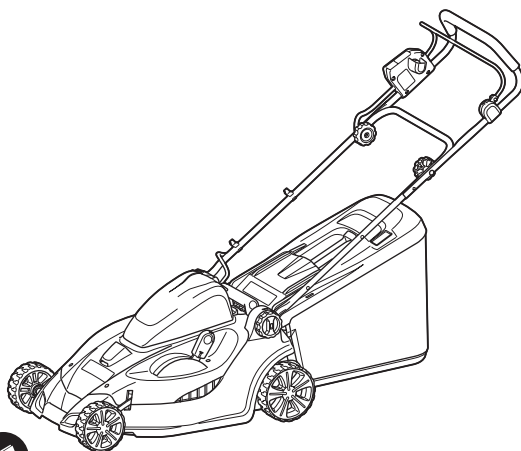


INSTRUCTION MANUAL



Cordless Lawn Mower

DLM431



Read before use.

SPECIFICATIONS

Model:		DLM431	
Mowing width (blade diameter)		430 mm	
No load speed		3,600 min ⁻¹	
Dimensions (L x W x H)	during operation	Max. 1,490 mm x 460 mm x 1,020 mm Min. 1,450 mm x 460 mm x 950 mm	
	when stored (without grass basket)	490 mm x 460 mm x 910 mm	
Rated voltage		D.C. 36 V	
Standard battery cartridge(s) ⚠Warning: Use only the battery cartridge(s) described.		BL1815N/BL1820/BL1820B	BL1830/BL1830B/BL1840/ BL1840B/BL1850/BL1850B/ BL1860B
Net weight		17.8 kg	18.3 kg

- Due to our continuing program of research and development, the specifications herein are subject to change without notice.
- Specifications and battery cartridge may differ from country to country.
- Weight, with battery cartridge, according to EPTA-Procedure 01/2003

Symbols

The following show the symbols used for the equipment. Be sure that you understand their meaning before use.

	Take particular care and attention.
	Read instruction manual.
	Danger; be aware of thrown objects.
	The distance between the tool and bystanders must be at least 15 m.
	Never put your hands and feet near the blade under the mower. Blades continue to rotate after the motor is switched off.
	Remove the lock key before inspecting, adjusting, cleaning, servicing, leaving and storing the mower.
	Cd Ni-MH Li-ion Only for EU countries Do not dispose of electric equipment or battery pack together with household waste material! In observance of the European Directives, on Waste Electric and Electronic Equipment and Batteries and Accumulators and Waste Batteries and Accumulators and their implementation in accordance with national laws, electric equipment and batteries and battery pack(s) that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

Intended use

The tool is intended for lawn mowing.

IMPORTANT SAFETY INSTRUCTIONS

⚠WARNING: 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.

1. Do not insert the key into mower until it is ready to be used.
2. Children should be supervised to ensure that they do not play with the mower.
3. Never allow children or people unfamiliar with these instructions to use the mower. Local regulations can restrict the age of the operator.
4. Never operate the mower while people, especially children, or pets are nearby.
5. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
6. While operating the mower, always wear substantial footwear and long trousers. Do not operate the mower when barefoot or wearing open sandals. Avoid wearing clothing or jewelry that is loose fitting or that has hanging cords or ties. They can be caught in moving parts.
7. Operate the mower only in daylight or in good artificial light.
8. Avoid operating the mower in wet grass.
9. Never operate the mower in the rain.
10. Battery tool use and care
 - Recharge only with the charger specified by the manufacturer. A charger that is suitable for one type of battery cartridge may create a risk of fire when used with another battery cartridge.
 - Use power tools only with specifically designed battery cartridges. Use of any other battery cartridges may create a risk of injury and fire.

