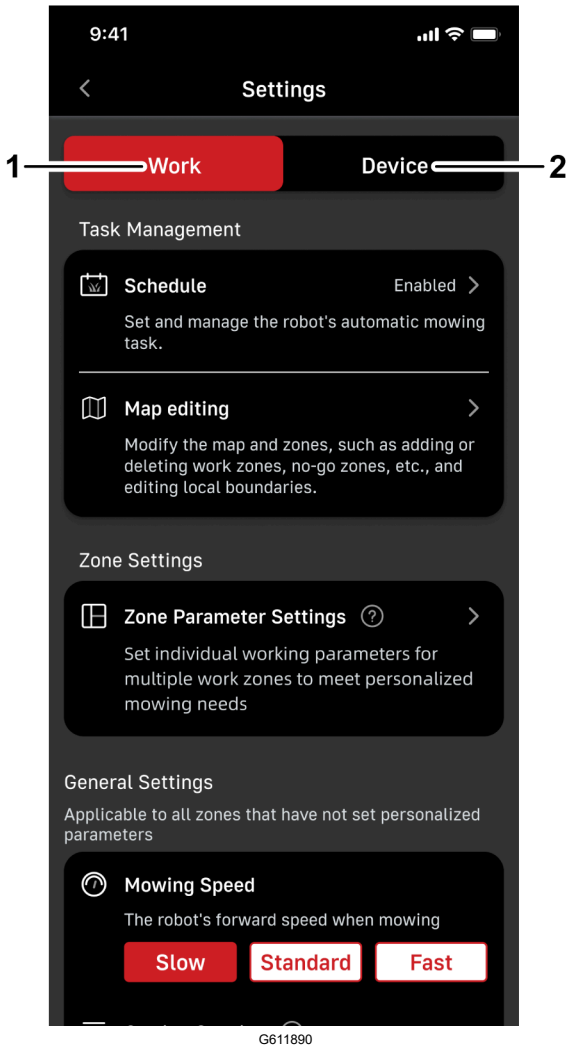
1. Mower name – select to rename
2. Mower status display
3. Help & Guidance
4. Message list
5. Add device
6. Mower battery level
7. Mower cellular level (4G models only)
8. Mower Wi-Fi signal status
9. Mower Bluetooth connection status
10. Start mowing
11. Device details page



G611878

1. Message list
2. Settings
3. Remote control of the mower
4. Map management / Antenna signal map
5. Change map view
6. Total area mowed
7. Time worked / Next work time
8. Start mowing
9. Schedule settings
10. Work log
11. Area worked / Estimated work area

Settings



G611890

(1) Work settings. Here you can adjust the settings related to the operation of the mower.

- Schedule
- Map Management
- Cutting Spacing
- Mowing Speed
- Cutting Direction
- Edge Cutting Frequency
- Obstacle Avoidance
- Rain delay
- Energy Saving Mode
- Zone Settings
- Night Work Mode

(2) Device settings. You can adjust the device-related settings here.

- Device Info
- PIN Code
- Firmware Update
- Work Log
- Network Settings
- Time Zone
- Feedback

Internet of Things (IoT)

This mower is an Internet of Things (IoT) device. Connecting the mower to the Internet via a cellular network or your Wi-Fi network enables the following functionalities:

- Firmware Over The Air (FOTA). Keep your mower updated with the latest features.
- Enable remote control through your home Wi-Fi network: Start mowing, stop mowing, return to charging station, set mowing schedule, set cutting height, and other functions.
- Remotely monitor mowing progress and mower location.
- Mower reports error codes and the mower status in the app.

Wi-Fi

Haven uses Wi-Fi to connect to a network.

Wi-Fi (continued)

Note:

- Haven only supports 2.4GHz or 5GHz Wi-Fi networks.
- If you are using an iOS device, the mower can only connect to the Wi-Fi that your mobile device is connected to. Please follow the instructions in the app. Connect your mobile device to the Wi-Fi first, then connect the mower to the same Wi-Fi. There are no such requirements for Android devices.

Firmware Updates

We continually update the firmware of the mower. If there is a new version of the firmware, you will receive a pop-up notification in the app. It is recommended that you download the update as soon as the latest firmware is available.

