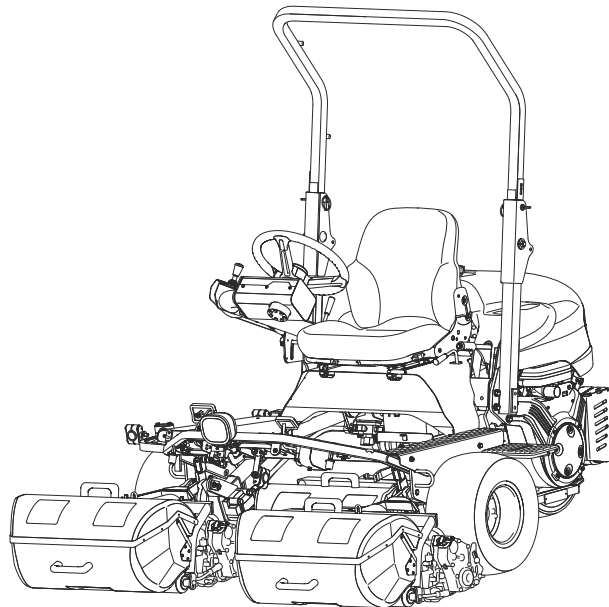


LM315GC

Riding Greens Mower (Gasoline Model)

Owner's Operating Manual



Serial No. LM315GC : 32166-

"Required reading"

Read this manual before using the machine.

BARONESS[®]
Quality on Demand

Regulations

USDA Forest Service Spark Arrester

(For USA)

The engine of this machine is not equipped with a spark arrester.

In some areas there are local, state, or federal regulations requiring that a spark arrester be used on the engine of this machine.

The recommended spark arrester for this machine is Part No. 794945 Spark Arrester made by Briggs & Stratton Corporation.

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 service for this machine should be performed by a mechanic with expertise.

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

When making inquiries about your product, please specify the model and serial number.

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

Kyoisha Co., Ltd.

Greeting

Thank you for purchasing the Baroness product.

This manual describes how to operate this product safely and correctly, as well as daily inspection and maintenance methods.

Prior to use, carefully read this manual to thoroughly understand the contents.

We hope you will use the product safely and correctly, and take advantage of its best performance.

Introduction

About This Manual

1. Attention

- [1] The operator is responsible for operating the product properly and safely.
Read this manual carefully to ensure that you thoroughly understand the contents, and to avoid causing injury to yourself or others.
- [2] Maintenance service for this product should be performed by a mechanic with expertise.
- [3] If you have any questions concerning handling, maintenance or genuine parts, please contact a Baroness dealer or Kyoisha.
- [4] When loaning or transferring the product, please also provide this manual together with the product.
- [5] When making inquiries about your product, please specify the model and serial number.

2. Notice

- [1] Due to product improvements or specification changes, the contents described in this manual may be altered without notice.
- [2] This manual has been prepared with the utmost care to avoid mistakes or omissions, however, if you find any mistakes or omissions, please contact a Baroness dealer or Kyoisha.
- [3] If you take this product out of the designated country for sale and use it, it may not comply with the regulations of the destination country or region (such as safety standards or radio laws), and it will not be covered by the warranty.
Furthermore, Kyoisha assumes no responsibility whatsoever for any troubles or penalties arising from these issues.
- [4] If the contents of this manual differ depending on the destination, the product details are explained using the ISO3166 country code (two characters).
Please check the applicable destination for your purchased model and read the relevant contents.
e.g.

Country	Country code
Japan	JP (*1)
USA	US
UK	GB (*2)
Australia	AU

(*1: Including South Korea and China)

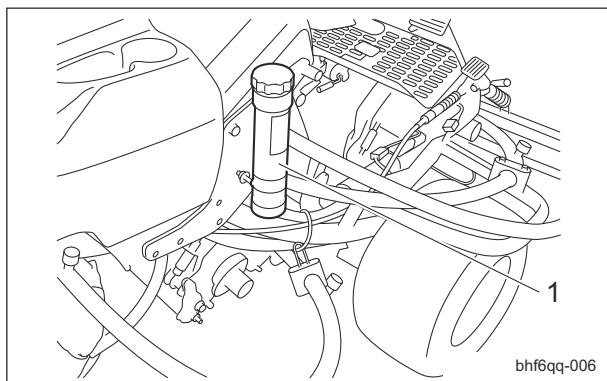
(*2: Including European countries)

- [5] Kyoisha assumes no responsibility for any damages or lost profits caused by improper handling by customers or third parties, product disassembly or modification, or other force majeure events (such as natural disasters).
- [6] Kyoisha assumes no responsibility for any loss or damage of data or programs caused by malfunctions, failures, or repairs of the equipment.
We recommend regularly backing up your important data.

Keeping The Owner's Operating Manual

[US]

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



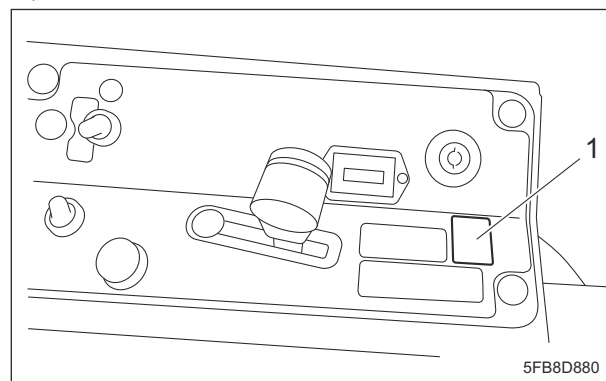
bhf6qq-006

1	Box
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QR Code

(*QR Code is a registered trademark of DENSO WAVE INCORPORATED.)

A QR code label is affixed on the machine.



5FB8D880

1	QR code label
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Scan the QR code with your smartphone for easy access to Baroness Manual Reference Service where you can browse Owner's Operating Manual and Parts Catalog.
<https://doc.baroness-international.com/manuals/LM315GC>



84DA41EF

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.	

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 Kyoeshia.

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

For greens/for tees: This product is intended for cutting turf grass at golf courses.

For fields: This product is intended for cutting turf grass on soccer and baseball fields.

Do not use this product in any other way 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.

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Safety

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 the language used in this manual, it is the owner's responsibility to explain this material 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. The ROPS is an integral and effective safety device.
Do not remove or alter the ROPS.
8. Replace a damaged ROPS.
Do not repair or alter.
9. You can find additional safety information where needed throughout this manual.
10. 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 safely 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, mask, 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

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, 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 cylinders/reels to rotate.
6. Keep hands and feet away from the rotating parts.
7. Do not carry passengers.
8. Never operate while people, especially children, or pets are nearby.
9. Only operate in good light, keeping away from holes and hidden hazards.
10. Do not operate the machine when there is the risk of lightning.
11. Do not operate the machine in rain or wet conditions.
This may increase the risk of electric shock.
12. Do not stop or start suddenly.
13. Look behind and down before backing up to be sure of a clear path.
14. Slow down and use caution when making turns and crossing roads and sidewalks.
15. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
16. Do not take your eyes off the road ahead.
Do not operate the machine with no hands.
17. Keep a folding ROPS in the raised and locked position and use the seat belt when operating the machine.

Operation

1. Do not use the machine while you are tired or under the influence of drugs, alcohol or medication.
A moment of inattention while operating the machine may result in serious personal injury.
2. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
3. Be sure all drives and shift are in neutral and parking brake is engaged before starting engine.
Only start engine from the operator's position.
Use seat belts if provided.
4. Do not change the engine governor settings or overspeed the engine.
Operating the engine at excessive speed may increase the hazard of personal injury.
5. Never operate the machine with damaged guards, shields, or without safety protective devices in place.
Be sure all interlocks are attached, adjusted properly, and functioning properly.
18. Lower a folding ROPS temporarily only when absolutely necessary.
Do not wear the seat belt when folded down.
There is no rollover protection when a folding ROPS is in the down position.
19. Remember there is no such thing as a safe slope.
Travel on grass slopes requires particular care.
To guard against overturning, follow these instructions.
 - [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 turns.
 - [4] Stay alert for humps and hollows and other hidden hazards.
20. Never use 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.

Safety

21. Use extra care while operating machine with a grass catcher or other attachments. They can affect the stability of the machine.
22. Disengage drive to the cutting unit(s), when other than operating.
23. Do the following before leaving the operator's position.
 - [1] Stop on level ground.
 - [2] Disengage the all drives.
 - [3] Set the parking brake.
 - [4] Stop the engine.
 - [5] Remove the ignition key.
24. Stop the engine in the following conditions.
 - [1] Before refuelling.
 - [2] Before removing the grass catcher.
 - [3] Before making height or depth adjustment unless adjustment can be made from the operator's position.
 - [4] Before clearing blockages.
 - [5] Before checking, cleaning or working on the machine.
 - [6] 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.
25. Reduce the throttle setting during engine run-out.
26. Do not direct discharge material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator.
27. 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 running board, select one with sufficient strength, length, and width and that will not cause the machine to slip.

28. Close the fuel valve before transporting the machine.

Maintenance

1. Never allow untrained personnel to service machine.
2. Implement the following work before adjusting, cleaning or repairing.
 - [1] Stop the machine on level ground.
 - [2] Disengage drive to the cutting unit(s).
 - [3] Lower the cutting unit(s) and/or attachment(s).
 - [4] Set the parking brake.
 - [5] Stop the engine.
 - [6] Remove the ignition key.
 - [7] Wait for all movement to stop.
3. Allow the engine/muffler to cool before checking/maintenance.
4. To reduce the fire hazard, keep hot parts such as the engine and silencer/muffler, battery compartment and fuel storage area free of grass, leaves, or excessive grease. Clean up oil or fuel spillage.
5. Appropriately manage and correctly use the tools necessary for servicing or adjusting the machine.
6. Disconnect battery before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.
7. Use jack stands to support components when required.
8. Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
9. Make sure that parts such as wires are not touching each other and that their covers have not come off.
10. Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
11. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
12. Carefully release pressure from components with stored energy.

13. Be sure to depressurize the hydraulic system before performing maintenance operations on it such as removing hydraulic equipment.
14. Check whether line connectors in the hydraulic system are properly tightened. Before applying hydraulic pressure, check the connections of the hydraulic pressure lines and the condition of the hoses.
15. When checking the hydraulic circuit for pinhole leaks or oil leakage from nozzles, do not use your hands.
Use items such as paper or corrugated cardboard to find leakage points.
Be extremely careful with high-pressure oil as it may pierce your skin, resulting in an injury.
If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.
16. Use care when checking the cylinders/reels and bed knives.
Wear gloves and use caution when servicing them.
17. Be careful during adjustment of the machine to prevent entrapment of the fingers between moving blades and fixed parts of the machine.
18. On multi-cylinder/multi-reel machines, take care as rotating one cylinder/reel can cause other cylinders/reels to rotate.
19. Check the grass catcher frequently for wear or deterioration.
20. Charge batteries in an open well ventilated area, away from spark and flames.
Unplug charger before connecting or disconnecting from battery.
Wear protective clothing and use insulated tools.
21. If the fuel tank has to be drained, do this outdoors.
4. Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
5. If the engine is provided with a shut-off valve, shut off valve while storing or transporting.
6. Do not store fuel near flames.
7. Swallowing engine coolant can cause injury or death; keep out of reach from children and pets.

Storage

1. When machine is to be parked, stored, or left unattended, lower the cutting unit(s) and/or attachment(s) unless a positive mechanical lock is provided.
2. Allow the engine to cool before storing in any enclosure.
3. Only cover the machine with a sheet after hot parts have sufficiently cooled down.

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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.)

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Product Overview

Specifications

Specifications

[JP]

Model			LM315GC					
Name			Riding Greens Mower					
Type			for greens		for tees		for fields	
Dimensions	Total length		239 cm	94.09 in	←	←	←	←
	Total width		172 cm	67.72 in	←	←	←	←
	Total height	Steering wheel	132 - 141 cm	51.97 - 55.51 in	←	←	←	←
Weight	Machine : 2WD (empty fuel tank)	without ROPS, Grass catcher, Groomer	557 kg	1227.95 lb	←	←	←	←
	Machine : 3WD (empty fuel tank)	without ROPS, Grass catcher, Groomer	583 kg	1285.27 lb	←	←	←	←
	Grass catchers (for one machine)		12 kg	26.46 lb	←	←	←	←
	Groomers (for one machine)		10 kg	22.05 lb	←	←	←	←
	ROPS + Seatbelt		28 kg	61.73 lb	←	←	←	←
	Minimum turning radius		161 cm	63.39 in	←	←	←	←
Engine	Model		Vanguard 356447		←		←	
	Type		Air-cooled 4-cycle gasoline engine		←		←	
	Total displacement		570 cm ³ (0.57 L)	34.78 cu.in.	←	←	←	←
	Maximum output		13.4 kW (18.0 PS) / 3,600 rpm		←		←	
	Rated output		-		-		-	
Fuel tank capacity			Gasoline 20.0 dm ³ (20.0 L)	Gasoline 5.28 U.S.gals	←	←	←	←
Fuel consumption			310 g/kW · h (rated output)	228 g/PS · h (rated output)	←	←	←	←
Engine oil capacity			1.6 dm ³ (1.6 L)	0.42 U.S.gals	←	←	←	←
Coolant volume			-	-	-	-	-	-
Hydraulic tank capacity			16.0 dm ³ (16.0 L)	4.23 U.S.gals	←	←	←	←
Transmission oil capacity			-		-		-	

Product Overview

Operating width (Mowing width)		152 cm	59.84 in	←	←	←	←
Operating height (Mowing height) *1		2.0 - 18.0 mm	0.079 - 0.709 in	6.0 - 20.0 mm	0.236 - 0.787 in	10.0 - 40.0 mm	0.394 - 1.575 in
Number of Blades		9, 11		7		←	
Drive	Traveling	HST 2WD [3WD (2WD/3WD selectable)]		←		←	
	Mowing	Mechanical		←		←	
Speed (HST)	Forward	0 - 15.0 km/h	0 - 9.32 mph	←	←	←	←
	Reverse	0 - 6.0 km/h [2WD selection of 3WD model : 0 - 9.0 km/h]	0 - 3.73 mph [2WD selection of 3WD model : 0 - 5.59 mph]	←	←	←	←
Speed (Mechanical)		-		-		-	
Efficiency		7,296 m ² /h (6.0 km/h x mowing width x 0.8)	1.8 acres/hour (3.73 mph x mowing width x 0.8)	←	←	←	←
Maximum inclination for operation		15 degrees		←		←	
Tire size	Front wheel	Smooth 18 x 9.50-8 2P		Pillow Dia 18 x 8.50-8 4P		Smooth 18 x 9.50-8 2P	
	Rear wheel	Smooth 18 x 9.50-8 2P		Pillow Dia 18 x 8.50-8 4P		Smooth 18 x 9.50-8 2P	
Tire pneumatic pressure	Front wheel	80 kPa (0.8 kgf/cm ²)	12 psi	100 kPa (1.0 kgf/cm ²)	15 psi	80 kPa (0.8 kgf/cm ²)	12 psi
	Rear wheel	80 kPa (0.8 kgf/cm ²)	12 psi	100 kPa (1.0 kgf/cm ²)	15 psi	80 kPa (0.8 kgf/cm ²)	12 psi
Battery		40B19L (BCI GROUP SIZE U1R: Recommended equivalent product EXIDE GTX-R)		←		←	
Engine plug		PLUG, CHAMPION XC92YC		←		←	

The factory default maximum engine rpm is 3,000 rpm.

*1: Set cutting height (adjustable cutting height)

Product Overview

[US]

Model			LM315GC					
Name			Riding Greens Mower					
Type			for greens		for tees		for fields	
Dimensions	Total length		239 cm	94.09 in	←	←	←	←
	Total width		172 cm	67.72 in	←	←	←	←
	Total height	Steering wheel	132 - 141 cm	51.97 - 55.51 in	←	←	←	←
Weight	Machine: 2WD (empty fuel tank)	without ROPS, Grass catcher, Groomer	597 kg	1316.14 lb	←	←	←	←
	Machine: 3WD (empty fuel tank)	without ROPS, Grass catcher, Groomer	622 kg	1371.25 lb	←	←	←	←
	Grass catchers (for one machine)		12 kg	26.46 lb	←	←	←	←
	Groomers (for one machine)		10 kg	22.05 lb	←	←	←	←
	ROPS + Seatbelt		28 kg	61.73 lb	←	←	←	←
	Minimum turning radius		161 cm	63.39 in	←	←	←	←
Engine	Model		Vanguard 356447		←		←	
	Type		Air-cooled 4-cycle gasoline engine		←		←	
	Total displacement		570 cm ³ (0.57 L)	34.78 cu.in.	←	←	←	←
	Maximum output		13.4 kW (18.0 PS) / 3,600 rpm		←		←	
	Rated output		-		-		-	
Fuel tank capacity			Gasoline 20.0 dm ³ (20.0 L)	Gasoline 5.28 U.S.gals	←	←	←	←
Fuel consumption			310 g/kW · h (rated output)	228 g/PS · h (rated output)	←	←	←	←
Engine oil capacity			1.6 dm ³ (1.6 L)	0.42 U.S.gals	←	←	←	←
Coolant volume			-	-	-	-	-	-
Hydraulic tank capacity			16.0 dm ³ (16.0 L)	4.23 U.S.gals	←	←	←	←
Transmission oil capacity			-		-		-	
Operating width (Mowing width)			152 cm	59.84 in	←	←	←	←
Operating height (Mowing height) *1			1.5 - 18.0 mm	0.059 - 0.709 in	6.0 - 20.0 mm	0.236 - 0.787 in	10.0 - 40.0 mm	0.394 - 1.575 in
Number of Blades			9, 11		7		←	

Product Overview

Drive	Traveling	HST 2WD [3WD (2WD/3WD selectable)]		←		←	
	Mowing	Mechanical		←		←	
Speed (HST)	Forward	0 - 15.0 km/h	0 - 9.32 mph	←	←	←	←
	Reverse	0 - 6.0 km/h [2WD selection of 3WD model: 0 - 9.0 km/h]	0 - 3.73 mph [2WD selection of 3WD model: 0 - 5.59 mph]	←	←	←	←
Speed (Mechanical)		-		-		-	
Efficiency		7,296 m ² /h (6.0 km/h x mowing width x 0.8)	1.8 acres/hour (3.73 mph x mowing width x 0.8)	←	←	←	←
Maximum inclination for operation		15 degrees		←		←	
Tire size	Front wheel	Smooth 18 x 9.50-8 2P		Pillow Dia 18 x 8.50-8 4P		Smooth 18 x 9.50-8 2P	
	Rear wheel	Smooth 18 x 9.50-8 2P		Pillow Dia 18 x 8.50-8 4P		Smooth 18 x 9.50-8 2P	
Tire pneumatic pressure	Front wheel	80 kPa (0.8 kgf/cm ²)	12 psi	100 kPa (1.0 kgf/cm ²)	15 psi	80 kPa (0.8 kgf/cm ²)	12 psi
	Rear wheel	80 kPa (0.8 kgf/cm ²)	12 psi	100 kPa (1.0 kgf/cm ²)	15 psi	80 kPa (0.8 kgf/cm ²)	12 psi
Battery		40B19L (BCI GROUP SIZE U1R: Recommended equivalent product EXIDE GTX-R)		←		←	
Engine plug		PLUG, CHAMPION XC92YC		←		←	

The factory default maximum engine rpm is 3,000 rpm.

*1: Set cutting height (adjustable cutting height)

Product Overview

Sound Pressure Level

Sound Pressure Level

This machine was confirmed to have a continuous A-weighted sound pressure level of 88 dB by measuring identical machines in accordance with the procedure specified in ISO5395-1:2013.

Sound Power Level

Sound Power Level

This machine was confirmed to have a sound power level of 103 dB by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

Vibration Level

Hand-Arm Vibration

This machine was confirmed not to exceed a vibration level of 2.5 m/s^2 to hands and arms by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

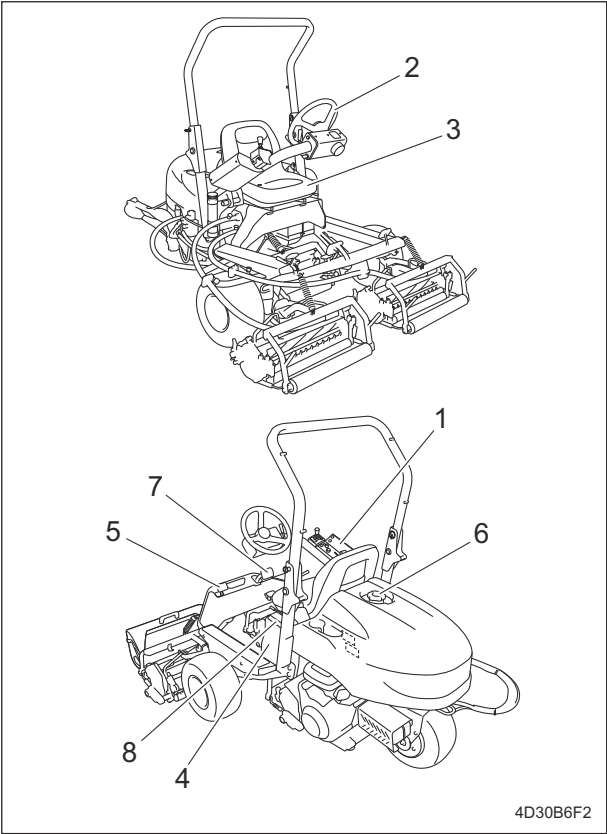
Whole Body Vibration

This machine was confirmed not to exceed a vibration level of 0.5 m/s^2 to the whole body by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

Product Overview

Names of Each Section

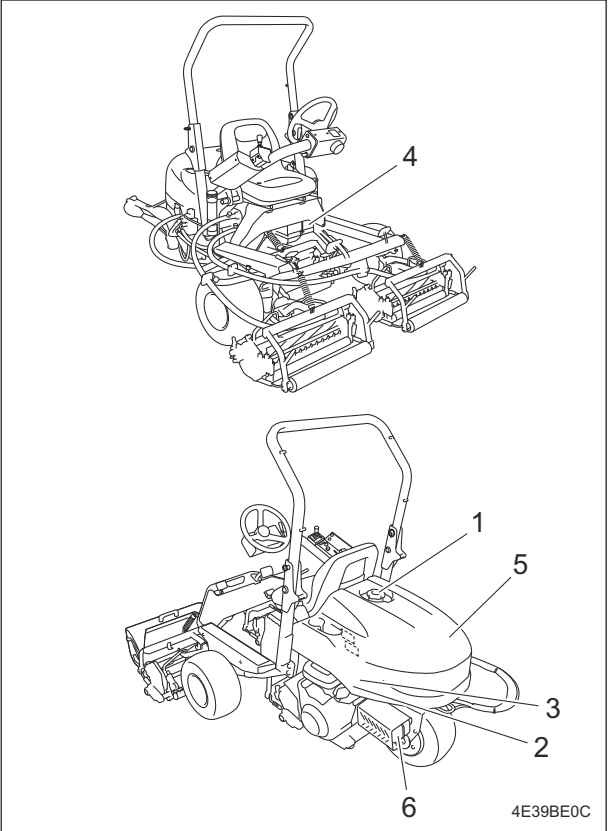
[JP]
Overall view A



4D30B6F2

1	Operation panel
2	Steering wheel
3	Seat
4	Underseat cover
5	Mower pedal (Mower pedal model)
6	Transmission selector lever
7	Traveling pedal
8	Parking brake lever

Overall view B



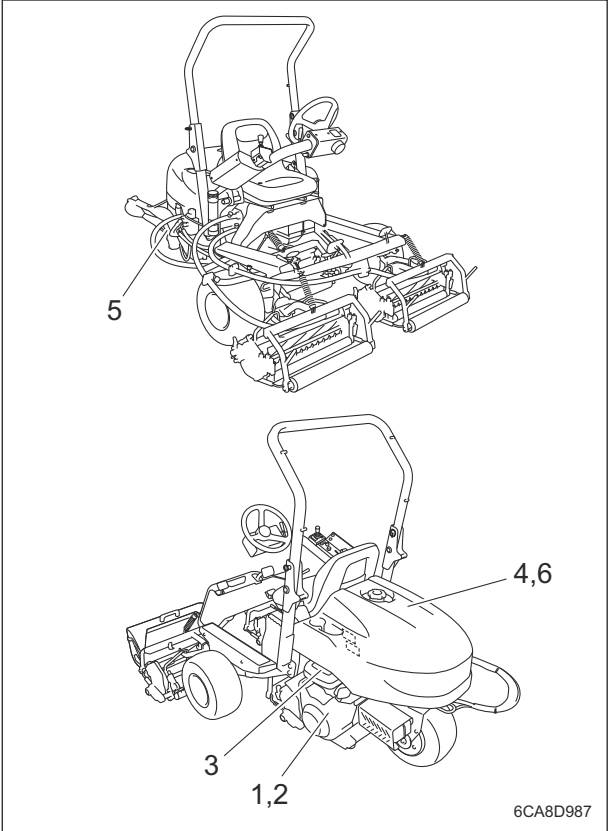
4E39BE0C

1	Fuel tank
2	Fuel filter
3	Fuel strainer
4	Battery
5	Hood
6	Muffler

LM315GC

Product Overview

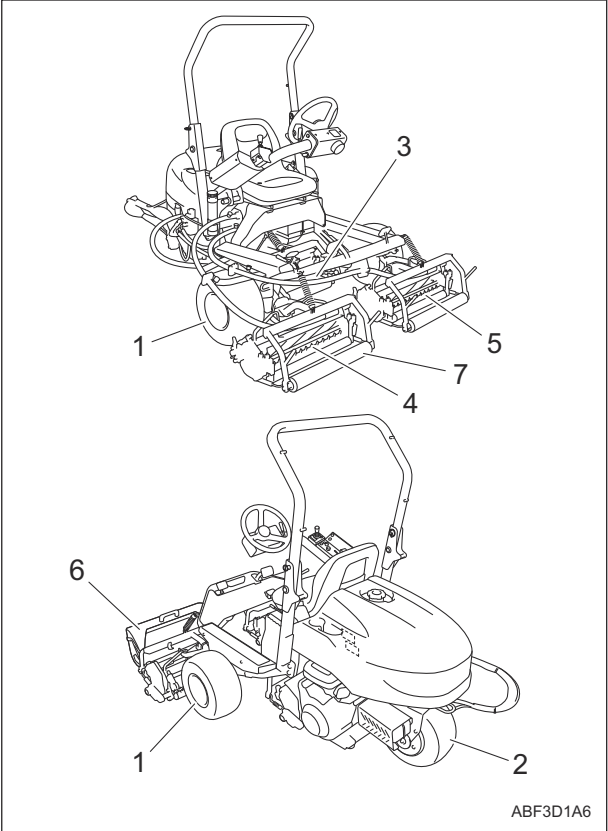
Overall view C



6CA8D987

1	Engine
2	Engine oil filter
3	Air cleaner
4	Hydraulic tank
5	Hydraulic oil line filter
6	Hydraulic oil suction filter

Overall view D

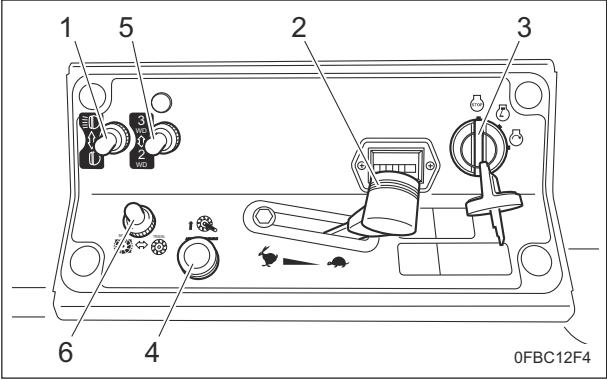


ABF3D1A6

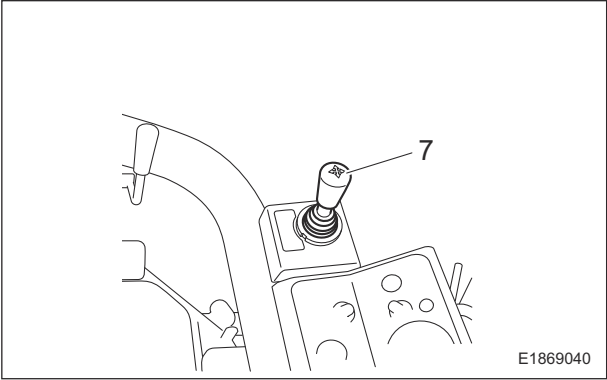
1	Front tire
2	Rear tire
3	Mower unit #1
4	Mower unit #2
5	Mower unit #3
6	Grass catcher
7	Grass catcher roller

