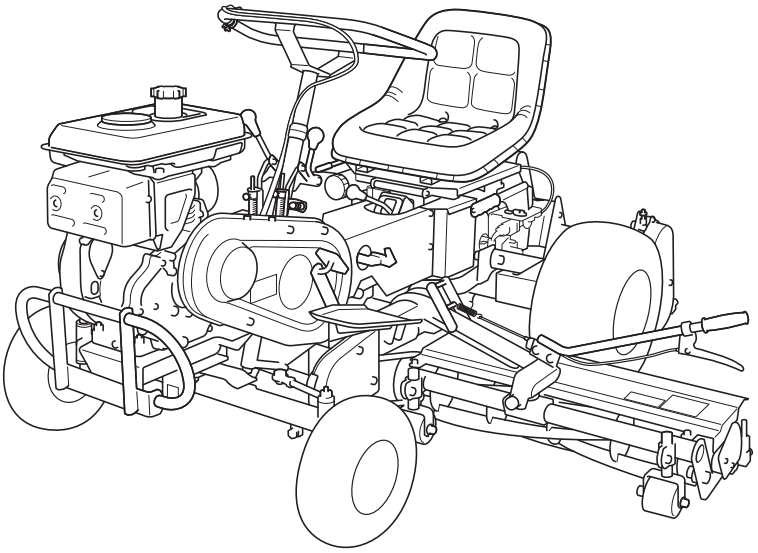
LM180C

3-Unit Reel Mower

Owner's Operating Manual



Serial No.　LM180C：20356-

"Required reading"
Read this manual before using the machine.

BARONESS®
Quality on Demand

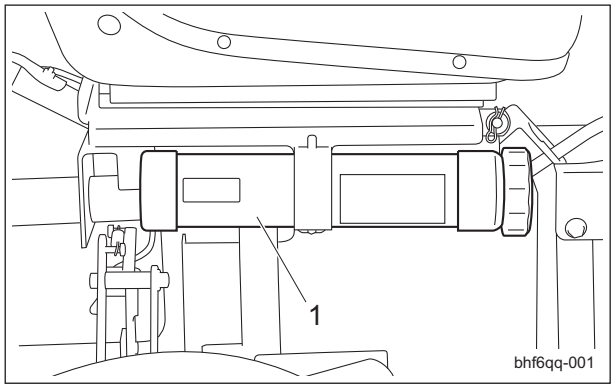
Original Instructions Ver.1.5

Greeting

Thank you for purchasing the Baroness product.
This manual describes the proper handling, adjustment, and inspection of your product.
We hope you will use the product safely, and take advantage of its best performance.

Keeping the Owner's Operating Manual

Keep this manual in the box on the right side of the seat.



Keeping the Owner's Operating Manual_001

1	Box

Introduction

Read this manual carefully to ensure that you thoroughly understand how to properly operate and maintain the product, and to avoid causing injury to yourself or others.

The operator is responsible for operating the product properly and safely.

Maintenance should only be performed by a certified specialist.

If you have any questions concerning maintenance or genuine parts, please contact a Baroness dealer or Kyoeisha.

When making inquiries about the product, please specify the product's model designation and serial number.

When loaning or transferring the product, please also provide this manual together with the product.

Kyoeisha Co., Ltd.

Warning Symbols

This manual uses the following warning symbols for handling precautions that are important for your safety.

 696cq5-001	Warning symbol

This symbol indicates the articles regarding “Danger,” “Warning,” or “Caution.”

Those articles describe important safety precautions and so read them carefully to understand completely before operating the machine.

Failure to adequately follow these safety precautions may cause an accident.

⚠ Danger

This symbol indicates that serious injury or death will occur if the warning is ignored.

⚠ Warning

This symbol indicates that serious injury or death may occur if the warning is ignored.

⚠ Caution

This symbol indicates that injury or damage to property may occur if the warning is ignored.

Important

This symbol indicates precautions on the mechanism of the machine.

Introduction

Precautionary Statement

⚠ Caution

The information described in this manual is subject to change for improvement without prior notice.
When replacing parts, be sure to use genuine Baroness parts or parts designated by Kyoeisha.
Note that the Baroness product warranty may not apply to defects caused by the use of parts from other companies.

Prior to use, carefully read the following manuals to thoroughly understand the contents for safe and correct operation.

- Baroness Owner's Operating Manual
- The Engine's Owner's Manual
- The Battery's Owner's Manual

Purpose

This product is intended for cutting turf grass at golf courses.
Do not use this product in any way other than its intended purpose, and do not modify this product.
Operating this product for other purposes and modifying it may be very dangerous and may cause damage to the product.
In addition, this product is not authorized for operation as a special motor vehicle. Do not operate it on public roads.

Contents

Contents

Failure to adequately follow these safety precautions may cause an accident resulting in injury or death.

⚠ Danger

This product is designed to ensure safe operation and has been tested and inspected thoroughly before shipment from the factory. The product is equipped with safety devices to prevent accidents.
However, whether the product demonstrates its original performance level depends on the manner in which it is operated and handled, as well as the manner in which it is managed on a daily basis.
Inappropriate use or management of the product may result in injury or death.
Observe the following safety instructions to ensure safe operation.

Safe Operating Practices

Training

1. Read this manual and other training material carefully. Be familiar with the controls, safety signs, and the proper use of the equipment.
2. If the operator or mechanic can not read English it is the owner's responsibility to explain this manual to them.
3. All operators and mechanics should seek and obtain professional and practical instruction.
   The owner is responsible for training the users.
   Such instruction should emphasize.
   [1] The need for care and concentration when working with ride-on machines.
   [2] Control of a ride-on machine sliding on a slope will not be regained by the application of the brake.
   The main reasons for loss of control are
   - Insufficient wheel grip
   - Being driven too fast
   - Inadequate braking
   - The type of machine is unsuitable for its task
   - Lack of awareness of the effect of ground conditions, especially slopes
   - Incorrect hitching and load distribution
4. Never allow children or people unfamiliar with these instructions to use or service the machine.
   Local regulations may restrict the age of the operator.
5. The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.
6. Keep in mind that the owner, operator, and mechanic are responsible for accidents or hazards occurring to other people or their property.
7. You can find additional safety information where needed throughout this manual.
8. Determine the left and right sides of the machine from the normal operating position.

Preparation

1. Evaluate the terrain to determine what accessories and attachments are needed to properly and safety perform the job. Only use accessories and attachments approved by the manufacturer.
2. While operating, always wear substantial footwear, long trousers, hard hat, safety glasses, and ear protection. Long hair, loose clothing, or jewelry may get tangled in moving parts. Do not operate the equipment when barefoot or wearing open sandals.
3. Inspect the area where the equipment is to be used and remove all objects such as rocks, toys and wire which can be thrown by the machine.
4. Keep children out of the operating area and under the watchful care of a responsible adult other than the operator.
5. Exercise care in the handling of fuel.

⚠ Warning

Warning-Fuel is highly flammable. Take the following precautions.

[1] Store fuel in containers specifically designed for this purpose.
[2] Add fuel before starting the engine. Never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot.
[3] Refuel outdoors only and do not smoke while refueling.

[4] If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until petrol vapours have dissipated.

[5] Replace all fuel tanks and container caps securely.

6. Check that operator's presence controls, safety switches and shields are attached and functioning properly. Do not operate unless they are functioning properly.
7. If the brake operation is faulty or the parking brake lever has noticeable play, be sure to adjust or repair them before operating the machine.
8. Replace faulty mufflers.
9. On multi-cylinder/multi-reel machines take care as rotating one cylinder/reel can cause other cylinder/reels to rotate.

Operation

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
2. Only operate in good light, keeping away from holes and hidden hazards.
3. Before attempting to start the engine, disengage all attachments, shift into neutral, and engage the parking brake.
   Only start engine from the operator`s position.
   Use seat belts if provided.
4. Remember there is no such thing as a safe slope.
   Travel on grass slopes requires particular care.
   To guard against overturning:

   [1] Do not stop or start suddenly when going up or downhill.

   [2] Engage clutch slowly, always keep machine in gear, especially when traveling downhill.

   [3] Machine speeds should be kept low on slopes and during tight turns.

   [4] Stay alert for humps and hollows and other hidden hazards.

   [5] Never operate across the face of the slope, unless the machine is designed for this purpose.

   [6] Never drive the machine on a slope with an angle of gradient that is greater than that specified or in a place where there is a danger of the machine slipping.
5. Never operate the machine with damaged guards, shields, or without safety protective devices in place.
   Be sure all interlocks are attached, adjusted and functioning properly.
6. Do not change the engine governor settings or overspeed the engine.
   Operating the engine at excessive speed may increase the hazard of personal injury.
7. Pay attention not to touch hot parts.
8. Do the following before leaving the operator`s position.

   [1] Stop on level ground.

   [2] Disengage the power take-off and lower the attachments.

   [3] Change into neutral and set the parking brake.

   [4] Stop the engine.
9. Stop the engine in the following conditions.

   [1] Before refueling.

   [2] Before making height adjustment unless adjustment can be made from the operator's position.

   [3] Before cleaning blockages.

   [4] Before checking, cleaning, or working the machine.

   [5] After striking a foreign object or if an abnormal vibration occurs.
   Inspect the machine for damage and make repairs before restarting and operating the equipment.
10. Keep hands and feet away from the cutting units and the rotating parts.
11. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
12. Do not carry passengers.
13. Never operate while people, especially children, or pets are nearby.
14. Slow down and use caution when making turns and crossing roads and sidewalks.
15. Stop the blades rotating before crossing surfaces other than grass.
16. Disengage drive to attachments when transporting or not in use.

17. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
18. Do not operate the machine under the influence of alcohol or drugs.
19. Take care when loading or unloading the machine into a trailer or a truck.
    Load or unload the machine in a flat and safe place. Before loading or unloading, set the parking brake on the truck or trailer, stop the engine, and chock the wheels.
    When transporting the machine on a truck or a trailer, set the parking brake, stop the engine, and fasten the machine to the truck with a rope or other suitable restraining device that has sufficient strength.
    When using a loading ramp, select one with sufficient strength, length, and width and that will not cause the machine to slip.
20. Close the fuel valve before transporting the machine.
21. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
22. Do not take your eyes off the road ahead. Do not operate the machine with no hands.
23. Reduce the throttle setting during engine run-out and, if the engine is provided with a shut-off valve, turn the fuel off at the conclusion of operation.
24. Do not operate the machine when there is the risk of lightning.

Maintenance and storage

1. Disengage drives on level ground, disengage the cutting unit, set parking brake, stop engine and disconnect spark plug wire. Wait for all movement to stop before adjusting, cleaning or repairing.
2. When machine is to be parked, stored, or left unattended, lower the cutting units unless a positive machanical lock is provided.
3. To reduce the fire hazard, keep the engine, silencer/muffler, compartment fuel storage area, cutting units and drives free of grass, leaves, or excessive grease. Clean up oil or fuel spillage.
4. Allow the engine to cool before storing in any enclosure.
5. Only cover the machine with a sheet after hot parts have sufficiently cooled down.
6. Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
7. Do not store fuel near flames.
8. If the engine is provided with a shut-off valve, shut off valve while storing or transporting.
9. Never allow untrained personnel to service machine.
10. Allow the engine/muffler to cool before checking/maintenance.
11. Appropriately manage and correctly use the tools necessary for servicing or adjusting the machine.
12. Use jack stands to support components when required.
13. Carefully release pressure from components with stored energy.
14. Make sure that parts such as wires are not touching each other and that their covers have not come off.
15. Use care when checking the cylinders/reels and bed knives.
    [1] Wear gloves and use caution when servicing them.
    [2] Be careful during adjustment of the machine to prevent entrapment of the fingers between moving blades and fixed parts of the machine.
16. On multi-cylinder/multi-reel machines take care as rotating one cylinder/reel can cause other cylinder/reels to rotate.
17. Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
18. Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
19. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
20. If the fuel tank has to be drained, do this outdoors.

Disposal

Recycle and Waste Disposal

About Recycle

Recycling battery etc. is recommended for environmental conservation and economical use of resources.
It may be required by local laws.

About Waste Disposal

Make sure that waste generated when servicing or repairing the machine is disposed of in accordance with local regulations.
(e.g. waste oil, antifreeze, rubber products, and wires etc.)

Specifications

Specifications

Type			LM180C	
Dimensions	Total length		84.65 in	215 cm
	Total width	During operation	81.89 in	208 cm
		During transport	72.83 in	185 cm
	Total height	Steering wheel	40.16 in	102 cm
Total weight (empty fuel tank)			844.36 lb	383 kg
Minimum turning radius			90.55 in	230 cm
Engine	Model		Subaru EH30B	
	Type		Air-cooled 4-cycle vertical OHV-type gasoline engine	
	Total displacement		291 cm^3 (0.291 L)	
	Maximum output		6.6 kW (9.0 PS)/1,800 rpm	
Fuel tank capacity			Gasoline 6.0 dm^3 (6.0 L)	
Fuel consumption			310 g/kW・h (rated output)	
Engine oil capacity			1.2 dm^3 (1.2 L)	
Coolant volume			-	
Hydraulic tank capacity			-	
Transmission oil capacity			2.0 dm^3 (2.0 L)	
Operating width (Mowing width)			74.02 in	188 cm
Operating height (Mowing height)			0.51 - 1.97 in	13.0 - 50.0 mm
Blades			5・7	
Drive	Traveling		Mechanical	
	Mowing		Mechanical	
Speed (HST)			-	
Speed (Mechanical)	Forward	1st	1.93 mph	3.1 km/h
		2nd	3.98 mph	6.4 km/h
		3rd	5.84 mph	9.4 km/h
	Reverse	1st	1.93 mph	3.1 km/h (1,800 rpm)
Efficiency			2.38 acres/hour (3.98 mph x Mowing width x 0.8)	9,630 m^2/h (6.4 km/h x Mowing width x 0.8)
Maximum inclination for operation			18 degrees	
Tire size	Front wheel		4.00-5	
	Rear wheel		18 x 8.50-8	
Tire pneumatic pressure	Front wheel			200 kPa (2.0 kgf/cm^2)
	Rear wheel			80 kPa (0.8 kgf/cm^2)
Battery			-	
Engine plug			BR6ES	

* The factory default maximum engine rpm is 1,800 rpm.

Sound Pressure Level

Sound Pressure Level

This machine was confirmed to have a continuous A-weighted sound pressure level of 93dB by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

Sound Power Level

Sound Power Level

This machine was confirmed to have a sound power level of 105dB by measuring identical machines in accordance with the procedure specified in directive 2000/14/EC.

Vibration Level

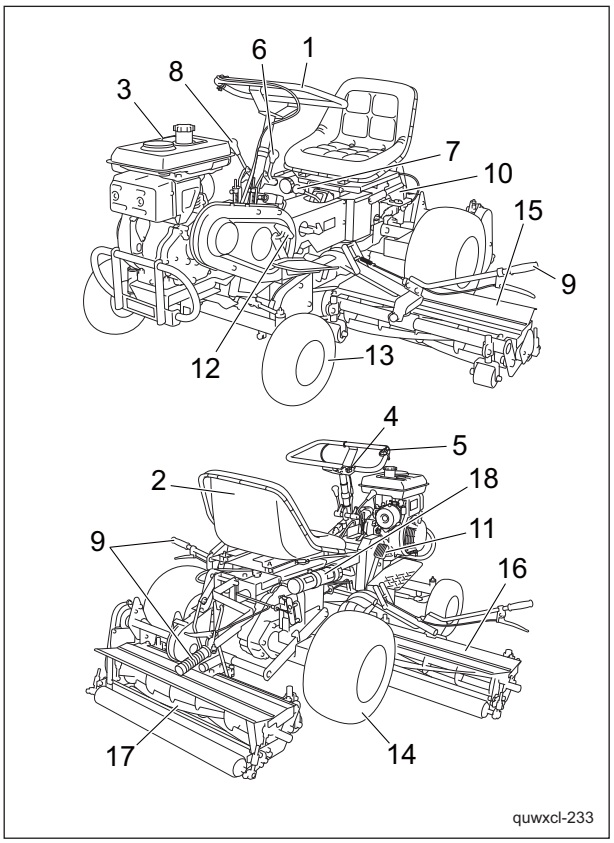
Hand-arm vibration

This machine was confirmed to transmit a vibration level of 3.63 m/s^2 to hands and arms by measuring identical machines in accordance with the procedure specified in ISO 5349-1:2001,ISO 5349-2:2001.

Whole body vibration

This machine was confirmed to transmit a vibration level of 1.12 m/s^2 to the whole body by measuring identical machines in accordance with the procedure specified in ISO 2631-1:1997,ISO 2631-2:2003.

Names of Each Section

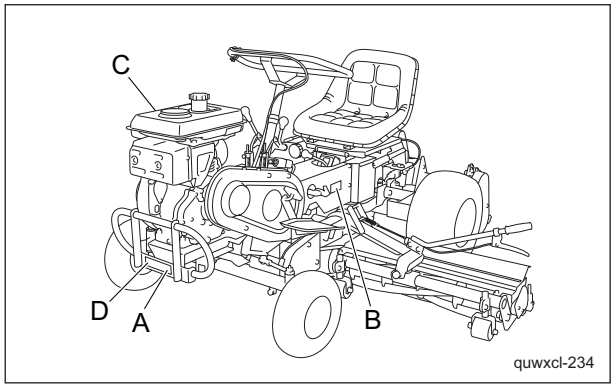


Names of Each Section_001

1	Steering wheel
2	Seat
3	Engine
4	Engine switch
5	Throttle lever
6	Traveling clutch lever
7	Change lever
8	Reel rotation lever
9	Lifting lever
10	Parking brake lever
11	Brake pedal
12	Diff-lock pedal
13	Front tire
14	Rear tire
15	Left mower unit
16	Right mower unit
17	Rear mower unit
18	Box

Regulation Decals

Positions of Regulation Decals



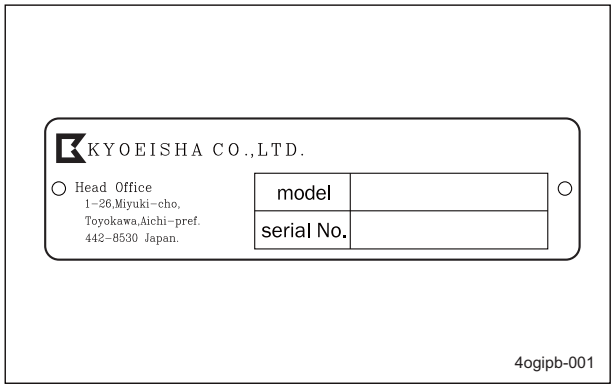
Positions of Regulation Decals_001

A	Serial number plate
B	Specification Decal
C	Noise Emission Decal
D	Year of Manufacture Decal

Description of Regulation Decals

Serial Number Plate

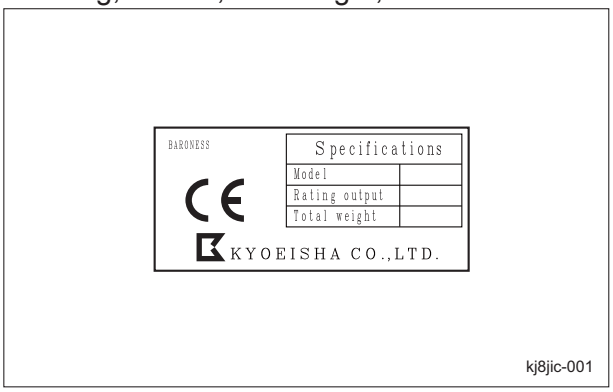
The serial number plate indicates the model and serial number of the machine.



Serial Number Plate_001

Specification Decal

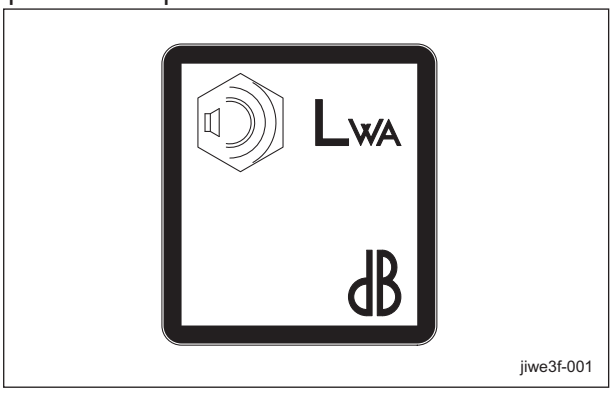
(For Europe)
The Specification decal indicates the CE marking, model , and weight, etc.