When updating the firmware, the following conditions must be met:

- The mower is in the charging station.
- The mower is connected to the network.
- The battery power is more than 30%.
- There is no mowing planned within 1 hour.

Updating the Firmware

IMPORTANT

Do not move the mower during the update process.

1. From the main page, select the **Settings** button > **Device** > **Firmware Update**.
2. Enter your PIN on the keypad display on the mower per the app instructions.
3. Select **Firmware Update**, turn on **Automatic Update**, and select **Update Now** (if the firmware is out-of-date).

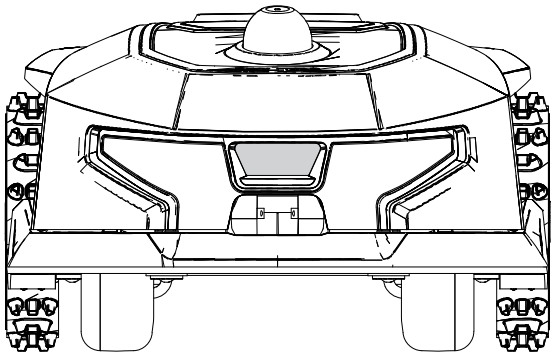
In the process of updating, you can see the update progress on your app. After the update is completed, the LED screen on the mower will display the **OK** symbol to indicate that it is complete.

Obstacle Avoidance

Monocular Camera

The monocular camera is part of the standard equipment of Haven. It is designed for visual boundary detection, prior obstacle avoidance, and visual recognition of QR codes during the charging process.

Note: If there are too many obstacles in your lawn, consider setting up no-go zones around them or removing some of the obstacles to improve the efficiency of the mower.



G606898

3D Sensing System

Equipped with 3D LiDAR and a monocular camera, the AI and deep-learning system excels at perceiving the surrounding environment and navigating obstacles seamlessly. Supported by our proprietary deep-learning algorithms, it consistently enhances its comprehension of garden landscapes through continuous data accumulation.

Bumper Sensor

Sensors are installed inside of the mower to detect obstacles. When the bumper bumps into an obstacle and triggers the sensor, the mower will move backwards and avoid the obstacle.

Note: Your mower is able to avoid objects after bumping into them. However, it is recommended to remove excess clutter before mowing.

Maintenance Overview

- Regular maintenance creates superior mowing results and extends the lifespan of your mower.
- Regular inspection and upkeep every week is essential to ensuring the optimal performance of your equipment.
- Safeguard your well-being by adhering to safety guidelines. Refrain from performing maintenance while wearing open sandals or being barefoot.
- Always prioritize safety by donning long trousers and work shoes during mower servicing.
- Promptly replace any damaged or worn parts to guarantee seamless operation.
- Turn off the mower and disconnect the battery before performing maintenance.

Electrical System Maintenance

Battery Overview

- Before storing the mower, fully charge the battery to prevent over-discharge that could harm the electrical parts.
- Do not charge the battery pack in temperatures below 5°C (41°F), or above 40°C (104° F).
- If the battery pack is charged when the temperature is between 18°C (64°F) and 25°C (77°F), it can extend the life and improve the performance of the battery pack.
- The battery pack performs best when it is operated at normal room temperature, between 5°C (41°F) and 20°C (68°F).

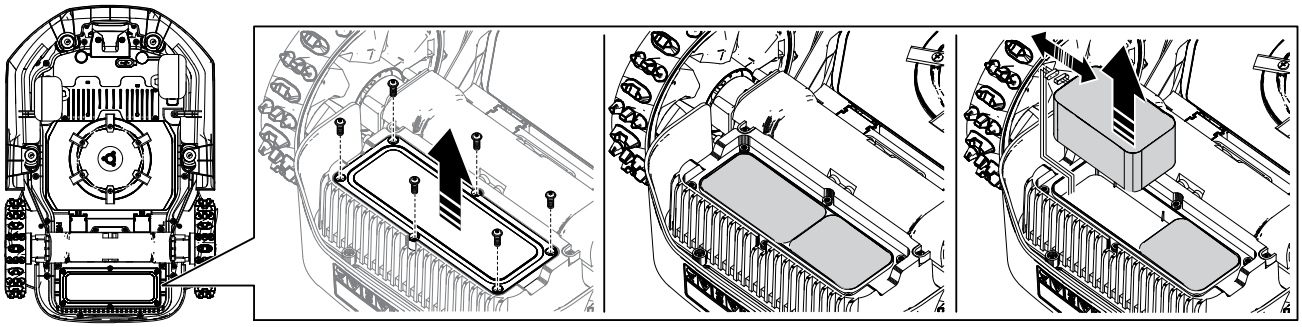
Note: Battery life depends on how often the product is used and the total working hours. When you notice that the operation time is significantly shorter than usual per full charge or the lawn is not well-cut, it is recommended to replace the battery.