Product Overview

Operation panel



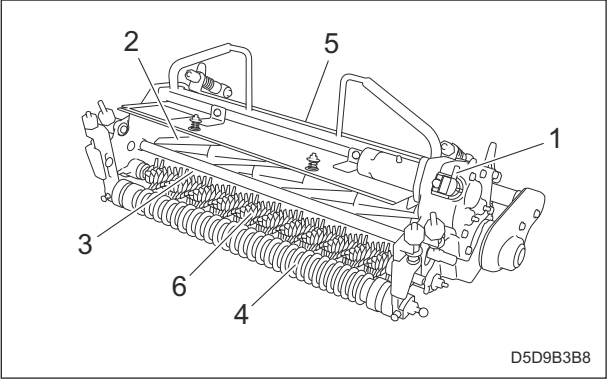
0FBC12F4



E1869040

1	Light switch
2	Throttle lever
3	Key switch
4	Mower unit up switch
5	2WD/3WD selector switch
6	Reel rotation switch
7	Joystick (Joystick model)

Mower unit



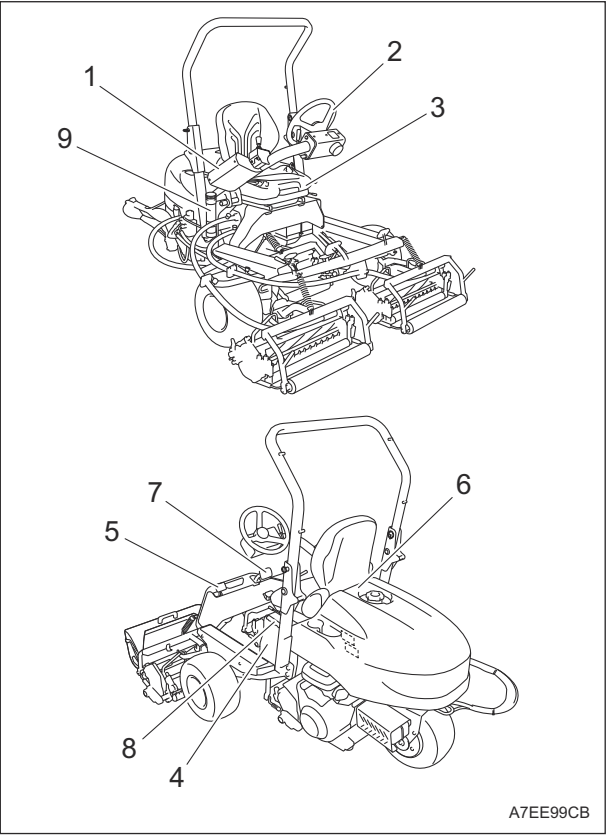
D5D9B3B8

1	Reel reverse lever
2	Reel cutter
3	Bed knife
4	Front roller
5	Rear roller
6	Groomer

LM315GC

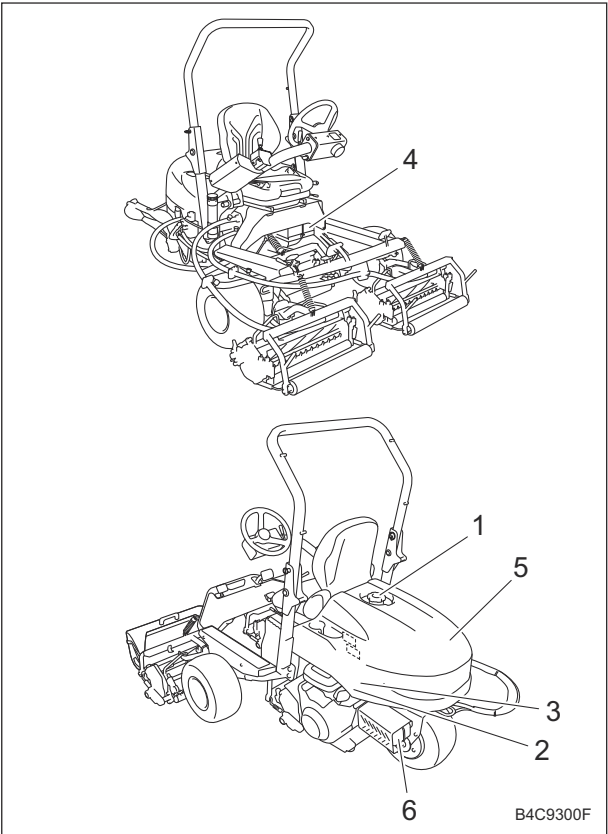
Product Overview

[US]
Overall view A



A7EE99CB	
1	Operation panel
2	Steering wheel
3	Seat
4	Underseat cover
5	Mower pedal (Mower pedal model)
6	Transmission selector lever
7	Traveling pedal
8	Parking brake lever
9	Box

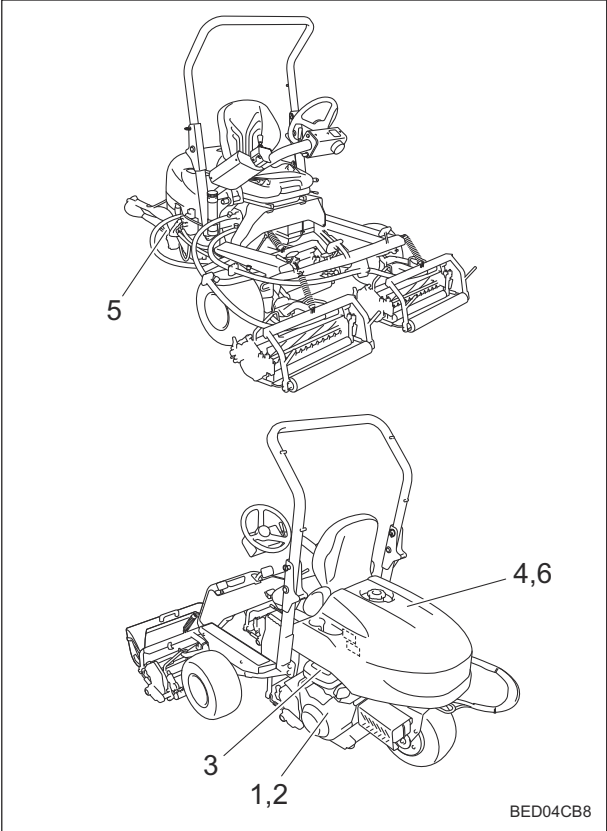
Overall view B



B4C9300F	
1	Fuel tank
2	Fuel filter
3	Fuel strainer
4	Battery
5	Hood
6	Muffler

Product Overview

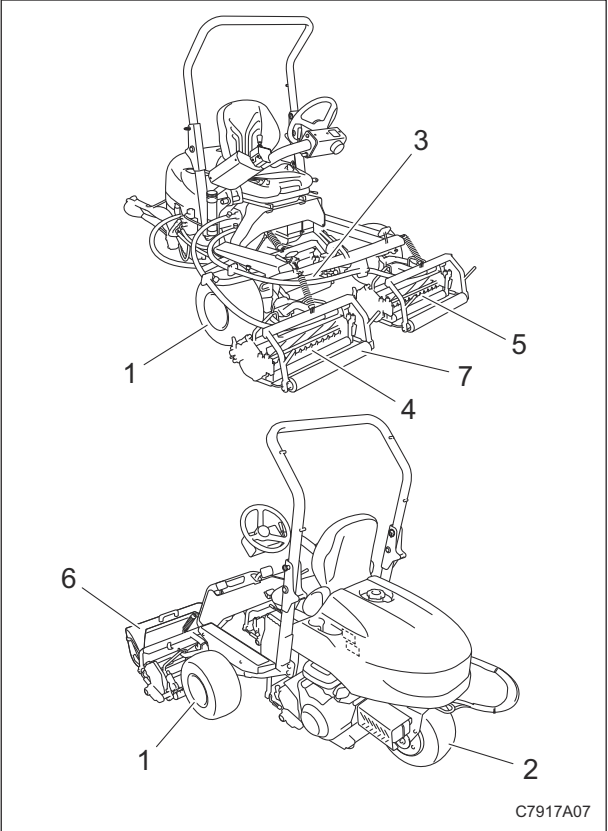
Overall view C



BED04CB8

1	Engine
2	Engine oil filter
3	Air cleaner
4	Hydraulic tank
5	Hydraulic oil line filter
6	Hydraulic oil suction filter

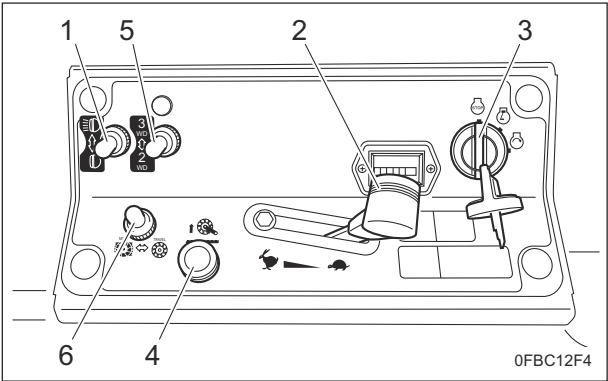
Overall view D



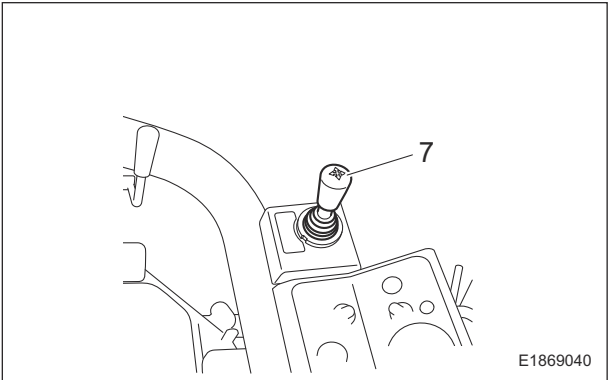
C7917A07

1	Front tire
2	Rear tire
3	Mower unit #1
4	Mower unit #2
5	Mower unit #3
6	Grass catcher
7	Grass catcher roller

Operation panel



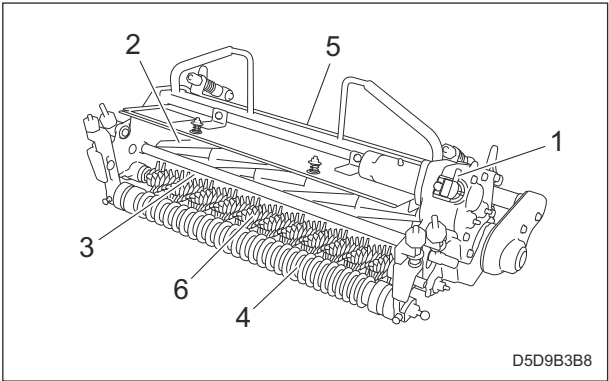
0FBC12F4



E1869040

1	Light switch
2	Throttle lever
3	Key switch
4	Mower unit up switch
5	2WD/3WD selector switch
6	Reel rotation switch
7	Joystick (Joystick model)

Mower unit



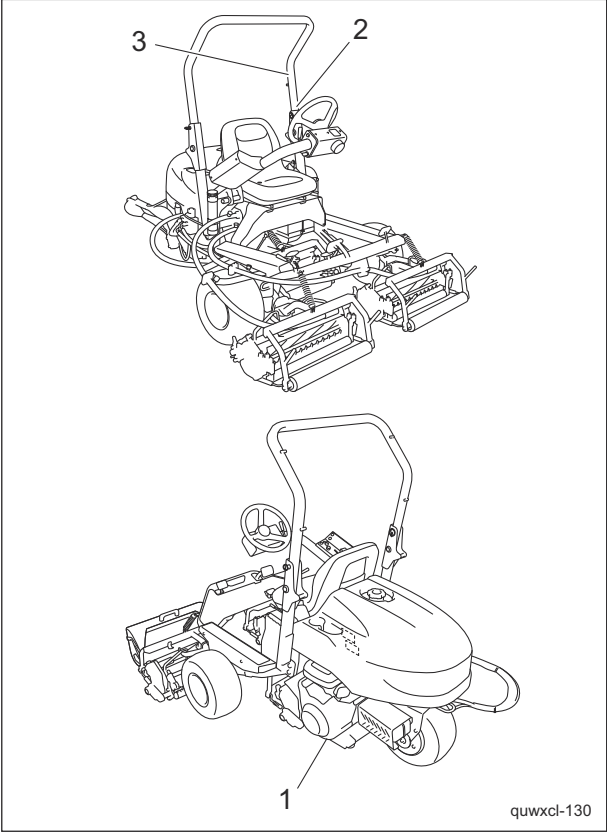
D5D9B3B8

1	Reel reverse lever
2	Reel cutter
3	Bed knife
4	Front roller
5	Rear roller
6	Groomer

Regulation Decals

Positions of Regulation Decals

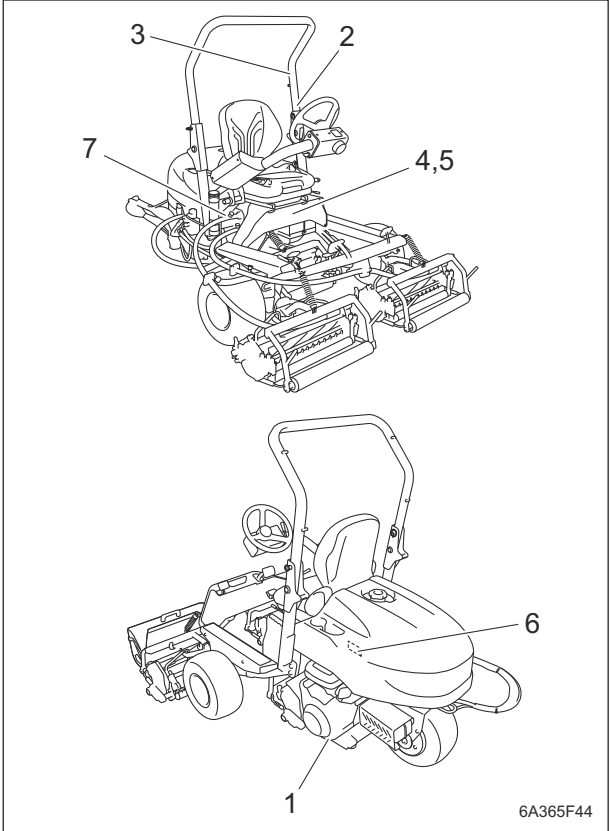
[JP]



quwxcl-130

1	Serial number plate
2	ROPS compliance decal
3	ROPS caution decal

[US]



6A365F44

1	Serial number plate
2	ROPS compliance decal
3	ROPS caution decal
4	Recycle decal
5	Battery danger decal
6	Emission control information plate
7	ISED compliance decal (#32341-)

Product Overview

Description of Regulation Decals

Serial Number Plate

The serial number plate has the following information.

1. Model
2. Serial number
3. Registered trademark
4. Manufacturer

- Company name
- Postal address/Address
- Website

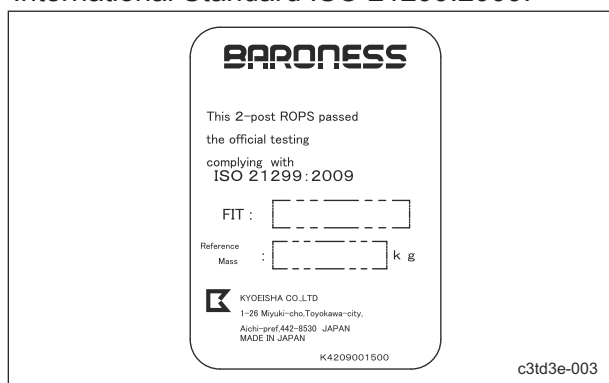
Contact the manufacturer via the contact form on the website.



FC7FDECD

ROPS Compliance Decal

The ROPS compliance decal indicates the manufacturer, model, etc., in accordance with International Standard ISO 21299:2009.

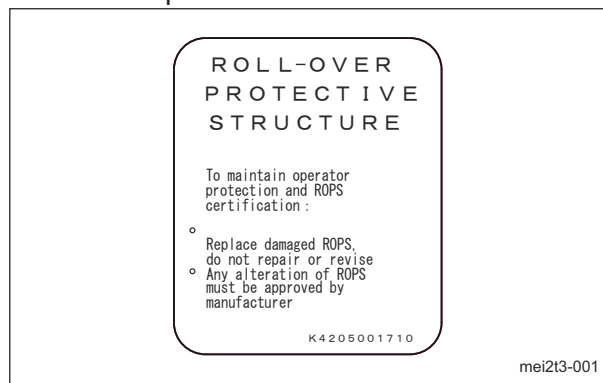


c3td3e-003

ROPS Caution Decal

ROPS caution decal describes the following caution messages.

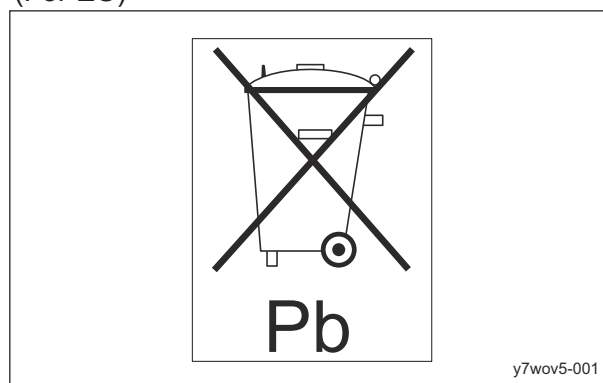
- Replace damaged ROPS.
- Do not repair or revise.



mei2t3-001

Recycle Decal

Recycle Decal illustrates Recycle Mark in accordance with local regulation. (For EU)



y7wov5-001

(For USA)

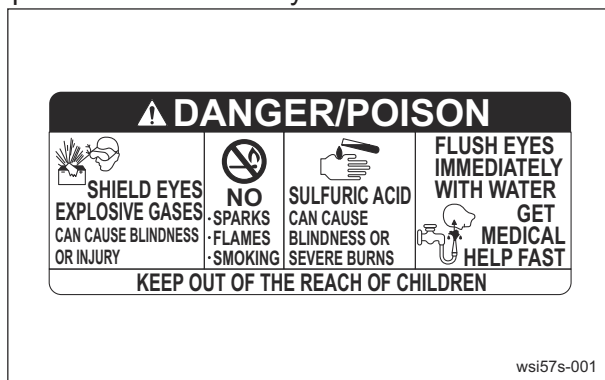


y7wov5-002

Battery Danger Decal

(For USA)

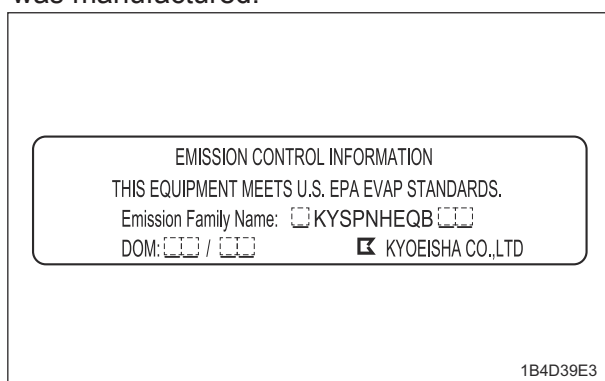
Battery Danger Decal describes handling precautions for battery.



wsi57s-001

Emission Control Information Plate

This states that this machine meets the US EPA evaporative emission standards. It also indicates the year when this machine was manufactured.

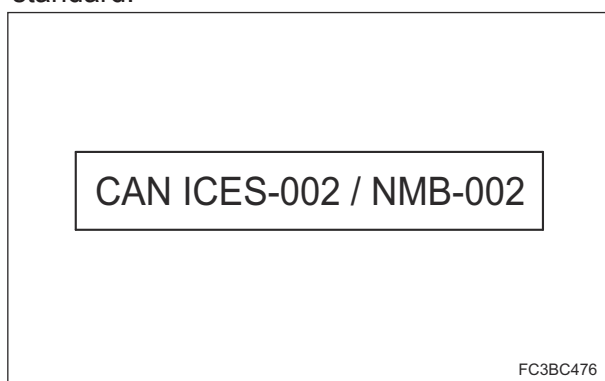


1B4D39E3

ISED Compliance Decal

(For Canada)

The ISED compliance decal indicates that the product marketed in Canada meets Canadian standard.



FC3BC476

Safety Signs and Instruction Signs

About Safety Signs and Instruction Signs

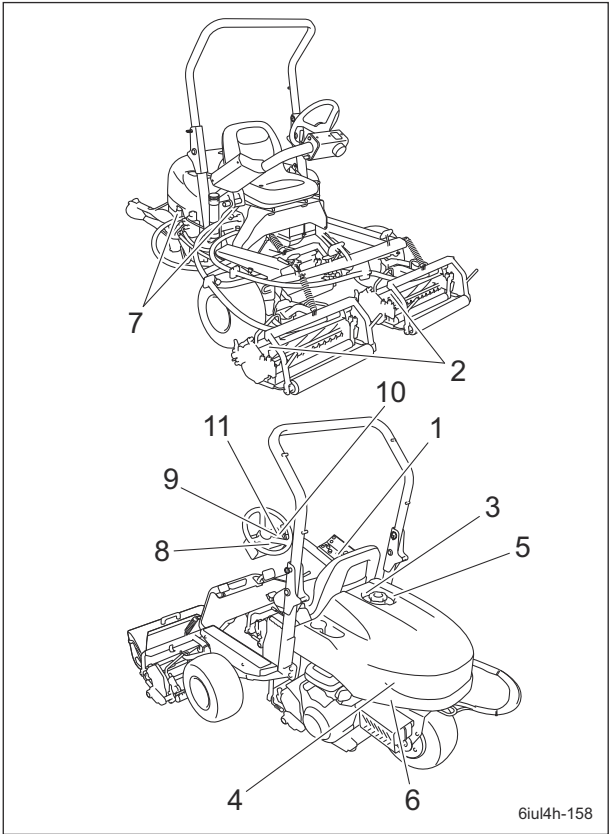
Important

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

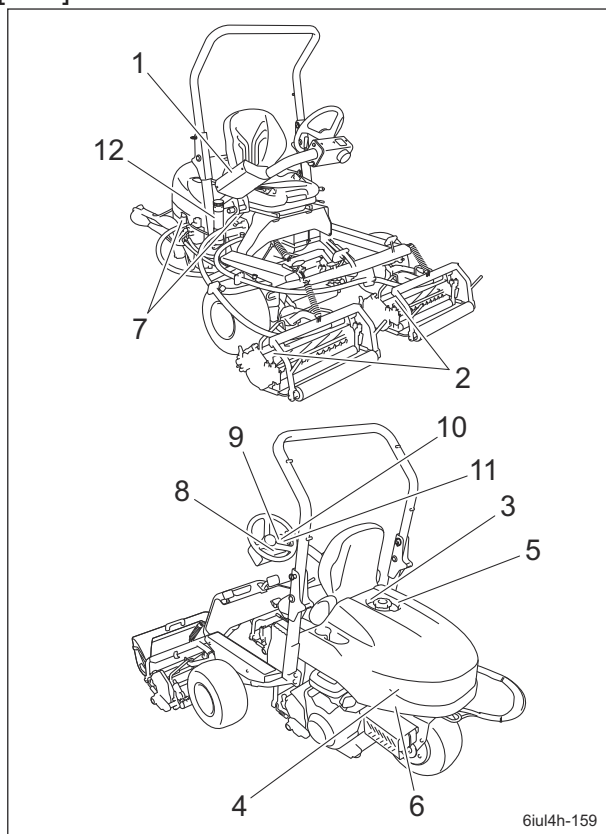
[JP]



6iul4h-158

1	G operation decal
2	Caution to mutilation decal
3	Fire prohibited decal
4	Hydraulic oil decal
5	Lead-free gasoline decal
6	Caution for high temperatures decal
7	Caution for getting entangled decal
8	Caution slope decal
9	Caution exhaust gas and flying object decal
10	Caution for slopes (3WD) decal
11	Prohibited drive at public road decal (- #32458)

[US]



6iul4h-159

1	G operation decal
2	Caution to mutilation decal
3	Fire prohibited decal
4	Hydraulic oil decal
5	Lead-free gasoline decal
6	Caution for high temperatures decal
7	Caution for getting entangled decal
8	Caution slope decal
9	Caution exhaust gas and flying object decal
10	Caution for slopes (3WD) decal
11	Caution to noise decal
12	Decal on reading owner's operating manual (-#31977)

Description of Safety Decals and Instruction Decals

G Operation Decal

LM315GC0411B0
Decal, G operation

1.