Specification Decal_001

Noise Emission Decal

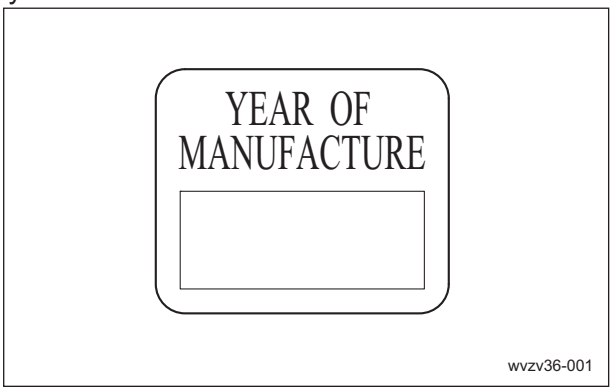
(For Europe)
The noise emission decal indicates the sound power level determined by measuring identical machines in accordance with the procedure specified in the EC directives.



Noise Emission Decal_001

Year of Manufacture Decal

(For Europe)
The year of manufacture decal indicates the year when this machine was manufactured.



Year of Manufacture Decal_001

Safety Signs and Instruction Signs

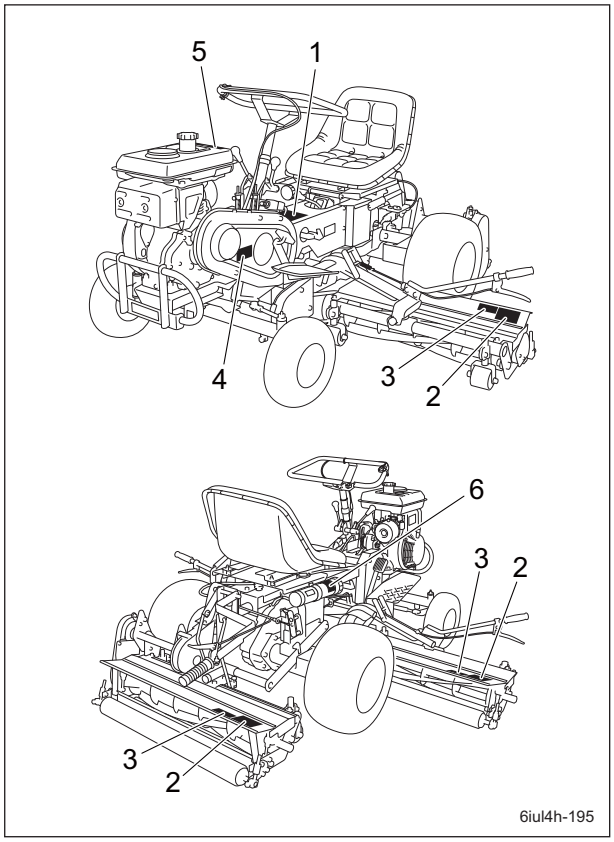
About Safety Signs and Instruction Signs

Important

Safety decals and instruction decals are attached to this product.
Make sure that they are preserved in their entirety. If they are damaged, become dirty, or peel off, replace them with new ones.

Part numbers for decals that need to be replaced are listed in the parts catalog. Order them from a Baroness dealer or Kyoeisha.

Positions of Safety Decals and Instruction Decals



Positions of Safety Decals and Instruction Decals_001

1	Operation decal
2	Caution to mutilation decal
3	Caution to flying object decal
4	Caution to rotating object decal
5	Caution to noise decal
6	Decal on reading owner's operating manual

Description of Safety Decals and Instruction Decals

Operation Decal

1.

Warning

Read the Owner's Operating Manual.

2.

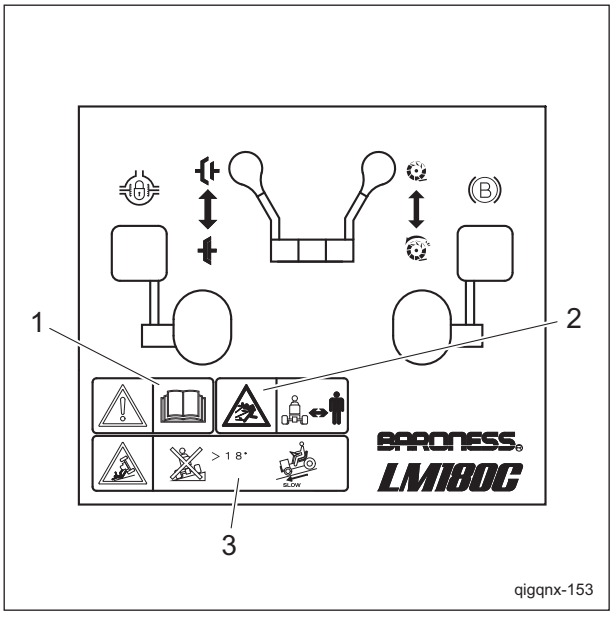
Caution

Flying objects - Be sure that people around the machine keep a safe distance away.

3.

Warning

Rollover - Do not work on slopes of 18 degrees or more.
When you descend a slope, lower the mower units and drive at low speed.



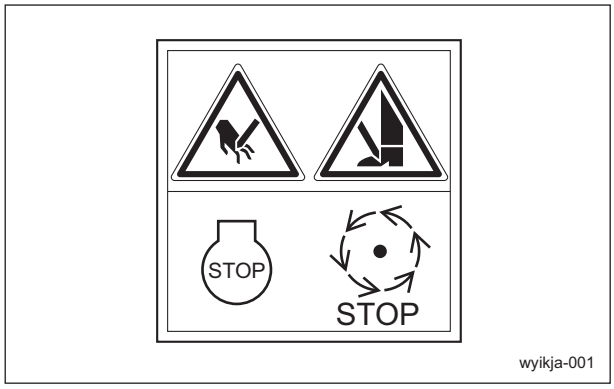
Operation Decal_001

Caution to Mutilation Decal

K4205001600
DECAL, CAUTION TO MUTILATION

Warning

May cut your hand or leg - Stop the cutter rotation and engine. Otherwise you may get injured.



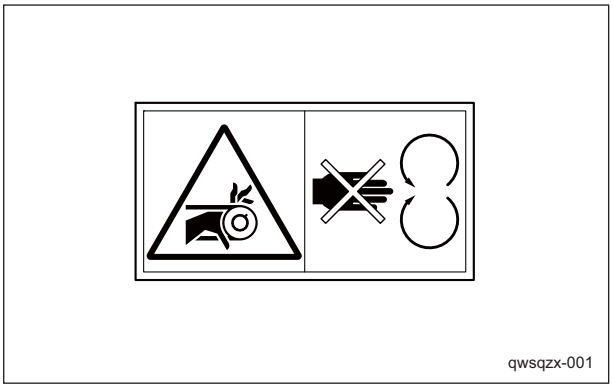
Caution to Mutilation Decal_001

Caution to Rotating Object Decal

K4205001530
Decal, caution to rotating object

Warning

Watch for rotating parts - Keep your hands away from the belts while the engine is running.



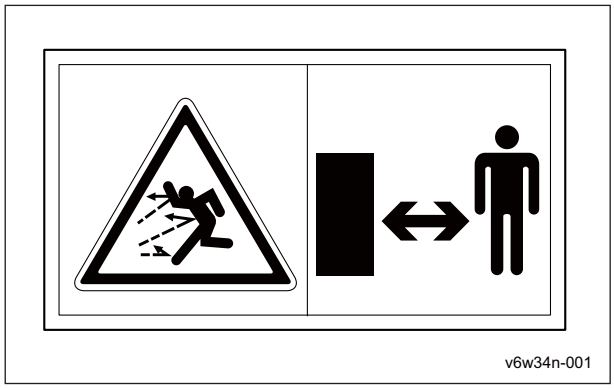
Caution to Rotating Object Decal_001

Caution to Flying Object Decal

K4205001650
Decal, caution to flying object

Caution

Caution to flying object - Be sure that people around the machine keep a safe distance away.



Caution to Flying Object Decal_001

Caution to Noise Decal

K4205001330
DECAL, CAUTION TO NOISE

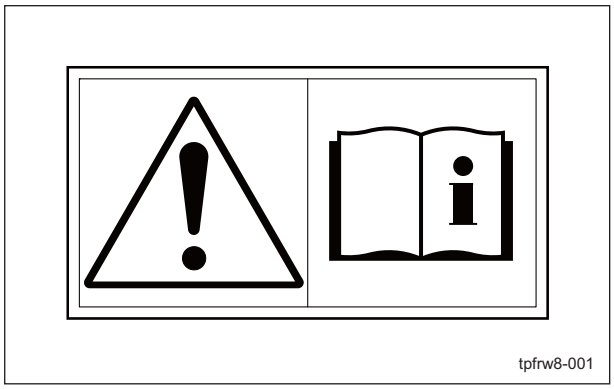
Caution to Noise Decal_001

Decal on Reading Owner's Operating Manual

K4205001560
Decal, read Owner's Operating Manual

Warning

Read the Owner's Operating Manual.



Decal on Reading Owner's Operating Manual_001

Inspections

Inspect the machine according to the maintenance schedule so that you will be able to take advantage of its optimum performance for a long period of time.

Reel Cutter (Cutting Cylinder) and Bed Knife (Bottom Blade)

Inspection of Reel Cutter (Cutting Cylinder) and Bed Knife (Bottom Blade)

The reel cutter (cutting cylinder) and bed knife (bottom blade) may become dull due to frequent use, objects crushed during mowing, or damage caused during transportation. Inspect the reel cutter (cutting cylinder) and bed knife (bottom blade), and if necessary, adjust the blade engagement, perform back lapping, or resharpen or replace the reel cutter (cutting cylinder) and the bed knife (bottom blade).

1. Check to see whether or not the edge of the reel cutter (cutting cylinder) and the bed knife (bottom blade) are too blunt to cut.
2. Make sure that the reel cutter (cutting cylinder) and the bed knife (bottom blade) are not cracked.
3. Check to see how much the reel cutter (cutting cylinder) and the bed knife (bottom blade) are worn.
4. Make sure that the reel cutter (cutting cylinder) and the bed knife (bottom blade) have not changed color due to heat from grinding.
5. Check to see whether or not the second edge face (relief) remains at the point of reel cutter (cutting cylinder).
6. Make sure that the welding between the reel cutter (cutting cylinder) and the disc has not come off.

Cover

Inspection of Covers

⚠ Warning

If you have removed the covers during inspection, be sure to securely install them in their original positions.
If a cover remains removed, the operator may come into contact with rotating parts or belts and foreign objects may fly off, possibly resulting in injuries.

1. Make sure that there is no wear or deterioration of the reel cover and all other covers.
2. Make sure that there is no damage to the reel cover and all other covers.
3. Make sure that there is no interference with moving parts due to deformation of the reel cover and all other covers.
4. Make sure that the reel cover and all other covers are installed in their appropriate positions.

Roller

Inspection of Rollers

Bearing wear due to frequent use or bearing damage caused by water infiltration may prevent the roller from rotating smoothly. Inspect the roller and, if necessary, replace parts such as oil seals and bearings.

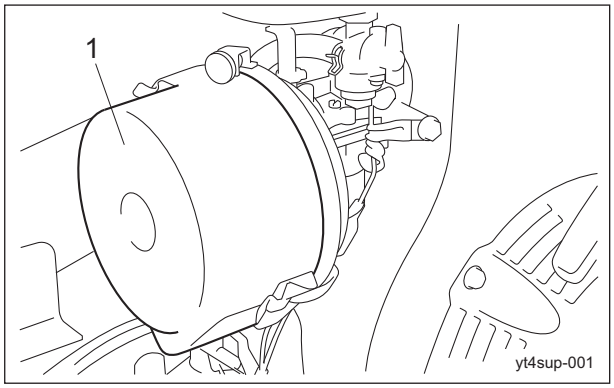
1. Make sure that there is no abrasion nor adhesion of the roller.
2. Make sure that there is no wear of the roller shaft.
3. Make sure that there is no wear nor damage of the oil seal.
4. Make sure that there is no wear nor rust of the bearing.
5. Make sure that there is no play in the roller shaft.

Air Cleaner

Inspection of Air Cleaner

The air cleaner is a component that removes dirt from the intake air to prevent wear of the cylinder liners and piston rings so that the engine will always operate smoothly.
A contaminated air cleaner element may cause malfunction of the engine.

1. Make sure that there is no damage to the air cleaner.
2. Make sure that the air cleaner is not contaminated.

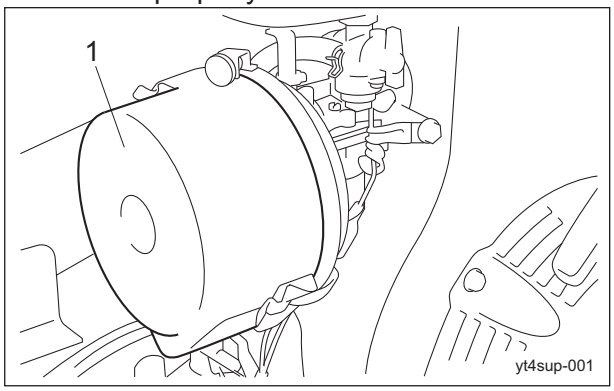


Inspection of Air Cleaner_001

1	Air cleaner

Cleaning of Air Cleaner

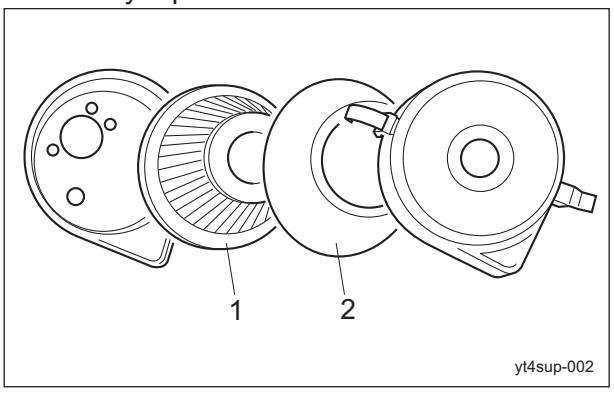
A contaminated air cleaner element may cause malfunction of the engine.
To maximize the life of the engine, clean the air cleaner properly.



Cleaning of Air Cleaner_001

1	Air cleaner

1. Follow the steps below to clean the air cleaner.
   [1] Before installing the element, clean it with white kerosene, immerse it in an admixture of three parts white kerosene to one part engine oil, and then shake/ squeeze it.
   [2] Before installing the urethane foam, clean it with white kerosene, immerse it in an admixture of three parts white kerosene to one part engine oil, and then firmly squeeze it.



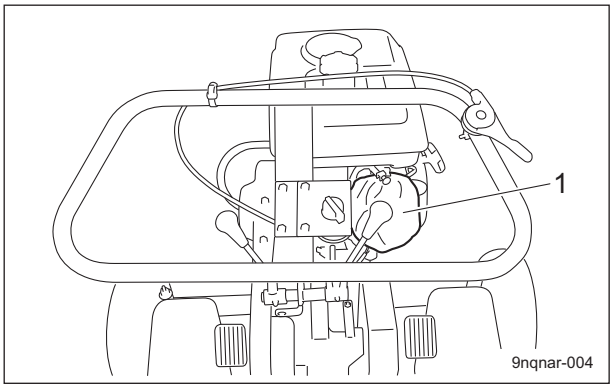
Cleaning of Air Cleaner_002

1	Element
2	Urethane foam

Air Cleaner Cover

Inspection of Air Cleaner Cover

1. Make sure that the cover (cloth bag) is securely placed over the air cleaner.
2. If the cover is extremely dirty, replace it with a new one.



Inspection of Air Cleaner Cover_001

1	Air cleaner cover

Tire

Inspection of Tires

1. Check the pneumatic pressure of the tires.
2. Make sure that there are no cracks, damage or abnormal wear on the tires.

Tire size	Pneumatic pressure
Front wheel (4.00 - 5)	200 kPa（2.0 kgf/㎝ 2）
Rear wheel 8.50 - 8	80 kPa（0.8 kgf/㎝ 2）

Brake

Inspection of Parking Brake

1. Make sure that the brake is applied when you pull the parking brake lever.
2. Make sure that the brake is not applied even slightly when you press the push button to release the parking brake lever.

Inspection of Brake

While traveling, depress the brake pedal until the pedal hits the pedal stopper to make sure that the brake is applied effectively.

Clutch

Inspection of Clutch

1. Operate the clutch levers and check that the clutch operates perfectly.
2. Make sure that the clutch levers function well.

Belt

Inspection of Belt

⚠ Warning

The engine must be stopped when the belt is inspected.

⚠ Warning

If you have removed the covers, etc., during inspection, be sure to securely install them in their original positions.
If covers, etc., remain removed, the operator may come in contact with rotating parts or belts, possibly resulting in injuries.

Important

A slacking or damaged belt may cause the cutter rotation speed or operation speed to be insufficient for operation.

1. Press the middle of the belt with your finger to check the belt tension.
2. Make sure that there are no cracks, damage or abnormal wear.

Wire

Inspection of Wire

1. Make sure that the wire is not cracked or damaged.
2. If the wire is cracked or damaged, replace it with a new one immediately.

Around The Engine

Inspection around The Engine

1. Check the fuel system parts for loosened or cracked joints and leakage. Replace the parts if necessary.
2. Blow the air to clean any grass or flammables attached on or around the muffler.
3. Blow air to clean any grass or flammables attached around the cooling fins or recoil starter.

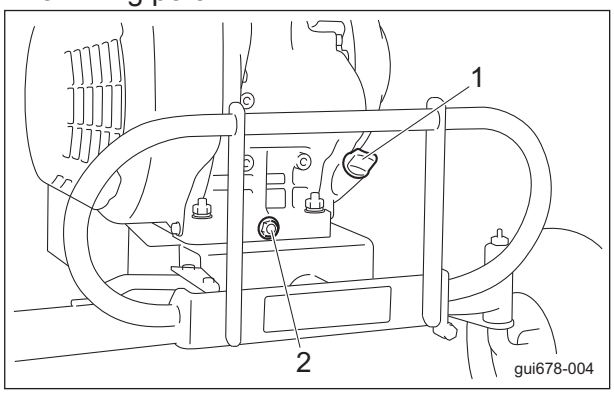
Engine Oil

Inspection of Engine Oil

Important

Screw the oil level gauge firmly.

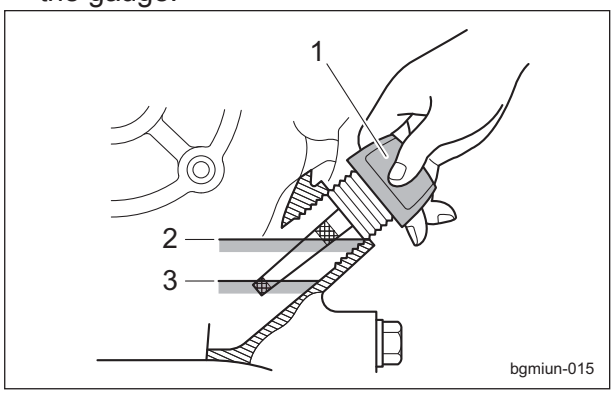
1. Stop the engine, wait for 10 to 20 minutes for the engine to cool down, then check the oil level.
2. Position the machine so that the engine will be level, then check the engine oil level without screwing the oil level gauge into the oil filling port.



Inspection of Engine Oil_001

1	Oil level gauge
2	Drain plug

3. The appropriate engine oil level should be between the upper and lower limit lines on the gauge.



Inspection of Engine Oil_002

1	Oil level gauge
2	Upper limit
3	Lower limit

Filling of Engine Oil

Important

Do not fill too much engine oil. Otherwise, the engine may be damaged.

Important

Do not mix different types of engine oil.

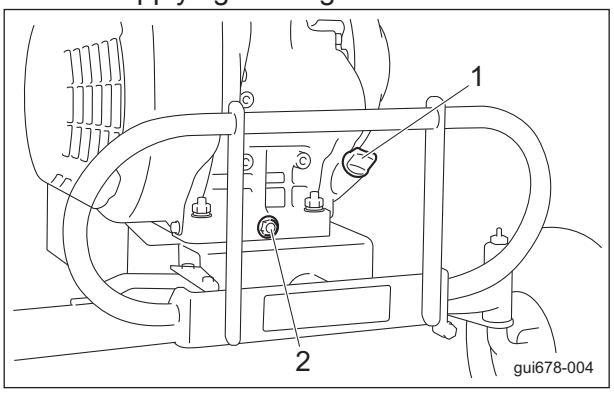
Important

Be sure to use engine oil that is classified as API Service Grade SF or higher, with an SAE Viscosity that is appropriate for the operating environment (ambient temperature).