Replacing the Battery

1. Turn off the mower.
2. Place the mower upside-down on a spotless, soft surface.
3. Loosen the 4 screws holding the battery compartment in place with a cross-tip screwdriver.
4. Disconnect the plug.

Replacing the Battery (continued)

5. Remove the battery pack and replace it with a new one.



G613598

⚠ WARNING ⚠

- **Use only the original battery pack or that of the same model as specified by Toro. Each mower contains one battery pack.**
- **Depending on the specific mower model, the rated capacity of the battery is 5000mAh.**
- **Do not use non-rechargeable batteries. For the purposes of recharging the battery, only use the detachable supply unit provided with this product.**
- **Avoid breaking or disassembling the battery casing. Avoid contacting with metal objects to prevent short circuits. Keep away from heat sources, fire, and direct sunlight.**
- **Please get in touch with your point-of-sale Authorized Service Dealer, your local or regional waste management office, or your household waste disposal service for more information about battery and electrical waste.**
- **It is not intended for the battery compartment to be opened frequently. If a new battery is required, only then should you open the battery compartment.**
- **The battery pack contains electrolytes. If the electrolyte leakage comes into contact with your skin, wash off with soap and water immediately. Get medical help in case of eye contact and immediately flush the eyes with plenty of water for at least 15 minutes without rubbing.**

Performing Mower Maintenance

Disconnect the battery in the following situations:

- Before clearing a blockage
- Before checking, cleaning, or working on the mower
- After striking a foreign object to inspect the mower for damage

Cutting Unit Maintenance

Replacing the Blades

For improved mowing performance and safety, it is recommended to change the screws and blades on the mower every 1-2 months if it is used frequently. For a safe cutting system, replace all blades along with their screws at the same time.

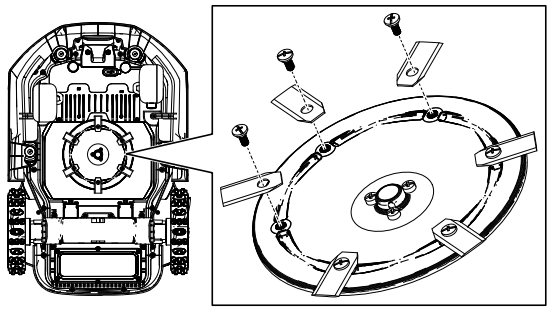
⚠ WARNING ⚠

- **When inspecting or servicing the blade, wear thick gloves.**
- **Do not reuse the screws. Serious injury may result from doing this.**
- **Use the correct screws and original blades that are sold by Toro.**

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1. Turn off the mower.
2. Place the mower upside-down on a spotless, soft surface to prevent scratches.
3. Use a cross-tip screwdriver to loosen the screws.
4. Remove the screws and blades.
5. Install the new blades using the provided screws.

   Tighten the screws to **1.0 N·m (9 in-lb)**.



G613442

Ensure that the blades can pivot freely.

Note:

- Replace the screws with a standard torque of **1.0 N·m (9 in-lb)**. Incorrect torque may lead to avoidable issues.
- Ensure that the mower is turned off and check the blades for proper installation. Check for abnormal noise or shaking.

Cleaning

⚠ WARNING ⚠

Make sure that the mower is turned off before cleaning.

Turn off the mower before placing the mower upside-down.