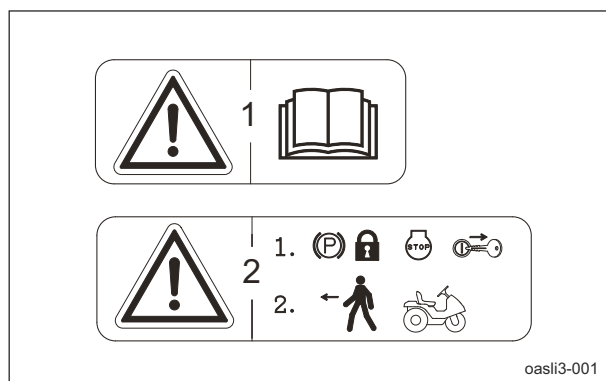


Read the Owner's Operating Manual.

2.



Apply the parking brake, stop the engine, and then remove the ignition key before leaving the machine.



oasli3-001

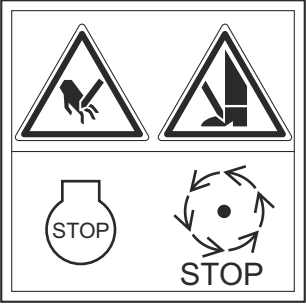
oasli3-001

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.



wyikja-001

Fire Prohibited Decal

K4205001940
Decal, fire prohibited

 Warning

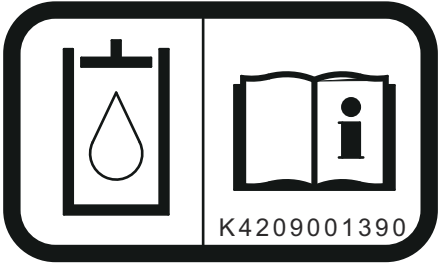
Keep away from fire.



r653fo-001

Hydraulic Oil Decal

K4209001390
Decal, hydraulic oil
Read the owner's operating manual.



120BFACF

Lead-Free Gasoline Decal

K4209001310
Decal, lead-free gasoline
Use lead-free gasoline.



xmitt2-002

Product Overview

Caution for High Temperatures Decal

K4205001920

Decal, caution for high temperatures



High temperature - Do not touch. Otherwise, you will get burned.



xekv4l-001

xekv4l-001

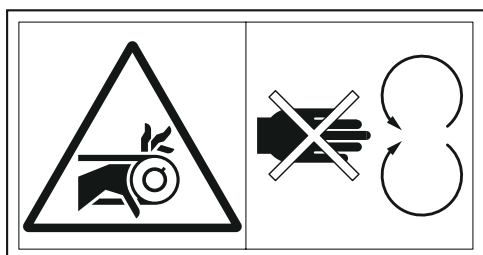
Caution for Getting Entangled Decal

K4205001910

DECAL, CAUTION NOT TO GET CAUGHT IN



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



hj8m6e-001

hj8m6e-001

Caution Slope Decal

K4205002040

Decal, caution slope

Without ROPS:



Rollover - Do not work on slopes of 15 degrees or more.
When you descend a slope, drive at low speed with the mower units lowered.

With ROPS:



Rollover - Do not work on slopes of 15 degrees or more.
When you descend a slope, drive at low speed with the mower units lowered.
Fasten your seatbelt.



pcmt39-001

pcmt39-001

Caution for Scattering Exhaust Gas Decal

K4205002050
Decal, caution scattering exhaust gas



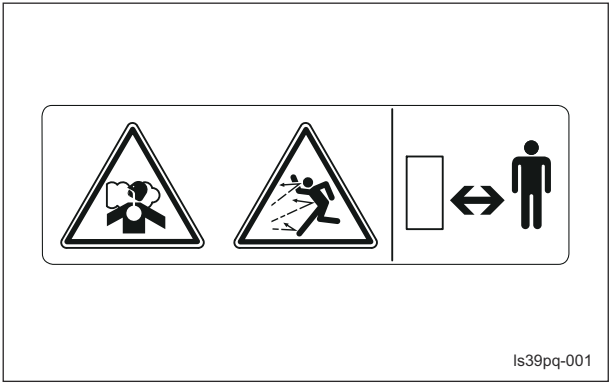
Warning

Caution to exhaust gas diffusion - All persons other than the operator must keep a safe distance from the machine.



Caution

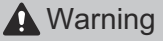
Thrown objects - Be sure that people around the machine keep a safe distance away.



Is39pq-001

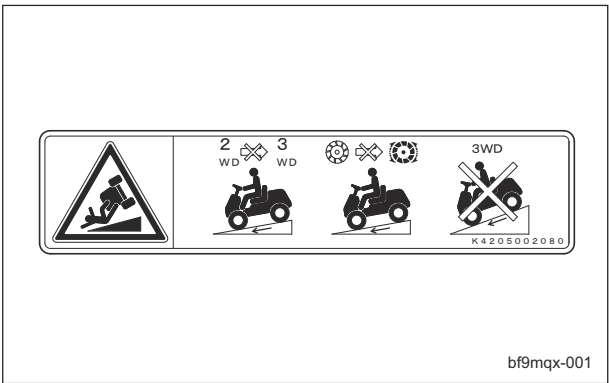
Caution for Slopes (3WD) Decal

K4205002080
Decal, caution for slopes (3WD)
(3WD spec model only)



Warning

Rollover - Do not switch between 2WD and 3WD while traveling on downward slopes. Do not set the reel rotation switch to the "Rotation" position while traveling on downward slopes. Do not travel in three-wheel drive on downward slopes.



bf9mqx-001

Prohibited Drive at Public Road Decal

[JP]
K4205001660
Decal, not to drive at public road



46m131-001

Caution to Noise Decal

[US]

K4205002090

Decal, caution to noise



bwu9po-001

Decal on Reading Owner's Operating Manual

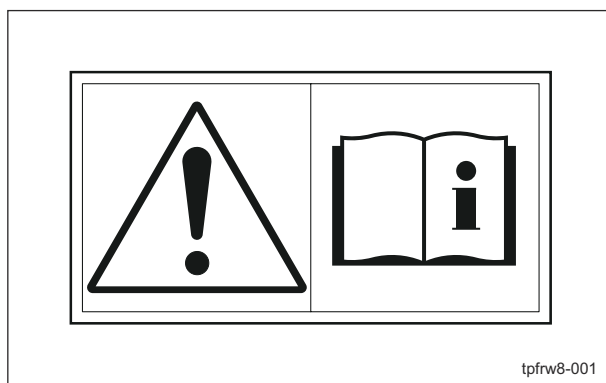
[US]

K4205001560

Decal, read Owner's Operating Manual



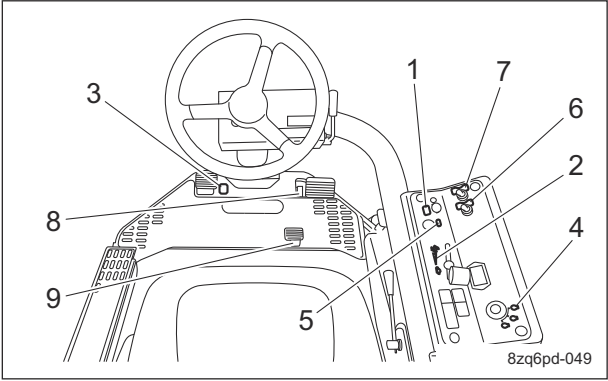
Read the Owner's Operating Manual.



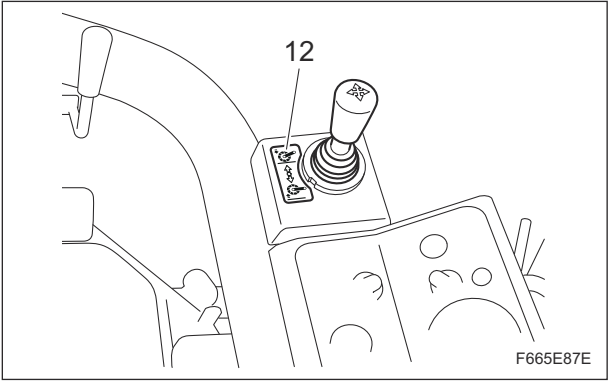
tpfrw8-001

Operation Decals

Positions of Operation Decals

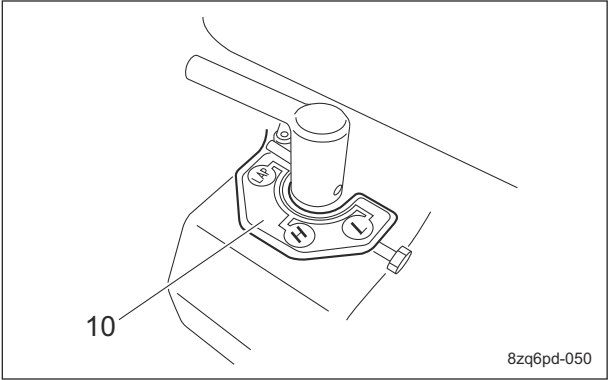


8zq6pd-049



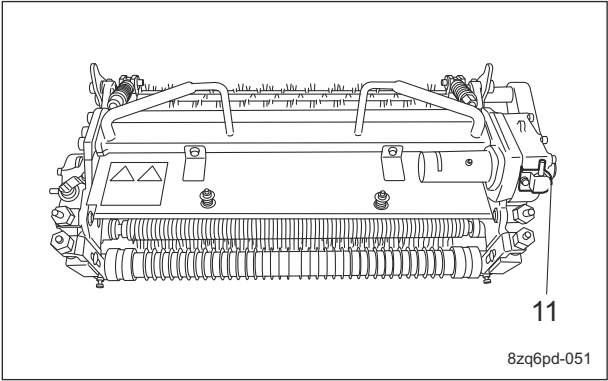
F665E87E

F665E87E



8zq6pd-050

8zq6pd-050



8zq6pd-051

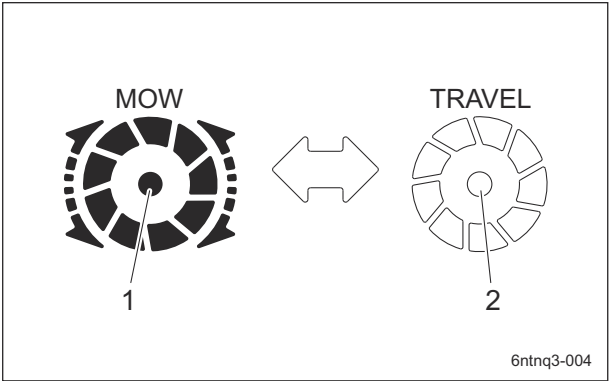
8zq6pd-051

1	Reel rotation/stop mark
2	Engine rotation mark
3	Mower unit Up/Down decal (For mower pedal model)
4	Key switch mark
5	Mower unit up-switch mark (with reel excess discharge system)
6	2WD/3WD changeover decal
7	Light switch decal
8	FORWARD decal
9	BACKWARD decal
10	Position decal
11	Mower unit reel rotation changeover decal
12	Mower unit Up/Down decal (For joystick model)

Description of Operation Decals

Reel Rotation/Stop Mark

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



6ntnq3-004

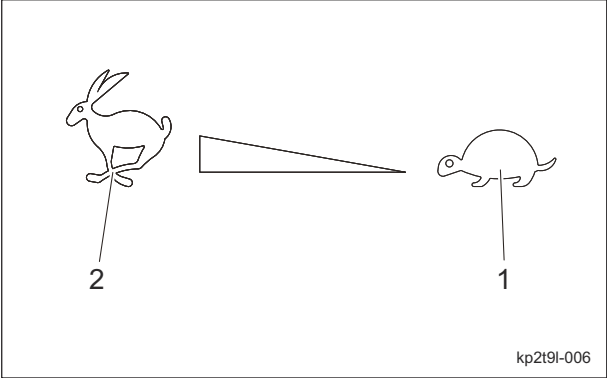
6ntnq3-004

1	Rotation
2	Stop

Product Overview

Engine Rotation Mark

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

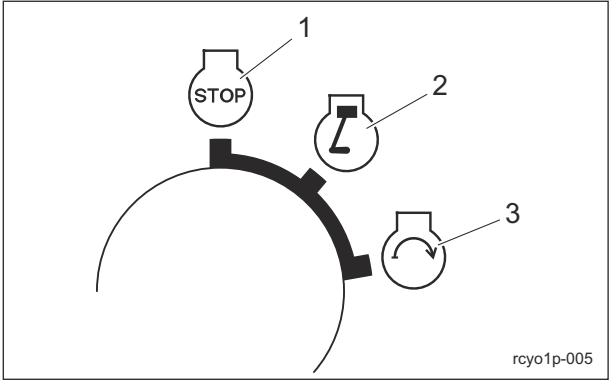


kp2t9l-006

1	Low speed
2	High speed

Key Switch Mark

Key switch mark
It illustrates the position of the key switch.

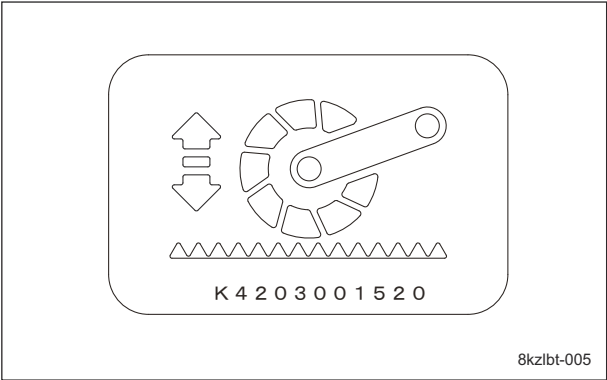


rcyo1p-005

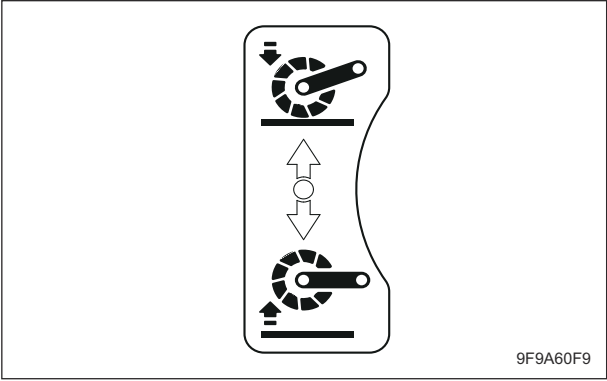
1	OFF
2	ON
3	START

Mower Unit Up/Down Decal

K4203001520
Decal, lifting units
This indicates up-down of the mower unit.

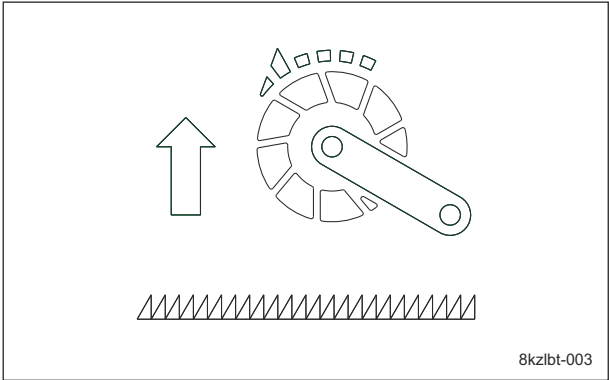


K4203001730
Decal, lifting units
This indicates up-down of the mower unit.



Mower Unit Up-Switch (with Reel Excess Discharge System) Mark

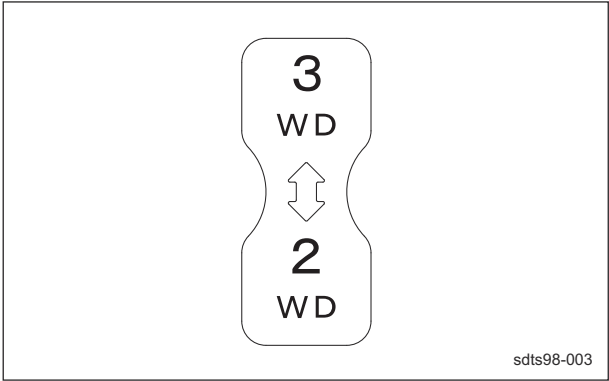
Mower unit up-switch (with reel excess discharge system) mark
This indicates mower unit up-switch and reel excess discharge system.



8kzlb-003

2WD/3WD Changeover Decal

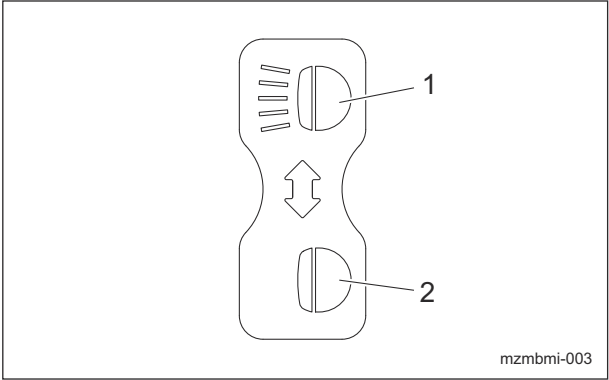
Note:
Depending on the specifications, this function may not be available.
K4203001620
Decal, shifting 2WD/3WD
This indicates 2WD/3WD changeover.



sdts98-003

Light Switch Mark

Note:
Depending on the specifications, this function may not be available.
K4203001610
DECAL, LIGHT SWITCH
It illustrates ON/OFF of the light.



mzmbmi-003

1	ON
2	OFF

FORWARD Decal

K4203001430
Decal, FORWARD
This indicates forward travel.

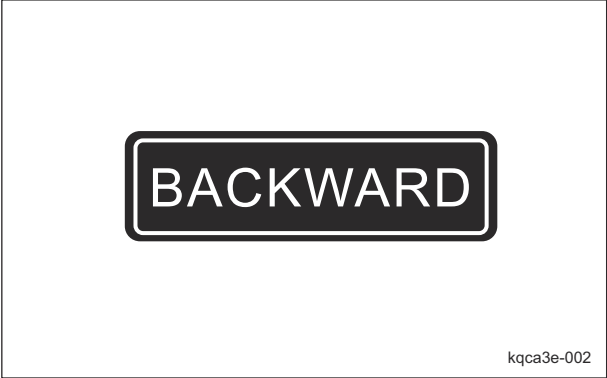


kqca3e-001

Product Overview

BACKWARD Decal

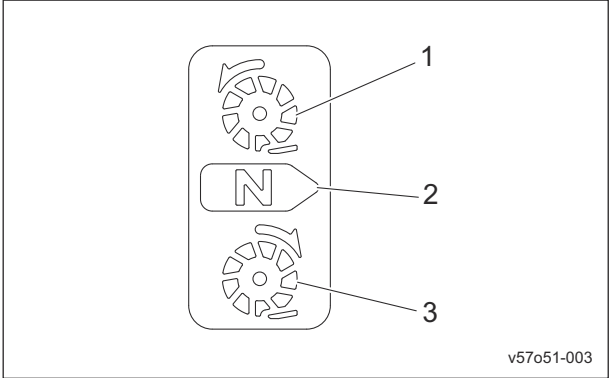
K4203001440
Decal, BACKWARD
This indicates backward travel.



kqca3e-002

Mower Unit Reel Rotation Changeover Decal

K4203001550
Sticker, rotating direction
This indicates changeover of normal rotation, neutral and reverse rotation of mower unit reel cutter.

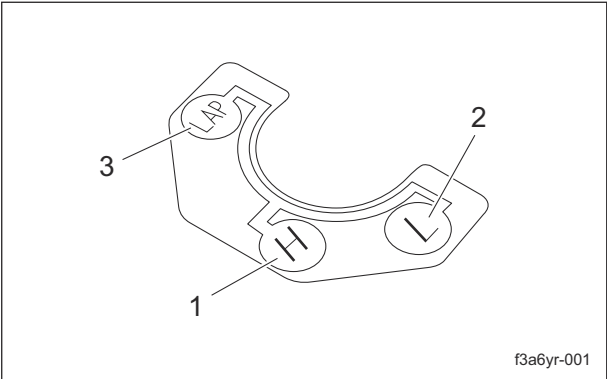


v57o51-003

1	Normal rotation (cutting rotation)
2	Neutral
3	Reverse rotation (back lapping rotation)

Position Decal

LM315GC1418Z0
Decal, position
This indicates changeover of High/Low speed of reel cutter rotation and back lapping rotation.



f3a6yr-001

1	High speed
2	Low speed
3	Back lapping

Product Overview

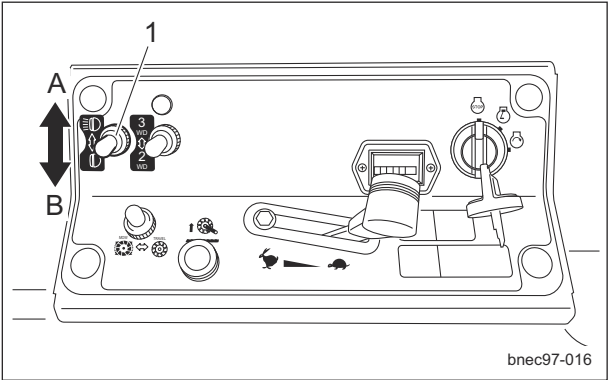
Description of Functions

Light Switch	Page 4-2
Throttle Lever	Page 4-2
Key Switch	Page 4-2
Mower Pedal	Page 4-3
Joystick	Page 4-3
Mower Unit Up Switch	Page 4-4
Up Switch (with Reel Excess Discharge System)	Page 4-4
2WD/3WD Selector Switch	Page 4-5
Reel Rotation Switch	Page 4-5
Reel Reverse Lever	Page 4-6
Transmission Selector Lever	Page 4-6
Traveling Pedal	Page 4-7
Parking Brake Lever	Page 4-7
Broom Holder	Page 4-8
Swisher Holder	Page 4-8
Cargo Box	Page 4-8
Instruments on The Operation	
Panel	Page 4-10
Hour Meter	Page 4-10
Fuel Gauge	Page 4-10
Safety Device	Page 4-11
Interlock System	Page 4-11
Warning Mechanisms	Page 4-11
Warning Buzzer	Page 4-11

Description of Functions

Light Switch

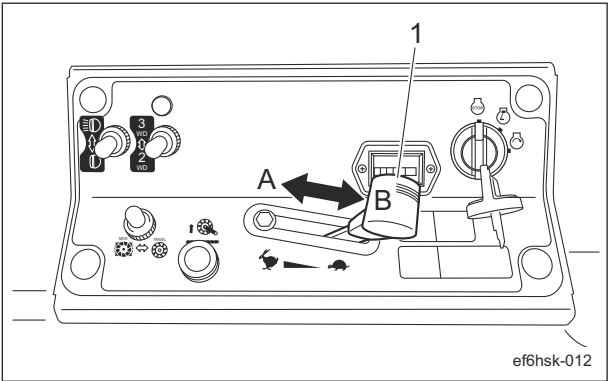
Note:
Depending on the specifications, this function may not be available.
The light switch is located in the operation panel.
Flip the switch up to turn the light on, and down to turn the light off.



bnec97-016	
1	Light switch
A	ON
B	OFF

Throttle Lever

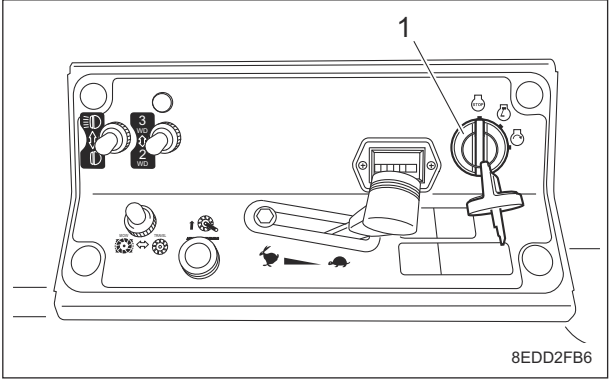
The throttle lever is located in the operation panel and enables you to adjust the engine rpm. Move the throttle lever toward the "High speed" position to increase the engine rpm, and toward the "Low speed" position to reduce the rpm.



ef6hsk-012	
1	Throttle lever
A	High speed
B	Low speed

Key Switch

The key switch is a lock for inserting the ignition key.
This is used to start, run or stop the engine by turning the ignition key to change the key switch position.



8EDD2FB6	
1	Key switch

Description of Functions

Mower Pedal

Note:

Depending on the specifications, this function may not be available.

Caution

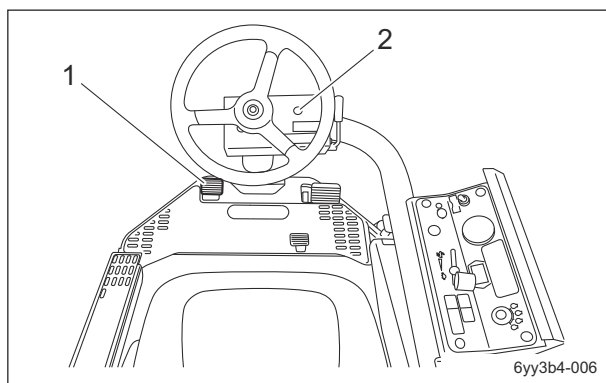
Do not keep depressing the mower pedal after an operation.
It may cause malfunction.

Important

Even if the reel rotation switch is set to the "Rotation" position, when the mower units are raised, the reel cutters (cutting cylinders) stop rotating.

Important

Operation of the mower pedal cannot raise the mower units to the highest position.
When traveling, keep pressing the up switch to raise the mower units to the highest position.



6yy3b4-006

1	Mower pedal
2	Green LED

The mower pedal is located on the left of the foot area in front of the driver's seat. Depressing the pedal switches the mower units between the up and down positions.
When it is switched to the down position, the green LED on the steering column lights up.
The Up/Down speed of the mower unit is affected by the engine rotation speed. When the engine rotation is at low speed, the Up/Down speed is at low as well.