- When battery cartridge 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.
11. Always keep a firm hold on the handle.
 12. Always be sure of your footing on slopes.
 13. Walk, never run.
 14. Don't grasp the exposed cutting blades or cutting edges when picking up or holding the mower.
 15. Physical condition - Do not operate mower while under the influence of drugs, alcohol, or any medication.
 16. Keep hands and feet away from rotating blades. Caution - Blades coast after the mower is switched off.
 17. Use only the manufacturer genuine blades specified in this manual.
 18. Check the blades carefully for cracks or damage before operation. Replace cracked or damaged blades immediately.
 19. Be sure the area is clear of other people before mowing. Stop mower if anyone enters the area.
 20. Remove foreign matters such as rocks, wire, bottles, bones and large sticks from the work area before mowing to prevent personal injury or damage to the mower.
 21. Stop operation immediately if you notice anything unusual. Switch off the mower and remove the key. Then inspect the mower.
 22. Never attempt to make wheel height adjustments while mower is running.
 23. Release switch lever and wait for blade rotation to stop before crossing driveways, walks, roads, and any gravel-covered areas. Also remove the key if you leave the mower, reach to pick up or remove something out of your way, or for any other reason that may distract you from what you are doing.
 24. Objects struck by the mower blade can cause severe injuries to persons. The lawn should always be carefully examined and cleared of all objects prior to each mowing.
 25. If the mower strikes a foreign object, follow these steps:
 - Stop the mower, release the switch lever and wait until the blade comes to a complete stop.
 - Remove the key and the battery cartridge.
 - Thoroughly inspect the mower for any damage.
 - Replace the blade if it is damaged in any way. Repair any damage before restarting and continuing to operate the mower.
 26. Check the grass basket frequently for wear or deterioration. For storage, always make sure the grass basket is empty. Replace a worn grass basket with a new factory replacement for safety.
 27. Use extreme caution when reversing or pulling the mower towards you.
 28. Stop the blade(s) if the mower has to be tilted for transportation when crossing surfaces other than grass, and when transporting the mower to and from the area to be used.
 29. Never operate the mower with defective guards or shields, or without safety devices, for example deflectors and/or grass basket, in place.
 30. Switch on the mower carefully according to instructions and with feet well away from the blade(s).
 31. Do not tilt the mower when switching on the motor, except if the mower has to be tilted for starting. In this case, do not tilt it more than absolutely necessary and lift only the part, which is away from the operator.
 32. Do not start the mower when standing in front of the discharge opening.
 33. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
 34. Do not transport the mower while the mower is turned on.
 35. Stop the mower, and remove the disabling device. Make sure that all moving parts have come to a complete stop
 - whenever you leave the mower,
 - before clearing blockages or unclogging chute,
 - before checking, cleaning or working on the mower,
 - after striking a foreign object. Inspect the mower for damage and make repairs before restarting and operating the mower.
 36. If the mower starts to vibrate abnormally (check immediately)
 - inspect for damage,
 - replace or repair any damaged parts,
 - check for and tighten any loose parts.
 37. Be careful during adjustment of the mower to prevent entrapment of the fingers between moving blades and fixed parts of the mower.
 38. Mow across the face of slopes, never up and down. Exercise extreme caution when changing direction on slopes. Do not mow excessively steep slopes.
 39. Do not wash with a hose; avoid getting water in motor and electrical connections.
 40. Check the blade mounting bolt at frequent intervals for proper tightness.
 41. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
 42. Always allow the mower to cool down before storing.
 43. When servicing the blades be aware that, even though the power source is switched off, the blades can still be moved.
 44. Replace worn or damaged parts for safety. Use only genuine replacement parts and accessories.

SAVE THESE INSTRUCTIONS.

⚠WARNING: DO NOT let comfort or familiarity with product (gained from repeated use) replace strict adherence to safety rules for the subject product.

MISUSE or failure to follow the safety rules stated in this instruction manual may cause serious personal injury.

Important safety instructions for battery cartridge

1. Before using battery cartridge, read all instructions and cautionary markings on (1) battery charger, (2) battery, and (3) product using battery.
2. Do not disassemble battery cartridge.
3. If operating time has become excessively shorter, stop operating immediately. It may result in a risk of overheating, possible burns and even an explosion.
4. If electrolyte gets into your eyes, rinse them out with clear water and seek medical attention right away. It may result in loss of your eyesight.
5. Do not short the battery cartridge:
 - (1) Do not touch the terminals with any conductive material.
 - (2) Avoid storing battery cartridge in a container with other metal objects such as nails, coins, etc.
 - (3) Do not expose battery cartridge to water or rain.

A battery short can cause a large current flow, overheating, possible burns and even a breakdown.

6. Do not store the tool and battery cartridge in locations where the temperature may reach or exceed 50 °C (122 °F).
7. Do not incinerate the battery cartridge even if it is severely damaged or is completely worn out. The battery cartridge can explode in a fire.
8. Be careful not to drop or strike battery.
9. Do not use a damaged battery.
10. Follow your local regulations relating to disposal of battery.

SAVE THESE INSTRUCTIONS.

⚠CAUTION: Only use genuine Makita batteries. Use of non-genuine Makita batteries, or batteries that have been altered, may result in the battery bursting causing fires, personal injury and damage. It will also void the Makita warranty for the Makita tool and charger.