Cleaning the Mower

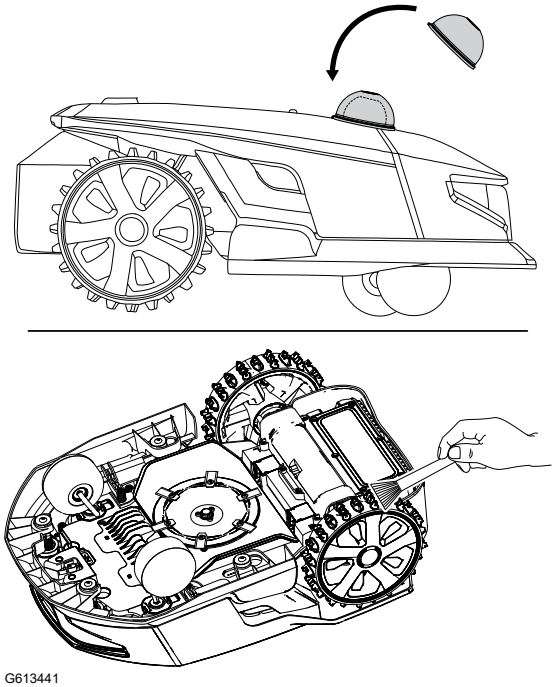
1. Turn off the mower.
2. Use a gentle brush or cloth to meticulously clean the exterior. Avoid any corrosive solvents such as alcohol, gasoline, or acetone. These substances have the potential to cause harm to both the aesthetics and the internal components of your mower.

   Note:

   - For seamless docking, it is crucial to regularly examine and clean any debris or mud from the charging station.
   - Ensure that all connecting parts of the charging station, power supply, and power supply cord are unobstructed for optimal performance.

Cleaning the Chassis and the Cutting Disk

1. Put on the LiDAR protective cover and gently set the mower upside-down so as not to damage the LiDAR.
2. Use a brush or a water hose to clean the chassis and the cutting disk.



G613441

IMPORTANT

High-pressure water can leak into the seals and could damage electronic and mechanical parts.

Do not use a high-pressure washer as it could cause damage.

3. Ensure that the cutting disk rotates smoothly and the blades have the ability to pivot without any restrictions.

Cleaning the Wheels

Mud or debris on the wheels can impair the performance of the mower when climbing slopes.

Use a brush to remove mud or debris from the wheels to ensure good traction.

Cleaning the Rain Sensor

Inspect the rain sensor once a month to ensure that it is not covered by mud, grass, or other debris.

1. Wash or use a soft brush to clean mud, grass, debris off of the sensor.
2. Dry the sensor area after cleaning to prevent it from being triggered on accident.

Cleaning the Camera

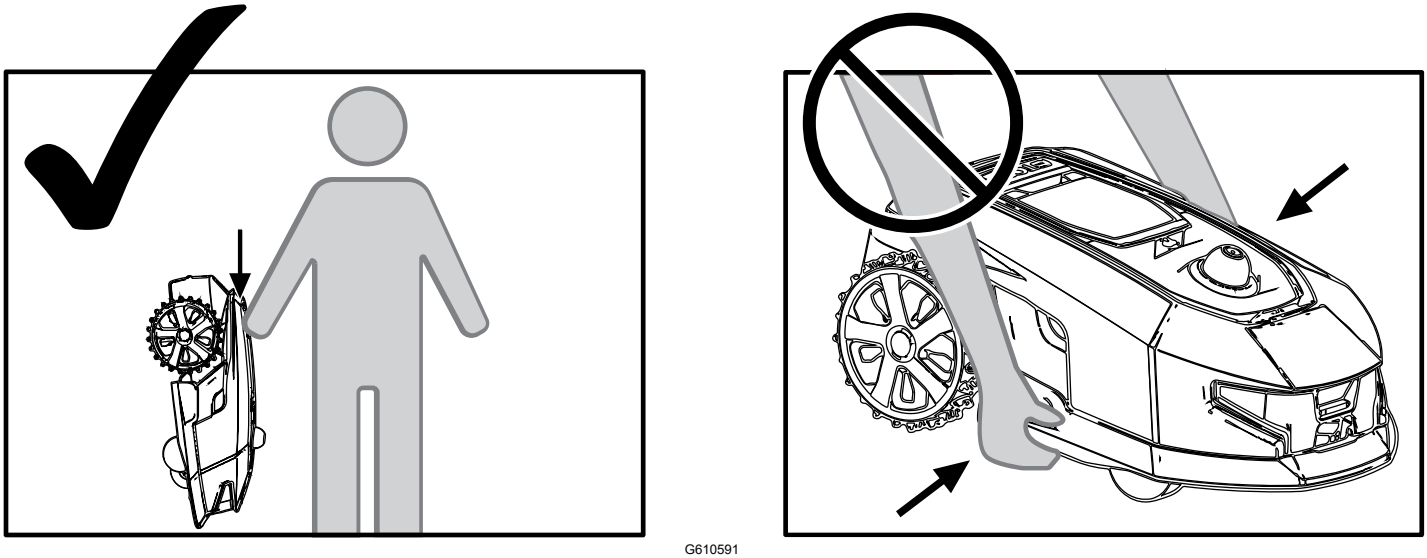
Clean the camera regularly to keep it in good condition.