Joystick

Note:

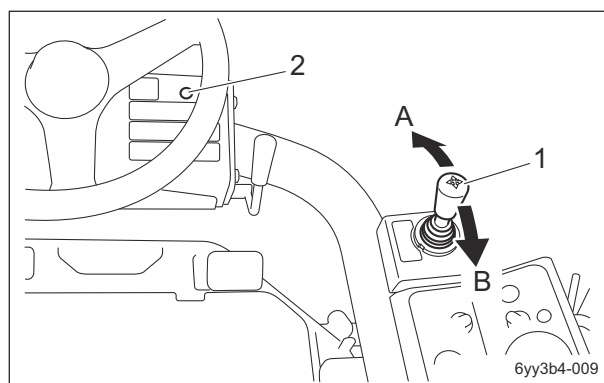
Depending on the specifications, this function may not be available.

Important

Even if the reel rotation switch is set to the "Rotation" position, when the mower units are raised, the reel cutters (cutting cylinders) stop rotating.

Important

Operation of the joystick cannot raise the mower units to the highest position.
When traveling, keep pressing the up switch to raise the mower units to the highest position.



6yy3b4-009

1	Joystick
2	Green LED lamp
A	Down
B	Up

Tilting the joystick back and forth switches the mower units between the up and down positions.

Only while the joystick tilted to the "Down" position, the green LED on the steering column lights up.

The Up/Down speed of the mower unit is affected by the engine rotation speed. When the engine rotation is at low speed, the Up/Down speed is at low as well.

Description of Functions

Mower Unit Up Switch

Up Switch (with Reel Excess Discharge System)

 **Warning**

The reel cutter rotates while holding down the up switch when the reel rotation switch is set to the "Rotation" position.
Set the reel rotation switch to the "Stop" position except during mowing or backlapping and using reel excess discharge system.

 **Warning**

The reel cutter rotates when using reel excess discharge system.
Keep hands and feet away from moving parts.

 **Caution**

Before using reel excess discharge system, make sure that there are no people around the machine.

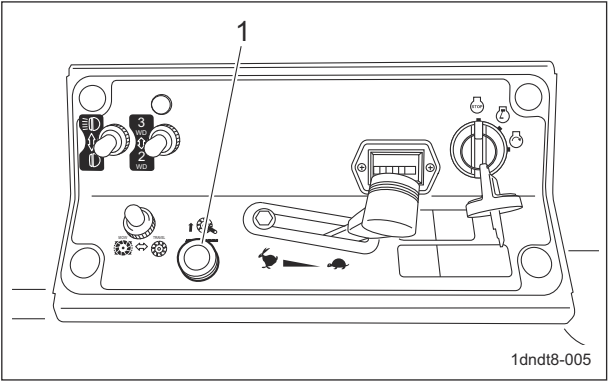
Important

Do not press the up switch when the mower unit is at lowered position.
Otherwise, the harness will get damaged.

Important

The reel cutter keeps rotating even if the mower unit raised to the highest position while holding down the up-switch.

- Reel excess discharge system
Reel excess discharge system is the function to remove clippings inside the reel cutter by rotating the reel cutter with the up switch on the condition that the mower unit raised and the reel rotation switch set to the "Rotation" position.
With this function, falling of lumps of clippings can be prevented during mowing operation and the time of washing the vehicle can be shortened.



1dndt8-005

1	Up Switch(with reel excess discharge system)
---	--

- Up Switch
The up switch is located in the operation panel.
If the height of the mower unit is not sufficient for traveling etc, set the reel rotation switch to the "Stop" position and keep pressing the up switch to operate the magnetic valve to raise the mower unit to the highest position.

Description of Functions

2WD/3WD Selector Switch

⚠ Caution

In case of 2WD/3WD model, travel in 2WD mode since it is dangerous to travel on steep downward slopes, wet road surface or downward slopes of wet lawn in 3WD mode. Rear tire going into a skid may cause loss of traveling control.

Important

When the reel rotation switch is set to the "Rotation" position, regardless of the position of the 2WD/3WD selector switch, 3WD is selected.

When the traveling mode is switched to 3WD, the red LED in front of the 2WD/3WD selector switch lights up.

Important

When switching between 2WD and 3WD operation, make sure to stop the machine completely.

Otherwise, the hydraulic system will malfunction.

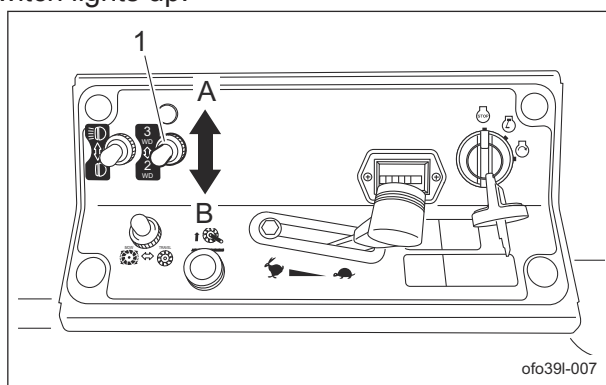
Note:

Depending on the specifications, this function may not be available.

The 2WD/3WD selector switch is located in the operation panel.

When the switch is set to the "2WD" position, the machine will be in two-wheel drive. When it is set to the "3WD" position, the machine will be in three-wheel drive.

When the traveling mode is switched to 3WD, the red LED in front of the 2WD/3WD selector switch lights up.



ofo39I-007

1	2WD/3WD selector switch
A	3WD
B	2WD

Reel Rotation Switch

⚠ Warning

The reel cutter rotates while holding down the up switch when the reel rotation switch is set to the "Rotation" position.

Set the reel rotation switch to the "Stop" position except during mowing or backlapping and using reel excess discharge system.

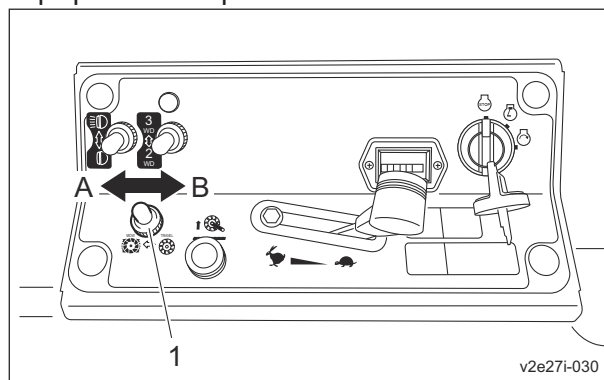
⚠ Caution

In case of 2WD/3WD model, travel in 2WD mode since it is dangerous to travel on steep downward slopes, wet road surface or downward slopes of wet lawn in 3WD mode. Rear tire going into a skid may cause loss of traveling control.

Important

In case of 2WD/3WD model, whenever the reel rotation switch is set to the "Rotation" position, the drive mode is put into 3WD regardless of the position of the 2WD/3WD selector switch.

The reel rotation switch is located in the operation panel. Setting the switch to the "Rotation" position rotates the reel, and to the "Stop" position stops the reel.



v2e27I-030

1	Reel rotation switch
A	Rotate
B	Stop

Description of Functions

When the reel rotation switch is set to the "Rotation" position, the reel cutters (cutting cylinders) will rotate or stop in sync with the up and down motion of the mower units. When the mower units are lowered, the reel cutters (cutting cylinders) rotate, and when the mower units are raised, they stop.

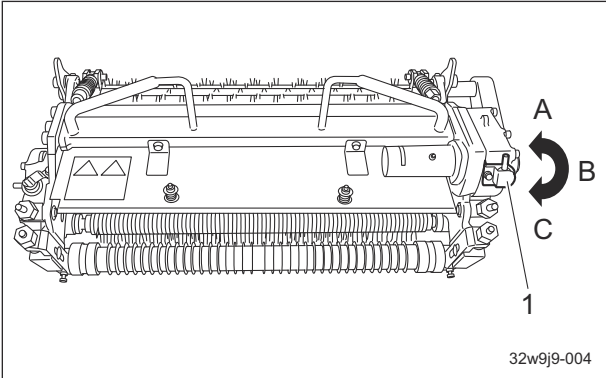
- 1. When the mower units are lowered, the sensor activates the electromagnetic clutch, and the reel cutters (cutting cylinders) start rotating by means of the flexible wire.
- 2. When the mower units are raised, even if the reel rotation switch is set to the "Rotation" position, the sensor does not activate the electromagnetic clutch, and the reel cutters (cutting cylinders) do not rotate.

Reel Reverse Lever

Important

Operate the reel reverse lever while the rotation of the reel cutter (cutting cylinder) is stopped, and adjust it to the position suitable for your work.

The reel reverse lever is located at the upper part of the gear case of the mower unit. If you set the lever to Normal, it starts cutting rotation, set to Reverse for back lapping rotation and Neutral for free rotation.



32w9j9-004

1	Reel reverse lever
A	Normal rotation
B	Neutral
C	Reverse rotation

Transmission Selector Lever

Warning

Be sure to stop the engine before and during shifting the transmission selector. Otherwise, your hands may get caught in the belt.

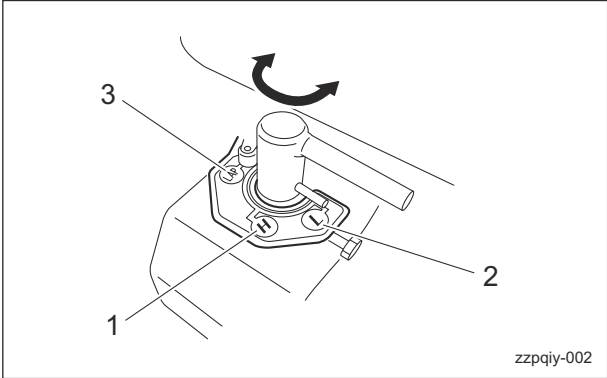
Important

The transmission selector lever should be operated while the engine rotation is stopped, and adjusted to the position suitable for your work.

Important

For the LM315GC (for fields), normally cut with the lever set to the "Low speed" position.

The transmission selector lever is located at the upper part of the transmission, behind the driver's seat. When the lever is shifted to the "High speed" position the reel cutters (cutting cylinders) rotate fast; on "Low speed" they rotate slowly; on "Back lapping" they rotate more slowly, at a suitable speed for back lapping.



zzpqiy-002

1	High speed
2	Low speed
3	Back lapping

- 1. High speed (H)
The reel cutters (cutting cylinders) rotate faster, and the clip pitch (cutting interval) becomes shorter.
This is suitable for the work at a good turf condition.

Description of Functions

2. Low speed (L)

The reel cutter (cutting cylinder) rotates slower compared to when it is at the "High speed" position and the clip pitch becomes longer.

This is suitable for the work at the turf condition not so good.

3. Back lapping (LAP)

The reel cutter (cutting cylinder) rotates in a speed suitable for the back lapping and its maintainability increases. (The rotation direction is not changed, so use the reel reverse lever of the mower unit to reverse the rotation).

1	Forward pedal
2	Reverse pedal

Traveling Pedal



Caution

When the machine is traveling at a high speed, it will not stop immediately after you take your foot off the traveling pedal.



Important

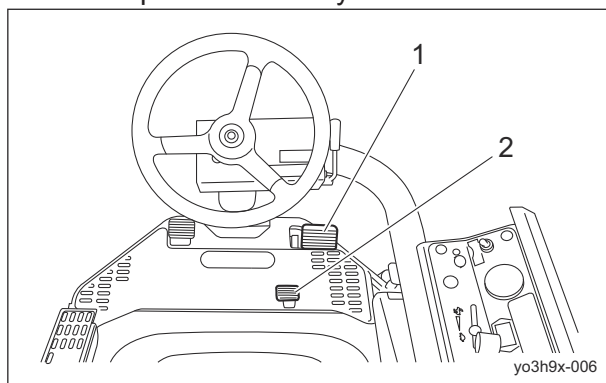
When the reel rotation switch is turned to the "Rotation" position the working speed is limited by the pedal stopper.

The traveling pedals are located in the right foot area and control forward and reverse operation of the machine.

When the forward pedal (front side) is depressed, the machine travels forward. When the reverse pedal (rear side) is depressed, the machine travels backward.

The speed changes in accordance with how much the pedal is depressed.

When you take your foot off the pedal, the machine stops automatically.



yo3h9x-006

Parking Brake Lever



Caution

Never park the machine on a slope.



Important

Be sure to release the parking brake before driving.

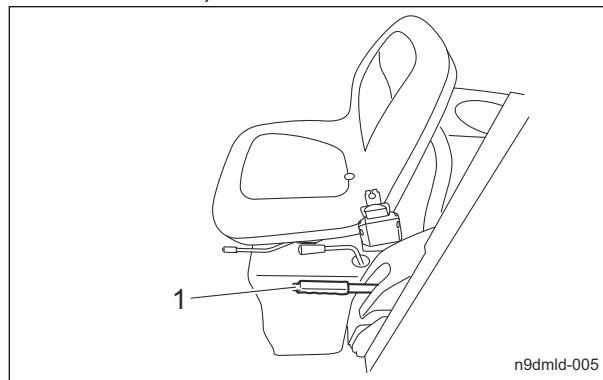
Otherwise, it will cause the malfunction of the brake or hydraulic system.

The parking brake lever is located at the left of the driver's 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.

If the traveling pedal is depressed while the parking brake is applied, a buzzer will sound. (intermittent tone)



n9dml-005

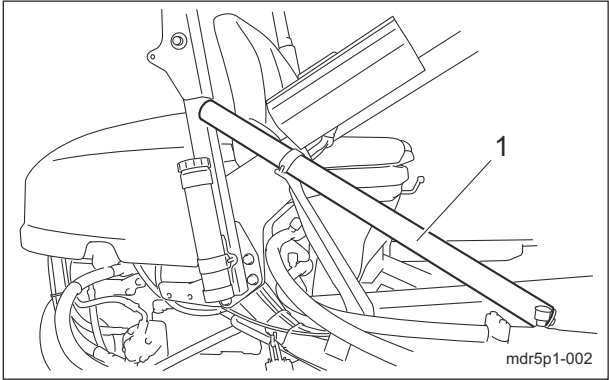
n9dml-005

1	Parking brake lever
---	---------------------

Description of Functions

Broom Holder

Note:
Depending on the specifications, this function may not be available.
Broom can be stored in this holder for transport.

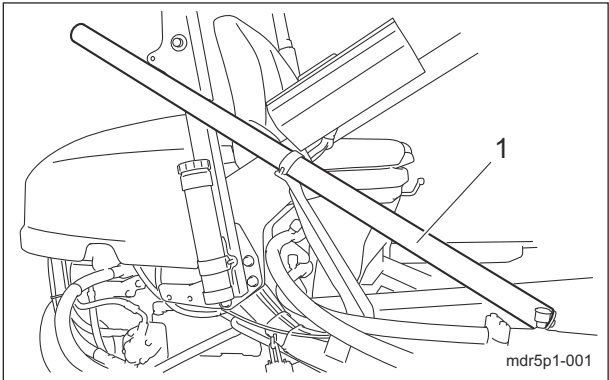


mdr5p1-002

1	Broom holder
---	--------------

Swisher Holder

Note:
Depending on the specifications, this function may not be available.
Swisher pole can be stored in this holder for transport.



mdr5p1-001

1	Swisher holder
---	----------------

Cargo Box

[JP]
Note:
Depending on the specifications, this function may not be available.

Important

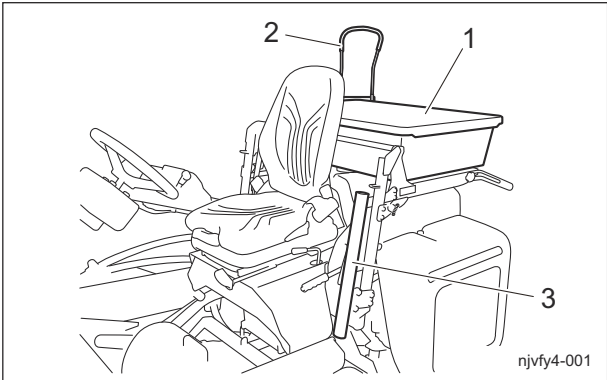
When equipped with ROPS, Cargo Box cannot be installed.

Important

The maximum loading weight is 15 kg (33.07 lb).

Cargo Box is a large container to transport equipment such as a back pack blower which may be used together during cutting work.

Note:
Cargo Box includes a broom holder.
The broom holder can be installed to the left side of the operator's seat.
Cargo Box can be moved back and forth and lifted up.



njvfy4-001

1	Cargo box
2	Blower nozzle holder
3	Broom holder

Description of Functions

Important

Move Cargo Box to the front side and secure it before starting the engine.

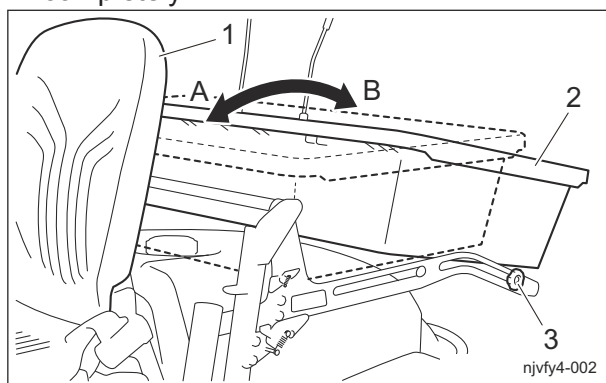
Important

Move Cargo Box to the rear side when refueling.

1. Follow the steps below to secure the cargo box.

[1] Loosen the right and left knobs

[2] Slide and move the cargo box forward completely.

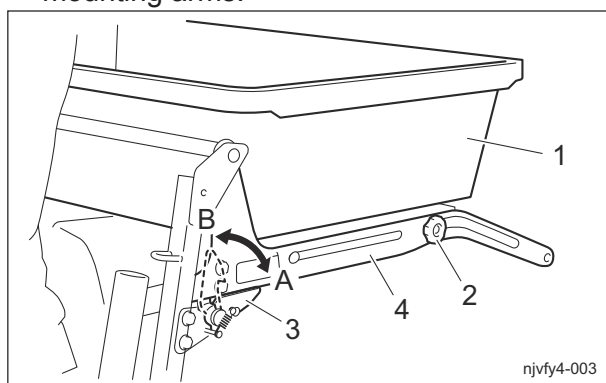


njvfy4-002

1	Seat
2	Cargo box
3	Knob
A	Forward
B	Backward

[3] Tighten the right and left knobs.

[4] Set the right and left locking levers to the "Lock" position to fix the cargo box mounting arms.



njvfy4-003

1	Cargo box
2	Knob
3	Locking lever
4	Cargo box mounting arm
A	Lock
B	Release

Important

Lift up the cargo box when opening or closing the hood.

2. Follow the steps below to lift up the cargo box.

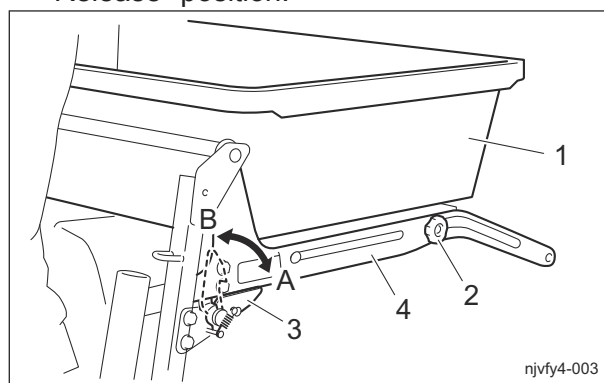
[1] Empty the cargo box.

[2] Loosen the right and left knobs.

[3] Slide and move the cargo box backward completely.

[4] Tighten the right and left knobs.

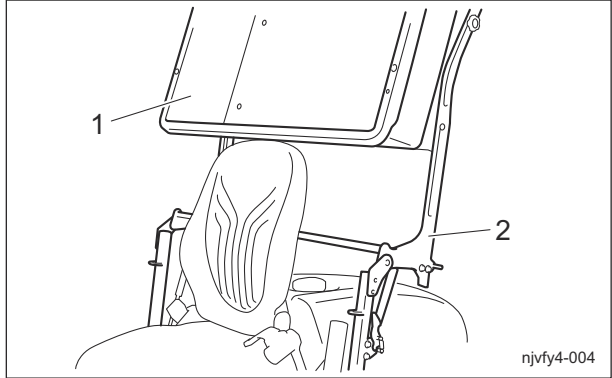
[5] Set the right and left locking lever to the "Release" position.



njvfy4-003

1	Cargo box
2	Knob
3	Locking lever
4	Cargo box mounting arm
A	Lock
B	Release

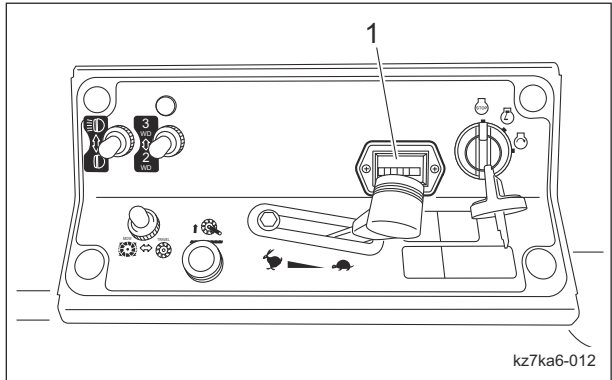
[6] Lift up the cargo box mounting arms.



1	Cargo box
2	Cargo box mounting arm

Note:
For lowering the cargo box, reverse the lifting up procedure.

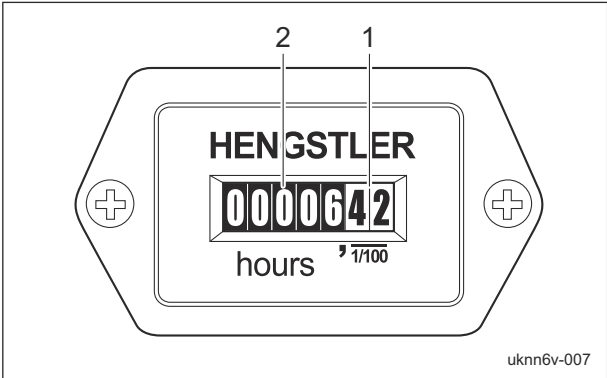
Instruments on The Operation Panel



1	Hour meter
---	------------

Hour Meter

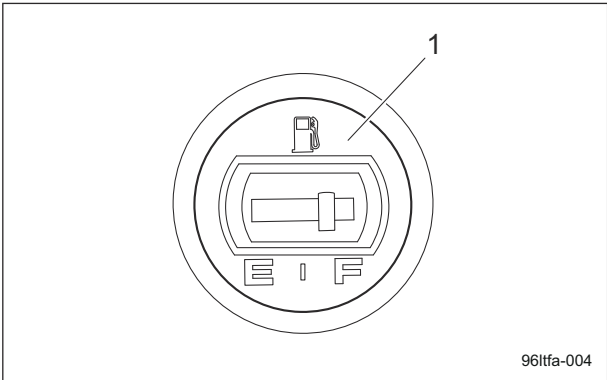
The hour meter indicates the accumulated operation time of the engine.
The number in red figures on a white background is incremented every thirty-six seconds.
The number in white figures on a black background is incremented every hour.
1/100 wheel ... red figures on a white background
Hour wheel ... white figures on a black background



1	1/100 wheel
2	Hour wheel

Fuel Gauge

The fuel gauge is located on the fuel tank.
This instrument indicates the quantity of fuel inside the fuel tank.



1	Fuel gauge
---	------------

Safety Device

Interlock System

This machine features a safety device for starting/stopping the engine.

1. As for starting the engine, the safety device prevents the engine from starting unless it meets each of the following four conditions.
 - An operator is sitting on the seat.
 - The parking brake is applied.
 - The reel rotation switch is set to the "Stop" position.
 - The traveling pedal is set to the neutral position.
2. In the event the operator leaves the seat with the parking brake not applied and the engine running, the safety device will be activated and will stop the engine.
3. In the event the operator leaves the seat with the parking brake applied and the engine running, the safety device will be activated and will stop the engine under the following conditions.
 - The traveling pedal is not set to the neutral position. (The operator has depressed the traveling pedal.)
 - The reel rotation switch is set to the "Rotation" position.
 However, when the transmission selector lever is set to the "LAP" position, engine will not stop.

Warning Mechanisms

Warning Buzzer

1. Hydraulic oil level warning buzzer
 If the oil level in the hydraulic tank decreases by approximately 1.2 dm³ (1.2 L) from the specified level, a buzzer will sound.
 (intermittent tone)
 When the buzzer sounds, stop the engine immediately, and then inspect the machine and perform any necessary maintenance.
2. Warning buzzer for traveling with brake applied
 If the traveling pedal is depressed while the parking brake is applied, a buzzer will sound.
 (intermittent tone)
 When the buzzer sounds, release the parking brake.

Description of Functions

Operations before Service Page 5-2

- Procedure to Open/Close Hood Page 5-2
- Procedure to Open/Close Underseat
Cover Page 5-2

Inspection before Use Page 5-3

- EnginePage 5-3
- Main Vehicle Page 5-5
- Mower UnitPage 5-9

Adjustment before Work Page 5-11

- Main VehiclePage 5-11

Mounting and Dismounting Page 5-13

- Procedure to Mount/Dismount Page 5-13

Start/Stop of Engine Page 5-13

- Procedure to Start Engine Page 5-13
- Procedure to Stop Engine Page 5-14

Parking and StoppingPage 5-14

- Procedure to Leave The Machine Page 5-14

MovePage 5-15

- Traveling Procedure Page 5-15

Cutting Work Page 5-15

- Cutting ProcedurePage 5-15
- Reel Excess Discharge SystemPage 5-16
- Removing Grass Catcher Page 5-17

TransportingPage 5-17

- Transporting Procedure Page 5-17

Cleaning after Use Page 5-17

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Storage Page 5-17

- Short-Term Storage Page 5-17

Handling Instructions

Operations before Service

The following sections describe the preparatory works required before performing the services including inspection, adjustment, cleaning, maintenance and repair.

Procedure to Open/Close Hood

[JP]

Caution

Do not open the hood in strong winds.

Caution

Be careful not to pinch your fingers when you open or close the hood.