Tips for maintaining maximum battery life

1. Charge the battery cartridge before completely discharged. Always stop tool operation and charge the battery cartridge when you notice less tool power.
 2. Never recharge a fully charged battery cartridge. Overcharging shortens the battery
- 4 ENGLISH

service life.

3. Charge the battery cartridge with room temperature at 10 °C - 40 °C (50 °F - 104 °F). Let a hot battery cartridge cool down before charging it.
4. Charge the battery cartridge if you do not use it for a long period (more than six months).

FUNCTIONAL DESCRIPTION

Installing or removing battery cartridge

⚠CAUTION: Always switch off the tool before installing or removing of the battery cartridge.

⚠CAUTION: Make sure that you lock the battery cover before use. Otherwise, mud, dirt, or water may cause damage to the product or the battery cartridge.

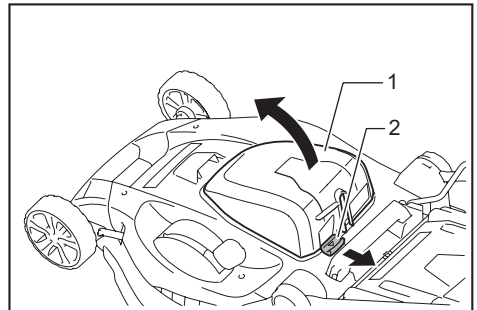
⚠CAUTION: Always install the battery cartridge fully until the red indicator cannot be seen. If not, it may accidentally fall out of the tool, causing injury to you or someone around you.

⚠CAUTION: Do not install the battery cartridge forcibly. If the cartridge does not slide in easily, it is not being inserted correctly.

NOTE: The tool does not work with only one battery cartridge.

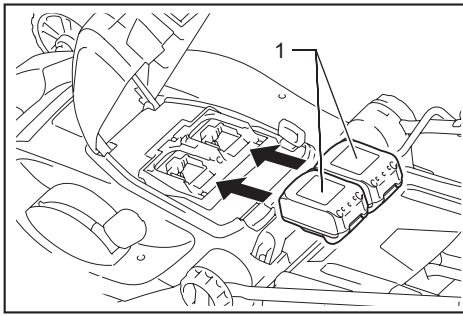
To install the battery cartridge;

1. Slide the battery cover locking lever and open the battery cover.



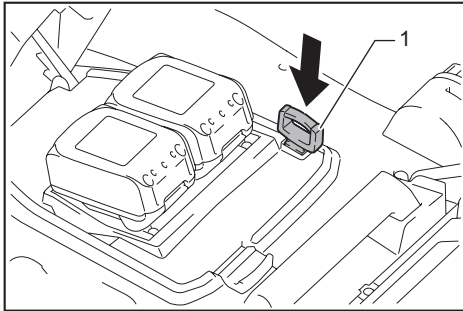
1. Battery cover 2. Battery cover locking lever

2. Align the tongue on the battery cartridge with the slot on the mower then slide the cartridge until it locks in place with a little click. If you can see the red indicator on the upper side of the button, battery cartridge is not locked completely.



1. Battery cartridge

3. Insert the lock key in the place shown in the figure as far as it will go.



1. Lock key

4. Close the battery cover and push it until it is latched with the locking lever.

To remove the battery cartridge from the mower;

1. Slide the battery cover locking lever and open the battery cover.
2. Pull out the battery cartridge from the mower while sliding the button on the front of the cartridge.
3. Pull out the lock key.
4. Close the battery cover.

Tool / battery protection system

The tool is equipped with a tool/battery protection system. This system automatically cuts off power to the motor to extend tool and battery life. The tool will automatically stop during operation if the tool or battery is placed under one of the following conditions.

Overload protection

When the tool is operated in a manner that causes it to draw an abnormally high current, the tool automatically stops without any indication. In this situation, turn the tool off and stop the application that caused the tool to become overloaded. Then turn the tool on to restart.

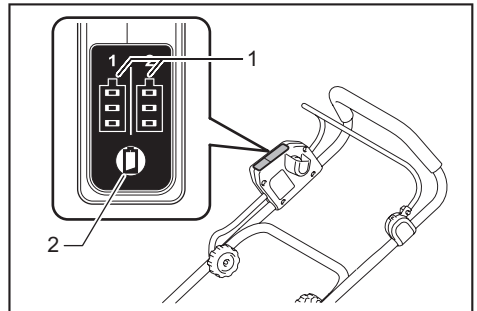
Overheat protection

When the tool is overheated, the tool stops automatically. Let the tool cool down before turning the tool on again.

Overdischarge protection

When the battery capacity becomes low, the tool stops automatically. If the product does not operate even when the switches are operated, remove the batteries from the tool and charge the batteries.