Clean the camera using a soft cotton cloth to avoid scratching the lens.

Transportation

Ensure that the mower is not damaged during long distance transportation by utilizing the original packaging. Before lifting, moving, or transporting the product, ensure that the mower is turned off. Handle with care and avoid violent force, such as throwing or leaving heavy objects on the mower. Never pick up or carry the mower while the motor is running.

Carry the mower by the handle and keep the cutting disk facing away from your body.



G610591

Storage

1. Ensure that the mower is fully charged and turned off before storing it to prevent over-discharge, which could result in permanent damage.
2. Remove the battery from the mower and disconnect the power supply from the electrical outlet.
3. Store indoors in a dry, cool place. Exposure to sunlight and extreme temperatures (either hot or cold) will accelerate the aging process of components and may cause permanent damage.
4. Keep chemicals and heat sources (stoves, radiators, etc.) away from the mower, charging station, and power supply.
5. Store the power supply in an area with good ventilation and protect it from moisture.

⚠ WARNING ⚠

Unplug the power supply from the power socket if a thunderstorm is predicted. Disconnect all wires and cords that are attached to the charging station. Reconnect when there is no longer a possibility of a thunderstorm.

Extra Requirements for Winter Storage

Storing the Mower for Winter

1. Clean the mower thoroughly before storage.
2. Inspect the components that are subject to wear, such as the blades.

   Repair or replace them if they are in poor condition.
3. Store the mower in a dry and frost-free place while standing on all wheels, preferably in the original packaging.

Storing the Charging Station for Winter

1. Disconnect the power supply from the charging station and unplug the power supply from the power outlet.
2. Bring the charging station inside if the ambient temperature falls below -20°C (-4°F).

Recycling and End-of-Life Disposal

Contact your local municipality or your Authorized Service Dealer or distributor for more information on how to responsibly recycle the product.

⚠ WARNING ⚠

This product should not be disposed of in a landfill, burned, or combined with regular household trash. Electrical components may cause danger or serious damage.

Disposing of Button Cell or Coin Batteries

Remove and immediately recycle or dispose of used batteries according to local regulations. Keep away from children.

⚠ WARNING ⚠

Used batteries may cause severe injury or death. Batteries venting, leaking, or exploding could result in chemical burns.

Do not dispose of batteries in household trash or incinerate. Do not force discharge, recharge, disassemble, heat above the manufacturer's specified temperature rating, or incinerate batteries.

Call a local poison control center for treatment information.

Battery type:	CR2032
Nominal voltage	3.0 Vdc

Non-rechargeable batteries are not to be recharged.

The product contains a non-replaceable button cell.

Error Code Troubleshooting

LED Code	App Message	Corrective Action
E1	Robot out of work zone	1. Confirm if the mower is outside of the map. 2. Bring it back into the work area or start working from the charging station.
E2	Left wheel motor overcurrent (blocked) error	Left wheel motor is stuck; remove obstacles.
	Right wheel motor overcurrent (blocked) error	Right wheel motor is stuck; remove obstacles.
E3	Cutter motor overcurrent (blocked) error	1. Cutter motor is stuck; remove obstacles. 2. Confirm that the current cutting height is reasonable.
E4	Robot bumper stuck	1. Confirm if the bumper is stuck or detached. 2. Check for obstacles around the mower. 3. After confirming that the bumper is functioning properly, press any of the START/HOME/OK buttons to unlock it.
E5	Robot lifted	1. Confirm if the mower has been lifted and if there are any obstacles under the mower. 2. Place the mower on a flat surface and press any of the START/HOME/OK buttons to unlock it.
E6	Robot flipped	Confirm if the mower is turned over.
E7	Robot tilted	Confirm if the mower is placed on uneven ground.
E8	Failure to dock on the charging station during recharging	1. Clean the charging contacts on the mower or the charging station; clean them with alcohol. 2. See if the light on the charging station is on. The charging station might have no power. 3. See if the charging station is installed on a flat surface. If it is