1. When equipped with a cargo box:
Lift up the cargo box.
2. Lift up the hood.
3. Make sure that the hood will not close, and then remove your hands.



i5jb7e-012

1 Hood

4. When closing the hood, do the operation slowly.
5. Press the hood lightly.

[US]

Caution

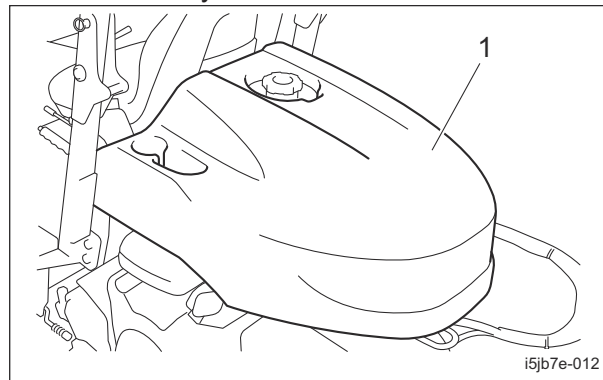
Do not open the hood in strong winds.

Caution

Be careful not to pinch your fingers when you open or close the hood.

1. Lift up the hood.

2. Make sure that the hood will not close, and then remove your hands.



i5jb7e-012

1 Hood

3. When closing the hood, do the operation slowly.
4. Press the hood lightly.

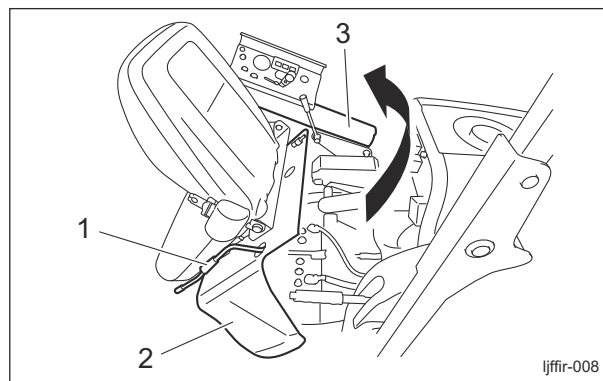
Procedure to Open/Close Underseat Cover

[JP]

Caution

Be careful not to pinch your fingers when you open or close the underseat cover.

1. Remove the grass catcher located at the center.
"Removing Grass Catcher" (Page 5-17)
2. Adjust the steering wheel arm to the lowest position.
"Adjustment of Steering Wheel Position" (Page 5-12)
3. Slide the seat forward.
4. Pull up the forward tilt angle adjustment lever and lift up the underseat cover together with the seat.



ljffir-008

Handling Instructions

1	Forward tilt angle adjustment lever
2	Underseat cover
3	Steering wheel arm

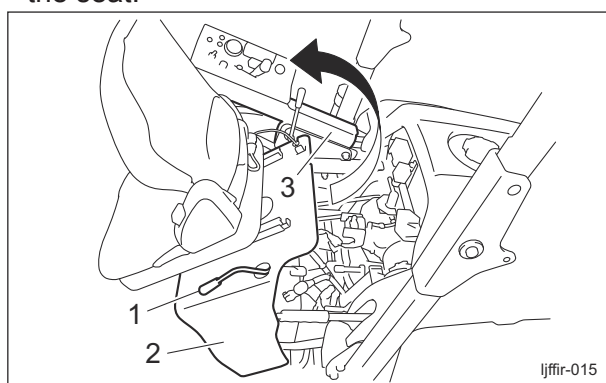
- When closing the underseat cover, do it slowly and be sure to use the forward tilt angle adjustment lever to fix it securely.

[US]

Caution

Be careful not to pinch your fingers when you open or close the underseat cover.

- Remove the grass catcher located at the center.
"Removing Grass Catcher" (Page 5-17)
- Adjust the steering wheel arm to the lowest position.
"Adjustment of Steering Wheel Position" (Page 5-12)
- Slide the seat forward.
- Pull up the forward tilt angle adjustment lever and lift up the underseat cover together with the seat.



ljffir-015

1	Forward tilt angle adjustment lever
2	Underseat cover
3	Steering wheel arm

- When closing the underseat cover, do it slowly and be sure to use the forward tilt angle adjustment lever to fix it securely.

Inspection before Use

The purpose of the machine inspection is to:

- Prevent accidents
- Prevent damage to the machine
- Maintain machine performance

Detecting machine malfunctions early helps prevent unexpected problems from occurring. If you detect any abnormalities with the machine, immediately perform maintenance or repairs.

Engine

Inspection of Engine Oil

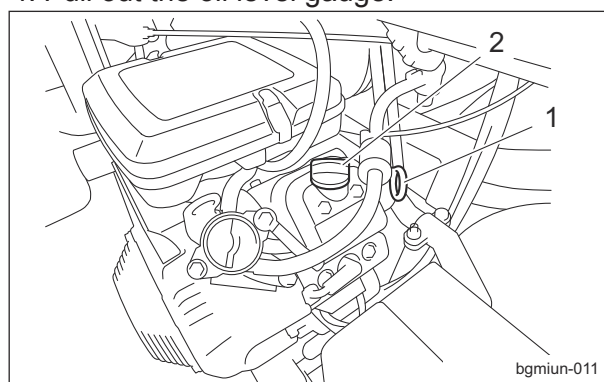
Important

Securely insert the oil level gauge.

Check the contamination of oil and engine oil level to inspect the engine oil.

Inspect the engine oil level 10 to 20 minutes after stopping the engine.

- Place the machine so that the engine is level.
- Stop the engine.
- Open the hood.
- Pull out the oil level gauge.



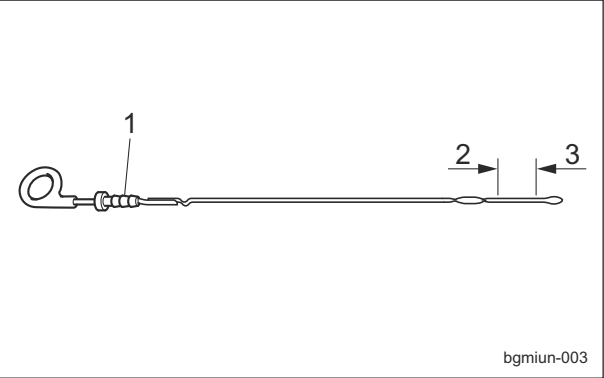
bgmiun-011

1	Oil level gauge
2	Oil filler cap

- Wipe the oil off the oil level gauge cleanly with papers or cloths.
- After wiping the oil off the oil level gauge, check the contamination.
- Return the oil level gauge to its original position, insert tightly, and pull out again.

Handling Instructions

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



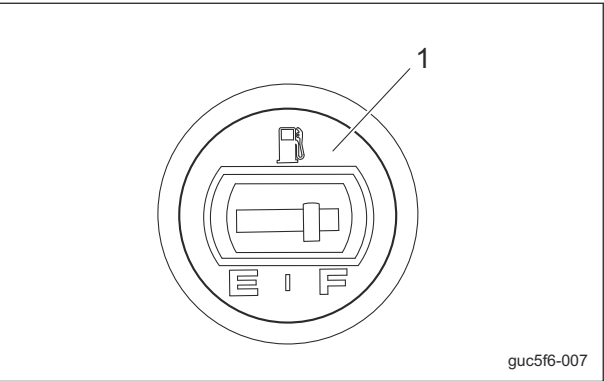
bgmiun-003

1	Oil level gauge
2	Upper limit
3	Lower limit

9. Return the oil level gauge to its original position, and insert it tightly.
10. Close the hood.

Inspection of Fuel Quantity

With the machine on a level surface, observe the fuel gauge on the fuel tank to check the fuel level.



guc5f6-007

1	Fuel gauge
---	------------

Supply of Fuel

Warning

Supply fuel before starting the engine.
Never remove the tank cap or supply fuel while the engine is running.
When opening the tank cap, wait at least 1 minute after stopping the engine, and then slowly open the cap to release the pressure in the tank.
Opening the tank cap quickly may cause fuel to burst out.

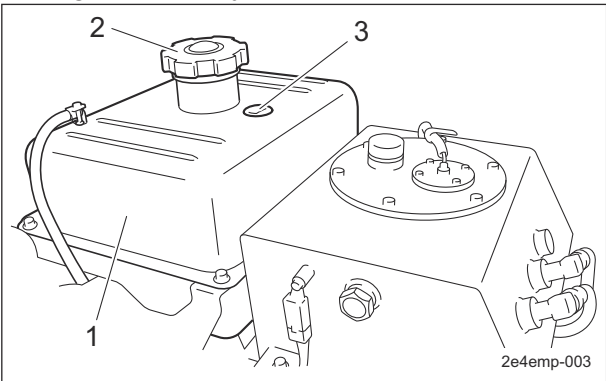
Warning

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

Warning

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

Note:
When the machine is equipped with the cargo box, slide it backward for fuel supply.
If the fuel gauge, located on the fuel tank, indicates a level close to E (EMPTY), supply fuel (gasoline) at your earliest convenience.

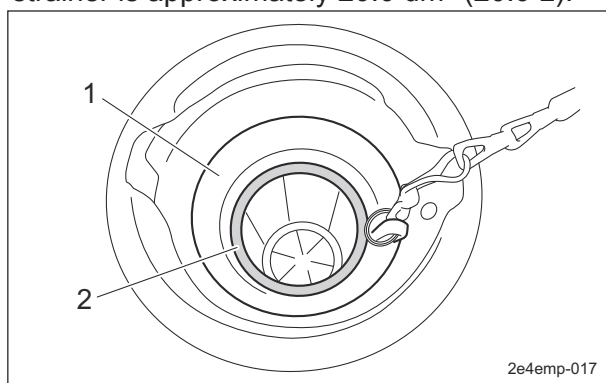


2e4emp-003

1	Fuel tank
2	Tank cap
3	Fuel gauge

Handling Instructions

The fuel tank capacity up to the red ring of strainer is approximately 20.0 dm³ (20.0 L).



2e4emp-017

1	Strainer
2	Red ring

Inspection of Fuel Filter

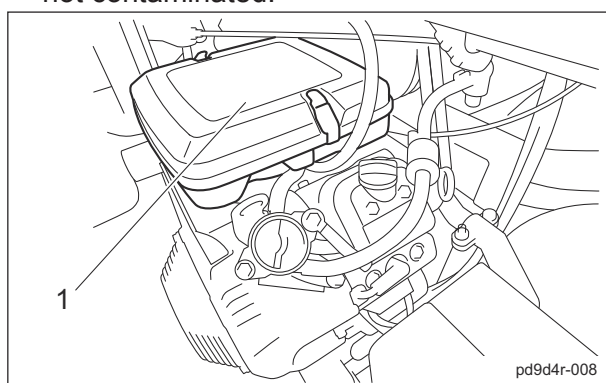
1. Make sure that there is no fuel leakage.
2. Make sure that the filter is not damaged.
3. Make sure that the filter is not contaminated.

Inspection of Fuel Strainer

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

Inspection of Air Cleaner

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



pd9d4r-008

1	Air cleaner
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Inspection of Engine-Associated Parts

Caution

Perform operations after the muffler, engine and other parts have sufficiently cooled. Otherwise, you may get burned.

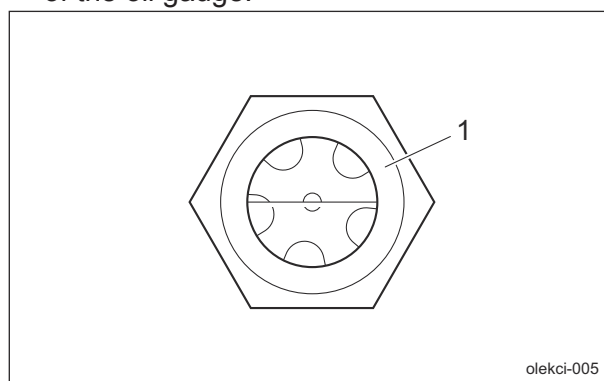
1. Check for damages and dirt.
2. Check the mount for looseness and cracks.
3. Check for liquid leakage.
4. Check on and around the muffler for grass clippings and flammable materials.

Main Vehicle

Inspection of Hydraulic Oil

The oil gauge is on the side of the hydraulic tank.

1. Lower the mower units and maintain that position on a level surface.
2. Make sure that the oil level is at the middle of the oil gauge.



olekci-005

1	Oil gauge
---	-----------

3. Check underneath the machine for oil leakage.

Inspection of Tires

1. Check the pneumatic pressure of the tires.
 2. Make sure that there are no cracks, damage or abnormal wear.
- (For green/For field)

	Tire size	Pneumatic pressure
Front wheel	Smooth 18 × 9.50-8 2P	80 kPa (0.8 kgf/cm ²)
Rear wheel	Smooth 18 × 9.50-8 2P	80 kPa (0.8 kgf/cm ²)

Handling Instructions

(For teeing ground)

	Tire size	Pneumatic pressure
Front wheel	Pillow Dia 18 × 8.50-8 4P	100 kPa (1.0 kgf/cm ²)
Rear wheel	Pillow Dia 18 × 8.50-8 4P	100 kPa (1.0 kgf/cm ²)

Inspection of Battery

Danger

Keep away from fire while inspecting or charging the battery.
The battery may explode.

Caution

Implement after the engine and muffler etc. have well cooled down.
Otherwise, you may get burned.

Important

Be sure to stop the engine before inspecting or charging the battery.

Battery inspection items are described below.

1. Inspecting the exterior

Visually inspect the exterior of the battery, and check that there are no cracks, splits, missing sections, or abnormal deformation in the battery case, and that there is no electrolyte leaking.

If abnormalities are found, immediately replace the battery.

2. Cleaning the exterior

Warning

Do not clean the battery with a dry cloth. Cleaning the battery with a dry cloth may cause it to catch fire or explode due to static electricity.

Use a wet cloth for cleaning.

Inspect the vent plugs or vent holes on the side of the battery, and if they are blocked by dirt wash them with water to remove the blockage.

Continuing to use the battery with the vent holes blocked may cause the battery to rupture from increased internal pressure due to gases generated inside the battery.

3. Inspecting the mounting bracket

Inspect whether the battery is secured firmly with the mounting bracket.

If the bracket is loose, tighten the mounting bracket nuts until the battery is secured firmly.

An improperly mounted battery may cause damage to the battery case or electrolyte leaks due to the battery moving with vibrations while traveling.

4. Inspecting the cable terminals

If the connection between the battery terminals and vehicle's cable terminals are loose, tighten the nuts until the cable terminals are secured firmly.

Insufficiently tightened terminals may result in poor battery charging, damage to the terminals due to poor contacts, or an explosion.

If the terminals are corroded, rub them clean with a wire brush or fine grit sandpaper, and lightly apply anti-rust grease.

Handling Instructions

5. Inspecting the electrolyte level and refilling

Warning

Do not allow the battery fluid level to become lower than the LOWER LEVEL (minimum fluid level line).

The battery may explode if it is used or charged while the battery fluid level is at the LOWER LEVEL (minimum fluid level line).

Warning

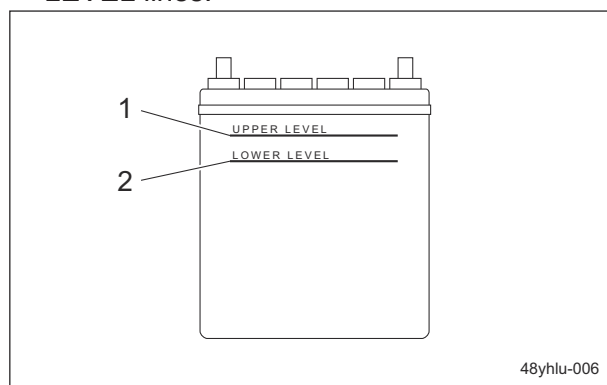
When refilling, do not fill purified water above the UPPER LEVEL line.

Doing so may result in electrolyte leaks.

Clean the areas around the battery fluid level lines using a cloth damped with water to check the electrolyte level from the side of the battery.

Make sure that the battery fluid level is between the UPPER LEVEL (maximum fluid level line) and the LOWER LEVEL (minimum fluid level line).

Refill with purified water up to the UPPER LEVEL line if the level is lower than halfway between the UPPER LEVEL and LOWER LEVEL lines.



48yhlu-006

1	UPPER LEVEL line
2	LOWER LEVEL line

Inspection of Covers

Warning

If you have removed the cover during inspection, make sure that you replace it in the original position securely.

If the cover remains removed, the operator or the mechanic may come in contact with the rotating objects or belt, or foreign objects may fly off, possibly resulting in injuries.

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

Inspection of Wire

1. Make sure that the wire is not cracked or damaged.
2. Make sure that the wire is not worn.
3. Make sure that the wire is not crushed.
4. Make sure that the wire is not bent.
5. Make sure that the wire is not corroded or rusted.

Inspection of Traveling Pedal

1. Make sure that there is no play in the pedal.
2. Make sure that the pedal moves smoothly.
3. Make sure that there is no abnormal sound when the pedal is depressed.

Inspection of Brake Lever

1. Check the brake lever moves smoothly.
[1] Pull the brake lever.
[2] Press the push button and release the brake lever.
2. Check there is no abnormal sound when the brake lever is moved.
3. Check the brake is applied when you pull the brake lever.

Inspection of Steering Wheel

1. Make sure that there is no play in the steering wheel.
2. Make sure that the steering wheel turns smoothly when it is turned.

Handling Instructions

3. Make sure that there is no abnormal sound when the steering wheel is turned.

4. Check the direction of tires when the steering wheel is turned.

[1] Start the engine.

[2] Make sure that the rear tire turns left when the steering wheel is turned right.

[3] Make sure that the rear tire turns right when the steering wheel is turned left.

[4] Stop the engine.

Inspection of Liquid Leakage

Important

After approximately 50 hours of operation, some tightened portions may be loosened and liquid such as oil may leak. Be sure to retighten the parts.

Important

Repair the machine before operation if liquid leakage found. Ignoring leakage will cause further trouble.

1. Check the bottom of the machine for leakage of liquid such as oil, water, fuel, etc.

2. Locate the leakage and identify the type of liquid.

Inspection of Ball Proof Net

1. Check the ball proof net is not deteriorated.

2. Check there is no damage nor deformation of the ball proof net.

Inspection of Bolts and Nuts

Important

The bolts and nuts may be loosened at the earlier stage of the use. Be sure to retighten or replace before operating the machine whenever there is any abnormality.

1. Check the bolts and nuts for looseness and coming off.

2. Check the bolts and nuts for cracks and damages.

3. Check the bolts and nuts for rust.

4. Check around the bolts and nuts for traces of rust fluid.

5. Check for unequal bolt length.

6. Check the bolts and nuts for stripped threads and abrasion.

Inspection of Hour Meter

1. Check the hour meter is not damaged.

2. Check the hour meter operates correctly.

[1] Switch the ignition key to the "ON" position.

[2] Check the displayed number increases correctly.

[3] Switch the ignition key to the "OFF" position.

Inspection of Safety Device

Repair the machine before operation whenever there is any abnormality.

1. Interlock system

Make sure that the interlock system operates correctly.

"Interlock System" (Page 4-11)

2. ROPS

(If the machine is equipped with ROPS and a seat belt)

Make sure that the ROPS is not damaged or broken.

3. Seat belt

(If the machine is equipped with ROPS and a seat belt)

Make sure that the seat belt is not damaged or broken.

Inspection of Light

Note:

Depending on the specifications, this function may not be available.

1. Check the lights are not damaged.

2. Check the lights turn on/off.

[1] Switch the ignition key to the "ON" position.

[2] Set the light switch to the "ON" position.

[3] Check the lights have turned on.

[4] Set the light switch to the "OFF" position.

[5] Check the lights have turned off.

[6] Switch the ignition key to the "OFF" position.

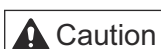
Handling Instructions

Inspection of Grass Catcher

1. Make sure that there is no wear or deterioration of the grass catcher.
2. Make sure that there is no damage to the grass catcher.
3. Make sure that there is no interference to moving parts due to deformation of the grass catcher.

Mower Unit

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



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

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.

Inspection of Covers



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 or the mechanic 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.

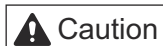
Inspection of Rollers

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.

Inspection of Groomer

Note:

Depending on the specifications, this function may not be available.



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

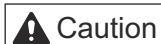
1. Make sure that the vertical blades are not cracked.
2. Check how much the vertical blades are worn.
3. Make sure that the shaft is not worn nor bent.
4. Make sure that there is no wear nor rust of the bearing.
5. Make sure that there is no play in the groomer shaft.

Handling Instructions

Inspection of Thatching Reel

Note:

Depending on the specifications, this function may not be available.



Caution

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

1. Make sure that the vertical blades are not cracked.
2. Check how much the vertical blades are worn.
3. Make sure that the shaft is not worn nor bent.
4. Make sure that there is no wear nor rust of the bearing.
5. Make sure that there is no play in the thatching reel shaft.

Inspection of Thatching Brush

Note:

Depending on the specifications, this function may not be available.

1. Make sure that there is no abrasion nor adhesion of the brush.
2. Make sure that there is no wear of the brush shaft.
3. Make sure that there is no abnormality in the brush.
4. Make sure that there is no wear nor rust of the bearings.
5. Make sure that there is no play in the brush shaft.

Inspection of CR Brush

Note:

Depending on the specifications, this function may not be available.

1. Make sure that there is no abrasion nor adhesion of the brush.
2. Make sure that there is no wear of the brush shaft.
3. Make sure that there is no abnormality in the brush.
4. Make sure that there is no play in the fit of the bearing and the housing.
5. Make sure that there is no play in the brush shaft.

Inspection of Front Scraper

Note:

Depending on the specifications, this function may not be available.

1. Make sure that there is no damage nor deformation of the scraper.
2. Make sure that there is no contact between the scraper and roller.

Inspection of Rear Scraper (Wire Type)

Note:

Depending on the specifications, this function may not be available.

1. Make sure that there are no breaks or sagging in the scraper (wire).
2. Make sure that there is no contact between the scraper and roller.

Handling Instructions

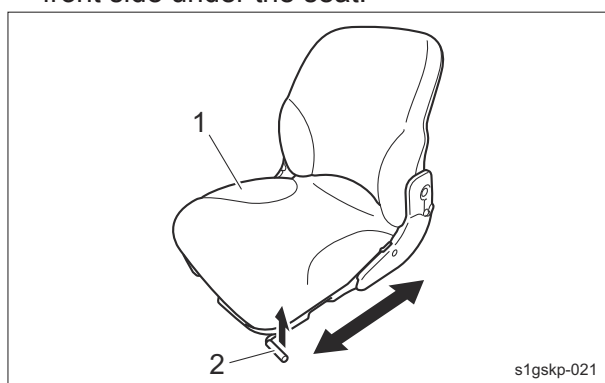
Adjustment before Work

Main Vehicle

Adjustment of Seat Position

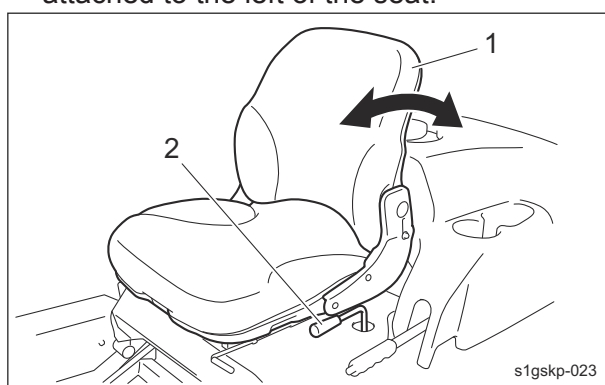
[JP]

1. Use the seat adjustment lever to adjust the seat position back and forth.
Adjust the position to fit the operator.
The adjustment lever is attached to the front side under the seat.



1	Seat
2	Adjustment lever

2. The seat can be adjusted up and down in 3 levels by pulling up the forward tilt angle adjustment lever.
Adjust the position to fit the operator.
The forward tilt angle adjustment lever is attached to the left of the seat.



1	Seat
2	Forward tilt angle adjustment lever

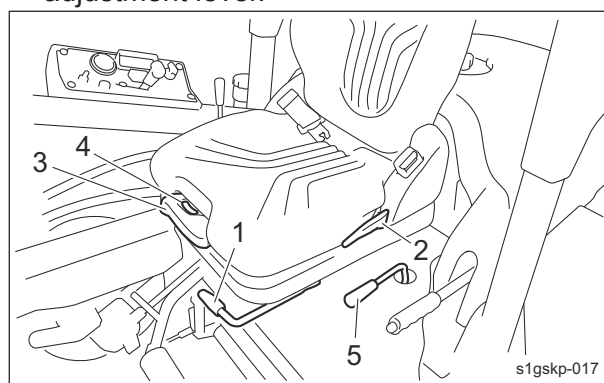
[US]

- Use the seat adjustment levers to adjust the seat position.
Adjust the position to fit the operator.

Important

After adjustment of the seat, make sure that the backrest does not interfere with the hood with the operator seated.

1. Use the forward/backward adjustment lever to adjust the seat back and forth.
2. Use the backrest tilt adjustment lever to adjust the angle of the backrest.
3. Pull out the suspension adjustment handle and move it up or down to adjust the firmness of the seat suspension.
Observe the suspension adjustment scale while making adjustments. [50 - 160 kg (110.2 - 352.7 lb)]
4. The seat can be adjusted to one of three levels by pulling up the forward tilt angle adjustment lever.



1	Forward/backward adjustment lever
2	Angle adjustment lever
3	Suspension adjustment handle
4	Suspension adjustment scale
5	Forward tilt angle adjustment lever

Handling Instructions

Adjustment of Armrest Position

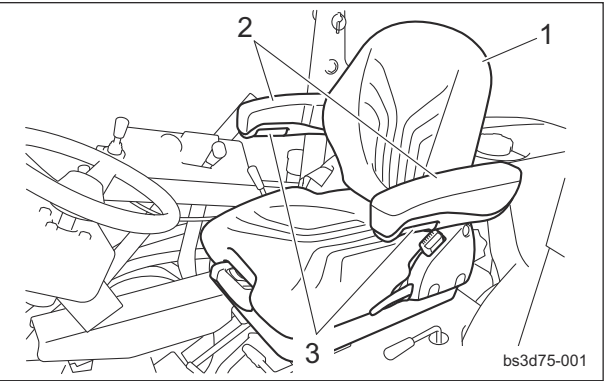
[US]

Note:

Depending on the specifications, this function may not be available.