Important

Screw the oil level gauge firmly.

1. If the engine oil level is lower than the lower limit line on the oil level gauge, supply engine oil through the oil filling port. Remove the oil level gauge, and then supply new engine oil until the oil reaches a level in between the upper and lower limit lines on the oil level gauge.
2. Screw the oil level gauge firmly.
3. Check the oil level again 10 to 20 minutes after supplying the engine oil.



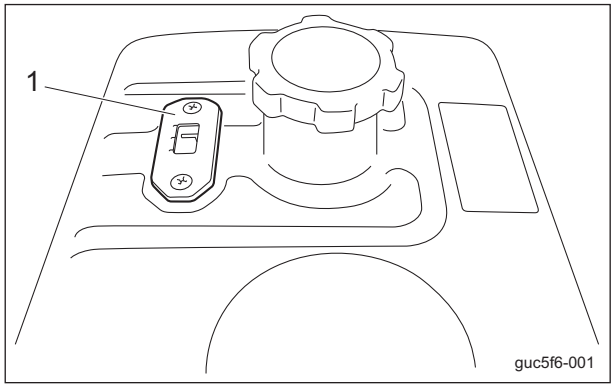
Filling of Engine Oil_001

1	Oil level gauge (oil filling port)
2	Drain plug

Fuel

Inspection of Fuel Supply

Observe the fuel gauge located on the fuel tank to check the fuel level.



Inspection of Fuel Supply_001

1	Fuel gauge

Fuel Supply

Warning

Do not supply fuel above F (FULL) level of the fuel gauge.
If you supply too much fuel, it might overflow from the fuel cap when you travel or work on a slope.

Warning

Keep fire away while refueling.
Do not smoke while refueling.

Warning

Supply fuel after the engine is stopped and has well cooled down.

Caution

Pay attention not to touch hot parts.

If the fuel gauge located on the fuel tank indicates a level close to E (EMPTY), supply lead-free gasoline for automobiles at your earliest convenience.
The fuel tank capacity is approximately 6.0 dm^3 (6.0 L).

Fuel Strainer

Inspection of Fuel Strainer

The fuel strainer is installed near the fuel tank and cleans the fuel that enters the carburetor. If the fuel flow is insufficient, clean or replace the fuel strainer as necessary.

1. Make sure that there is no fuel leakage.
2. Make sure that the fuel strainer is not damaged or dirty.

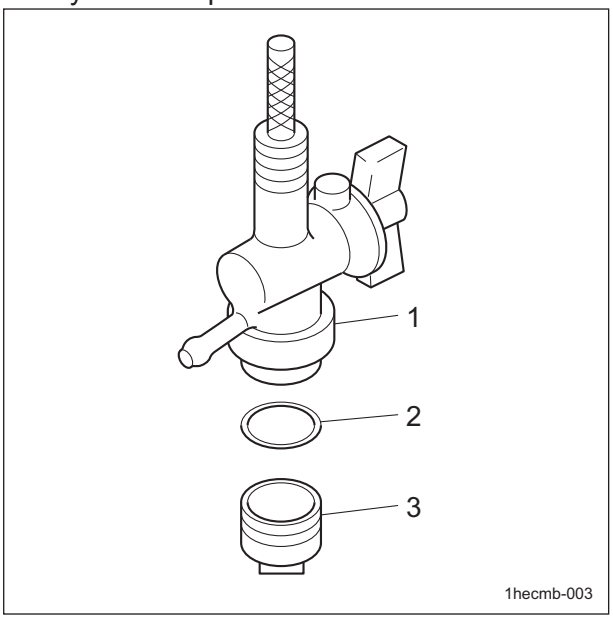
Cleaning of Fuel Strainer

If dust or dirt accumulates in the fuel strainer, the fuel flow will become insufficient. Periodically clean it.

Important

Clean the fuel strainer in a clean location, free of dust and dirt.

1. Close the fuel cock of the fuel filter.
2. Remove the strainer cup from the fuel cock.
3. Clean the filter and the inside of the strainer cup with a solvent, such as hardly flammable kerosene.
4. Dry with compressed air.



Cleaning of Fuel Strainer_001

1	Fuel cock
2	Packing
3	Strainer cup

Important

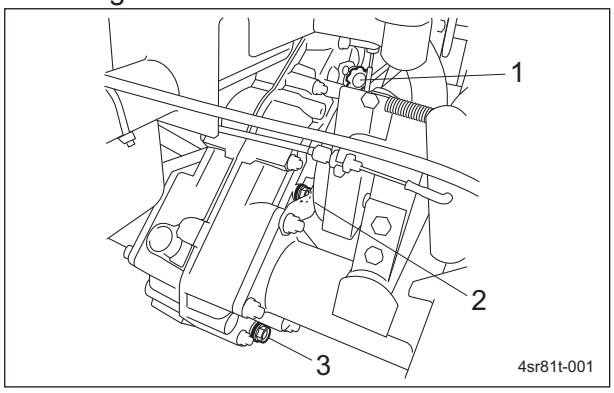
During installation, prevent contamination with dirt or dust.
If the fuel is contaminated with dirt, dust, etc., the fuel flow will become insufficient.

5. Correctly install all parts in their original positions.
6. Fill up the fuel tank with fuel, and then open the fuel cock.
7. Make sure that there is no fuel leakage.

Transmission

Inspection of Transmission Oil

1. Place the machine so that its frame will be level, and then make sure that the transmission oil level is at the oil level plug at any time.
   The oil level plug is located on the right side of the transmission.
2. Check underneath the machine for oil leakage.



Inspection of Transmission Oil_001

1	Oil filling port
2	Oil level plug
3	Drain plug

Filling of Transmission Oil

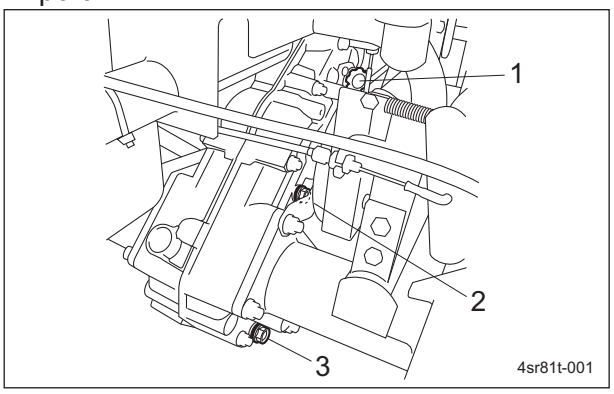
Important

Do not mix different types of transmission oil.

Important

Be sure to pour automobile gear oil that is classified as SAE Viscosity Grade #90 into the transmission.

1. Remove the oil filler cap.
2. Supply transmission oil through the oil filling port.



Filling of Transmission Oil_001

1	Oil filling port
2	Oil level plug
3	Drain plug

3. Check the oil level again 10 to 20 minutes after filling the oil.
4. Check underneath the machine for oil leakage.

Oil Leakage

Inspection of Oil Leakage

After approximately 50 hours of operation, some joints may be loosened and oil and grease may leak.
Be sure to retighten the parts.
Check the bottom of the machine for oil and grease leakage.

Tightening Torques

Important

Refer to the Tightening Torque table.
Note that the Baroness product warranty may not apply to defects caused by incorrect or overtorque tightening, etc.

Standard Tightening Torques

Bolts and Nuts

Important

A number of bolts are used in each part of this machine.
Be sure to re-tighten the bolts and nuts, because they may be loosened at the earlier stage of the use.

As to the bolts and nuts without any special instruction, tighten them in appropriate tightening torque with proper tool.
Too much tightening may cause the looseness or damage of the screw.
The strength of tightening is determined by types of screws, strength, the friction of thread face or base face and others.
The table below is for the galvanized or parkerized bolts.
In case that the strength of internal thread is weak, it is not applied.
Do not use rusty or sand attached "screw."
Otherwise, it may cause insufficient tightening even if you apply the specified tightening torque.
The friction of the screw face becomes higher and the tightening torque is canceled out by the friction, therefore sufficient tightening cannot be applied.
If "screw" is wet by water or oil, do not tighten it with normal tightening torque.
If the screw is wet, the torque coefficient will get smaller and it may result in too much tightening.
Too much tightening may cause looseness by the screw stretched or result in damage.
Do not use a bolt experienced too much burden.
Using the impact wrench requires the skill.
Do exercise as much as possible for steady tightening.

Nominal diameter	General bolt		
	Strength classification 4.8		
	 tib3yb-001		
	N-m	kgf-cm	lb-in
M5	3 - 5	30.59 - 50.99	26.55 - 44.26
M6	7 - 9	71.38 - 91.77	61.96 - 79.66
M8	14 - 19	142.76 - 193.74	123.91 - 168.17
M10	29 - 38	295.71 - 387.49	256.68 - 336.34
M12	52 - 67	530.24 - 683.20	460.25 - 593.02
M14	70 - 94	713.79 - 958.52	619.57 - 831.99
M16	88 - 112	897.34 - 1142.06	778.89 - 991.31
M18	116 - 144	1,182.85 - 1,468.37	1,026.72 - 1,274.54
M20	147 - 183	1,498.96 - 1,866.05	1,301.10 - 1,619.73
M22	295	3,008.12	2,611.05
M24	370	3,772.89	3,274.87
M27	550	5,608.35	4,868.05
M30	740	7,545.78	6,549.74

Nominal diameter	Heat-treated bolt					
	Strength classification 8.8			Strength classification 10.9		
	 tib3yb-002			 tib3yb-003		
	N-m	kgf-cm	lb-in	N-m	kgf-cm	lb-in
M5	5 - 7	50.99 - 71.38	44.26 - 61.96	7 - 10	71.38 - 101.97	61.96 - 88.51
M6	8 - 11	81.58 - 112.17	70.81 - 97.36	14 - 18	142.76 - 183.55	123.91 - 159.32
M8	23 - 29	234.53 - 295.71	203.57 - 256.68	28 - 38	285.52 - 387.49	247.83 - 336.34
M10	45 - 57	458.87 - 581.23	398.30 - 504.51	58 - 76	591.43 - 774.97	513.36 - 672.68
M12	67 - 85	683.20 - 866.75	593.02 - 752.34	104 - 134	1,060.49 - 1,366.40	920.50 - 1186.03
M14	106 - 134	1,080.88 - 1,366.40	938.21 - 1,186.03	140 - 188	1,427.58 - 1,917.04	1,239.14 - 1,663.99
M16	152 - 188	1,549.94 - 1,917.04	1,345.35 - 1,663.99	210 - 260	2,141.37 - 2,651.22	1,858.71 - 2,301.26
M18	200 - 240	2,039.40 - 2,447.28	1,770.20 - 2,124.24	280 - 340	2,855.16 - 3,466.98	2,478.28 - 3,009.34
M20	245 - 295	2,498.27 - 3,008.12	2,168.50 - 2,611.05	370 - 450	3,772.89 - 4,588.65	3,274.87 - 3,982.95
M22	-	-	-	530	5,404.41	4,691.03
M24	-	-	-	670	6,831.99	5,930.17
M27	-	-	-	1,000	10,197.00	8,851.00
M30	-	-	-	1,340	14,628.78	11,860.34

Note:
The same values are applied to "fine screw thread."

Principal Tightening Torques

Tightening Torque by Model

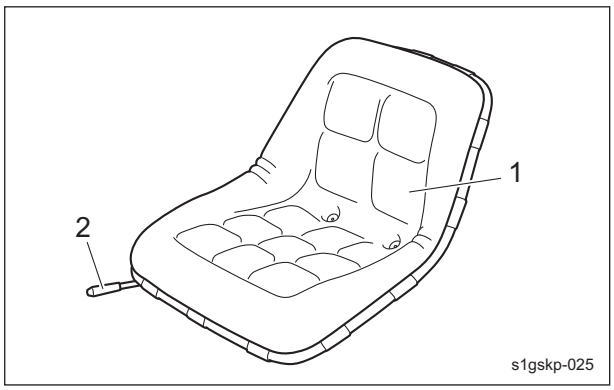
LM180C
Tighten the following bolts and nuts at the torque specified in the table.
For thread locking adhesive, apply a mild to high-strength thread locker (ThreeBond 1322 or equivalent anaerobic sealant).

Portion		Code	Part name	Tightening Torque			Thread locking adhesive
				N-m	kgf-cm	lb-in	
Front wheel	Front wheel shaft	K0071000082	Bolt, with nipple hole M12-15	36 - 40	371.13 - 407.92	318.64 - 354.04	—
	Wheel mounting shaft	K0000100252	Bolt, M10-25	29 - 38	295.71 - 387.49	256.68 - 336.34	—
	Wheel	K0000080202	Bolt, M8-20	14 - 19	142.76 - 193.74	123.91 - 168.17	—
Rear wheel	Wheel	K0010100252	Bolt, heat-treated M10-25	58 - 76	591.43 - 774.97	513.36 - 672.68	—
Steering		K1604120000	Rod end, spherical bearing LHSA12	52 - 67	530.24 - 683.20	460.25 - 593.02	○
Handle		K0010060202	Bolt, heat-treated M6-20	7 - 9	71.38 - 91.77	61.96 - 79.66	—
Transmission pulley		K0010060151	Bolt, heat-treated M6-15	7 - 9	71.38 - 91.77	61.96 - 79.66	○
Mower	Bed knife (Bottom blade)	K0071000092	Screw, heat-treated flathead M10-20	29 - 38	295.71 - 387.49	256.68 - 336.34	—
	Front roller	K0010100252	Bolt, heat-treated M10-25	58 - 76	591.43 - 774.97	513.36 - 672.68	—
Engine		K0000100452	Bolt, M10-45	29 - 38	295.71 - 387.49	256.68 - 336.34	—
Seat		K0013101302	Bolt, heat-treated M10-130	29 - 38	295.71 - 387.49	256.68 - 336.34	—

Adjustment before Work

Adjustment of Seat

Use the seat adjustment lever to adjust the seat back and forth.
Adjust the position according to the operator's body size.
The adjustment lever is located under the front side of the seat.



Adjustment of Seat_001

1	Seat
2	Adjustment lever

Adjustment of Blade Engagement

Warning

Make sure that the parking brake is firmly applied before performing the operation.

Caution

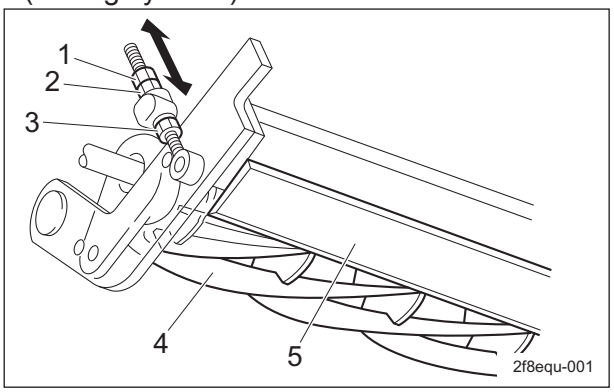
Be sure to perform this operation on your own.

Caution

When handling the reel cutter (cutting cylinder) or bed knife (bottom blade), wear gloves to protect your hands.
Pay attention not to let the reel cutter (cutting cylinder) catch your gloves. Otherwise, you may injure your hand or fingers.

1. Stop the engine.
2. With the cutter adjustment nut, adjust the engagement between the reel cutter (cutting cylinder) and the bed knife (bottom blade) so that newspaper (two to three sheets) will be cut by the edge of both blades when the blades in their entirety come slightly into contact with each other.
3. Insert two or three strips of newspaper into the space between the reel cutter (cutting cylinder) and the bed knife (bottom blade) at an angle of 90 degrees. Then, rotate the reel cutter (cutting cylinder) counter-clockwise (when you face the mower unit from the left) by hand to check the sharpness of the blades.
   Check the sharpness of the entire range (three or four points) of the reel cutter (cutting cylinder).

- If a gap is created between edges:
  1. Loosen the lock nut and slightly loosen nut B.
  2. Contact the reel cutter (cutting cylinder) and bed knife (bottom blade) slightly, then tighten nut A.
- If the reel cutter (cutting cylinder) is too tight to turn:
  1. Loosen the lock nut and slightly loosen nut A.
  2. Reduce the contact pressure between the reel cutter (cutting cylinder) and bed knife (bottom blade) , then tighten nut B.
- If the blades still cannot cut well:
  Perform back lapping of the reel cutter (cutting cylinder).



Adjustment of Blade Engagement_001

1	Lock nut
2	Nut A
3	Nut B
4	Reel cutter (Cutting cylinder)
5	Bed knife (Bottom blade)

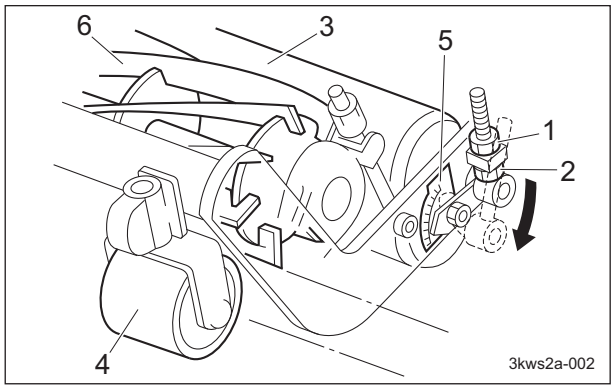
Adjustment of Cutting Height

Important

The front wheel is provided to prevent the reel cutter (cutting cylinder) from damaging a convex portion of the lawn surface.
Adjust the height so that the front wheel will not be grounded but raised by 10-20mm off the ground.

The cutting height is adjusted by moving the roller up or down.
Refer to the cutting height scale plate to decide the height.

1. To increase cutting height:
   Loosen nut A, lower the roller, then tighten nut B.
2. To decrease cutting height:
   Loosen nut B, raise the roller, then tighten nut A.



Adjustment of Cutting Height_001

1	Nut A
2	Nut B
3	Roller
4	Front wheel
5	Cutting height scale plate
6	Reel cutter (cutting cylinder)

Procedure to Start/Stop Engine

Start/Stop of Engine

Procedure to Start Engine

⚠ Caution

Before starting the engine, make sure that there are no other people or obstacles around the machine.

1. Sit on the seat.
2. Make sure that the parking brake is applied.
3. Make sure that the traveling clutch lever is set to the "OFF" position.
4. Make sure that the reel rotation lever is set to the "Stop" position.
5. Make sure that the change lever is set to the neutral position.
6. Set the fuel cock to the "Open" position.
   The fuel cock is located under the fuel tank.
7. Shift the throttle lever from the "Low speed" position halfway to the "High speed" position.
8. Pull the choke knob.
   Pull the knob half way for restarting, as necessary.
9. Set the engine switch to the "ON" position.
10. Pull the starter grip swiftly, and the engine will start.

Important

Return the starter grip slowly to its original position after the engine starts.
Do not let go of the pulled starter grip since it may cause damage to the machine.

11. Make sure that the engine has started, and then slowly return the choke knob to its original position.
12. Shift the throttle lever to the "Low speed" position, and then warm up the engine for 1 to 2 minutes.
13. Gradually move the throttle lever to the "High speed" position.

Procedure to Stop Engine

1. Depress the brake pedal.
2. Apply the parking brake.
3. Set the reel rotation lever to the "Stop" position.
4. Shift the traveling clutch lever to the "OFF" position.
5. Shift the change lever to the neutral position.
6. Shift the throttle lever to the "Low speed" position , and continue idling for 1 to 2 minutes.
7. Set the engine switch to the "OFF" position.
8. Make sure that the engine has stopped.
9. Set the fuel cock to the "Close" position.
   The fuel cock is located under the fuel tank.

10. Remove the ignition key.
11. Leave the driver's seat.

Safety Mechanisms

This machine has the safety device for starting / stopping engine.

1. As for starting the engine, the safety device prevents the engine from starting unless it meets each of the following three conditions.
   - An operator is sitting on the seat.
   - The parking brake lever is pulled.
   - The traveling clutch lever is in the "OFF" position.
2. In the case that the operator leaves the seat with the engine running, the safety device makes the engine stop unless it meets each of the following two conditions.
   - The parking brake lever is pulled.
   - The traveling clutch lever is in the "OFF" position.