Indicating the remaining battery capacity



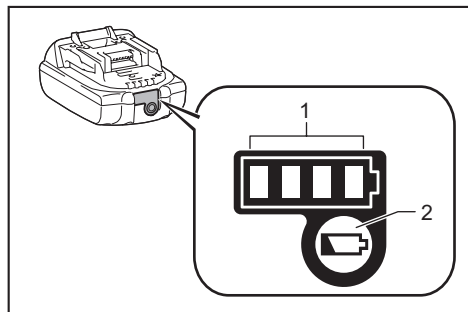
1. Battery indicator 2. Check button

Press the check button to indicate the remaining battery capacities. The battery indicators correspond to each battery.

Battery indicator status		Remaining battery capacity
On	Off	
		50% - 100%
		20% - 50%
		0% - 20%

Indicating the remaining battery capacity

Only for battery cartridges with "B" at the end of the model number



1. Indicator lamps 2. Check button

Press the check button on the battery cartridge to indicate the remaining battery capacity. The indicator lamps light up for few seconds.

Indicator lamps			Remaining capacity
Lighted	Off	Blinking	
■ ■ ■ ■	□ □ □ □	▬	75% to 100%
■ ■ ■ □	□ □ □ □	▬	50% to 75%
■ ■ □ □	□ □ □ □	▬	25% to 50%
■ □ □ □	□ □ □ □	▬	0% to 25%
▬ □ □ □	□ □ □ □	▬	Charge the battery.
■ ■ □ □	□ □ □ □	▬	The battery may have malfunctioned.
□ □ ■ ■	□ □ □ □	▬	

NOTE: Depending on the conditions of use and the ambient temperature, the indication may differ slightly from the actual capacity.

Switch action

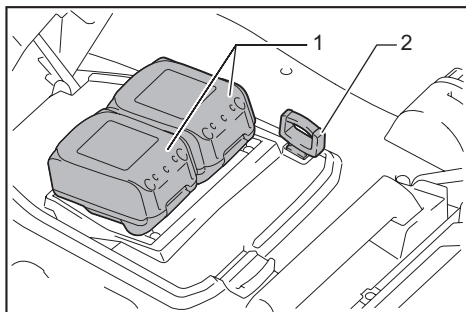
⚠ WARNING: Before installing the battery cartridge, always check to see that the switch lever actuates properly and returns to the original position when released. Operating a tool with a switch that does not actuate properly can lead to loss of control and serious personal injury.

NOTE: The mower does not start without pressing the switch button even the switch lever is pulled.

NOTE: Mower may not start due to the overload when you try to mow long or dense grass at a time. Increase the mowing height in this case.

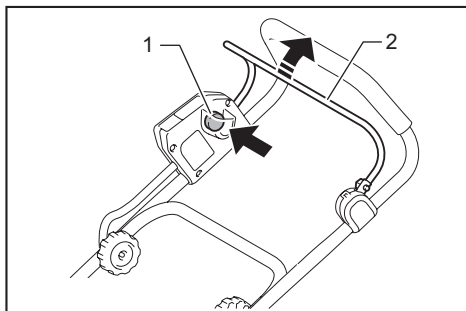
This mower is equipped with the interlock switch and handle switch. If you notice anything unusual with either of these switches, stop operation immediately and have them checked by your nearest Makita Authorized Service Center.

1. Install the battery cartridges. Insert the lock key into the interlock switch and then close the battery cover.



1. Battery cartridge 2. Lock key

2. Press the switch button and hold it.
3. Grab the upper handle and pull the switch lever.



1. Switch button 2. Switch lever

4. Release the switch button as soon as the motor starts running. The mower will continue to run until you release the switch lever.
5. Release the switch lever to stop the motor.

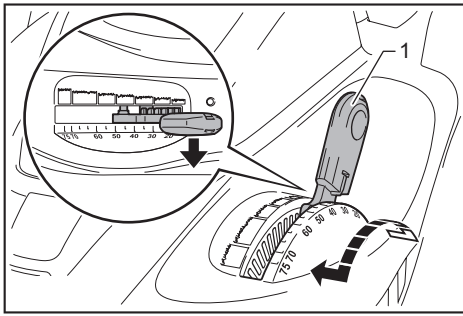
Adjusting the mowing height

⚠ WARNING: Never put your hand or leg under the mower body when adjusting the mowing height.

⚠ WARNING: Always make sure that the lever fits in the groove properly before operation.

The mowing height can be adjusted in the range of between 20 mm - 75 mm.