The armrest angle can be adjusted by turning the armrest adjustment knob.

Adjust it to fit the operator.



bs3d75-001

1	Seat
2	Armrest
3	Armrest adjustment knob

Adjustment of Steering Wheel Position

Warning

Since it is dangerous, do not adjust the steering wheel while traveling.

Caution

Be sure the steering wheel position is securely locked.
It may result in an unexpected accident if it becomes loose while traveling.

Caution

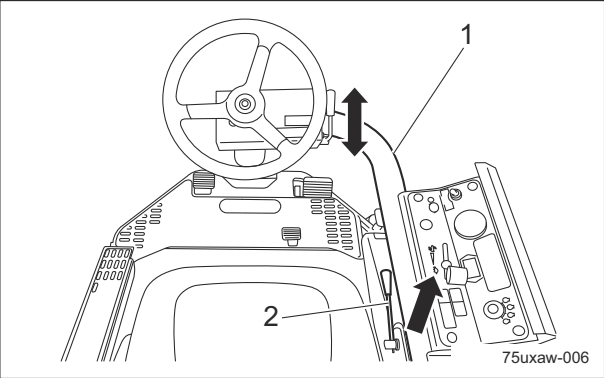
When operating the height adjustment lever, be careful not to pinch your hands.

The steering wheel arm can be adjusted up or down.

Adjust the position according to the operator's body size.

Pull up the height adjustment lever, position the steering wheel arm to a proper position for your work and push down the height adjustment lever to lock it.

The height adjustment lever is attached to the right of the seat.



75uxaw-006

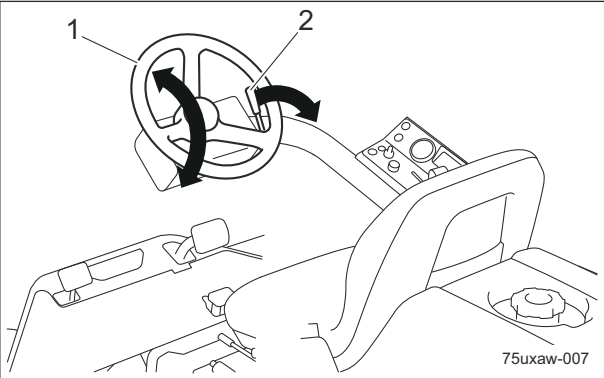
1	Steering wheel arm
2	Height adjustment lever

The steering wheel angle can be adjusted up or down.

Adjust the position according to the operator's body size.

Pull the angle adjustment lever, position the steering wheel to a proper position for your work and push the angle adjustment lever forward to lock it.

The angle adjustment lever is attached to the right of the steering wheel.



75uxaw-007

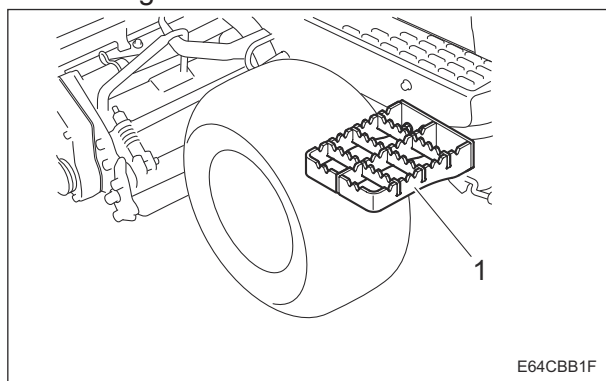
1	Steering wheel
2	Angle adjustment lever

Handling Instructions

Mounting and Dismounting

Procedure to Mount/Dismount

This machine is equipped with a step for mounting/dismounting.
Place your foot on the step when mounting and dismounting the machine.



E64CBB1F

1	Step
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Start/Stop of Engine

Procedure to Start Engine

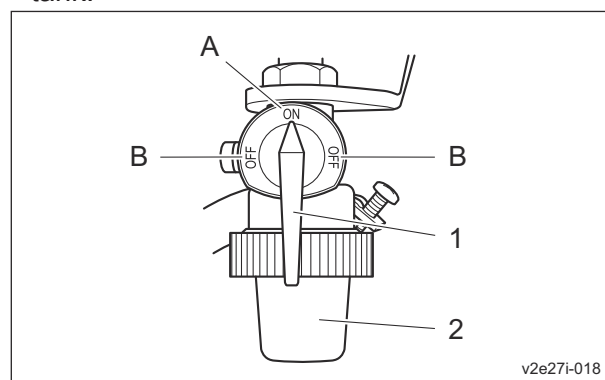
Caution

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

Important

Starter operation must take 15 seconds or less.
If the engine does not start, stop using the battery for 30 to 60 seconds to avoid exhausting the battery.

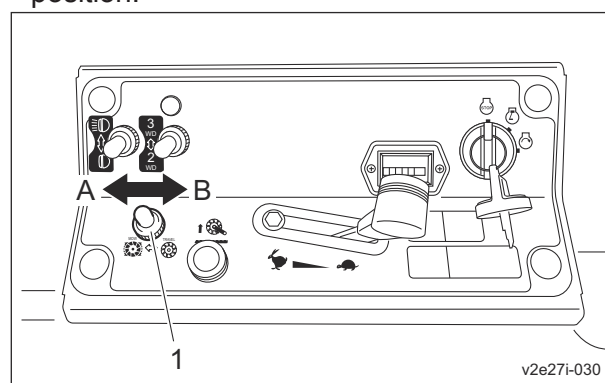
1. Open the fuel cock.
The fuel cock is located beneath the fuel tank.



v2e27i-018

1	Fuel cock
2	Fuel filter
A	ON (Open)
B	OFF (Close)

2. Sit on the seat.
3. Make sure that the parking brake is applied.
4. Set the reel rotation switch to the "Stop" position.



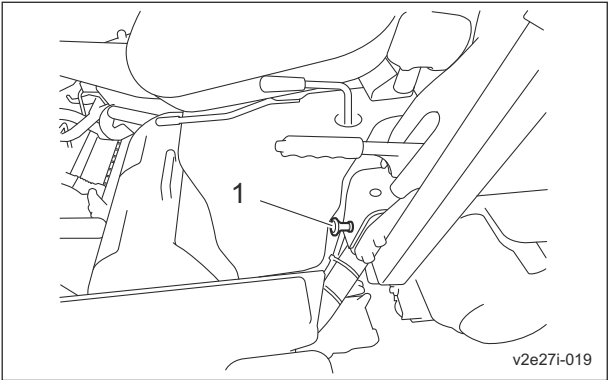
v2e27i-030

1	Reel rotation switch
A	Rotate
B	Stop

5. Make sure that the traveling pedal is in neutral position.
6. Shift the throttle lever halfway from the "Low speed" position toward the "High speed" position.

Handling Instructions

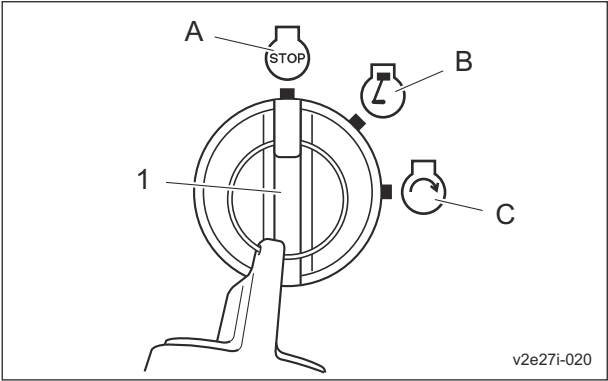
7. Pull the choke lever.
Pull the knob half way for restarting, as necessary.



v2e27i-019

1	Choke lever
---	-------------

8. Switch the ignition key to the "START" position.



v2e27i-020

1	Ignition key
A	OFF
B	ON
C	START

Important

Quickly returning the ignition key from the "START" position to the "ON" position may result in damage to the machine.

9. When the starter starts rotating and the engine starts, return the ignition key to the "ON" position slowly.
10. Check that the engine has started, and then return the choke knob to its original position.
11. Shift the throttle lever to "Low", and then warm up the engine.
Approximate warming-up time
- 3 to 5 minutes when the outside temperature is less than 20 °C (68 °F)

- 2 to 3 minutes when the outside temperature is 20 °C (68 °F) and over

Procedure to Stop Engine

1. Set the traveling pedal to the neutral position.
2. Apply the parking brake.
3. Set the reel rotation switch to the "Stop" position.
4. Shift the throttle lever to the "Low speed" position, and warm up the engine for 1-2 minutes.
5. Lower all the mower units completely.
6. Switch the ignition key to the "OFF" position.
7. Check the engine has stopped.

Parking and Stopping

Procedure to 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.

1. Park the machine on level ground.
2. Apply the parking brake.
3. Stop the engine.
4. Remove the ignition key.
5. Step off the machine.
6. Close the fuel cock.

Handling Instructions

Move

Traveling Procedure

Warning

Set the reel rotation switch to the "Stop" position except during mowing or backlapping and using reel excess discharge system.

Caution

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

Caution

In case of 2WD/3WD model, travel in 2WD mode since it is dangerous to travel on steep downward slopes, wet road surface or downward slopes of wet lawn in 3WD mode. Rear tire going into a skid may cause loss of traveling control.

Important

In case of 2WD/3WD model, whenever the reel rotation switch is set to the "Rotation" position, the drive mode is put into 3WD regardless of the position of the 2WD/3WD selector switch.

Important

Do NOT start to move or stop the machine abruptly.
It will damage the hydraulic system or result in oil leakage.

1. Start the engine.
"Procedure to Start Engine" (Page 5-13)
2. Raise all mower units.
3. Gradually move the throttle lever to the "High speed" position.
4. While pressing the push button, release the parking brake lever.
5. Slowly depress the traveling pedal.
6. The machine starts traveling.
7. The machine stops slowly when the traveling pedal released.

Cutting Work

Cutting Procedure

Warning

Set the reel rotation switch to the "Stop" position except during mowing or backlapping and using reel excess discharge system.

Caution

In case of 2WD/3WD model, travel in 2WD mode since it is dangerous to travel on steep downward slopes, wet road surface or downward slopes of wet lawn in 3WD mode. Rear tire going into a skid may cause loss of traveling control.

Caution

Be sure to install the grass catchers.
Otherwise, thrown objects from the mower units may hit your feet.

Important

In case of 2WD/3WD model, whenever the reel rotation switch is set to the "Rotation" position, the drive mode is put into 3WD regardless of the position of the 2WD/3WD selector switch.

Important

Do NOT start to move or stop the machine abruptly.
It will damage the hydraulic system or result in oil leakage.

1. Install the grass catchers.
2. Set all reel reverse levers to the "Normal rotation" position.
3. Start the engine.
"Procedure to Start Engine" (Page 5-13)
4. Raise all mower units.
5. Shift the throttle lever to the "High speed" position to run the engine at the maximum speed.
6. While pressing the push button, release the parking brake lever.
7. Set the reel rotation switch to the "Rotation" position.

Handling Instructions

8. Start the work following the procedure below.

[1] Depress the traveling pedal.

[2] Lower the mower units when the mower unit reaches the collar of the green.

At the same time, the reel cutters (cutting cylinders) start rotating.

Note:

During the work, the reel cutters (cutting cylinders) will rotate or stop in sync with the up and down motion of the mower units.

9. Set the reel rotation switch to the "Stop" position after the operation completed.

Reel Excess Discharge System

Warning

The reel cutter rotates while holding down the up switch when the reel rotation switch is set to the "Rotation" position.
Set the reel rotation switch to the "Stop" position except during mowing or backlapping and using reel excess discharge system.

Warning

The reel cutter rotates when using reel excess discharge system.
Keep hands and feet away from moving parts.

Caution

Before using reel excess discharge system, make sure that there are no people around the machine.

Important

Do not press the up switch when the mower unit is at lowered position.
Otherwise, the harness will get damaged.

Important

The reel cutter keeps rotating even if the mower unit raised to the highest position while holding down the up-switch.

• Preventing lumps of clippings from falling onto the green.

Use reel excess discharge system so that the clippings inside the reel cutter can be removed during mowing operation or when discarding clippings.

1. Stop the engine.

2. Brush the clippings accumulated on the bracket.

At the time the clippings comes inside of the reel cutter.

3. Install the grass catchers.

4. Sit on the seat.

5. Start the engine.

6. Raise all mower units.

7. Set the throttle lever to the "High Speed" position.

8. Set the reel rotation switch to the "Rotation" position.

9. Hold down the up switch for about a second.

While holding down the up switch, the reel cutter rotates while the mower unit rising and the clippings inside the reel cutter are removed.

10. Set the reel rotation switch to the "Stop" position after the operation completed.

11. Stop the engine.

• Vehicle wash

When washing the vehicle after mowing operation, the clippings can be removed with the reel excess discharge system.

1. Stop the engine.

2. Set the transmission shift lever to the "LAP" position.

3. Sit on the seat.

4. Start the engine.

5. Raise all mower units.

6. Set the throttle lever to the "High Speed" position.

7. Set the reel rotation switch to the "Rotation" position.

8. Stand on the right side of the machine and hold down the up switch for about 2 to 3 seconds.

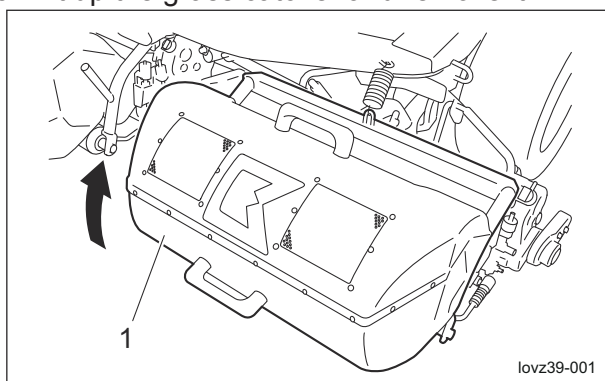
While holding down the up switch, the reel cutter rotates while the mower unit rising and the clippings inside the reel cutter are removed.

Handling Instructions

9. Set the reel rotation switch to the "Stop" position after the operation completed.
10. Stop the engine.

Removing Grass Catcher

1. Set the reel rotation switch to the "Stop" position.
2. Lower the mower unit.
3. Apply the parking brake.
4. Stop the engine.
5. Lift up the grass catcher and remove it.



lovz39-001

1	Grass catcher
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Transporting

Transporting Procedure

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

Cleaning after Use

The purpose of the machine cleaning is to:

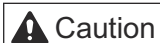
- Prevent accidents
- Prevent damage to the machine
- Maintain machine performance

Properly clean the machine to maintain its functionality and performance.

If you detect any abnormalities with the machine, immediately perform maintenance or repairs.

Engine

Cleaning of Engine-Associated Parts



Caution

Perform operations after the muffler, engine and other parts have sufficiently cooled. Otherwise, you may get burned.

1. Clean clippings and remove dirt.
2. Blow compressed air to clean any grass or flammable materials that may be attached on or around the muffler.

Mower Unit

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.
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).

Storage

Short-Term Storage

Short-term storage means that the machine is temporarily stored (within 1 month) without use.

Follow the instructions below for short-term storage of the machine.

1. Cleaning
 - Remove dirt, grass clippings, oil stains etc. completely from the main vehicle and engine.
2. Mower units
 - When storing this machine, lower all the mower units unless a positive mechanical lock is provided.
3. Storage location
 - Cover the machine and store it in a dry place where it will not be exposed to rain.

Handling Instructions

Precautions for MaintenancePage 6-2**Operations before Maintenance Page 6-2**

Procedure to Remove/Install Mower
Unit Page 6-2

Jacking Up The MachinePage 6-3

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Greasing Page 6-10

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Lubrication Page 6-15

About LubricationPage 6-15

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Adjustment Page 6-16

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Mower UnitPage 6-18

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Long-Term Storage Page 6-43

Precautions for Maintenance

Warning

The chapter "Maintenance" in this manual describes practical measures which should be performed by a mechanic with expertise. The owner should instruct the mechanic with expertise to perform maintenance service for this machine.

Caution

First, learn well the operations you plan to perform.

Important

Use tools appropriate for each operation.

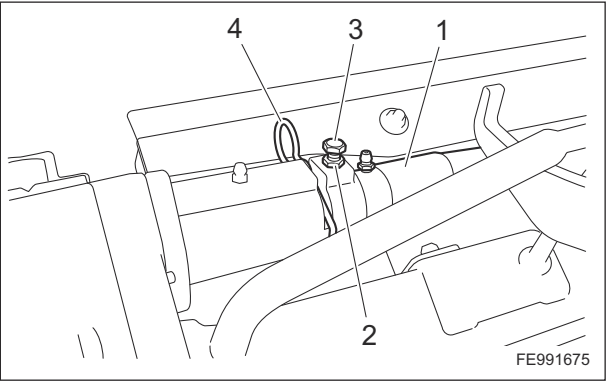
Important

Use Baroness genuine parts for replacement and accessories.
Our product warranty may be void if you use non-genuine parts for replacement or accessories.

Operations before Maintenance

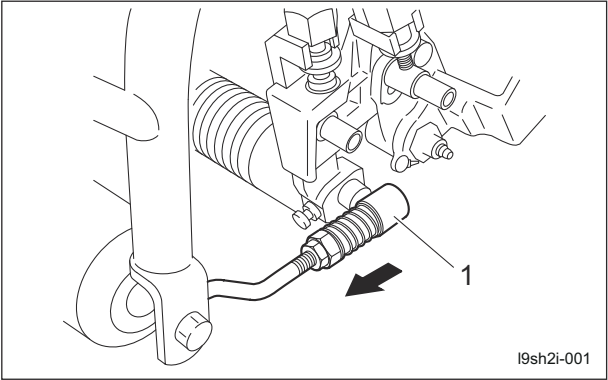
Procedure to Remove/Install Mower Unit

- 1. Removing the mower unit
 - [1] Loosen the lock nut.
 - [2] Loosen the bolt.
 - [3] Remove the clip which fixes the mower unit and the flexible wire.



1	Flexible wire
2	Lock nut
3	Bolt
4	Clip

- [4] Slide the stopper of the mower attaching pipe forward and pull it out.
- [5] Pull out the mower unit and remove it.



1	Stopper (left/right)
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- 2. Installing the mower unit
For installing the mower unit, reverse the removing procedure.

Jacking Up The Machine

About Jacking Up The Machine

⚠ Warning

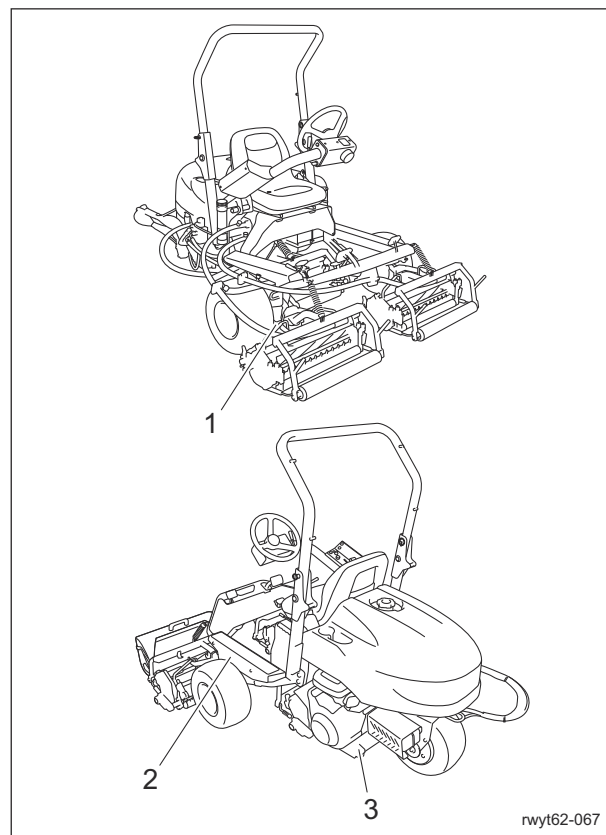
When replacing a tire or beginning any other maintenance or repairs, be sure to chock the wheels to prevent the machine from moving. Before jacking up the machine, park it on a hard, flat surface such as a concrete floor and remove any obstacles that could prevent you from performing the work safely. 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.

Important

Only place a jack under the jack-up points specified. Placing a jack at any other point will result in damage to the frame or other parts.

Use the jack-up points identified in this manual when jacking up the machine.

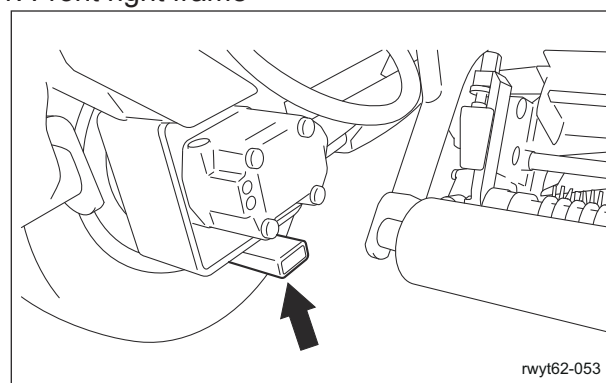
Jack-Up Points



rwy62-068

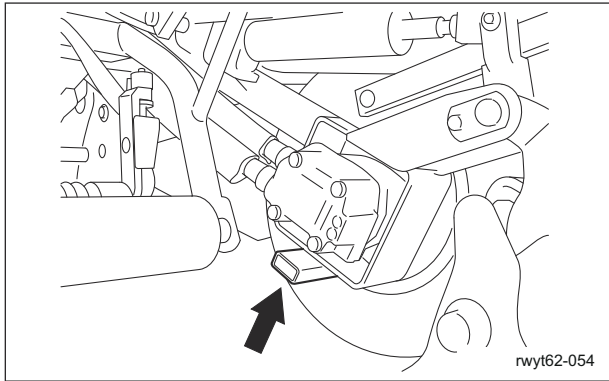
1	Front right frame
2	Front left frame
3	Engine mount frame

1. Front right frame



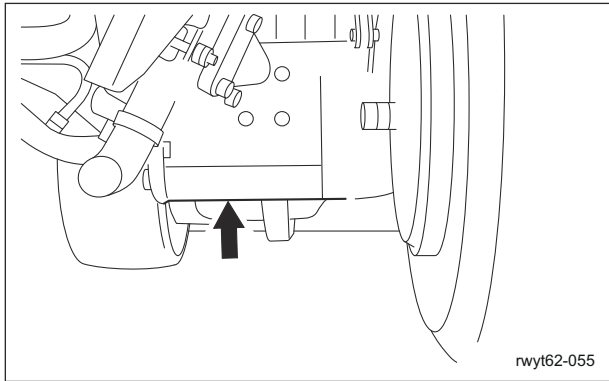
rwy62-053

2. Front left frame



rwy62-054

3. Engine mount frame



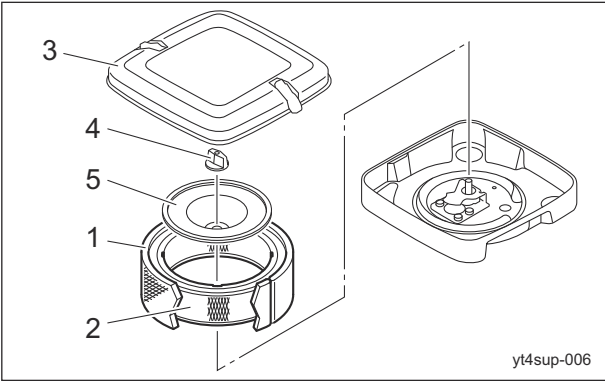
rwy62-055

3. Remove the pre-cleaner from the air filter.

Important

When cleaning the air cleaner element, do not use a petroleum solvent.
When cleaning and drying the air cleaner element, do not use compressed air.
Do not infiltrate oil with the pre-cleaner.

4. Rinse the pre-cleaner with liquid detergent and dry it out by pressing with clean cloth.
5. While paying close attention not to damage the air filter, tap a solid portion of the air filter to remove dust and dirt.
If the air filter is damaged or dirty, replace it.
6. Install the air filter and pre-cleaner.
7. Install the plate and knob.
8. Install the cover, and then fix it securely using the clip.



yt4sup-006

Inspection and Cleaning

Inspect and clean the machine with the goals of the followings.

- Accident prevention
- Failure prevention
- Performance retention

Make efforts for early detection of the machine failure and prevention of the sudden occurrence of trouble.

Perform maintenance and repair works immediately if any abnormality is found in the machine.

Engine

Cleaning of Air Cleaner Element

1. Remove the clip, and then remove the cover.
2. Remove the knob and plate, and then remove the air filter.

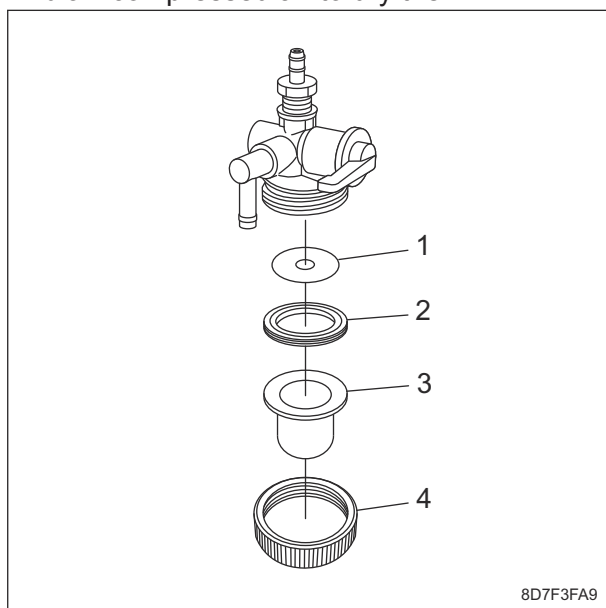
1	Pre-cleaner
2	Air filter
3	Cover
4	Knob
5	Plate

Cleaning of Fuel Strainer

Important

Shut off the fuel valve, and then clean the fuel strainer in a clean location, free of dust and dirt.

1. Remove the filter pot, wash the filter and inside of the filter pot using a solvent, such as a hardly flammable kerosene, and then blow compressed air to dry them.