Operation Method

Cautions for when You Leave The Machine

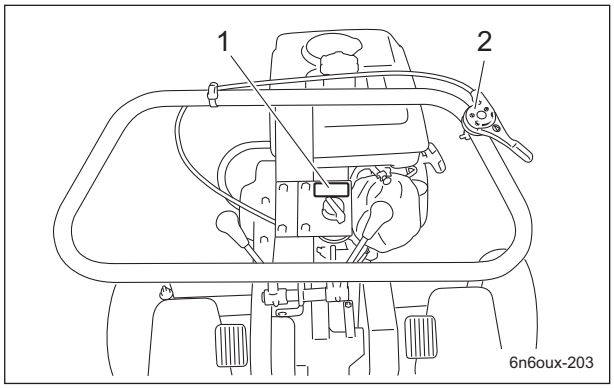
Caution

If the brakes are not sufficiently effective, use the wheel stoppers to secure the machine.

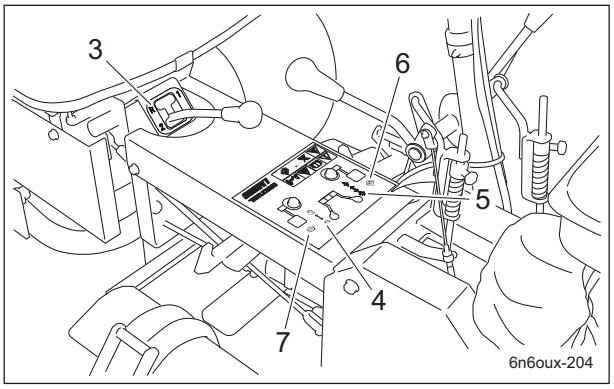
Caution

Never park the machine on a slope.

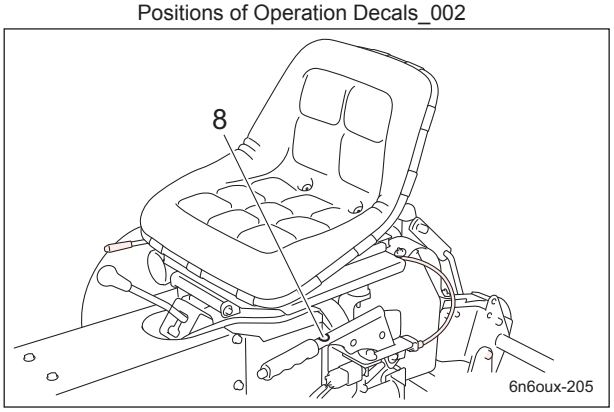
Positions of Operation Decals



Positions of Operation Decals_001



Positions of Operation Decals_002



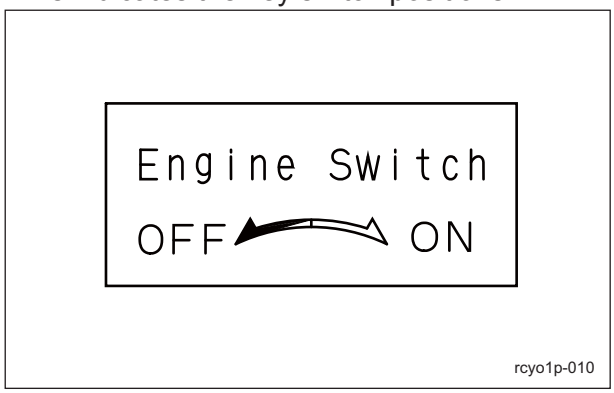
Positions of Operation Decals_003

1	Engine switch mark
2	Engine rotation mark
3	Change plate
4	Reel rotation mark
5	Clutch operation mark
6	Brake mark
7	Differential lock mark
8	Brake mark

Description of Operation Decals

Engine Switch Mark

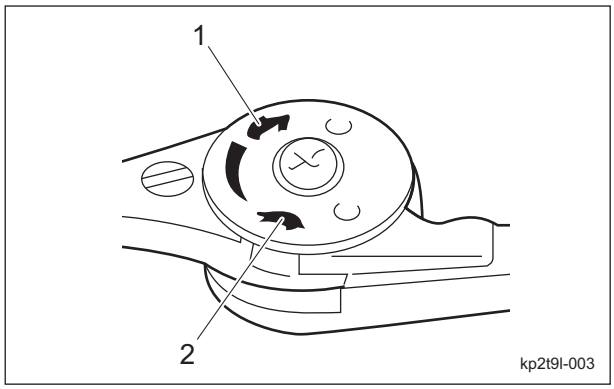
K4203000670
Decal, engine switch
This indicates the key switch positions.



Engine Switch Mark_001

Engine Rotation Mark

-
Engine rotation mark
This indicates low/high speed of engine rotation.

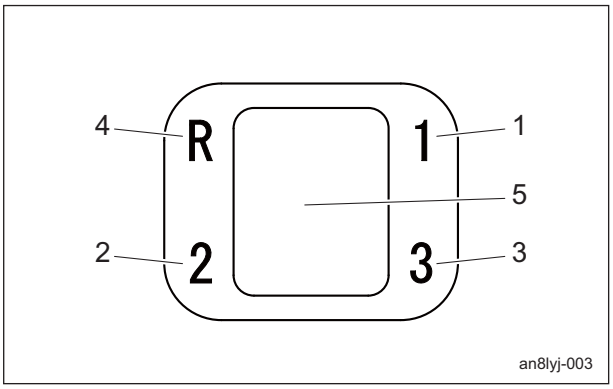


Engine Rotation Mark_001

1	High speed
2	Low speed

Change Plate

LM180A-0810Z0
Decal, change lever
This indicates the positions of the change lever.

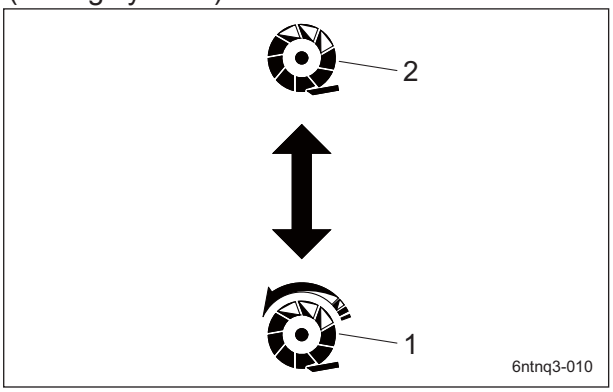


Change Plate_001

1	Forward (1st speed)
2	Forward (2nd speed)
3	Forward (3rd speed)
4	Reverse
5	Neutral

Reel Rotation Mark

Reel rotation mark
It illustrates Rotation/Stop of the reel cutter (cutting cylinder).

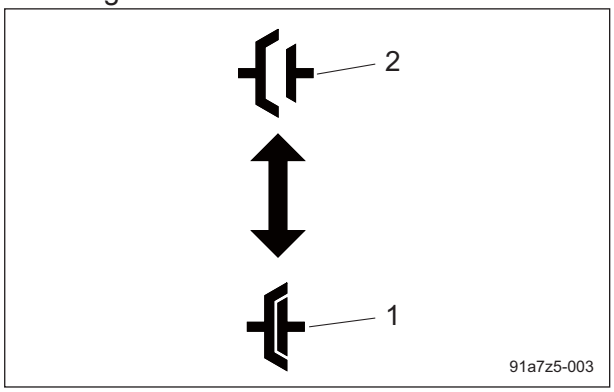


Reel Rotation Mark_001

1	Rotation
2	Stop

Clutch Operation Mark

Clutch operation mark
This illustrates “Engage/Disengage" of the traveling clutch.

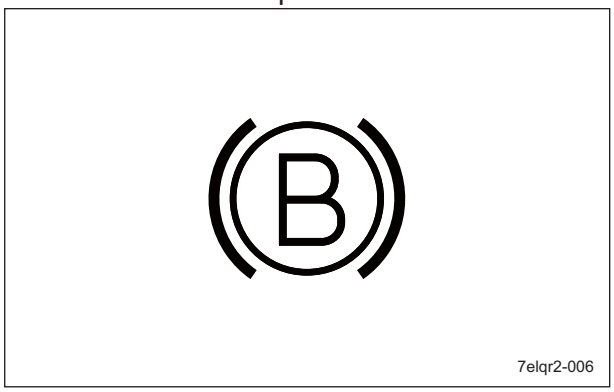


Clutch Operation Mark_001

1	Traveling clutch "Engage"
2	Traveling clutch "Disengage"

Brake Mark

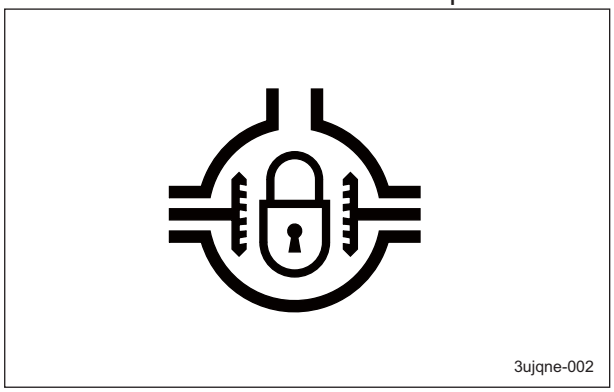
Brake mark
This indicates brake pedal.



Brake Mark_001

Differential Lock Mark

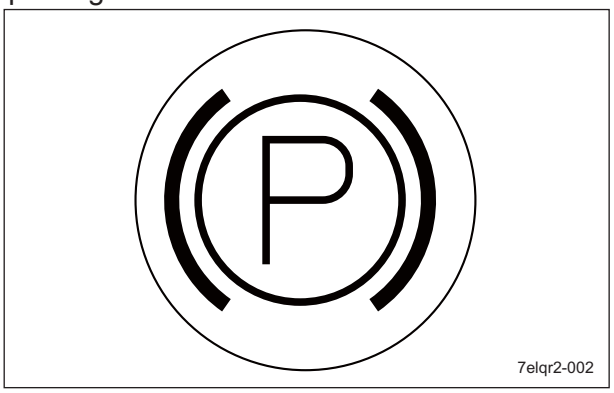
Differential Lock Mark
This indicates the differential lock pedal.



Differential Lock Mark_001

Brake Mark

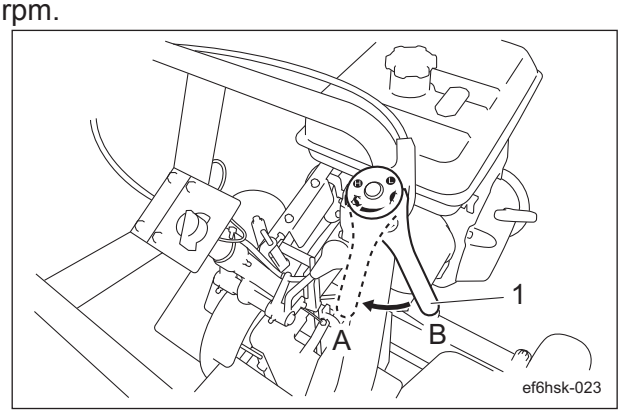
K4209001200
DECAL, BRAKE
It illustrates the locking position for the parking brake.



Brake Mark_001

Throttle Lever

The throttle lever is located to the right of the steering handle and enables you to adjust the engine rpm.
Move the throttle lever toward the "High speed" position to increase the engine rpm, and toward the "Low speed" position to reduce the rpm.



Throttle Lever-001

1	Throttle lever
A	High speed
B	Low speed

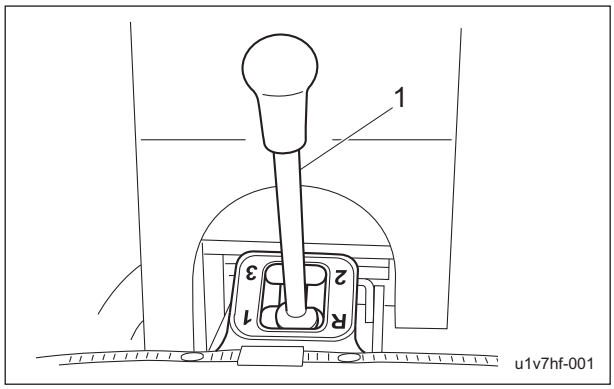
Change Lever

Important

Do not change the lever position during traveling. Otherwise, the transmission may be damaged.

The change lever is a transmission device.
It was adapted from a direct change system.
To change the speed, park the machine on level ground, and then engage the lever in the desired position.

Forward	1	3.1 km/h
	2	6.4 km/h
	3	9.4 km/h
Backward	R	3.1 km/h (1,800 rpm)



Change Lever_001

1	Change lever

Traveling Clutch Lever

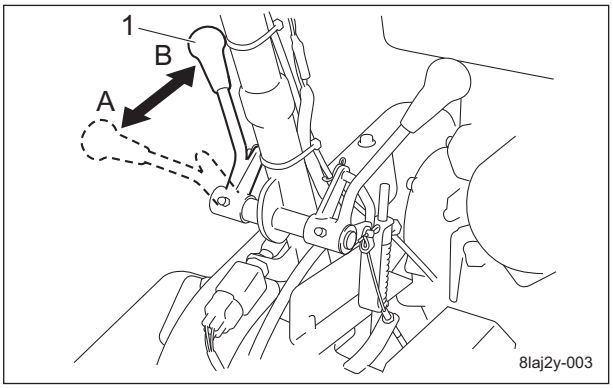
Warning

Be careful of the machine suddenly accelerating when the machine starts to travel if the throttle lever is set to the "High speed" position.

Warning

The machine may suddenly accelerate if the clutch is abruptly operated.

To prevent sudden acceleration, pull the traveling clutch lever slowly.
Start the machine while allowing the belt to slip in the same way as clutch-slipping.
When the traveling clutch is set to the "ON" position, the reel cutter automatically rotates when the mower unit is lowered.
When the traveling clutch is set to the "OFF" position, the reel cutter does not rotate, even if the mower unit is lowered.



Traveling Clutch Lever_001

1	Traveling clutch lever
A	ON
B	OFF

Reel Rotation Lever

Caution

Set the reel clutch lever to the engaged position immediately before mowing. At all other times, be sure to leave the reel clutch lever in the disengaged position.

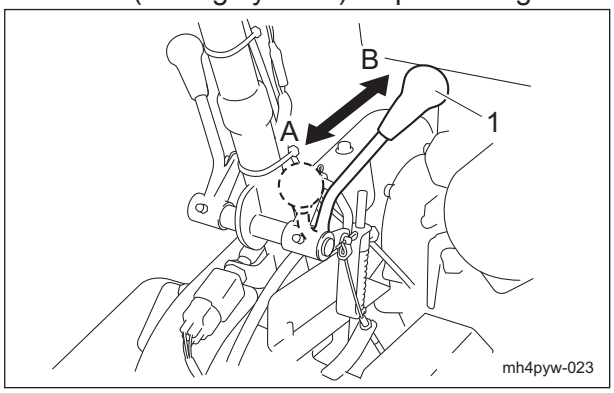
Important

Slowly set the reel clutch lever to the engaged position.
If the clutch is quickly engaged, the engine may stall.

Important

Unless both left and right mower units have been lowered all the way, you are not able to operate the reel rotation lever.

When the reel clutch lever is pulled toward you, the reel cutter (cutting cylinder) rotates.
When the reel clutch lever is pushed away, the reel cutter (cutting cylinder) stops rotating.



Reel Rotation Lever_001

1	Reel rotation lever
A	Rotation
B	Stop

Mower Unit Lifting lever

Left and Right Mower Units

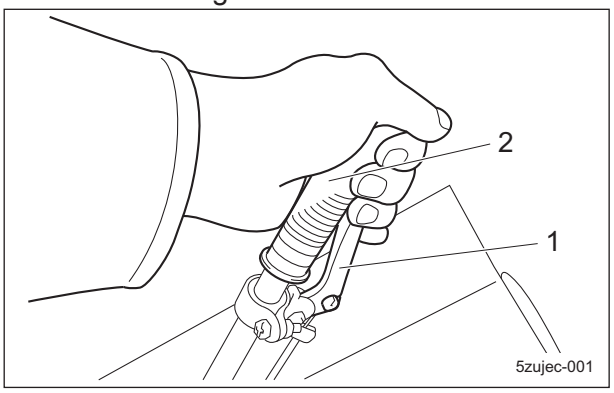
Caution

Before raising or lowering the mower units, make sure that there are no people around the machine.

Important

If the reel rotation lever is set to "Rotation," you will be unable to raise the mower units.

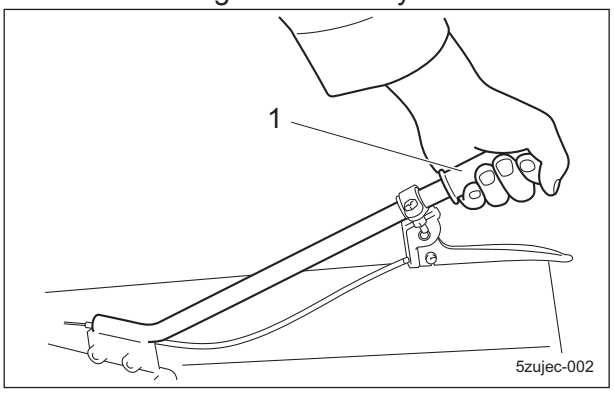
To lower the left and right mower units, squeeze the clutch lever and slowly move the mower unit lifting lever down.



Left and Right Mower Units_001

1	Clutch lever
2	Mower unit lifting lever

To raise the left and right mower units, raise the mower unit lifting lever slowly until the hook metal fitting is secured by the hook.



Left and Right Mower Units_002

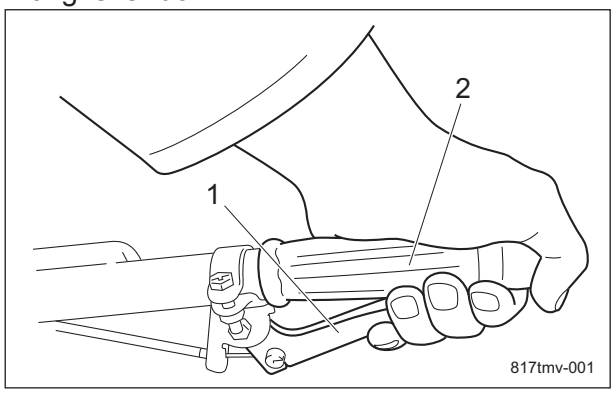
1	Mower unit lifting lever

Rear Mower Unit

Important

Before raising or lowering the mower units, make sure that there are no people around the machine.

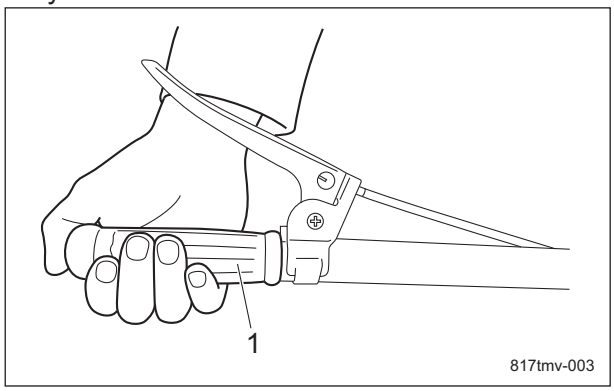
To lower the rear mower unit, squeeze the clutch lever and slowly move the mower unit lifting lever down.



Rear Mower Unit_001

1	Clutch lever
2	Mower unit lifting lever

To raise the rear mower units, raise the mower unit lifting lever slowly, and then tilt it fully forward.

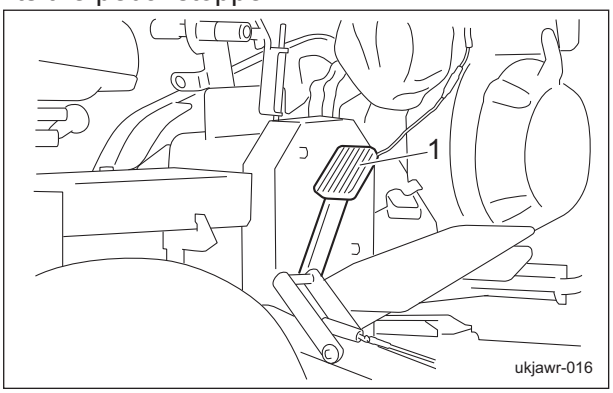


Rear Mower Unit_002

1	Mower unit lifting lever

Brake Pedal

The brake pedal is located in the right foot area.
In order to stop the machine, depress the brake pedal with your right foot until the pedal hits the pedal stopper.