1. Remove the lock key.
2. Pull the mowing height adjusting lever to the outward of the mower body and move it to your desired mowing height.

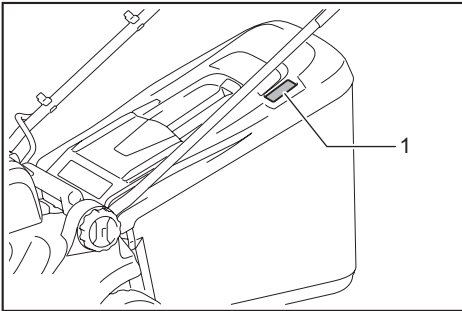


1. Mowing height adjusting lever

NOTE: The mowing height figures should be used just as a guideline. Depending on the conditions of the lawn or the ground, the actual lawn height may become slightly different from the set height.

NOTE: Try a test mowing of grass in a less conspicuous place to get your desired height.

Grass level indicator



1. Grass level indicator

Grass level indicator shows the volume of mowed grass.

- When the grass basket is not full, the indicator floats during mowing.
- When the grass basket is full, the indicator does not float during mowing. In this case, stop mowing immediately and empty the basket. After emptying the basket, clean it so that its meshwork vents the air.

NOTE: This indicator is a rough guide. Depending on the conditions of inside of the basket, this indicator may not work properly.

ASSEMBLY

⚠WARNING: Always be sure that the lock key and battery cartridge are removed before carrying out any work on the mower. Failure to remove the lock key and the battery cartridge may result in serious personal injury from accidental start-up.

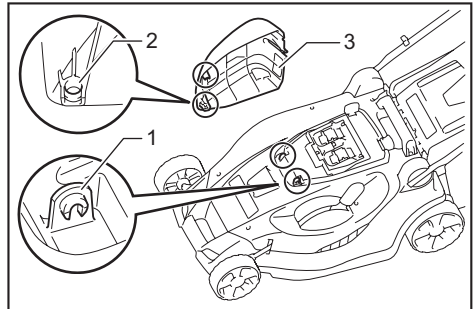
⚠WARNING: Never start the mower unless it is completely assembled. Operation of the tools in a partially assembled state may result in serious personal injury from accidental start-up.

Installing the battery cover

⚠WARNING: Do not insert the lock key and battery cartridge before installing the battery cover. Failure to do so may cause a serious injury.

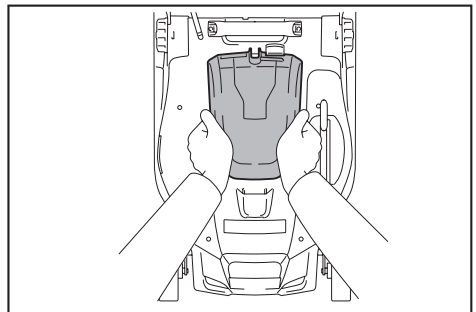
Install the battery cover completely before the operation. The battery cover protects the mower and battery cartridge from mud, dirt, and water.

1. Place the battery cover with the protrusions on the mower aligned to the holes on the battery cover.

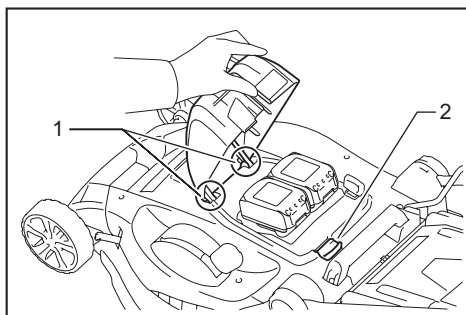


1. Protrusion 2. Hole 3. Battery cover

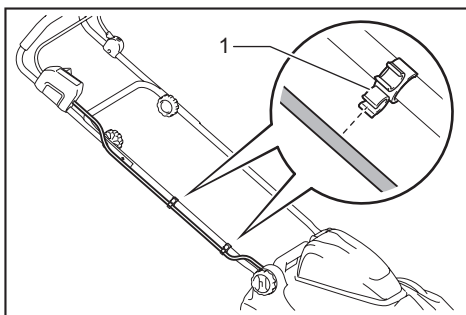
2. Place your hands in the middle of the battery cover and push it.



3. Before the first operation, check that the pivot point of the battery cover is attached properly. If the battery cover is installed correctly, it will not open until the battery cover locking lever is pulled.