8D7F3FA9

1	Filter
2	Packing
3	Filter pot
4	Ring

2. Make sure that there is no fuel leakage after it is installed.

Main Vehicle

Inspection of Hydraulic Hoses and Pipes

Warning

When checking the hydraulic circuit for pinhole leaks or oil leakage from nozzles, do not use your hands. Use items such as paper or corrugated cardboard to find leakage points.

Be extremely careful with high-pressure oil as it may pierce your skin, resulting in personal accidents.

If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

1. Make sure that there is no wear, deterioration or damage in the hydraulic hoses and pipes.
2. Make sure that there is no looseness in the connecting portion of the hydraulic hoses and pipes.
3. Check underneath the machine for hydraulic oil leakage.

Inspection of Belts

Warning

Be sure to stop the engine before inspecting the belts.

Warning

If you have removed any covers, etc., during inspection, make sure that you securely re-attach them in their original positions.

If covers, etc., remain removed, the operator or the mechanic may come into contact with rotating parts or belts, and foreign objects may fly off, possibly resulting in injuries.

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.

Inspection of Electrical Wiring

Important

Electrical short circuit will cause fire, electrical leakage and malfunction of electrical equipments.

- 1. Make sure that there is no defacement in wires and terminals.
- 2. Make sure that there is no deterioration or damage in wires and terminals.
- 3. Make sure that there is no looseness in wiring connections.
- 4. Make sure that there is no poor terminal connection.

Inspection of Wheel Mounting Bolt

Important

Tighten the wheel mounting bolts on the specified torque by using a torque wrench.

- 1. Check the wheel mounting bolts and wheel nuts for looseness and coming off.
- 2. Check the wheel mounting bolts and wheel nuts for cracks and damages.
- 3. Check the wheel mounting bolts and wheel nuts for rust.
- 4. Check around the wheel mounting bolts and wheel nuts for traces of rust fluid.
- 5. Check the wheel mounting bolts for unequal bolt length.
- 6. Check the wheel mounting bolts and wheel nuts for stripped threads and abrasion.

Mower Unit

Inspection of Belts

Warning

Be sure to stop the engine before inspecting the belts.

Warning

If you have removed any covers, etc., during inspection, make sure that you securely re-attach them in their original positions. If covers, etc., remain removed, the operator or the mechanic may come into contact with rotating parts or belts, and foreign objects may fly off, possibly resulting in injuries.

- 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.

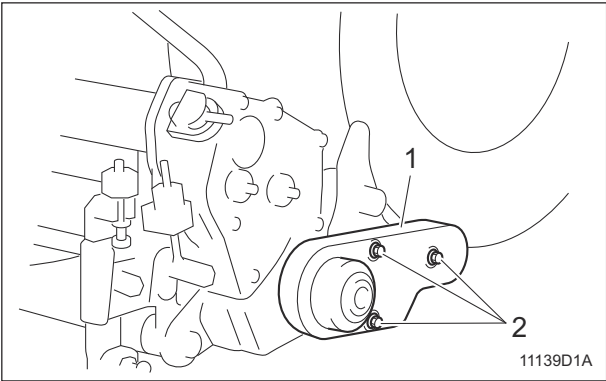
Cleaning Inside of Belt Cover

Note:
Depending on the specifications, this function may not be available.

Important

Clippings and dust etc. may come inside the belt cover and accumulate. Clean inside the cover in accordance with the Maintenance Schedule.

- 1. Remove the bolts.
- 2. Remove the belt cover.
- 3. Clean inside the cover with compressed air to remove the accumulated clippings and dust etc.
- 4. Install the belt cover.
- 5. Install the bolts.



11139D1A

1	Belt cover
2	Bolt

Supplying Fluids

Engine

Supply of Engine Oil

Important

Do not supply 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).

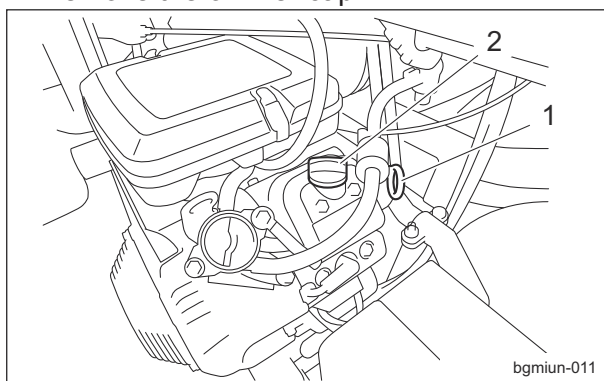
Important

Securely install the oil level gauge and oil filler cap.

If the engine oil level is lower than the lower limit line on the oil level gauge, supply engine oil.

Supply engine oil through the oil filler port.

1. Place the machine so that the engine is level.
2. Stop the engine.
3. Open the hood.
4. Remove the oil filler cap.



bgmiun-011

1	Oil level gauge
2	Oil filler cap

5. Supply new engine oil through the oil filler port.
Supply oil until it reaches a level in between the upper and lower limit lines on the oil level gauge.
6. Install the oil filler cap.
7. 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 filling the oil.
If the engine oil level is low, supply oil until it reaches the specified level.
8. Close the hood.

Main Vehicle

Supply of Hydraulic Oil

 **Caution**

Keep fire away while supplying the hydraulic oil.
Do not smoke.

Important

Supply hydraulic oil after checking the oil in the hydraulic tank has been sufficiently cooled down.
Oil level changes depending on the hydraulic oil temperature.

Important

Do not mix different types of oil.

Important

For the hydraulic oil to be used, consult Characteristics of Hydraulic Oil and use the oil whose characteristics are equivalent or superior to those specified there.
Especially regarding kinematic viscosity and viscosity index, use of hydraulic oil whose figures are less than those of the specified hydraulic oil will cause a malfunction in the hydraulic circuit.

■ Characteristics of Hydraulic Oil

ISO Viscosity Grade		ISO VG46
Density	15 °C (59 °F)	0.873 g/cm ³ (0.0315 lb/in ³)
API Gravity		30.6
Flash Point (Open Cup)		230 °C (446 °F)
Pour Point		-30 °C (-22 °F)
Kinematic Viscosity	40 °C (104 °F)	46 mm ² /s (46 cSt)
	100 °C (212 °F)	7 mm ² /s (7 cSt)
Viscosity Index		109

■ Characteristics of Hydraulic Oil with conditions of use

Hydraulic oil of ISO viscosity grade VG68 can be used only if the following condition is met:

- The outside temperature must be 20 °C (68 °F) or more during engine operation.

ISO Viscosity Grade		ISO VG68
Density	15 °C (59 °F)	0.878 g/cm ³ (0.0318 lb/in ³)
API Gravity		29.7
Flash Point (Open Cup)		252 °C (486 °F)
Pour Point		-30 °C (-22 °F)
Kinematic Viscosity	40 °C (104 °F)	68 mm ² /s (68 cSt)
	100 °C (212 °F)	9 mm ² /s (9 cSt)
Viscosity Index		107

Note:

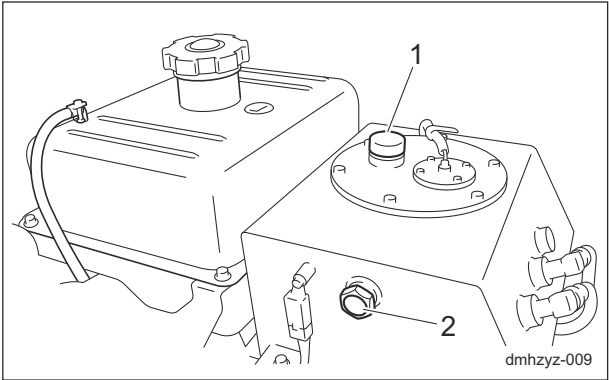
In Japan, "Shell Tellus S2M46 (ISO VG46)" and "Shell Tellus S2M68 (ISO VG68)" meet the characteristics described above.

However, in other countries, the specification of Shell Tellus S2M46 and Shell Tellus S2M68 can be below what is required.

Please check the product data sheet to ensure that it meets the requirements before using.

If the hydraulic oil level is low, follow the steps below to supply oil.

1. Lower the mower unit on a level surface, and stop the engine.
2. Open the hood.
3. Open the tank cap.
4. Supply the hydraulic oil through the oil filler port until the oil level reaches the middle of the oil gauge on the hydraulic tank.
5. Tighten the tank cap securely.



dmhzyz-009	
1	Tank cap
2	Oil gauge

6. Start the engine, and then repeat the steps below a few times.
 - Raise and lower the mower units.
 - Turn the steering wheel left and right.
 - Move forward and reverse.
7. Lower the mower units and maintain that position on a level surface, and then check to see if the oil level is at the middle of the oil gauge.
If the hydraulic oil level is low, supply oil again until it reaches the specified level.
8. Check underneath the machine for oil leakage.
9. Close the hood.

Supply of Battery Fluid

! Danger

If battery fluid comes into contact with eyes, it may result in blindness. Immediately flush with plenty of water and take medical care from an ophthalmologist.

! Danger

Do not drink battery fluid.
If battery fluid enters the mouth or is swallowed, it may result in burns inside the mouth. Immediately and repeatedly gargle with plenty of water, then drink plenty of water, and take medical care.

! Danger

When you supply battery fluid, wear protective garments and safety glasses, etc.

! Warning

If battery fluid adheres to the skin or clothing, it may cause burns or damage clothing. Immediately flush with plenty of water, then wash thoroughly with soap.

! Warning

Do not allow the battery fluid level to become lower than the LOWER LEVEL (minimum fluid level line).
The battery may explode if it is used or charged while the battery fluid level is at the LOWER LEVEL (minimum fluid level line).

! Warning

When refilling, do not fill purified water above the UPPER LEVEL (maximum fluid level line). Doing so may result in electrolyte leaks.

! Caution

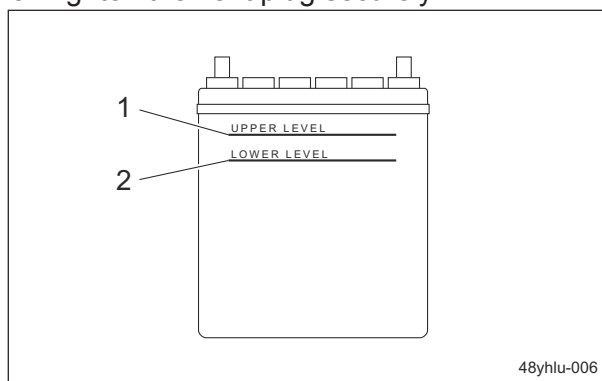
Implement after the engine and muffler etc. have well cooled down.
Otherwise, you may get burned.

Important

If battery fluid adheres to the vehicle, it may cause corrosion.
Wipe it off with a cloth dampened with water, and then flush with water.

If the battery fluid level is lower than halfway between the UPPER LEVEL (maximum fluid level line) and LOWER LEVEL (minimum fluid level line), add purified water.

1. Loosen the vent plug and remove it.
2. Add purified water up to the UPPER LEVEL (maximum fluid level line)
3. Tighten the vent plug securely.



48yhlu-006

48yhlu-006

1	Maximum fluid level line
2	Minimum fluid level line

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".

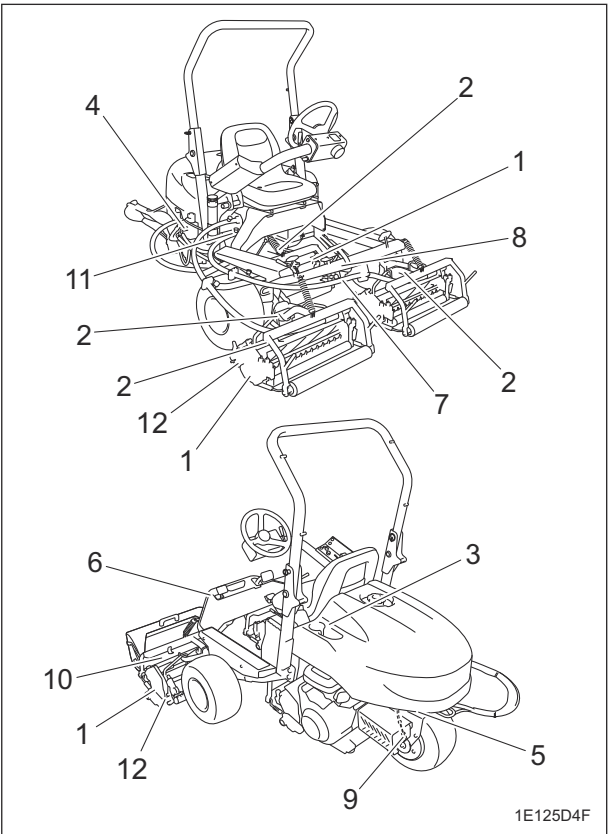
Add grease using the specified grease or lubricant.

Greasing Points

Grease nipples are installed in the following locations.

Add grease to A every 8 hours, to B every 50 hours and to C before work.

If specified locations and periods are additionally described below, follow the instructions.

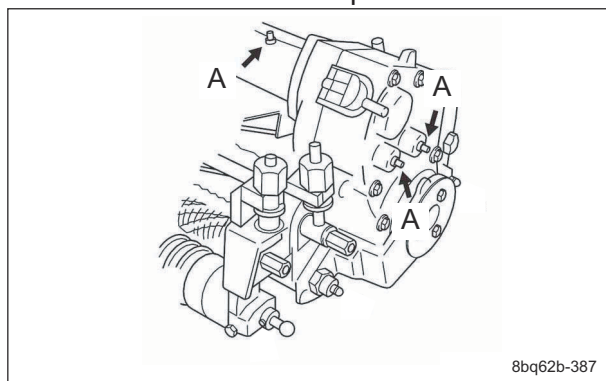


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	Location	No. of greasing points	Greasing schedule		
1	Mower unit	42	A	B	-
2	Mower arm fulcrum	6	-	B	-
3	Belt tension lever	1	-	B	-
4	Neutral position area	1	-	B	-
5	Rear wheel pivot	1	-	B	-
6	Mower pedal shaft fulcrum (Mower pedal model)	1	-	B	-
7	Flexible wire bracket	1	-	B	-
8	Traveling pedal shaft fulcrum	1	-	B	-
9	Rear wheel brake lever shaft	1	-	B	-
10	Flexible wire edge	3	-	B	-
11	Flexible wire (-#31901)	6	A	-	C
	Flexible wire (#31902-)	7	A	-	C
12	Cam bush	2	Refer to "Maintenance Schedule"		

1. Mower unit

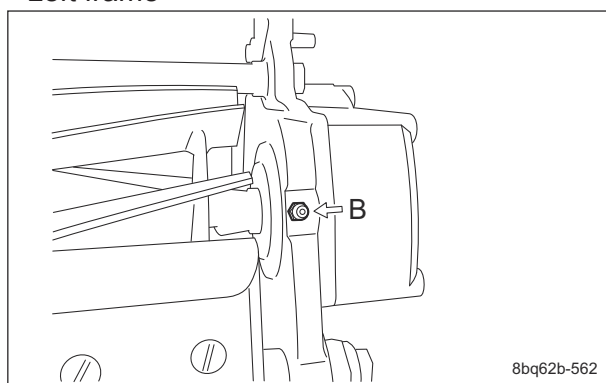
Each mower unit has 14 points.



8bq62b-387

8bq62b-387

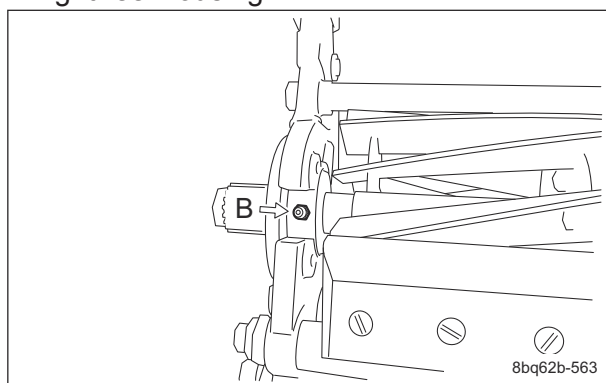
Left frame



8bq62b-562

8bq62b-562

Right reel housing



8bq62b-563

8bq62b-563

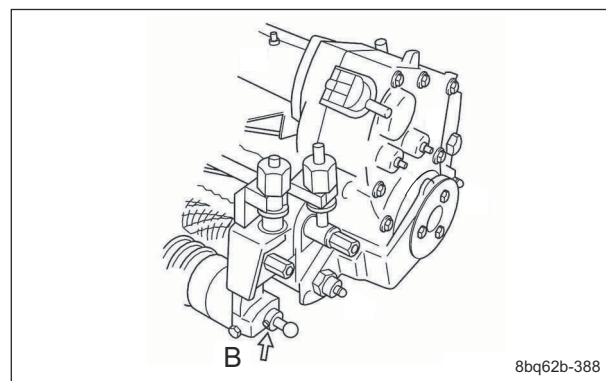
Front roller

Note:

Depending on the specifications, this function may not be available.

Split roller has no greasing point.

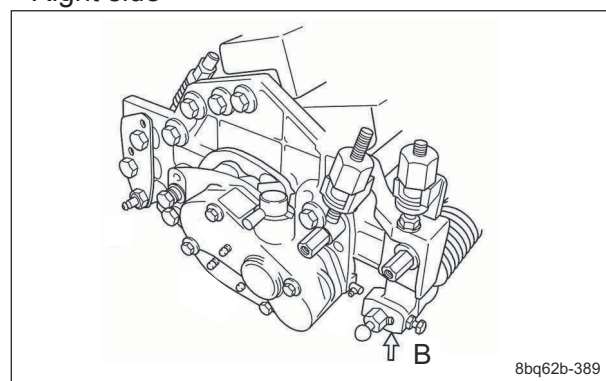
Left side



8bq62b-388

8bq62b-388

Right side



8bq62b-389

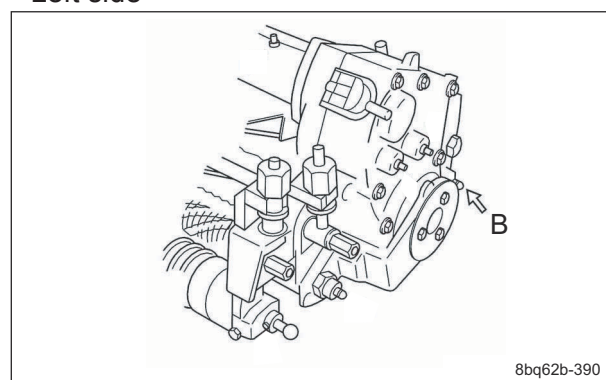
8bq62b-389

Rear roller

Note:

Depending on the specifications, this function may not be available.

Left side

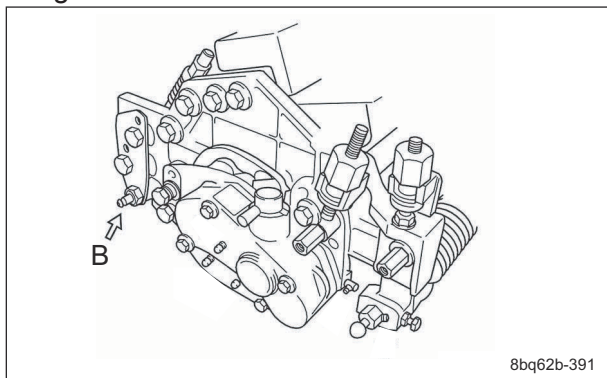


8bq62b-390

8bq62b-390

Maintenance

Right side



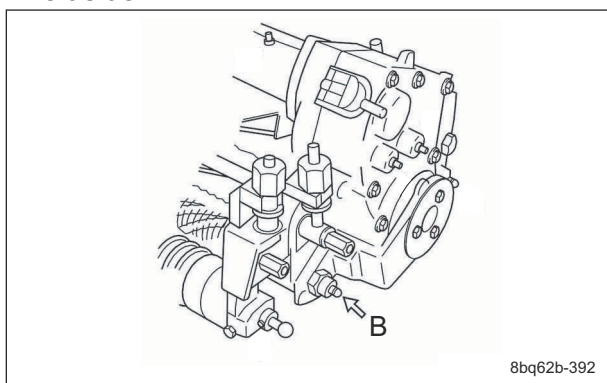
8bq62b-391

Groomer

Note:

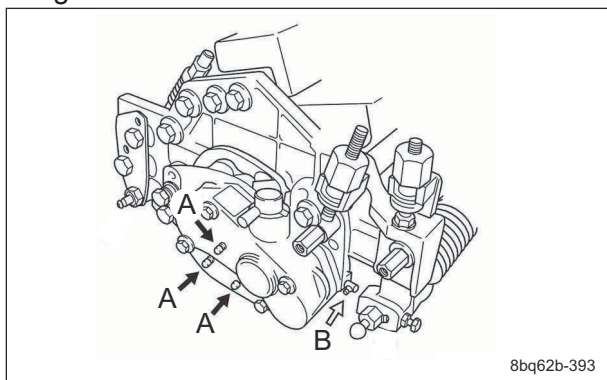
Depending on the specifications, this function may not be available.

Left side



8bq62b-392

Right side



8bq62b-393

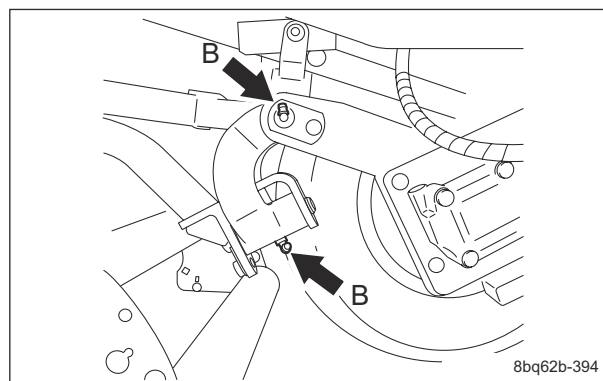
2. Mower arm fulcrum

Important

Without greasing the mower arm fulcrum, the worn shaft can cause backlash in the lift arm and mower arm. The backlash may influence up-down range of the mower unit and cutting finish.

[1] Front mower unit (#2 · #3)

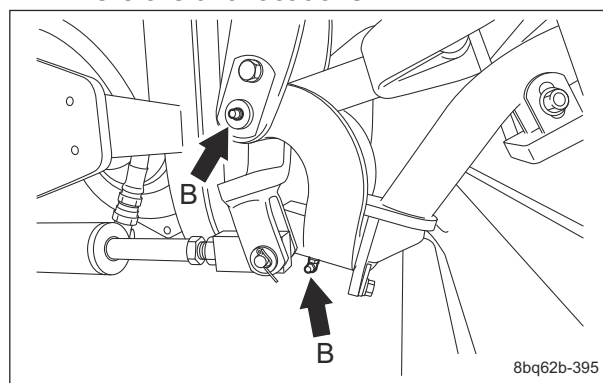
There are two greasing points on each mower unit.



8bq62b-394

[2] Rear mower unit (#1)

There are two locations.

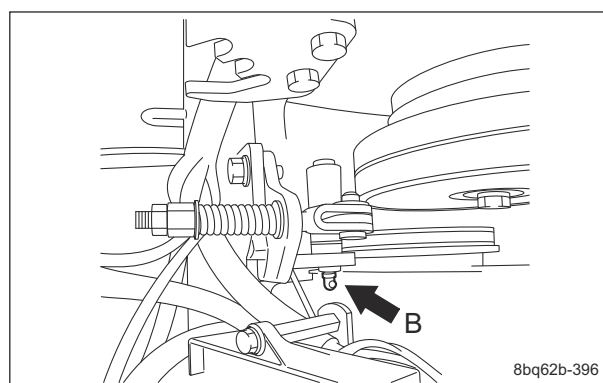


8bq62b-395

3. Belt tension lever

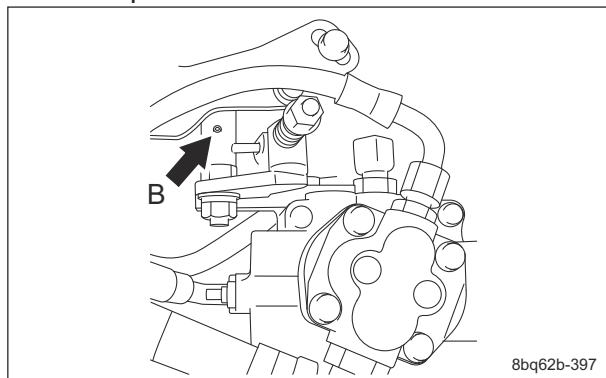
Important

Without greasing the tension lever, it can adhere.



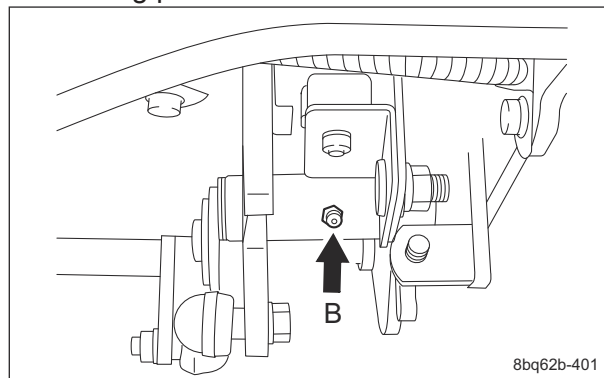
8bq62b-396

4. Neutral position area



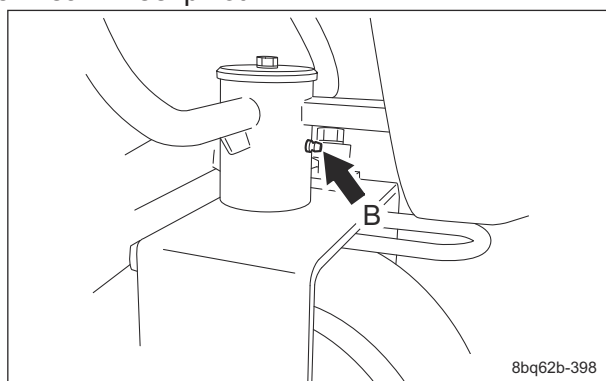
8bq62b-397

8. Traveling pedal shaft fulcrum



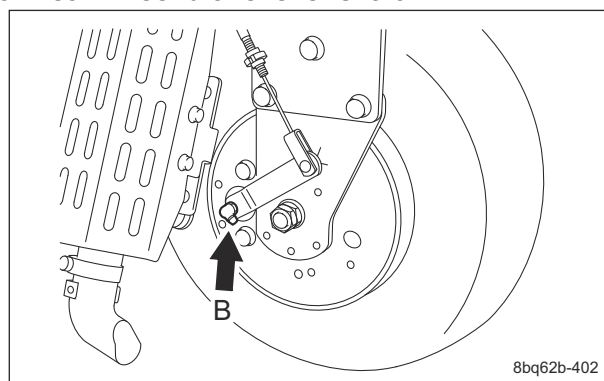
8bq62b-401

5. Rear wheel pivot

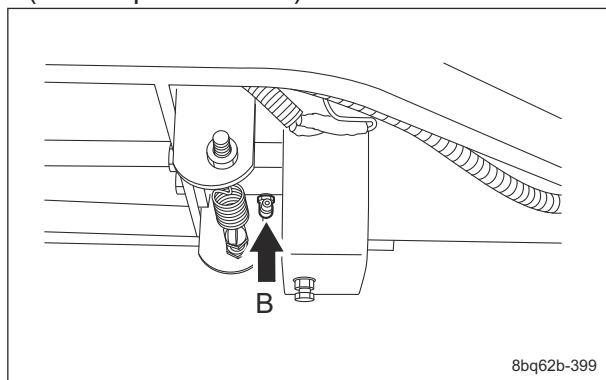


8bq62b-398

9. Rear wheel brake lever shaft



8bq62b-402

6. Mower pedal shaft fulcrum
(Mower pedal model)

8bq62b-399

10. Flexible wire edge

There is one greasing point on each flexible wire.