LED Code	App Message	Corrective Action
		uneven, change the location of the charging station. 4. See if there are any obstacles in front of the charging station. If there are any obstacles, remove them. 5. See if the mower is obstructed in the charging station area. 6. The reflective strips on the charging station are dirty or damaged; try cleaning them, or order new ones from the service center.
E9	Robot trapped	1. Confirm if there are too many obstacles around the mower. 2. The mower entered a narrow space and could not get out. 3. There is a visual misidentification in this area. Use the function of a safe zone to ignore visual recognition mistakes. 4. The mower is slipping.
	Out of station error	
	Out of station timeout	
E10	Firmware upgrade failed	1. See if the Wi-Fi signal is very weak 2. Check if the mower is charging on the charging station
E13	Charging abnormality	1. Clean charging contacts on the mower or the charging station; clean them with alcohol. 2. See if the light on the charging station is on. The charging station might have no power. 3. See if the charging station is installed on a flat surface. If it is uneven, change the location of the charging station.
E14	The current map area is too large and exceeds the maximum working area supported by the robot	Build a new map within the nominal capability range of product.
E17	Path plan failed, please check whether any obstacles around the robot	1. See if there are too many obstacles around the mower. 2. The mower entered a narrow space and could not get out. 3. There is a visual misidentification in this area. Use the function of a safe zone to ignore visual recognition mistakes.

LED Code	App Message	Corrective Action
		4. Confirm if the charging station is out of the map and that the customer did not build a corridor from the station to the map. 5. Try and rebuild the corridors between different areas, and rebuild the connecting corridors between charging stations and the map if it is out of map.
E18	Low battery cannot start to work	Confirm if the battery pack is too low, and let it work after it is fully charged.
E22	The front camera is obscured	Check if the camera is covered by debris and clean the camera before starting.
	Camera error	Restart the mower before working.
E23	Empty Map Error	Create a map before starting.
E25	Mapping failed	1. Confirm that the camera is not obstructed or dirty. 2. Confirm that the LiDAR is not obstructed or dirty.
E28	Location failed	1. Clean the LiDAR to ensure there are no stains on the surface of the LiDAR. 2. Ensure that the LiDAR is not blocked by obstacles. 3. If the mower is in a narrow space, remotely control the mower to an open area and try again. 4. If the above methods cannot solve the problem, move the mower back to the charging station and then restart it.
E30	Lidar recovering. Please wait	Do not move the mower. The LiDAR abnormality is being restored. Wait patiently.
BP	Battery temperature error	Confirm if the ambient temperature is too high or too low. Wait until the temperature returns to normal before allowing the mower work.
NA	Unable to reach other work areas, will go back to charging station	1. Confirm if there are too many obstacles around the mower. 2. The mower entered a narrow space and could not get out 3. There is a visual misidentification in this area. Use the function of a safe zone to ignore visual recognition mistakes.

LED Code	App Message	Corrective Action
		4. Try to rebuild the corridors between different areas.
	PIN code input error	Enter the correct PIN code to unlock the mower.
	The scheduled task is not executed	1. The battery is too low and cannot execute the currently-scheduled task. 2. Battery is fully charged. The mower will automatically begin working if it is within the scheduled time. 3. The mower has detected rain and cannot execute the currently-scheduled task. 4. After the rain stops, the mower will automatically begin working if it is within the scheduled time.
STOP	The machine is in "STOP" mode, the device can not work.	1. If you pressed the STOP button, press the START and OK to restart. 2. Check if the STOP button is stuck and clean if needed. Press START and OK to restart.
EE	Machine component abnormality	Turn off the mower and restart it.
	Machine sensor abnormality	
	LiDAR anomaly	

Troubleshooting Abnormal Vibrations

1. Turn off the mower.
2. Place the mower upside-down on a spotless, soft surface.
3. Check that the blades are not worn or damaged.