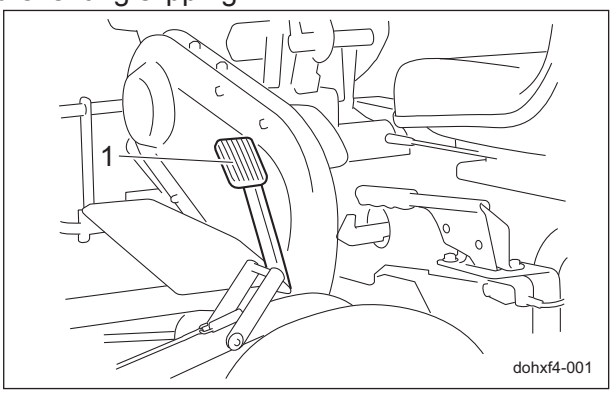


Brake Pedal_001

1	Brake pedal

Diff-lock Pedal

The diff-lock pedal is located in the left foot area.
If you press the diff-lock pedal, the differential device is locked to enhance linearity, thus preventing slipping.



Diff-lock Pedal_001

1	Diff-lock pedal

Parking Brake Lever

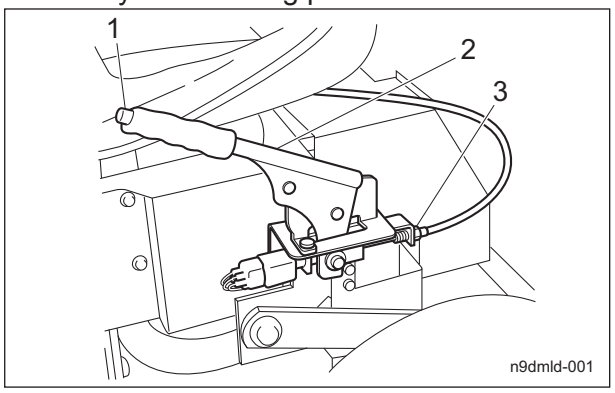
Caution

Never park the machine on a slope.

Important

Be sure to release the parking brake before driving.
It may result in the brakes malfunctioning.

The parking brake lever is located on the left side of the seat.
To park the machine, pull the parking brake lever completely.
To release the parking brake, press the push button while lowering the parking brake lever all the way to its resting position.



Parking Brake Lever_001

1	Push button
2	Parking brake lever
3	Adjustment bolt

Travel of Machine

Moving the Machine

Warning

Do not start to move or stop the machine abruptly.

Caution

Under any circumstances drive the machine at such a speed that you can stop it immediately for emergencies.

Caution

Make sure not to touch rotating tires with your hands or legs.

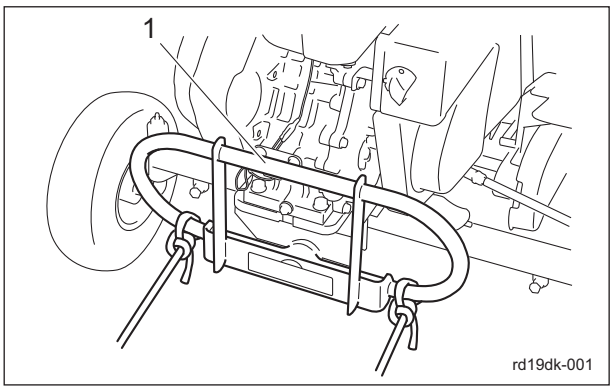
1. Start the engine.
   "Procedure to Start Engine" (Page 4-12)
2. Depress the brake pedal, and release the parking brake.
3. Shift the change lever in arbitrary position.
4. Slowly pull the traveling clutch lever in the same way as half clutch.
5. The machine starts traveling.

Towing The Machine

If the machine does not travel due to engine trouble, etc., you can move it in the following ways:

- Pushing by hand
- Towing (See the following instruction.)

1. Stop the engine.
2. Apply the parking brake.
3. Chock the wheels.
4. Secure the rope to the front part of the frame.



Towing The Machine_001

1	Frame

5. Raise all mower units.
6. Remove the wheel stoppers.
7. Depress the brake pedal to release the parking brake.

Warning

While towing, always keep your foot on the brake pedal and depress the brake pedal at any time to stop.

8. Tow the machine slowly.

Cutting Work

Cutting Operation

> **Warning**
>
> Do not start to move or stop the machine abruptly.

> **Caution**
>
> Cutting work must be performed at an appropriate speed for the site and location. When cutting bumpy surfaces, keep the engine rpm steady, and slow down the cutting speed.

1. Lower all the mower units.
2. Start the engine.
   "Procedure to Start Engine" (Page 4-12)
3. Depress the brake pedal, and release the parking brake.
4. Move the throttle lever to the "High speed" position.
5. Shift the change lever in arbitrary position.
6. Pull the reel rotation lever to rotate the reel cutters (cutting cylinders) of the left and right mower units.
7. Slowly pull the traveling clutch lever in the same way as clutch-slipping to move the machine forward while rotating the reel cutter (cutting cylinder) of the rear mower unit.
8. Shift the traveling clutch lever to the "ON" position, and then start the operation.

Transporting

Transporting Procedure

When loading the machine into a trailer or a truck to transport it, drive the machine in reverse. When unloading, drive the machine forward.

Storage

Before Long-Term Storage

- Remove any dirt, grass, debris, or oil stains completely.
- Supply oil and apply grease to appropriate parts.

Maintenance

Maintenance Precautions

⚠ Caution

First, learn well the maintenance operations you plan to perform.

Important

Use tools appropriate for each maintenance operation.

Important

For the safe and best performance of your machine, use Baroness genuine parts for replacement and accessories.
Please note that our product warranty may be void if you use non-genuine parts for replacement or accessories.

Maintenance Schedule

Follow the maintenance schedule below.
○ ・ ・ ・ Inspect, adjust, supply, clean
● ・ ・ ・ Replace (first time)
△ ・ ・ ・ Replace

	Maintenance Item	Before work	After work	Every 8 hrs.	Every 10 hrs.	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every year	Every 2 years	Every 4 years	When Required	Remarks
Engine	Tightening the parts	○														
	Fuel	○														
	Air cleaner	○						△								
	Engine oil	○		●		△										8hrs (first time)
	Ignition plug					○	△									
	Cleaning the exterior		○													
Main body	Tightening the parts	○														
	Interlock system	○														
	Electrical wiring											○				
	Reel cutter (Cutting cylinder)	○														Refer to "Inspection of Reel Cutter (Cutting Cylinder) and Bed Knife (Bottom Blade)"
	Bedknife (Bottom blade)	○														Refer to "Inspection of Reel Cutter (Cutting Cylinder) and Bed Knife (Bottom Blade)"
	Operating height (Mowing height)	○														
	Blade engagement	○														
	Greasing, oiling					○										Refer to "greasing point"
	Tire	○														Refer to "Inspection of Tires"
	V-belt	○										△				
	Brake	○													△	Refer to "Inspection of Brake"
	Brake wire	○													△	Refer to "Inspection of Wire"
	Throttle wire	○													△	Refer to "Inspection of Wire"
	Reel cover	○														Refer to "Inspection of Covers"
	Belt cover	○														Refer to "Inspection of Covers"

Maintenance

Maintenance Item		Before work	After work	Every 8 hrs.	Every 10 hrs.	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every year	Every 2 years	Every 4 years	When Required	Remarks
Main body	Oil leakage	○														
	Transmission oil	○				●						△				50hrs (first time)
	Fuel strainer						○					△				
	Fuel pipe	○														
	Cleaning the exterior		○													

For the maintenance schedule of the items unlisted above, refer to the Engine's Owner's Manual.
The values for consumables are not guaranteed.
Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

Adjusted Values

Diff-lock wire		Create a slight play	
Brake pedal		5 - 7 mm (0.20 - 0.26 in)	Clearance between pedal stopper and brake pedal
Belt	Traveling clutch	5 mm (0.20 in)	Clearance between rod-tension metal fitting and collar
	Reel rotation lever	5 mm (0.20 in)	Clearance between rod-tension metal fitting and collar
	Left and Right Mower Units	1 mm (0.04 in)	Clearance between collar and mower lifting arm
	Transmission	Approximately 10 mm (0.39 in)/98 N (10 kgf)	Belt slack
	Rear mower tension	1 mm (0.04 in)	Clearance of spring
	Rear Mower Unit	Approximately 10 mm (0.39 in)/98 N (10 kgf)	Belt slack
Left / right mower stopper		90°	Angle against the frame
Wire to hook the rear mower		The hook metal fitting should contact with the lever mounting bracket slightly.	
Wire to hook the left / right mower		Create a slight play	The hook metal fitting should contact with the bottom of the hook.

Jacking Up The Machine

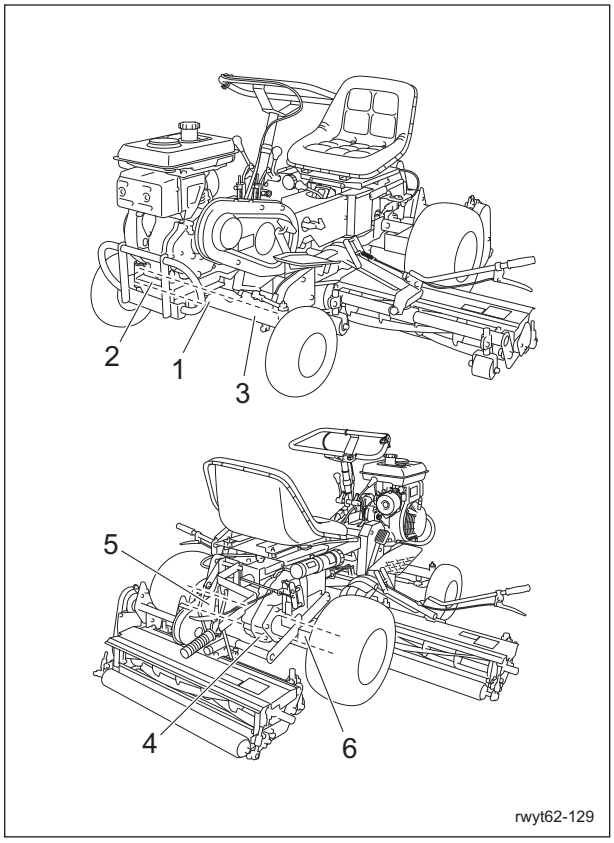
About Jacking Up The Machine

Warning

When replacing a tire or beginning any other maintenance or repairs, be sure to chock the wheels to prevent the machine from moving.
Before jacking up the machine, park it on a hard, flat surface such as a concrete floor and remove any obstacles that could prevent you from performing the work safely.
When necessary, use an appropriate chain block, hoist, or jack.
Support the machine securely with jack stands or appropriate blocks.
Failure to do so may cause the machine to move or fall, resulting in injury or death.

Use the jack-up points identified in this manual when jacking up the machine.
Only place a jack under the jack-up points specified.
Placing a jack at any other point could result in damage to the frame or other parts.

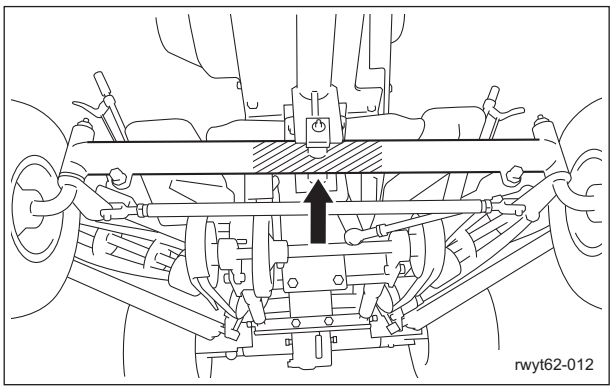
Jack-up Points



Jack-up Points_001

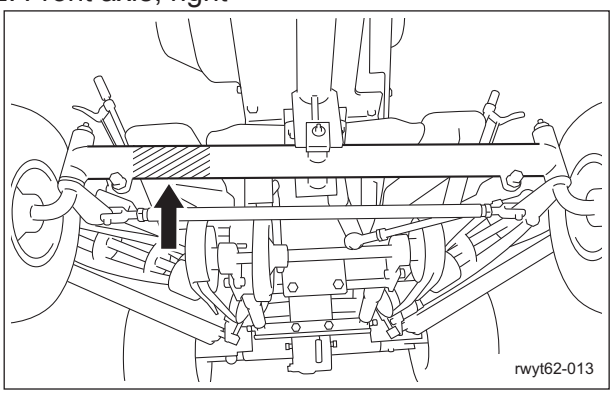
	Jack-up Portion
1	Front axle, center
2	Front axle, right
3	Front axle, left
4	Transmission case, lower
5	Transmission axle case, left
6	Transmission axle case, right

1. Front axle, center



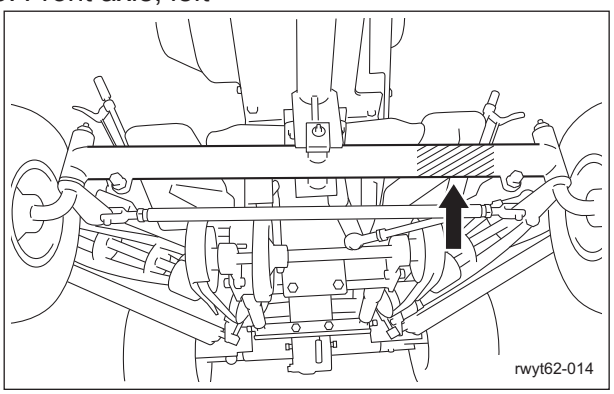
Jack-up Points_002

2. Front axle, right



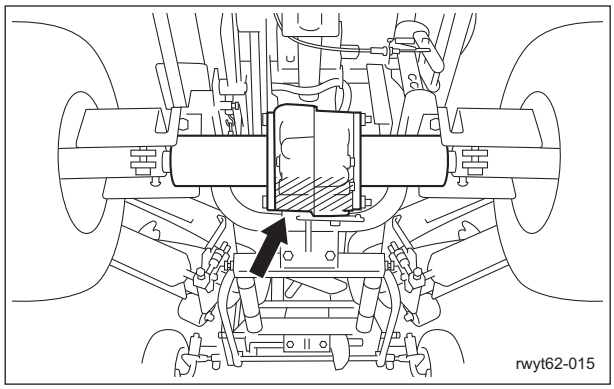
Jack-up Points_003

3. Front axle, left



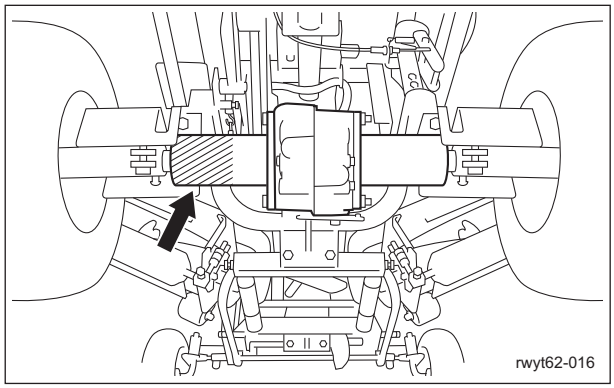
Jack-up Points_004

4. Transmission case, lower



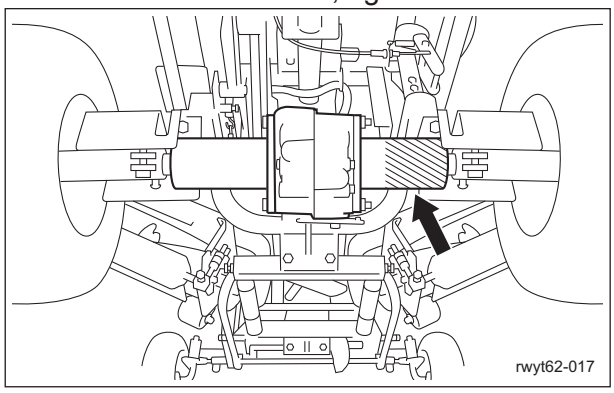
Jack-up Points_005

5. Transmission axle case, left



Jack-up Points_006

6. Transmission axle case, right



Jack-up Points_007

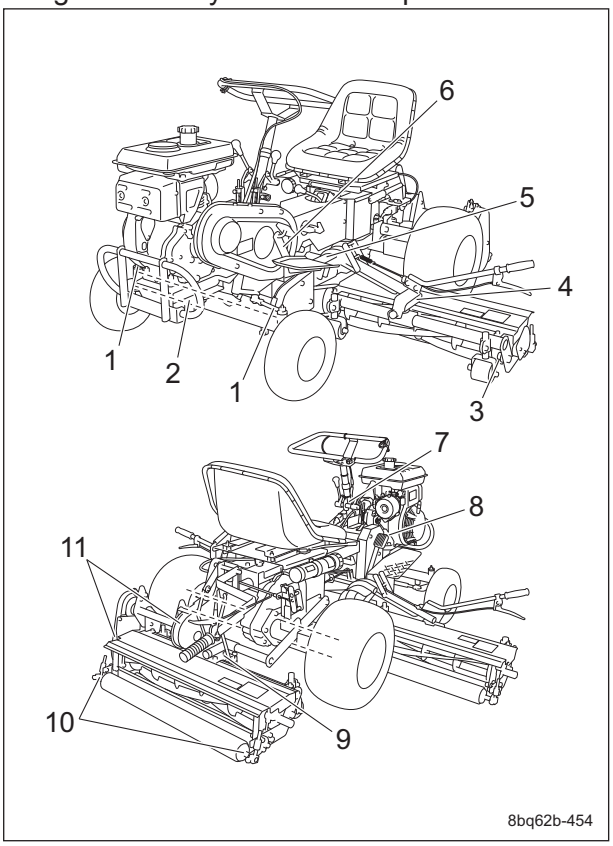
Greasing

About Greasing

Since there may be adhesion or damage due to lack of grease on moving parts, they must be greased.
Add urea-based No. 2 grease in accordance with the Maintenance Schedule.
Other locations where the specified grease or lubricant is used are indicated in "Greasing Points".
Add grease using the specified grease or lubricant.

Greasing Points

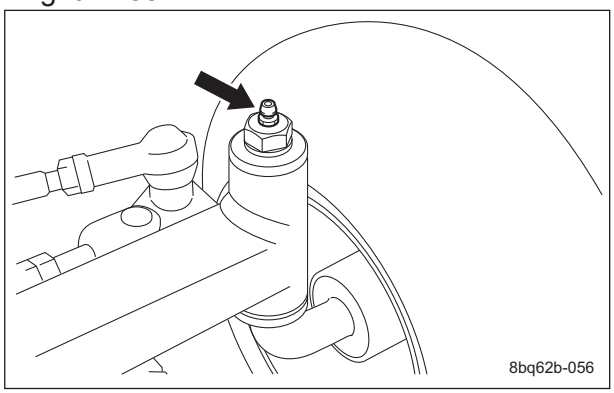
Grease nipples are installed in the following locations.
Add grease every 50 hours of operation.