1. Pivot point 2. Battery cover locking lever

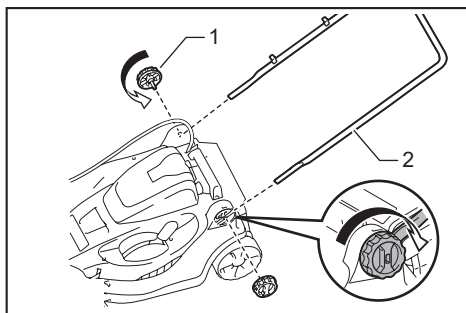


1. Holder

Installing the handle

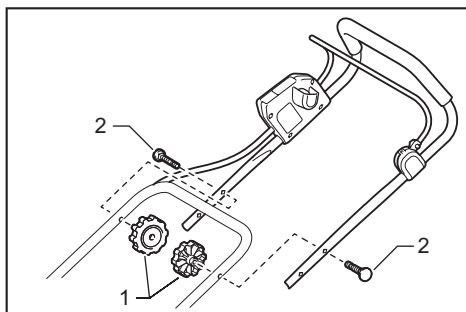
NOTICE: When installing handles, position the cords so that they are not caught by anything between the handles. If the cord is damaged, the mower switch may not work.

1. Slide the both ends of lower handle into the grooves of the mower then fully tighten the clamping screws.



1. Clamping screw 2. Lower handle

2. Align the screw holes of upper handle and lower handle. Secure them with the clamping screws and nuts.



1. Clamping nut 2. Clamping screw

NOTE: Hold the upper handle firmly so that it does not drop off your hand.

3. Attach the holders to the handle. Position the power supply cord as shown in the figure.

Removing or installing the mower blade

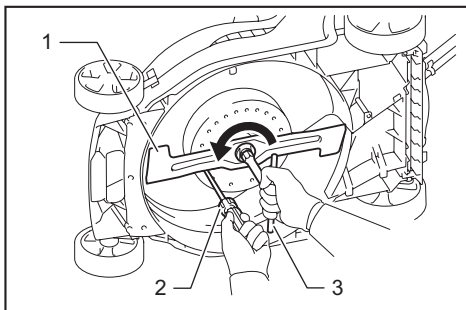
⚠WARNING: Always remove the lock key and battery cartridge when removing or installing the blade. Failure to remove the lock key and battery cartridge may cause a serious injury.

⚠WARNING: The blade coasts for a few seconds after releasing the switch. Do not start any operation until the blade comes to a complete stop.

⚠WARNING: Always wear gloves when handling the blade.

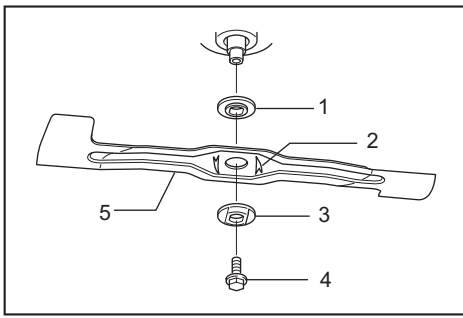
To remove the mower blade, take the following steps.

1. Put the mower on its side so that the mowing height adjusting lever comes to the upper side.
2. To lock the blade rotation, insert a screwdriver or a similar tool into a hole on the base of the blade.
3. Turn the bolt counterclockwise with the wrench.



1. Mower blade 2. Screwdriver 3. Wrench

4. Remove the bolt, outer flange, mower blade, and inner flange in order.



1. Inner flange
2. Rotational direction arrow
3. Outer flange
4. Bolt
5. Mower blade

To install the mower blade, take the removal procedure in reverse.

⚠ WARNING: Install the blade carefully. It has a top/bottom facing. Place the blade so that the rotational direction arrow faces outward.

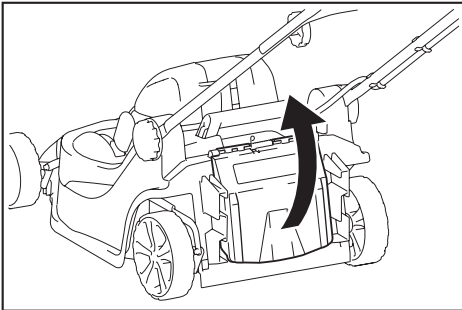
⚠ WARNING: Tighten the bolt clockwise firmly to secure the blade.

⚠ WARNING: Make sure that the blade and all the fixing parts are installed correctly and tightened securely.