   It is recommended to replace all of the blades if they are worn or damaged.
4. Turn the mower back over to start working.

Other Troubleshooting

If you encounter any product or app-related problems, common issues, or have questions, check out the FAQ articles on the Toro official website www.Toro.com, or from the Help and Guidance pages on the app.

FCC/IC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference; and
- This device must accept any interference, including interference that may cause undesired operation.

FCC Responsible Party: Sunseeker North America Inc., 4330 Matthews-Indian Trail Rd, Suite A, Indian Trail, NC 28079. Website: sunseekertech.com

Contains FCC ID: VYVBW3456-44B1 IC: 32866-BW3456

IMPORTANT

Changes or modifications not expressly approved by The Toro® Company could void the user's authority to operate the equipment.

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.
- To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

ISED Statement

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- This device may not cause interference; and
- This device must accept any interference, including interference that may cause undesired operation of the device.

The digital apparatus complies with Canadian CAN ICES 003 (B)/NMB-003(B).

To satisfy IC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.

To ensure compliance, operations at closer than this distance is not recommended.

California Proposition 65 Warning Information

What is this warning?

You may see a product for sale that has a warning label like the following:

 **WARNING:** Cancer and Reproductive Harm—www.p65Warnings.ca.gov.

What is Prop 65?

Prop 65 applies to any company operating in California, selling products in California, or manufacturing products that may be sold in or brought into California. It mandates that the Governor of California maintain and publish a list of chemicals known to cause cancer, birth defects, and/or other reproductive harm. The list, which is updated annually, includes hundreds of chemicals found in many everyday items. The purpose of Prop 65 is to inform the public about exposure to these chemicals.

Prop 65 does not ban the sale of products containing these chemicals but instead requires warnings on any product, product packaging, or literature with the product. Moreover, a Prop 65 warning does not mean that a product is in violation of any product safety standards or requirements. In fact, the California government has clarified that a Prop 65 warning “is not the same as a regulatory decision that a product is ‘safe’ or ‘unsafe.’” Many of these chemicals have been used in everyday products for years without documented harm. For more information, go to https://oag.ca.gov/prop65/faqs-view-all.

A Prop 65 warning means that a company has either (1) evaluated the exposure and has concluded that it exceeds the “no significant risk level”; or (2) has chosen to provide a warning based on its understanding about the presence of a listed chemical without attempting to evaluate the exposure.

Does this law apply everywhere?

Prop 65 warnings are required under California law only. These warnings are seen throughout California in a wide range of settings, including but not limited to restaurants, grocery stores, hotels, schools, and hospitals, and on a wide variety of products. Additionally, some online and mail order retailers provide Prop 65 warnings on their websites or in catalogs.

How do the California warnings compare to federal limits?

Prop 65 standards are often more stringent than federal and international standards. There are various substances that require a Prop 65 warning at levels that are far lower than federal action limits. For example, the Prop 65 standard for warnings for lead is 0.5 µg/day, which is well below the federal and international standards.

Why don’t all similar products carry the warning?

- Products sold in California require Prop 65 labelling while similar products sold elsewhere do not.
- A company involved in a Prop 65 lawsuit reaching a settlement may be required to use Prop 65 warnings for its products, but other companies making similar products may have no such requirement.
- The enforcement of Prop 65 is inconsistent.
- Companies may elect not to provide warnings because they conclude that they are not required to do so under Prop 65; a lack of warnings for a product does not mean that the product is free of listed chemicals at similar levels.

Why does Toro include this warning?

Toro has chosen to provide consumers with as much information as possible so that they can make informed decisions about the products they buy and use. Toro provides warnings in certain cases based on its knowledge of the presence of one or more listed chemicals without evaluating the level of exposure, as not all the listed chemicals provide exposure limit requirements. While the exposure from Toro products may be negligible or well within the “no significant risk” range, out of an abundance of caution, Toro has elected to provide the Prop 65 warnings. Moreover, if Toro does not provide these warnings, it could be sued by the State of California or by private parties seeking to enforce Prop 65 and subject to substantial penalties.

Notes:


TORO®