Greasing Points_001

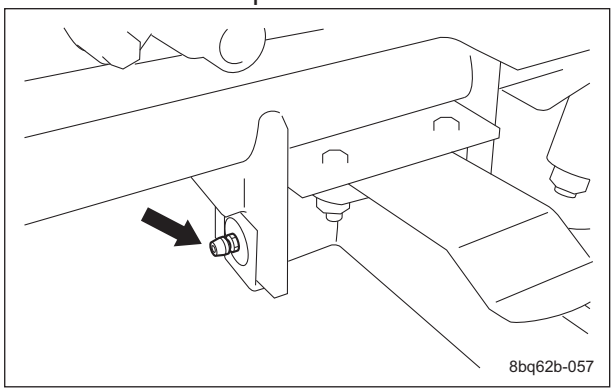
	Portion	No. of Greasing Points
1	Front wheels	2
2	Front wheel front pin	1
3	Reel housing	6
4	Mower frame	2
5	Mower lifting arm	2
6	Diff-lock pedal	1
7	Handle tension	5
8	Brake pedal	1
9	Rear mower oscillating metal part	1
10	Rear roller	6
11	Mower tension	2

1. Front wheels
   There is one point each on the left and the right wheel.



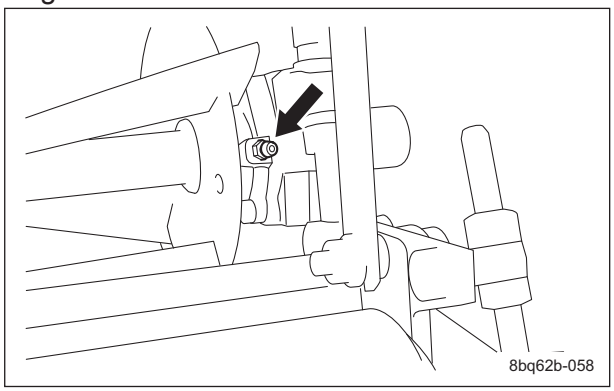
Greasing Points_002

2. Front wheel front pin



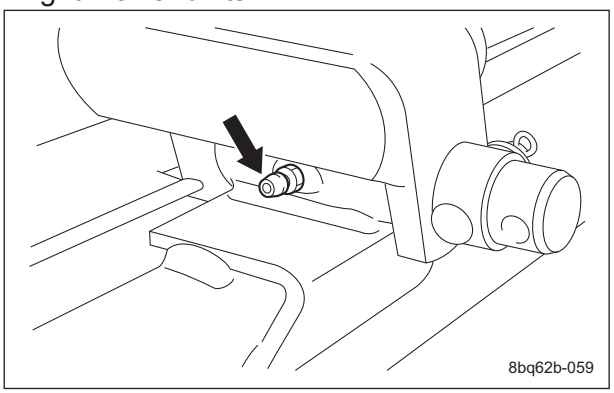
Greasing Points_003

3. Reel housing
   There is one point each on the left and the right of each unit.



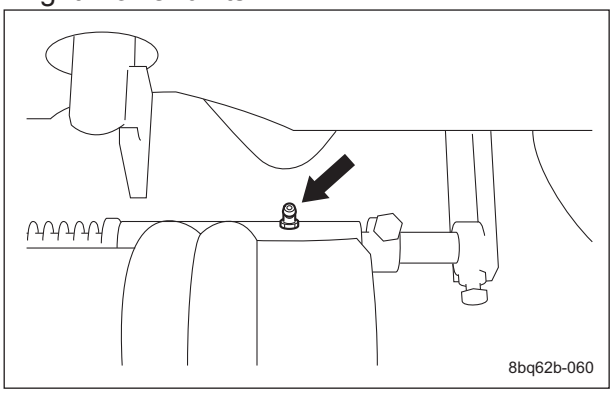
Greasing Points_004

4. Mower frame
   There is one point each on the left and the right mower units.



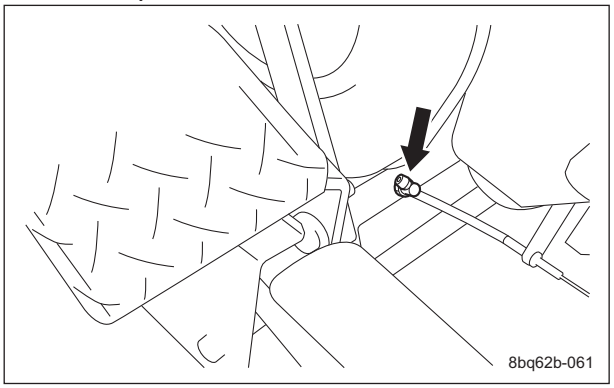
Greasing Points_005

5. Mower lifting arm
   There is one point each on the left and the right mower units.



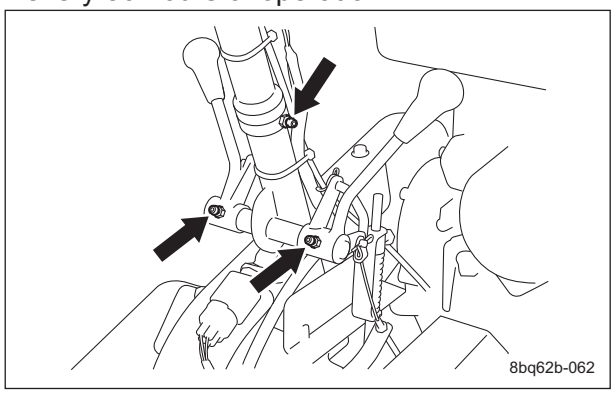
Greasing Points_006

6. Diff-lock pedal

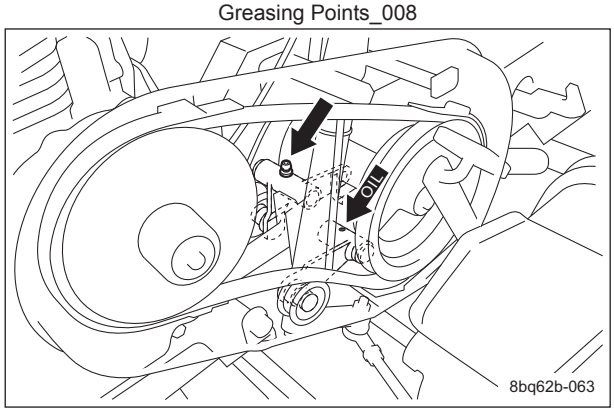


Greasing Points_007

7. Handle tension
   Supply automobile transmission gear oil #90 every 50 hours of operation.

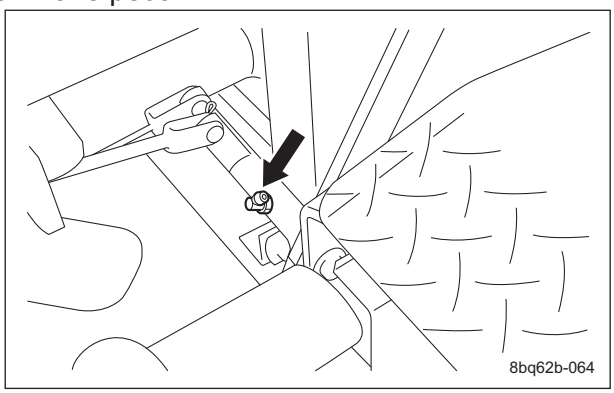


Greasing Points_008



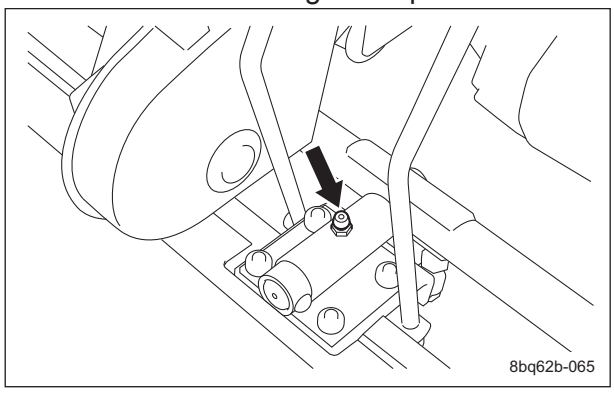
Greasing Points_009

8. Brake pedal



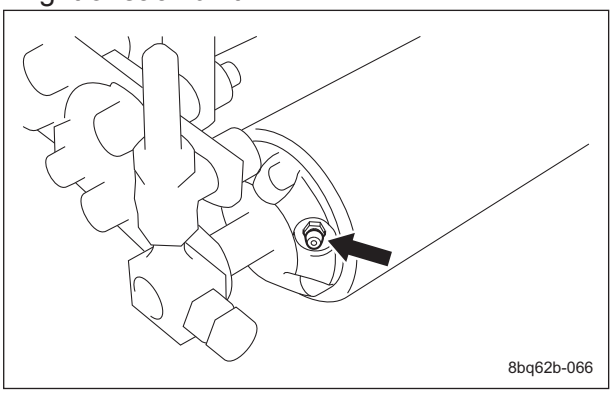
Greasing Points_010

9. Rear mower oscillating metal part



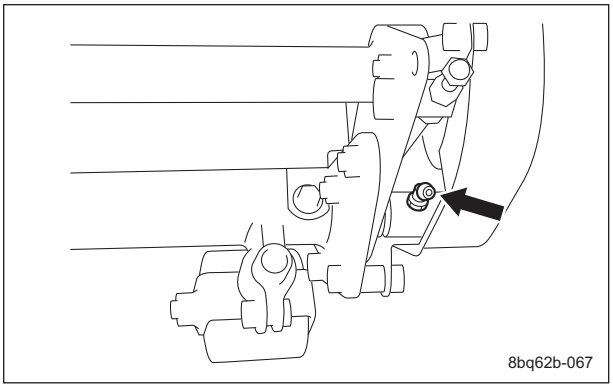
Greasing Points_011

10. Rear roller
    There is one point each on the left and the right of each unit.

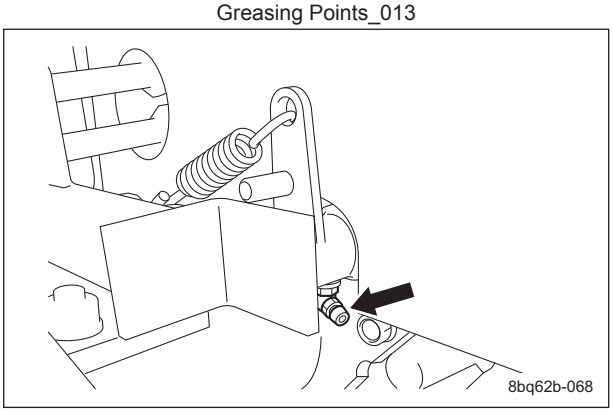


Greasing Points_012

11. Mower tension



Greasing Points_013



Greasing Points_014

Maintenance Work

Cleaning of Mower Unit

Important

While cleaning, do not allow water on the sealed parts of the reel shaft. (Avoid high-pressure water cleaning.)
Otherwise, it may cause damage to the machine.

Be sure to clean the mower unit after use.

1. Stop the engine, and then remove the key.
2. Carefully clean the front and back of the mower unit with water or compressed air.
3. Remove any grass wrapped around the reel cutter (cutting cylinder).

Back Lapping

Back lapping is work similar to sharpening a cooking knife. If the edges of the reel cutter (cutting cylinder) and the bed knife (bottom blade) become blunt and make cutting difficult, both the reel cutter (cutting cylinder) and the bed knife (bottom blade) should be simultaneously sharpened by reversing the reel cutter (cutting cylinder) with an abrasive paste applied.
However, back lapping is a temporary measure and would not restore the sharpness completely.
If the edges of the reel cutter (cutting cylinder) and the bed knife (bottom blade) become blunt and difficult to cut, follow the steps below to perform back lapping.

⚠ Caution

Both the reel cutter (cutting cylinder) and the bed knife (bottom blade) are edged tools. Handle them carefully, since they could cut your hands and feet.

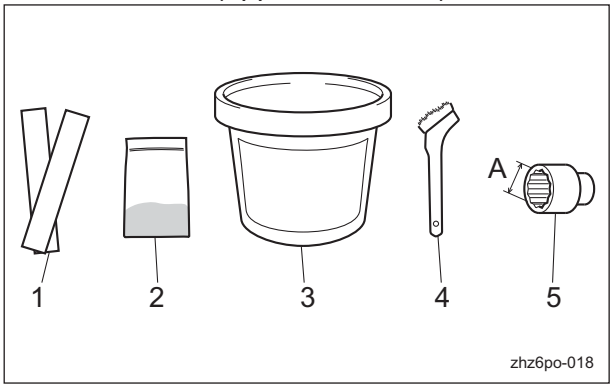
⚠ Caution

During back lapping, the reel cutter (cutting cylinder) rotates.
Keep hands and feet away from moving parts.

⚠ Caution

Do not perform back lapping with any other persons.

1. Have the following items ready: Back lapping machine, Strips of newspaper, Abrasive [Back lapping powder mixed with oil; or gel compound (Baroness genuine abrasive)], Brush, Socket (opposite side 27).



Back Lapping_001

1	Newspaper
2	Back lapping powder
3	Gel compound
4	Brush
5	Socket (opposite side 27)
A	27 mm

Note:
Mixing ratio for abrasive in volume is one part back lapping powder (#150 - #200) to three or four parts oil.

⚠ Caution

When handling the reel cutter (cutting cylinder) or bed knife (bottom blade), wear gloves to protect your hands.
Pay attention not to let the reel cutter (cutting cylinder) catch your gloves, etc. Otherwise, you may injure your hand or fingers.

Important

After cutting grass, adjust the engagement of the blades, before checking the sharpness of the blade.

2. Stop the engine.
3. Apply the parking brake.

4. Insert two or three strips of newspaper into the space between the reel cutter (cutting cylinder) and the bed knife (bottom blade) at an angle of 90 degrees, then rotate the reel cutter (cutting cylinder) counter-clockwise (when you face the mower unit from the left) by hand to check the sharpness.
5. Check the sharpness at entire range (three or four points from left edge to right one) of the reel cutter (cutting cylinder).
6. Using a piece of chalk, mark locations on the blade that are sharp.
7. Lower all the mower units to the ground.
8. Connect the lapping machine and the shaft of reel cutter (cutting cylinder) with the socket (opposite side 27).
9. Turn on the switch of the lapping machine to rotate the reel cutter (cutting cylinder) in the direction opposite to the cutting direction.
10. Apply the abrasive evenly with the brush on the top side of reel cutter (cutting cylinder) where the newspaper was cut well or of chalk-marked locations. (Never apply to blunt areas.)
11. Idle the machine for a while, and then switch off the lapping machine to stop rotation of the reel cutter (cutting cylinder) when contact noise is no longer heard.
12. Wash off or wipe off with cloth etc. the abrasive from the reel cutter (cutting cylinder), then check it for sharpness.
13. Repeat steps 4 to 12 until the entire range (three or four points) of the reel cutter (cutting cylinder) will be uniformly sharpened.
14. Finally, apply the abrasive on the entire blade width of the reel cutter (cutting cylinder) and perform final back lapping.
15. Stop the rotation of the reel cutter (cutting cylinder), and then carefully and thoroughly wash off any remaining abrasive.
16. While checking the blade for sharpness, adjust blade engagement.

Sharpening of Reel Cutter (Cutting Cylinder)

⚠ Caution

Both the reel cutter (cutting cylinder) and the bed knife (bottom blade) are edged tools. Handle them carefully, since they could cut your hands and feet.

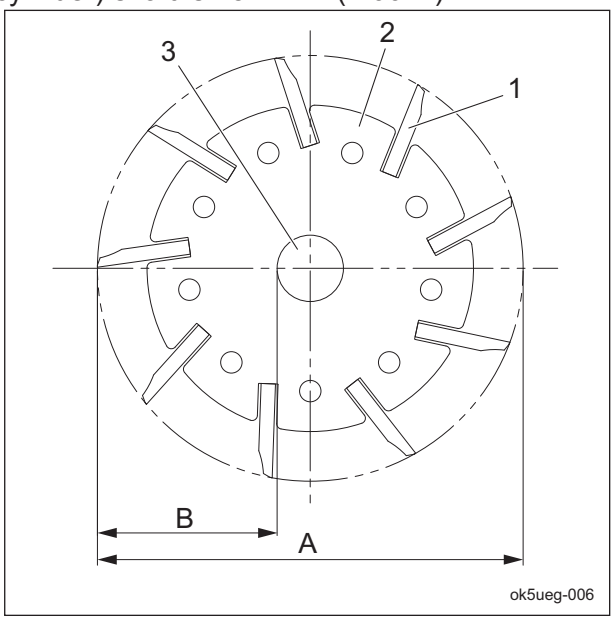
⚠ Caution

Wear gloves when touching edged tools to avoid cutting your hands.

The sharpening of the reel cutter (cutting cylinder) consists in maintaining its roundness and creating a relief (second edge face).
This work should be performed if the sharpness cannot be restored, even after back lapping, or if the relief (second edge face) has worn away.
Sharpen the reel cutter (cutting cylinder) when the sharpness cannot be restored, even after back lapping, or when the relief (second edge face) has worn away, there is full contact or back lapping takes too much time.
In addition, if the reel cutter (cutting cylinder) becomes worn and its shape conical, perform cylindrical grinding to return it to a cylindrical shape.
For sharpening the reel cutter (cutting cylinder), contact your dealer or Baroness.
If the outer diameter of the reel cutter (cutting cylinder) after sharpening is more than the usage limit, the reel cutter (cutting cylinder) can be sharpened.

New		Usage limit	
Dimension A (Outer diameter of reel cutter (cutting cylinder))	Dimension B (Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft)	Dimension A (Outer diameter of reel cutter (cutting cylinder))	Dimension B (Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft)
163 mm (6.42 in)	68.8 mm (2.71 in)	143 mm (5.63 in)	58.8 mm (2.31 in)

Note:
The outer diameter of the reel cutter (cutting cylinder) shaft is 25.4 mm (1.00 in).



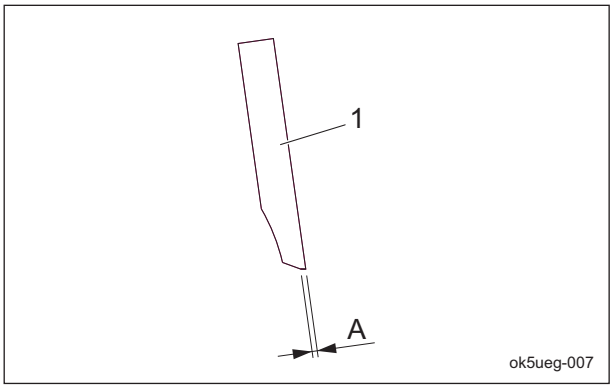
Sharpening of Reel Cutter (Cutting Cylinder)_001

1	Reel cutter (cutting cylinder) blade
2	Reel cutter (cutting cylinder) disc
3	Reel cutter (cutting cylinder) shaft
A	Outer diameter of reel cutter (cutting cylinder)
B	Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft

Sharpening is necessary when the reel cutter (cutting cylinder) reaches a condition described below.

1. When the sharpening width (length of contacting surface of bed knife (bottom blade)) for the outer diameter of the reel cutter (cutting cylinder) is greater than the usage limit.

Outer diameter of reel cutter (cutting cylinder) (new part)	Usage limit of sharpening width for outer diameter of reel cutter (cutting cylinder)
163 mm (6.42 in)	3.0 mm (0.12 in) (factory-recommended)



Sharpening of Reel Cutter (Cutting Cylinder)_002

1	Reel cutter (cutting cylinder) blade
A	Sharpening width for outer diameter of reel cutter (cutting cylinder)

2. When the edges become blunt or the blade edge cannot be formed with back lapping
3. When the reel cutter (cutting cylinder) becomes worn and its shape conical, or when blade engagement adjustment cannot be performed

Replacement of Reel Cutter (Cutting Cylinder)

⚠ Caution

Both the reel cutter (cutting cylinder) and the bed knife (bottom blade) are edged tools. Handle them carefully, since they could cut your hands and feet.

⚠ Caution

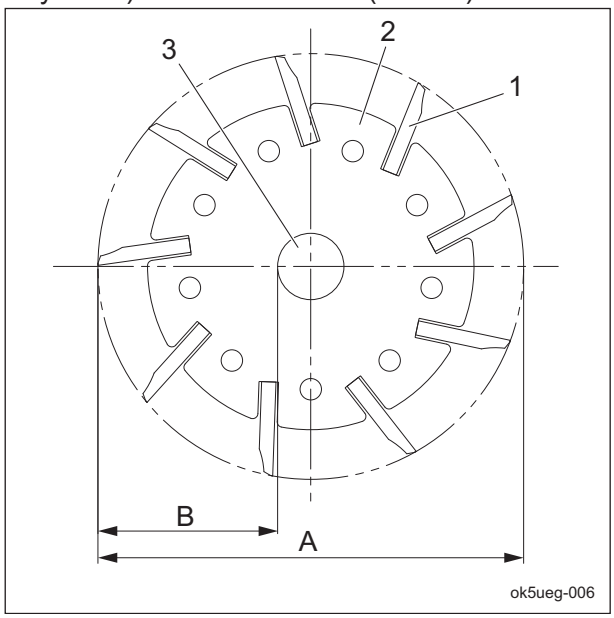
Wear gloves when touching edged tools to avoid cutting your hands.

The criteria for replacing the reel cutter (cutting cylinder) are described below.
However, these criteria are only a reference and do not guarantee performance like that of a new reel cutter (cutting cylinder).

1. When the outer diameter of the reel cutter (cutting cylinder) is less than the usage limit

New		Usage limit	
Dimension A (Outer diameter of reel cutter (cutting cylinder))	Dimension B (Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft)	Dimension A (Outer diameter of reel cutter (cutting cylinder))	Dimension B (Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft)
163 mm (6.42 in)	68.8 mm (2.71 in)	143 mm (5.63 in)	58.8 mm (2.31 in)

Note:
The outer diameter of the reel cutter (cutting cylinder) shaft is 25.4 mm (1.00 in).



Replacement of Reel Cutter (Cutting Cylinder)_001

1	Reel cutter (cutting cylinder) blade
2	Reel cutter (cutting cylinder) disc
3	Reel cutter (cutting cylinder) shaft
A	Outer diameter of reel cutter (cutting cylinder)
B	Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft

Replacement of Bed Knife (Bottom Blade)

⚠ Caution

Both the reel cutter (cutting cylinder) and the bed knife (bottom blade) are edged tools. Handle them carefully, since they could cut your hands and feet.