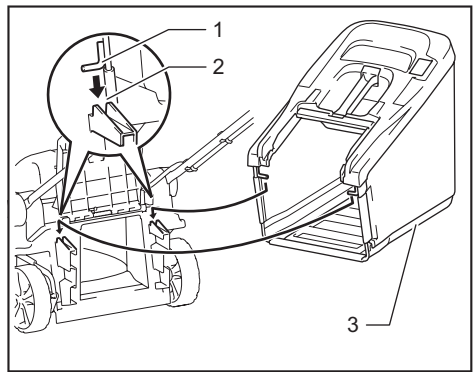
⚠ WARNING: When you replace the blades, always follow the instructions provided in this manual.

Installing the grass basket

1. Remove the lock key.
2. Lift the rear guard of the mower body.



3. Hook the grass basket on the groove of the mower body as shown in the figure.



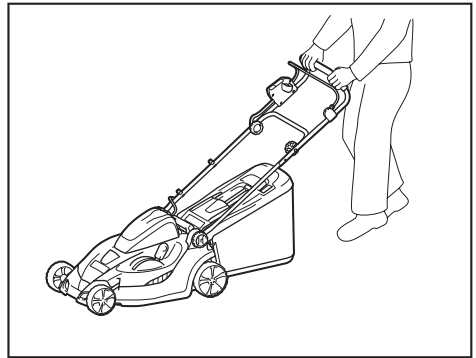
1. Hook
2. Groove
3. Grass basket

OPERATION

Mowing

⚠ WARNING: Before mowing, clear away sticks and stones from mowing area. Furthermore, clear away any weeds from mowing area in advance.

⚠ WARNING: Always wear the safety goggles or safety glasses with side shields when operating the mower.



Firmly hold the lawn mower handle with both hands when mowing.

The outside edges of the front wheels is the guideline for mowing width. Using the two front wheel outside edges as a guideline, mow in strips, overlapping by one half to one third the previous strip, to mow the lawn evenly.

Periodically check the grass basket for mowed grass. Empty the grass before it becomes full. Before every periodical check, be sure to stop the mower then remove the lock key and the battery cartridge.

NOTE: Using the mower with the grass basket full prevents smooth blade rotation and places an extra load on the motor, which may cause breakdown.

Mowing a long-grass lawn

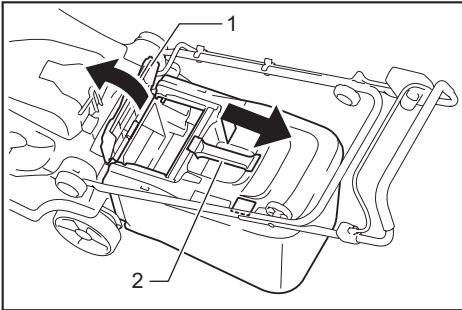
Do not try to cut long grass all in one go. Instead, mow the lawn in some steps. Leave a day or two between mows until the lawn becomes evenly short.

NOTE: Mowing long grass to a short length all in one go may cause the grass to die. The cut grass may also block up inside of the mower body.

Emptying the grass basket

⚠ WARNING: To reduce a risk of accident, regularly check the grass basket for any damage or weakened strength. Replace the grass basket if necessary.

1. Release the switch lever.
2. Remove the lock key.
3. Lift the rear guard and take out the grass basket by holding the handle.



1. Rear guard 2. Handle

4. Empty the grass basket.

MAINTENANCE & STORAGE

⚠ WARNING: Always be sure that the lock key and battery cartridge are removed from the mower before storage or attempting to perform inspection or maintenance.

⚠ WARNING: Always remove the lock key when the mower is not in use. Store the lock key in a safe place out of reach of children.

⚠ WARNING: Wear gloves when performing inspection or maintenance.

NOTICE: Never use gasoline, benzine, thinner, alcohol or the like. Discoloration, deformation or cracks may result.

Maintenance

1. Remove the lock key. Store it in a safe place out of the reach of children.

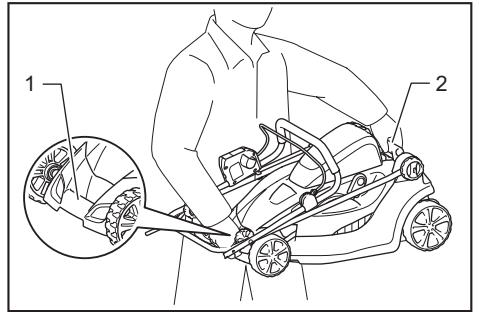
2. Clean the mower using only a wet cloth. Do not spray or pour water on the mower when cleaning.
3. Put the mower on its side and clean grass clippings accumulated on the underside of mower deck.
4. Check all nuts, bolts, knobs, screws, fasteners etc. for tightness.
5. Inspect moving parts for damage, breakage, and wear. Damaged or missing parts should be repaired or replaced.

Storage

⚠ WARNING: When carrying or storing the mower, do not hold the folded handles but the front grip of the mower. Holding the folded handles may cause a serious injury or damage to the mower.

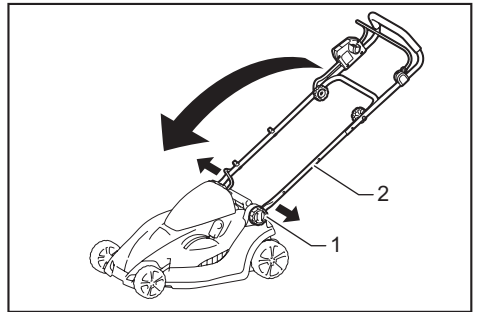
Before storing the mower, remove the battery cartridge from it.

Store mower indoors in a cool, dry and locked place. Don't store the mower and charger in locations where the temperature may reach or exceed 40 °C (104 °F).



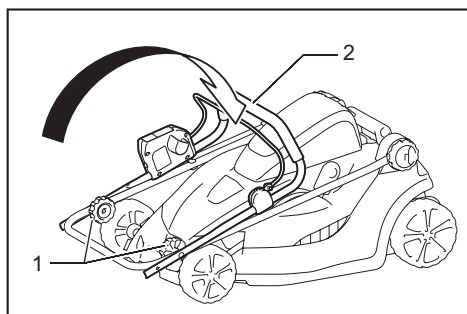
1. Front grip 2. Rear grip

1. Loosen the clamping screws and expand the lower handle to both sides. Move down the handle forward. At this time, keep a firm grip on the lower handle so that the handle does not fall down to the far side from the mower body.



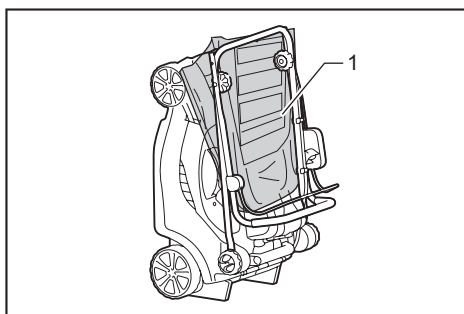
1. Clamping screw 2. Lower handle

2. Loosen the clamping nuts and pivot the upper handle back while expanding the both sides.



1. Clamping nut 2. Upper handle

3. Store the grass basket between the handle and the mower body.



1. Grass basket

NOTE: When putting the mower in the upright position, do not hold the handle but use the front grip of the mower.

To maintain product SAFETY and RELIABILITY, repairs, any other maintenance or adjustment should be performed by Makita Authorized or Factory Service Centers, always using Makita replacement parts.

TROUBLE SHOOTING

Before asking for repairs, conduct your own inspection first. If you find a problem that is not explained in the manual, do not attempt to dismantle the tool. Instead, ask Makita Authorized Service Centers, always using Makita replacement parts for repairs.

State of abnormality	Probable cause (malfunction)	Remedy
Mower does not start.	Two battery cartridges are not installed.	Install the charged battery cartridges.
	Battery problem (under voltage)	Recharge the battery cartridge. If recharging is not effective, replace battery cartridge.
	The lock key is not inserted.	Insert the lock key.
Motor stops running after a little use.	Battery's charge level is low.	Recharge the battery cartridge. If recharging is not effective, replace battery cartridge.
	Cutting height is too low.	Raise the cutting height.
Motor does not reach maximum RPM.	Battery cartridge is installed improperly.	Install the battery cartridge as described in this manual.
	Battery power is dropping.	Recharge the battery cartridge. If recharging is not effective, replace battery cartridge.
	The drive system does not work correctly.	Ask your local authorized service center for repair.
Cutting tool does not rotate: ⇒ stop the mower immediately!	Foreign object such as a branch is jammed near the blade.	Remove the foreign object.
	The drive system does not work correctly.	Ask your local authorized service center for repair.
Abnormal vibration: ⇒ stop the mower immediately!	Blade is imbalanced, excessively or unevenly worn.	Replace the blade.

OPTIONAL ACCESSORIES

⚠ CAUTION: These accessories or attachments are recommended for use with your Makita tool specified in this manual. The use of any other accessories or attachments might present a risk of injury to persons. Only use accessory or attachment for its stated purpose.

If you need any assistance for more details regarding these accessories, ask your local Makita Service Center.

- Mower blade
- Makita genuine battery and charger

NOTE: Some items in the list may be included in the tool package as standard accessories. They may differ from country to country.

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