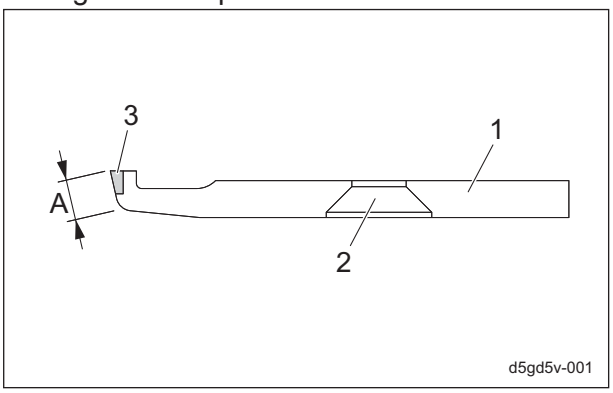
⚠ Caution

Wear gloves when touching edged tools to avoid cutting your hands.

The criteria for replacing the bed knife (bottom blade) are described below.

1. When the reel cutter (cutting cylinder) is ground
2. When the reel cutter (cutting cylinder) is replaced
3. When the bed knife (bottom blade) is worn

High-speed-steel-tipped blade
Replace the bed knife (bottom blade) before it no longer has a tip.



Replacement of Bed Knife (Bottom Blade)_001

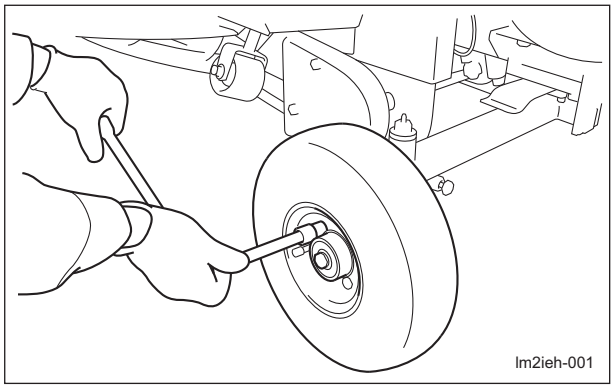
1	Bed knife (bottom blade)
2	Mounting hole
3	Tip
A	Front face

Removing/Installing Tires

Front Tires

Follow the steps below to remove the front tires:

1. Loosen the bolts.



Front Tires_001

2. Place the tire jack beneath the jack-up point of the front axle area securely, then raise it until the tire lifts off the ground.
   "Jack-up Points" (Page 5-5)
3. Remove the bolts.
4. Remove the tire from the wheel mounting shaft.

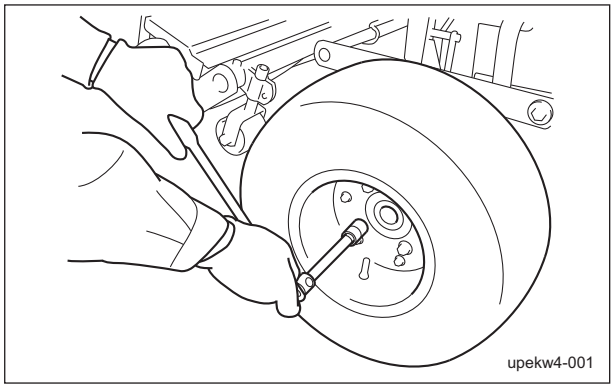
> Important
>
> Tighten the bolts in the tightening order (crosswise).

For installing the front tires, reverse the removing procedure.

Rear Tires

Follow the steps below to remove the rear tires:

1. Loosen the bolts.



Rear Tires_001

2. Place the tire jack beneath the jack-up point of the rear wheel transmission area securely, then raise it until the tire lifts off the ground.
   "Jack-up Points" (Page 5-5)
3. Remove the bolts.
4. Remove the tire from the wheel mounting shaft.

> Important
>
> Tighten the bolts in the tightening order (crosswise).

For installing the rear tires, reverse the removing procedure.

Adjustment of Belt Tension

> ⚠ Warning
>
> Be sure to stop the engine before adjusting the belts.

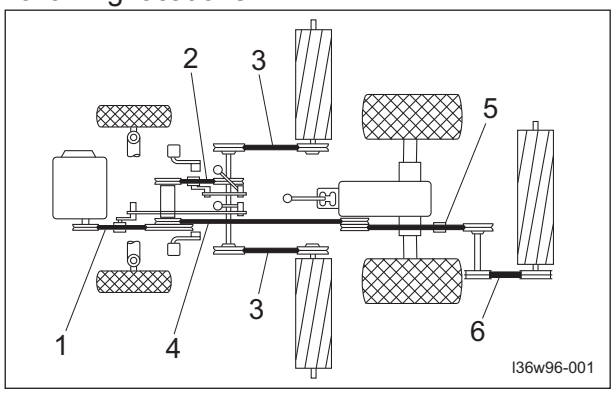
> ⚠ Caution
>
> If you have removed covers, etc., be sure to securely install them in their original positions. If covers, etc., remain removed, the operator may come in contact with rotating parts or belts, or foreign objects may fly off, possibly resulting in injuries.

> Important
>
> For the specified value of belt tension, refer to Adjusted Values.
> After rotating the belt several times, check that it has the specified tension.

If the belt becomes slack due to frequent use, it may jump or slip.
In addition, if it is overtightened, it may wear prematurely.
If necessary, adjust it, and always check the belt for appropriate tension.

Belt Installation Locations

Belts are installed in this machine at the following locations.

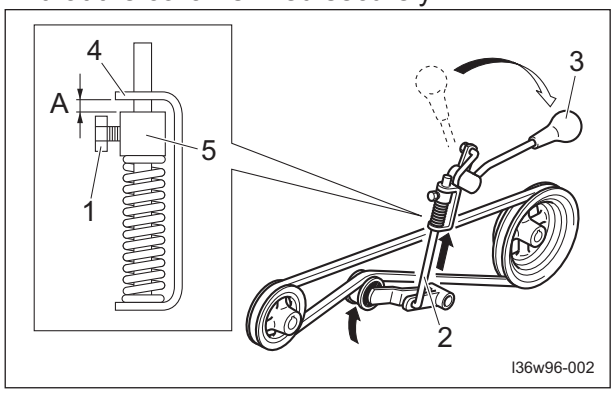


Belt Installation Locations_001

1	Traveling clutch
2	Reel rotation lever
3	Left and Right Mower Units
4	Transmission
5	Rear mower tension
6	Rear Mower Unit

Traveling Clutch

1. Loosen the adjustment bolt, then change the length of the rod.
2. Adjust the clearance between the rod-tension metal fitting and the collar to be 5 mm (0.20 in), when the traveling clutch lever is engaged.
3. Tighten the adjustment bolt and make sure that the collar is fixed securely.

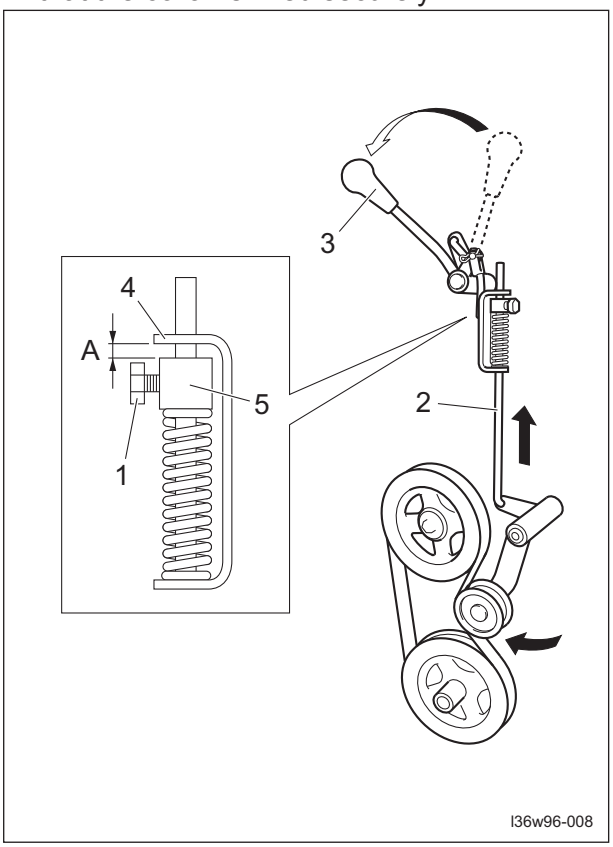


Traveling Clutch_001

1	Adjustment bolt
2	Rod
3	Traveling clutch lever
4	Rod-tension metal fitting
5	Collar
A	5 mm (0.20 in)

Reel Rotation Lever

1. Loosen the adjustment bolt, then change the length of the rod.
2. Adjust the clearance between the rod-tension metal fitting and the collar to be 5 mm (0.20 in), when the reel rotation lever is engaged.
3. Tighten the adjustment bolt and make sure that the collar is fixed securely.

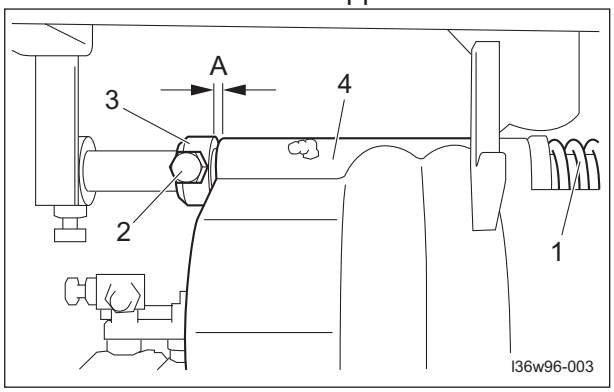


Reel Rotation Lever_001

1	Adjustment bolt
2	Rod
3	Reel rotation lever
4	Rod-tension metal fitting
5	Collar
A	5 mm (0.20 in)

Left and Right Mower Units

1. Belts are always stretched at a constant tension by the springs.
   Loosen the adjustment bolt, then adjust the clearance between the collar and the mower lifting arm to be 1 mm (0.04 in).
2. Tighten the adjustment bolt and make sure that the collar is fixed securely.
3. Follow the same steps to adjust the belts on the mower unit on the opposite side.

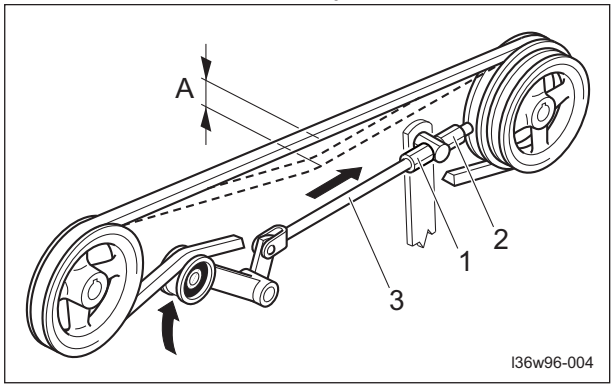


Left and Right Mower Units_001

1	Spring
2	Adjustment bolt
3	Collar
4	Mower lifting arm
A	1 mm (0.04 in)

Transmission

1. Loosen adjusting nut A.
2. Tighten adjusting nut B, then change the length of the rod.
3. Adjust the belt tension so that the belt slacks by approximately 10 mm (0.39 in) when you press the middle of the belt with your finger at 98 N (10 kgf).
4. Tighten adjusting nut A and make sure that the rod is fixed securely.

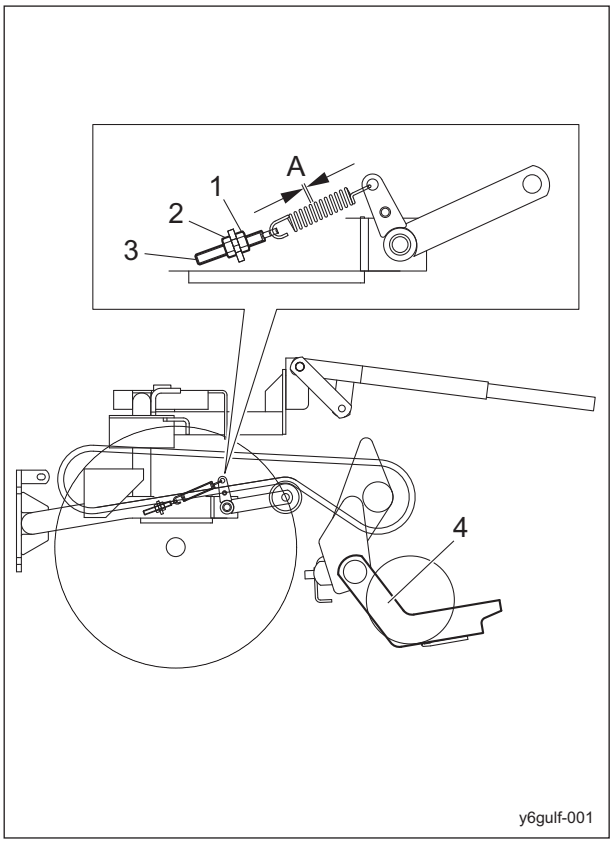


Transmission_001

1	Adjusting nut A
2	Adjusting nut B
3	Rod
A	10 mm (0.39 in)

Rear Mower Tension

1. Loosen adjusting nut A.
2. Tighten adjusting nut B, then change the length of the rod.
3. Lower the rear mower unit on a level surface, then adjust the clearance of the spring to 1 mm (0.04 in).
4. Tighten adjusting nut A and make sure that the rod is fixed securely.
5. Raise the rear mower unit, then make sure that the reel cutter (cutting cylinder) will not rotate when the machine travels.

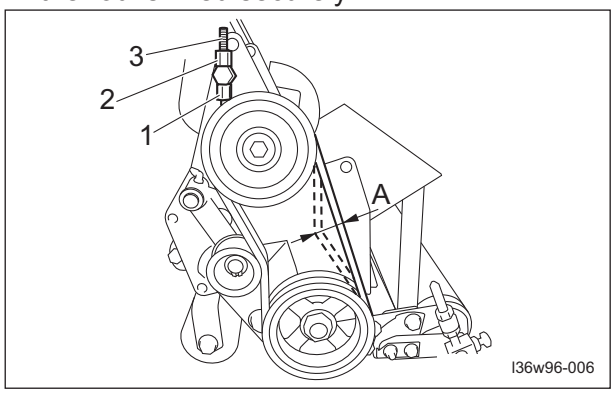


Rear Mower Tension_001

1	Adjusting nut A
2	Adjusting nut B
3	Rod
4	Rear mower unit
A	1 mm (0.04 in)

Rear Mower Unit

1. Loosen adjusting nut A.
2. Tighten adjusting nut B, then change the length of the rod.
3. Adjust the belt tension so that the belt slacks by approximately 10 mm (0.39 in) when you press the middle of the belt with your finger at 98 N (10 kgf).
4. Tighten adjusting nut A and make sure that the rod is fixed securely.



Rear Mower Unit_001

1	Adjusting nut A
2	Adjusting nut B
3	Rod
A	10 mm (0.39 in)

Adjustment of Parking Brake

Caution

If the brake wire is cut, the machine will be unable to stop.
If the brake wire is cracked or damaged, replace it with a new one immediately.

Caution

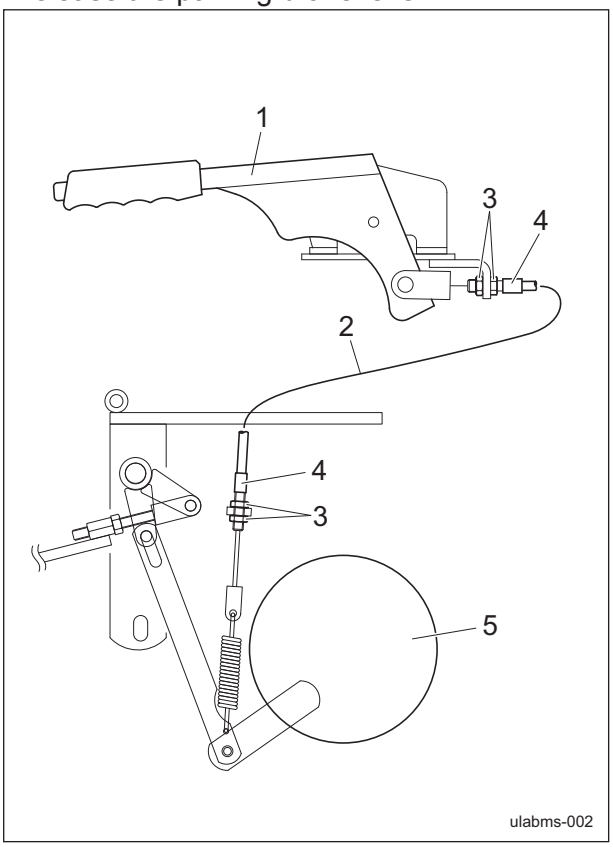
If the parking brake is not sufficiently effective when you pull the parking brake lever, adjust the brake wire.

Important

Make sure that the brake is effective on slopes and that it is not applied any longer when you release it.
Adjust the parking brake system whenever there is any abnormality.

Adjust the parking brake by the brake wire adjustment bolt.

1. While pressing the push button, return the parking brake lever to its resting position to release the parking brake.
2. Loosen the nut on the parking brake lever side.
3. Move the adjustment bolt toward the rear to increase the wire tension.
4. Tighten the nut securely to fix the adjustment bolt.
5. Make sure that the brake is applied properly when you pull the parking brake lever, and that there is no brake dragging when you release the parking brake lever.



Adjustment of Parking Brake_001

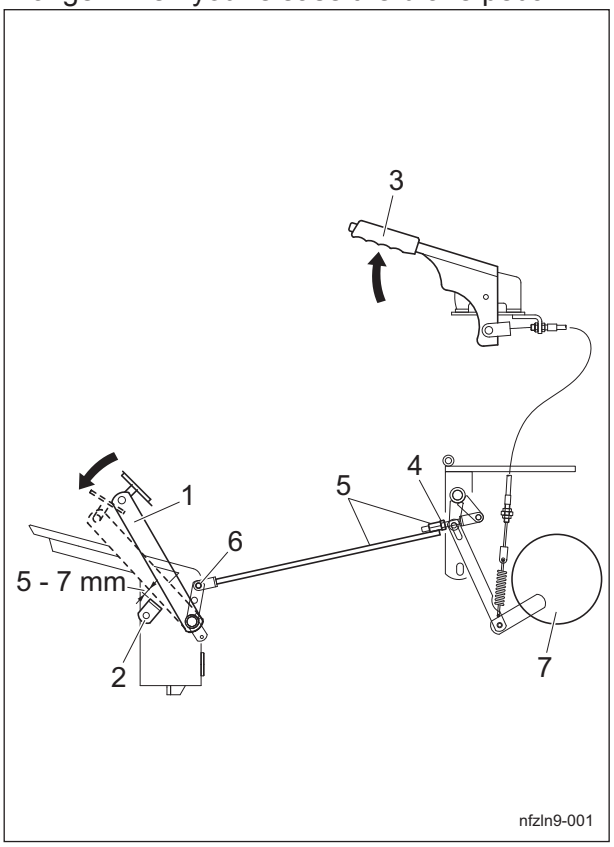
1	Parking brake lever
2	Brake wire
3	Nut
4	Adjustment bolt
5	Brake drum

Note:
You can also adjust the brake wire on the transmission side.

Adjustment of Brake

> **Caution**
>
> If the brake is not applied effectively even if you depress the pedal up to the stopper, adjust the brake rod.

1. Pull the parking brake lever completely and make sure that the brake is effectively applied.
2. Loosen the lock nut.
3. Remove the cotter pin, washer and pin that affix the brake pedal to the front of the brake rod.
4. Screw in the nut on the front of the brake rod, then temporarily affix the brake pedal to the front of the brake rod using the pin.
5. Depress the brake pedal lightly, and adjust the clearance between the pedal stopper and brake pedal to 5 - 7 mm (0.20 - 0.26 in). (If the clearance is larger than 7 mm (0.26 in), the brake may be damaged.)
6. Affix the brake pedal to the front of the brake rod securely using the pin.
7. Tighten the lock nut to secure the front of the brake rod firmly.
8. Make sure that the brake is not applied any longer when you release the brake pedal.



Adjustment of Brake_001

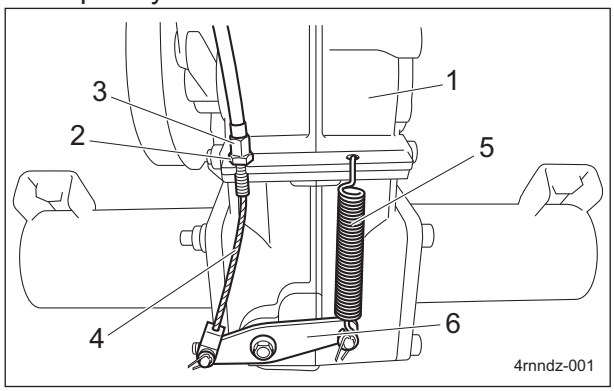
1	Brake pedal
2	Pedal stopper
3	Parking brake lever
4	Lock nut
5	Brake rod (front)
6	Cotter pin, washer, pin
7	Brake drum

Adjustment of Diff-lock Wire

Important

If the diff-lock seems ineffective when you depress the diff-lock pedal, adjust the diff-lock wire.

1. Make sure that the diff-lock pedal has completely returned to its resting position.
2. Loosen the nut on the transmission side.
3. Loosen the adjustment bolt upward to increase the wire tension.
4. Adjust the wire so that the diff-lock wire and the diff-lock lever show a little play when the lever returns to its resting position under spring tension.
5. Tighten the nut and fix the adjustment bolt completely.



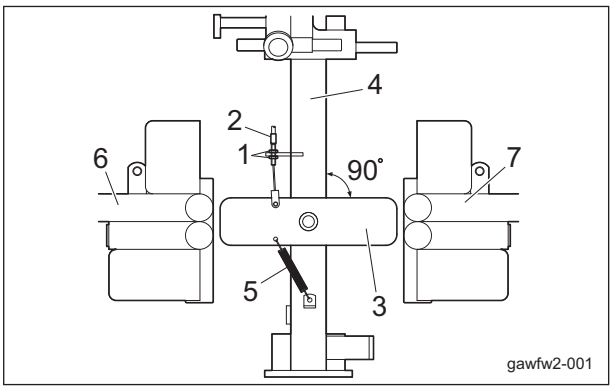
Adjustment of Diff-lock Wire_001

1	Transmission
2	Nut
3	Adjustment bolt
4	Wire
5	Spring
6	Diff-lock lever

Note:
You can also adjust the diff-lock wire on the pedal side.

Adjustment of Mower Stopper

1. Lower the left and right mower units, then engage the reel rotation lever.
2. Loosen the nut, then adjust the position of the adjustment bolt so that the mower stopper will be positioned at 90 degrees against the frame.
3. Tighten the nut securely to fix the adjustment bolt.
4. Make sure that the mower stopper will spring back when you release the reel rotation lever.



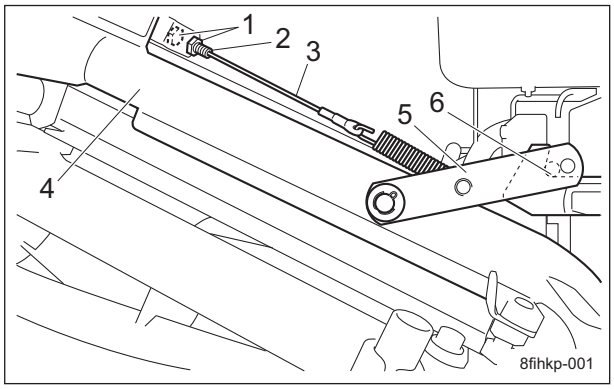
Adjustment of Mower Stopper_001

1	Nut
2	Adjustment bolt
3	Mower stopper
4	Frame
5	Spring
6	Left mower lifting arm
7	Right mower lifting arm

Adjustment of Wire to Hook Mower

Wire to hook the left / right mower

1. Loosen the nuts and move the adjustment bolt toward the outside of the machine to increase the wire tension.
2. Without gripping the lever, raise the right mower unit, then make adjustment so that the hook metal fitting will be in touch with the bottom of the hook and the wire will have a small play.
3. Tighten the nuts and fix the adjustment bolt securely.
4. Follow the same steps to adjust the hook wire of left mower.

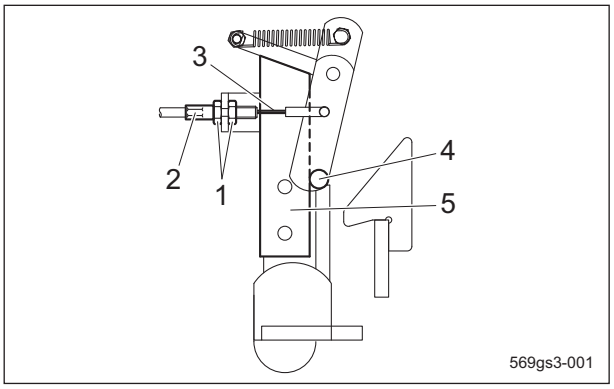


Wire to hook the left / right mower_001

1	Nut
2	Adjustment bolt
3	Wire (to hook the mower)
4	Right mower unit
5	Hook metal fitting
6	Bottom of the hook

Wire to hook the rear mower

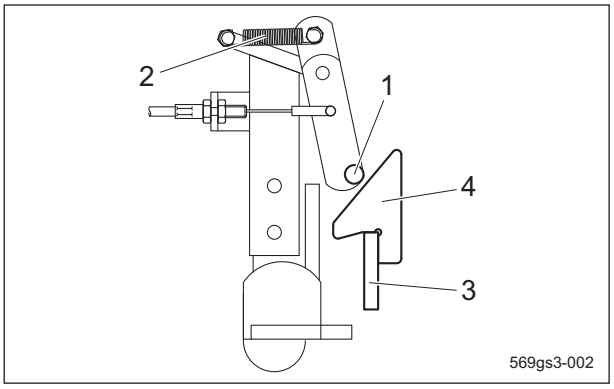
1. Loosen the nuts and move the adjustment bolt toward the center of the machine to increase the wire tension.
2. Lower the rear mower unit, then adjust the hook metal fitting to come into contact slightly with the lever mounting bracket when you grip the lever completely.
3. Tighten the nuts and fix the adjustment bolt securely.



Wire to hook the rear mower_001

1	Nut
2	Adjustment bolt
3	Wire
4	Hook metal fitting
5	Lever mounting bracket

4. When the hook metal fitting returns to its original position by spring tension as soon as you release the lever, raise the rear mower lifting arm and make sure that the hook metal fitting is located closer to the center of the machine than the upper tip of the hook.



Wire to hook the rear mower_002

1	Hook metal fitting
2	Spring
3	Rear mower lifting arm
4	Hook

Change of Air Cleaner

A contaminated air cleaner element may cause malfunction of the engine.
To maximize the life of the engine, replace the air cleaner element at the appropriate times.

1. The timing for replacing the air cleaner element is described below.
   [1] Replace the air cleaner element in accordance with the Maintenance Schedule.
   [2] If it is significantly contaminated, replace it, even if the hours of operation do not exceed the specified time.
2. Replace the air cleaner element by following the same steps as for cleaning the air cleaner.
   "Cleaning of Air Cleaner" (Page 4-3)

Change of Engine Oil

⚠ Caution

Pay attention to hot oil, which could burn your skin if it gets on you.

Important

When you change the engine oil, be sure to drain it into a bowl and discard it in accordance with regional laws and regulations.

Important

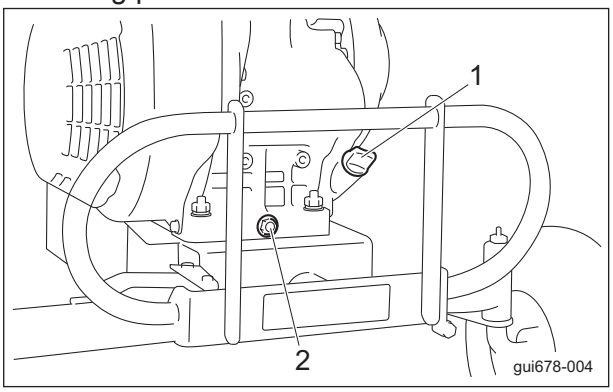
Be sure to use engine oil that is classified as API Service Grade SF or higher, with an SAE Viscosity that is appropriate for the operating environment (ambient temperature).

Important

Screw the oil level gauge firmly.

Change the engine oil more frequently, if the engine oil is contaminated, and also in case you use the machine in dusty areas or operate the engine at high loads or in high temperatures.

1. Move the machine onto a level surface and stop the engine.
2. Remove the drain plug while the engine oil is warm, and then drain the oil into a bowl.
3. Attach the drain plug to the engine.
4. Remove the oil level gauge.
5. Supply new engine oil through the oil filling port.
   Engine oil quantity is approximately 1.2 dm^3(1.2 L).
6. Position the machine so that the engine is level, and then check the engine oil level without tightening the oil level gauge in the oil filling port.



Change of Engine Oil_001

1	Oil level gauge (oil filling port)
2	Drain plug

7. After checking the oil level with the oil level gauge, add more engine oil if it is insufficient.
8. Securely tighten the oil level gauge.
9. It will take a while for the supplied engine oil to descend into the oil pan.
   Check the oil level again 10 to 20 minutes after replenishment.
10. Check underneath the machine for oil leakage.

Change of Transmission Oil

Caution

Be careful with hot oil, which could cause burns if it contacts your skin.

Important

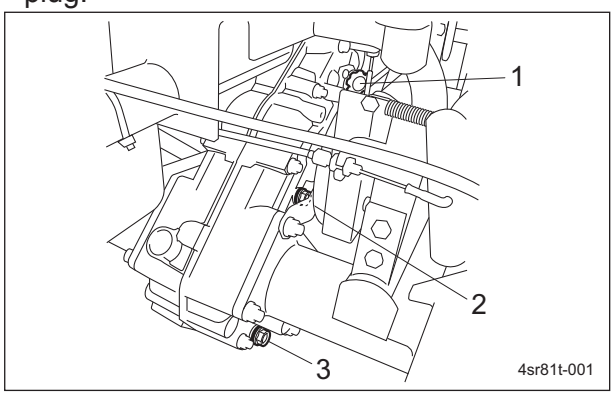
When you change the transmission oil, be sure to drain it into a bowl and discard it in accordance with regional laws and regulations.

Important

Be sure to pour automobile gear oil that is classified as SAE Viscosity Grade #90 into the transmission.

Change the entire transmission oil according to the maintenance schedule.

1. Move the machine onto a level surface and stop the engine.
2. Remove the drain plug while the transmission oil is warm, and then drain the oil into a bowl.
3. Attach the drain plug to the transmission.
4. Remove the oil filling port cap and oil level plug.
5. Pour new transmission oil through the oil filling port.
   The transmission oil quantity is 2.0 dm^3 (2.0 liters).
6. Make sure that the transmission oil level is filled up to the tip of the oil level opening.
7. Attach the oil filling port cap and oil level plug.



Change of Transmission Oil_001

1	Oil filling port
2	Oil level plug
3	Drain plug

8. Check underneath the machine for oil leakage.

BARONESS
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EU Declaration of Conformity

Product Identification

Product :		Lawnmower	
Make :		BARONESS	
Type :		LM180	
Version(s) :		C	
Starting Serial No. :		**20263**	
Measured Sound Power Level :		LWA 102.37	dB
Guaranteed Sound Power Level :		LWA 105	dB
Manufacturer	Name :	Kyoeisha Co., Ltd.	
	Address :	1-26 Miyuki-cho, Toyokawa, Aichi-pref.,Japan	

Conforms to the following Directives

2006/42/EC	Machinery (MD)
2014/30/EU	Electromagnetic compatability (EMC)
2000/14/EC	Noise emissions from outdoor equipment

We has been designed and manufactured using the following specifications

ISO 12100 : 2010 (2006/42/EC)
ISO 5395-1 : 2013 (2006/42/EC)
ISO 5395-3 : 2013 (2006/42/EC)
ISO 14982 :1998 (2014/30/EU)

Technical Documentation

Keeper's Name :	Kyoeisha Co., Ltd.
Keeper's Address :	1-26 Miyuki-cho, Toyokawa, Aichi-pref.,Japan

Compiler of the technical file (2006/42/EC)

Name:	Kyoeisha U.K.Ltd.
Address:	Unit 5 Hatch Industrial Park Grewell Road,Basingstke Hampshire RG24 7NG, the United Kingdom

Conformity assessment procedures

Internal production control : Module A (2006/42/EC)
EC-type examination : Module B (2014/30/EU)
Internal control of production with assessment of technical documentation and periodical checking (2000/14/EC)

Involved Notified Body (2000/14/EC)

Name :	SNCH
Address :	11, Route de Sandweiler 5230 Sandweiler Luxembourg
Certificate / Technical Documentation No. :	SNCH*2000/14*2005/88*1850*03/TCLM180-03

Place : Japan
Date : 27 February 2018

Signature : Kimiya Kaneko
Name : Kimiya Kaneko
Position : Quality Dept. Manager

(fr)

Déclaration de conformité UE

Identification du produit

Produit :		Tondeuse à gazon	
Fabriquant :		BARONESS	
Type :		LM180	
Version(s) :		C	
Numéro de série de début :		**20263**	
Niveau de puissance acoustique mesuré :		LwA 102.37	dB
Niveau de puissance acoustique garanti :		LwA 105	dB
Fabricant	Nom :	Kyoeisha Co., Ltd.	
	Adresse :	1-26, Miyuki-cho, Toyokawa, préfecture d'Aichi, Japon	

Conforme aux directives suivantes :

2006/42/CE	Machine (MD)
2014/30/UE	Compatibilité électromagnétique (CEM)
2000/14/CE	Émissions sonores de l'équipement de plein air

Conception et fabrication en respect des spécifications suivantes :

ISO 12100 : 2010 (2006/42/CE)
ISO 5395-1 : 2013 (2006/42/CE)
ISO 5395-3 : 2013 (2006/42/CE)
ISO 14982 :1998 (2014/30/UE)

Fiche technique

Marque :	Kyoeisha Co., Ltd.
Adresse de la marque :	1-26, Miyuki-cho, Toyokawa, préfecture d'Aichi, Japon

Compilateur de la fiche technique (2006/42/CE)

Nom :	Kyoeisha U.K. Ltd.
Adresse :	Unit 5 Hatch Industrial Park Greywell Road, Basingstoke Hampshire RG24 7NG, Royaume-Uni

Procédures d'évaluation de la conformité

Contrôle de production interne : module A (2006/42/CE)
Examen de type CE : module B (2014/30/UE)
Contrôle interne de la production avec évaluation de la fiche technique et vérification périodique (2000/14/CE)

Organisme notifié impliqué (2000/14/CE)

Nom :	SNCH
Adresse :	11, Route de Sandweiler 5230 Sandweiler, Luxembourg
N° de certificat/Documentation technique :	SNCH*2000/14*2005/88*1850*03/TCLM180-03

(es)

Declaración de conformidad de la UE

Identificación del producto

Producto:		Cortacésped		
Marca:		BARONESS		
Tipo:		LM180		
Versión:		C		
N.º de serie inicial:		**20263**		
Nivel de potencia sonora medido:		LWA	102.37	dB
Nivel de potencia sonora garantizado:		LWA	105	dB
Fabricante	Nombre:	Kyoeisha Co., Ltd.		
	Dirección:	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japón		

Cumple las siguientes Directivas

2006/42/CE	Maquinaria (MD)
2014/30/UE	Compatibilidad electromagnética (EMC)
2000/14/CE	Emisiones sonoras de máquinas de uso al aire libre

Se ha diseñado y fabricado utilizando las siguientes especificaciones

ISO 12100 : 2010 (2006/42/CE)
ISO 5395-1 : 2013 (2006/42/CE)
ISO 5395-3 : 2013 (2006/42/CE)
ISO 14982 :1998 (2014/30/UE)

Documentación técnica

Nombre del responsable:	Kyoeisha Co., Ltd.
Dirección del responsable:	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japón

Compilador del archivo técnico (2006/42/CE)

Nombre:	Kyoeisha U.K. Ltd.
Dirección:	Unit 5 Hatch Industrial Park Greywell Road, Basingstoke Hampshire RG24 7NG, Reino Unido

Procedimientos de evaluación de conformidad

Control de fabricación interno: Módulo A (2006/42/CE)
Examen de tipo CE: Módulo B (2014/30/UE)
Control interno de fabricación con evaluación de documentación técnica y comprobaciones periódicas (2000/14/CE)

Organismo notificado implicado (2000/14/CE)

Nombre:	SNCH
Dirección:	11, Route de Sandweiler 5230 Sandweiler Luxemburgo
Certificado/Documentación técnica n.º:	SNCH*2000/14*2005/88*1850*03/TCLM180-03

(de)

EU-Konformitätserklärung

Produktbeschreibung

Produkt:		Rasenmäher		
Marke:		BARONESS		
Modell:		LM180		
Version(en):		Nicht zutreffend		
Startseriennummer:		**20263**		
Gemessener Schallleistungspegel:		LWA	102.37	dB
Garantierter Schallleistungspegel:		LWA	105	dB
Hersteller	Name:	Kyoeisha Co., Ltd.		
	Adresse:	1-26 Miyuki-cho, Toyokawa, Aichi-pref.,Japan		

Entspricht den folgenden Richtlinien

2006/42/EG	Maschinenrichtlinie
2014/30/EU	Elektromagnetische Verträglichkeit (EMV)
2000/14/EG	Geräuschemission von im Freien betriebenen Geräten

Unter Anwendung der folgenden Bestimmungen entwickelt und hergestellt

ISO 12100 : 2010 (2006/42/EG)
ISO 5395-1 : 2013 (2006/42/EG)
ISO 5395-3 : 2013 (2006/42/EG)
ISO 14982 :1998 (2014/30/EU)

Technische Dokumentation

Name des Halters	Kyoeisha Co., Ltd.
Adresse des Halters	1-26 Miyuki-cho, Toyokawa, Aichi-pref.,Japan

Technische Unterlagen erstellt von (2006/42/EG)

Name:	Kyoeisha U.K.Ltd.
Adresse:	Unit 5 Hatch Industrial Park Grewell Road,Basingstoke Hampshire RG24 7NG, Großbritannien

Konformitätsbewertungsverfahren

Interne Produktionskontrolle : Modul A (2006/42/EG)
EG-Baumusterprüfung : Modul B (2014/30/EU)
Interne Produktionskontrolle mit Bewertung der technischen Unterlagen und regelmäßiger Überprüfung (2000/14/EG)

Beteiligte benannte Stelle (2000/14/EG)

Name:	SNCH
Adresse :	11, Route de Sandweiler 5230 Sandweiler Luxemburg
Bescheinigung/Technische Dokumentation Nr. :	SNCH*2000/14*2005/88*1850*03/TCLM180-03

EU-försäkran om överensstämmelse

Produktidentifikation

Produkt :		Gräsklippare	
Märke:		BARONESS	
Typ:		LM180	
Version(er):		C	
Serienummer startar på:		**20263**	
Uppmätt ljudeffektnivå:		LWA 102.37	dB
Garanterad ljudeffektnivå:		LWA 105	dB
Tillverkare	Namn:	Kyoeisha Co., Ltd.	
	Adress:	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan	

Uppfyller följande direktiv

2006/42/EG	Maskindirektivet
2014/30/EU	Elektromagnetisk kompabilitet (EMC)
2000/14/EG	Bulleremission från utomhusutrustning

Följande kravspecifikationer har följts vid konstruktion och tillverkning

- ISO 12100 : 2010 (2006/42/EG)
- ISO 5395-1 : 2013 (2006/42/EG)
- ISO 5395-3 : 2013 (2006/42/EG)
- ISO 14982 : 1998 (2014/30/EU)

Teknisk dokumentation

Innehavarens namn:	Kyoeisha Co., Ltd.
Innehavarens adress:	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan

Den tekniska filen(2006/42/EG) har tagits fram av

Namn:	Kyoeisha U.K.Ltd.
Adress:	Unit 5 Hatch Industrial Park Grewell Road, Basingstoke Hampshire RG24 7NG, Storbritannien

Förfarande för bedömning av överensstämmelse

- Intern produktionskontroll: Modul A (2006/42/EG)
- EG-typprovning: Modul B (2014/30/EU)
- Intern kontroll av produktion med fastställande av teknisk dokumentation och periodiska kontroller (2000/14/EG)

Anmält organ (2000/14/EG)

Namn:	SNCH
Adress:	11, Route de Sandweiler 5230 Sandweiler Luxembourg
Certifikat/Teknisk dokumentation nummer:	SNCH*2000/14*2005/88*1850*03/TCLM180-03

BARONESS®

Quality on Demand

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