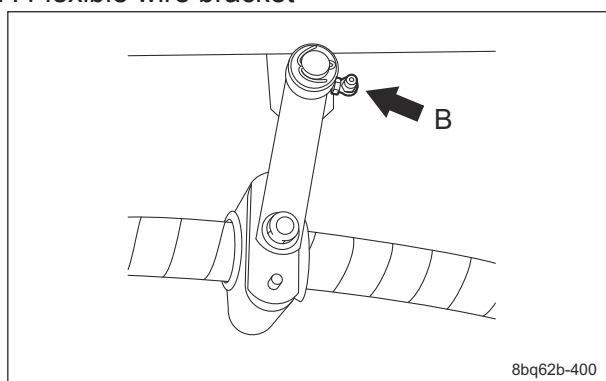
Grease by one stroke (1.0 mL).

Use Moly speed grease No.2.

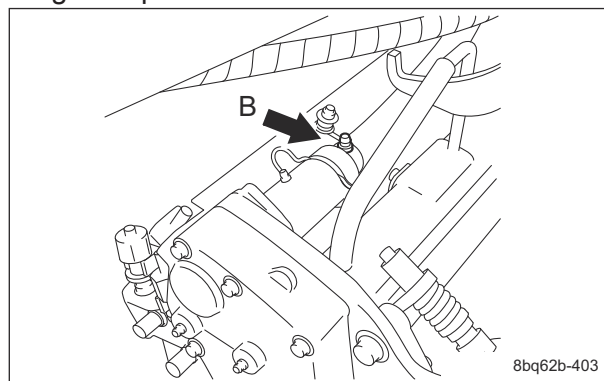
Note:

Moly speed grease No.2 is a Bentone grease formulated with molybdenum disulfide that has excellent wear resistance and anti-seizure properties. Little dripping at high temperature.

7. Flexible wire bracket



8bq62b-400



8bq62b-403

Maintenance

Important

Lack of grease in the flexible wire may cause damage to it.

Grease according to the maintenance schedule.

The inner cable is a strand wire. Lack of grease in the strand wire may cause friction inside it resulting in damage due to abnormal heat generation.

11. Flexible wire

Use Moly speed grease No.2.

Note:

Moly speed grease No.2 is a Bentone grease formulated with molybdenum disulfide that has excellent wear resistance and anti-seizure properties. Little dripping at high temperature.

■ -#31901

Screw in the grease cup in each section by one turn for greasing.

Note:

Follow the steps below for greasing if the grease cup of the flexible wire has been screwed in fully.

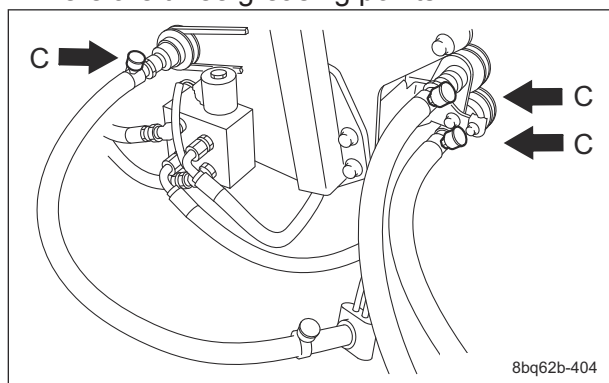
[1] Remove the grease cup.

[2] Add grease fully to the grease cup without aeration.

[3] Screw in the grease cup by two turns for installation.

Main vehicle side

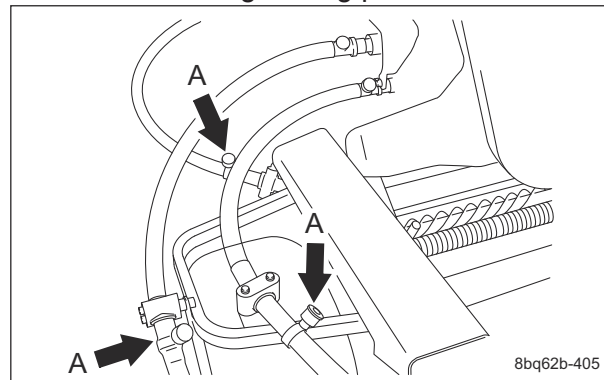
There are three greasing points.



8bq62b-404

Central part

There are three greasing points.



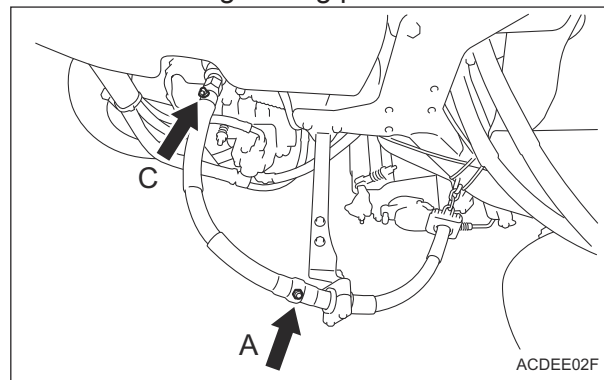
8bq62b-405

■ #31902-

Grease each point by one stroke (1.0 mL).

Rear mower unit side

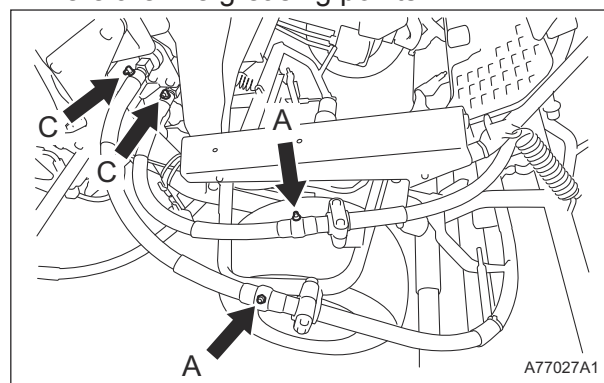
There are two greasing points.



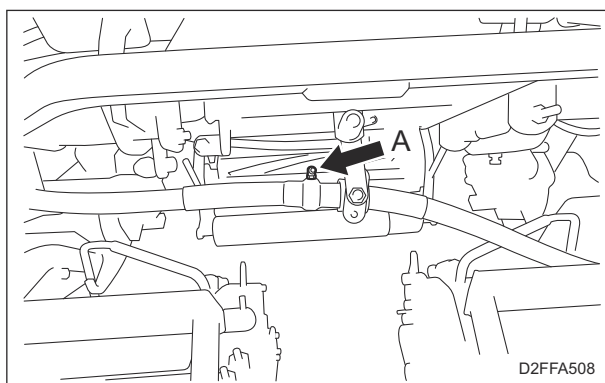
ACDEE02F

Front mower unit side

There are five greasing points.



A77027A1



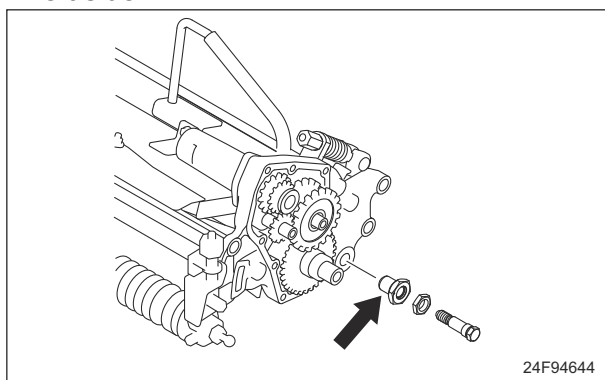
D2FFA508

12. Cam bush

There is one greasing point on each right and left side.

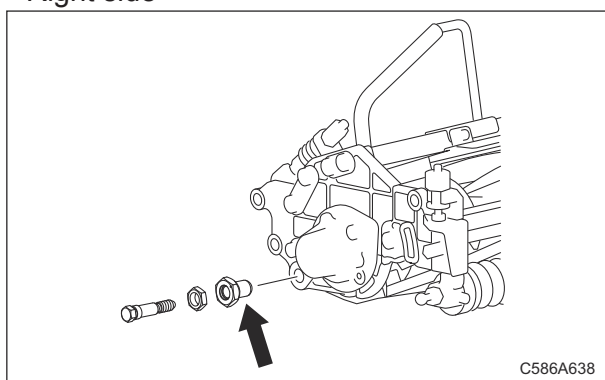
Apply 0.5 g (0.001 lb) of grease to the outer periphery of the cam bush pipe according to the maintenance schedule.

Left side



24F94644

Right side



C586A638

Lubrication

About Lubrication

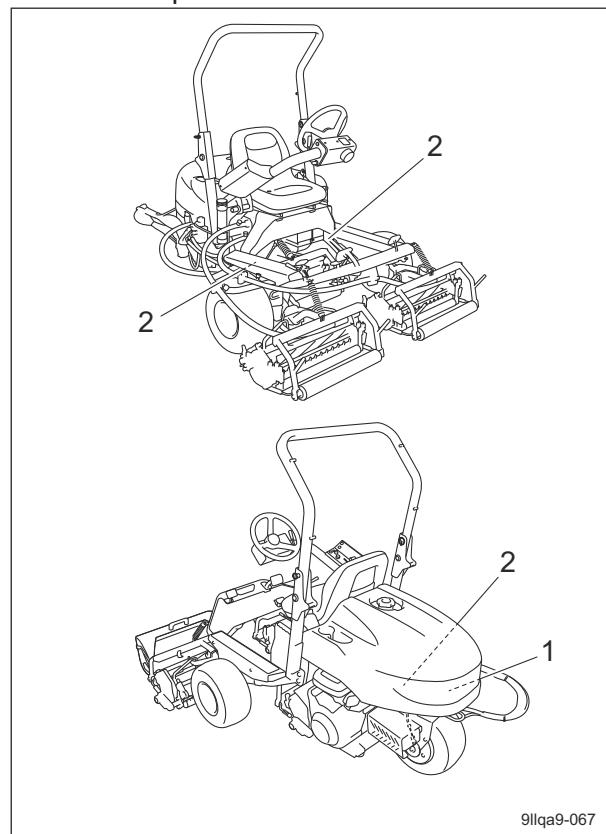
It is necessary to lubricate moving parts so that they will not become stuck or damaged.

The locations where lubricant is used are indicated in "Lubricating Points".

Apply the lubricant.

Lubricating Points

Apply lubricant at the following locations every 50 hours of operation.

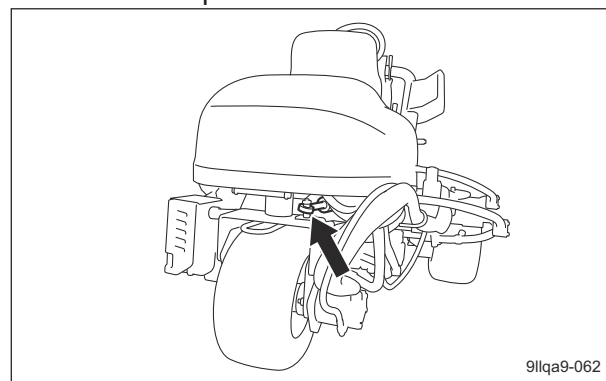


9llqa9-067

	Location	No. of lubricating points
1	Steering cylinder spherical bearing	1
2	Mower up/down cylinder spherical bearing	3

1. Steering cylinder spherical bearing

There is one point.



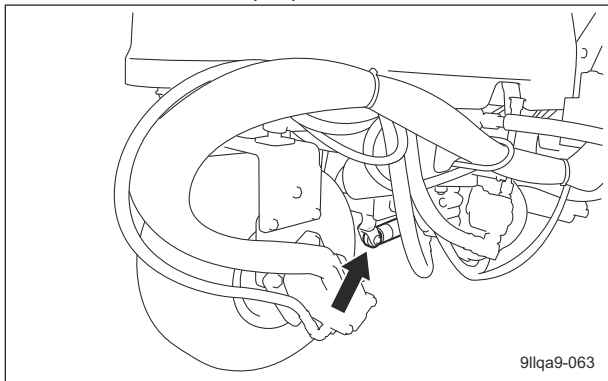
9llqa9-062

Maintenance

2. Mower up/down cylinder spherical bearing

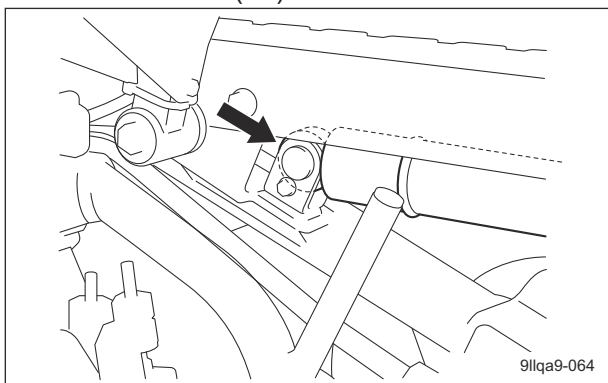
There is one point each on the mower up/down cylinders.

Rear mower unit (#1)



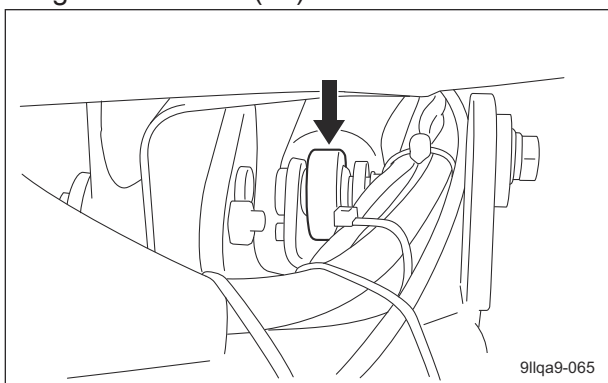
9llqa9-063

Left mower unit (#3)



9llqa9-064

Right mower unit (#2)



9llqa9-065

Adjustment

Main Vehicle

Adjustment of Belt Tension



Warning

Be sure to stop the engine before adjusting the belts.



Warning

If you have removed covers, etc., be sure to securely install them in their original positions. If covers, etc., remain removed, the operator or the mechanic 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.

Check belt tension after rotating the belt several times.

■ Adjustment of Reel Cutter Drive Belt

1. Tilt the underseat cover forward and open the cover.
2. Open the hood.
3. Check the belt tension.

The criterion for the belt tension is that the belt slacks approximately 13 ± 2 mm (0.51 ± 0.08 in) when you apply a force of 55 N (5.5 kgf) with your finger to the belt at the middle point between the pulleys.

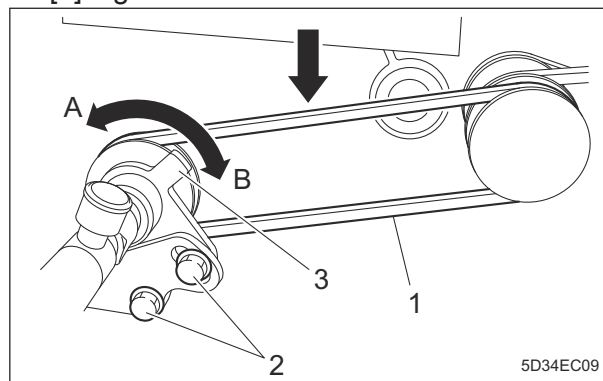
4. If the belt tension is not at the approximate value, follow the steps below to adjust it.

[1] Loosen the bolts.

[2] Move the position of the flexible wire housing (the pulley attached) to adjust the tension.

- Belt stretches when the flexible wire housing is moved to the direction A.
- Belt slacks when the flexible wire housing is moved to the direction B.

[3] Tighten the bolts.



5D34EC09

1	Reel cutter drive belt
2	Bolt
3	Flexible wire housing
A	Stretch
B	Slacken

5. After adjustment of the belt tension, check the belt tension again.

If the belt tension is still not at the approximate value after repeating the adjustment several times, replace the belt with a new one.

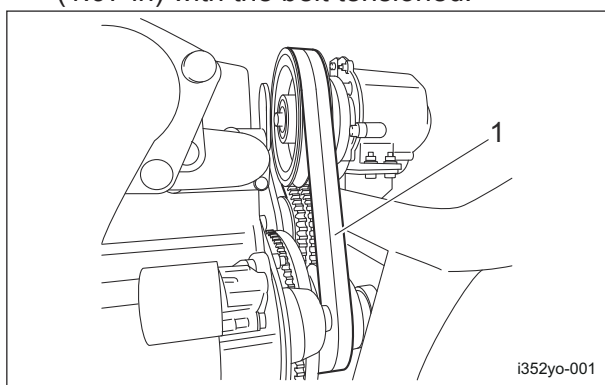
6. Close the hood.

■ Adjustment of Transmission Input Belt

Important

Check adhesion of the tension lever.
It may shorten the belt lifetime.

1. Tilt the underseat cover forward and open the cover.
2. Open the hood.
3. Check the belt tension.
The criterion for the belt tension is that the spring length is approximately 50 mm (1.97 in) with the belt tensioned.



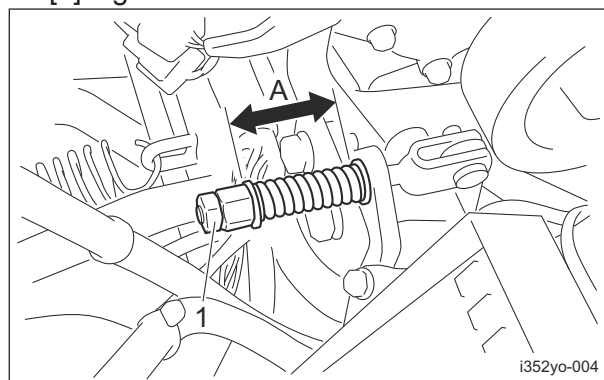
1	Engine tension belt
---	---------------------

4. If the belt tension is not at the approximate value, follow the steps below to adjust it.

[1] Loosen the nut.

[2] Adjust the length of the spring.

[3] Tighten the nut.



i352yo-004

1	Nut
A	50 mm (1.97 in)

5. After adjustment of the belt tension, check the belt tension again.

If the belt tension is still not at the approximate value after repeating the adjustment several times, replace the belt with a new one.

6. Close the hood.

Mower Unit

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 make cutting difficult, follow the steps below to perform back lapping.

 **Warning**

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

 **Caution**

Be careful not to inhale exhaust gas during back lapping.

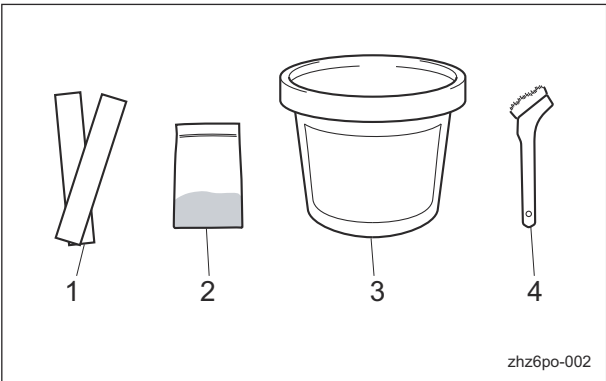
 **Caution**

Do not perform back lapping with any other persons.

 **Caution**

Be sure to stop the engine before and during shifting the transmission selector. Otherwise, your hands may get caught in the belt.

1. Have the following items ready: Strips of Takumi Paper (Baroness genuine strips) or newspaper, Abrasive [Back lapping powder mixed with oil; or gel compound (Baroness genuine abrasive)], Brush.



zhz6po-002

1	Takumi Paper or newspaper
2	Back lapping powder
3	Gel compound
4	Brush

Note:
The mixing ratio for the abrasive, in volume, is one part back lapping powder (#200 - #400) 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. Otherwise, you may injure your hand or fingers.

 **Important**

Check the sharpness of the blade by checking the blade engagement after cutting grass.

2. Raise all the mower units.
3. Stop the engine.
4. Set the reel reverse lever for the mower units to the "Neutral" position.
5. Insert one or two strips of Takumi Paper or 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) to check the sharpness of the blades.
6. Check the sharpness of the entire range (three or four points) of the reel cutter (cutting cylinder).
7. Using a piece of chalk, mark locations on the blade that are sharp.

8. Set the reel reverse lever for the mower units to be back lapped to the "Reverse" position.
Shift the lever(s) to the "Neutral" position for the mower unit(s) for which you will not perform back lapping.
9. Set the transmission selector lever to the "Back lapping" position.
10. Take the operator's seat, apply the parking brake and then start the engine.
11. Lower all the mower units to the ground.
12. Reduce the engine rotation speed.
13. Set the reel rotation switch to the "Rotation" position to reverse the reel cutter (cutting cylinder).
14. Apply the abrasive evenly with the brush on the top side of reel cutter (cutting cylinder) where strips of Takumi Paper or newspaper were cut well or of chalk-marked locations. (Never apply to blunt areas.)

Important

The right side of the reel cutter (cutting cylinder) (when you face the mower unit from the front) tends to be worn earlier than the left side. Accordingly be sure to move the brush from the left to the right to apply the abrasive.

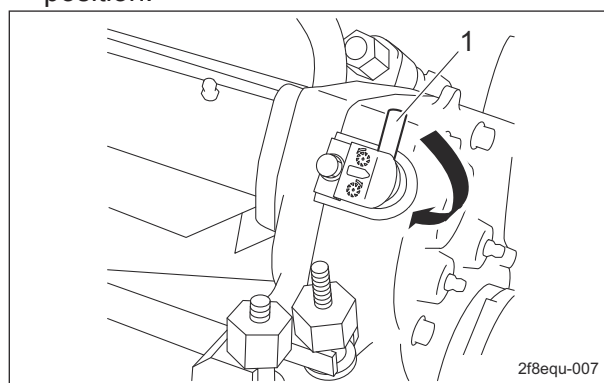
15. Let the reel rotate for a while and, when contact noise is no longer heard, return the reel rotation switch to the "Stop" position to stop the reel cutter (cutting cylinder).
16. Raise all the mower units.
17. Stop the engine.
18. Wash off or wipe off with a cloth, etc., the abrasive from the reel cutter (cutting cylinder), and then check it for sharpness.
19. Repeat steps 4 to 18 until the entire range (three or four points) of the reel cutter (cutting cylinder) will be uniformly sharpened.
20. Start the engine.
21. Lower all the mower units to the ground.
22. Finally, apply abrasive to the entire blade width of the reel cutter (cutting cylinder) and perform final back lapping.
23. Return the reel rotation switch to the "Stop" position to stop the rotation of the reel cutter (cutting cylinder), stop the engine, and then wash off the abrasive using a washer etc.

24. Set the transmission selector lever to the desired position.
25. Set the reel reverse lever to the "Neutral" position.
26. While checking the blade for sharpness, adjust blade engagement.

Adjustment of Blade Engagement**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. Set the reel reverse lever to the "Neutral" position.



2f8equ-007

1 Reel reverse lever

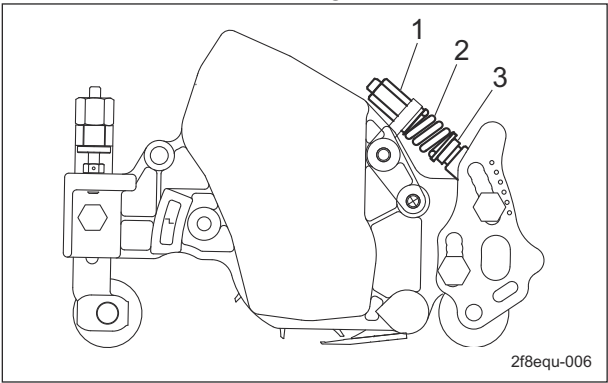
3. Adjust the engagement between the reel cutter (cutting cylinder) and the bed knife (bottom blade) so that a strip of Takumi Paper (Baroness genuine paper strips) or newspaper will be cut cleanly by the edge of both blades when the blades in their entirety come slightly into contact with each other via the cutter adjustment nuts.

Maintenance

4. Insert a strip of Takumi Paper or 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) 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:
Loosen (rotate counter-clockwise) the cutter adjustment nut to apply more contact pressure between the reel cutter (cutting cylinder) and the bed knife (bottom blade).
- If the reel cutter (cutting cylinder) is too tight to turn:
Tighten (rotate clockwise) the cutter adjustment nut to reduce the contact pressure between the reel cutter (cutting cylinder) and the bed knife (bottom blade).
- If the sharpness is not improved by the adjustment:
Perform back lapping.



2f8equ-006

1	Cutter adjustment nut
2	Spring
3	Pipe with cutter adjusting screw

Adjustment of Cutting Height

Important

This applies the set cutting height that differs from the actual cutting height.

Adjust the cutting height to fit your cutting work.

■Cutting Height and Blade Thickness of Bed Knife (Bottom Blade)

Important

The recommended minimum cutting heights are based on those of common greens. They may vary according to the green conditions and machine specifications. If the green undulation is hard, set it a little bit higher in order not to damage the green surface.

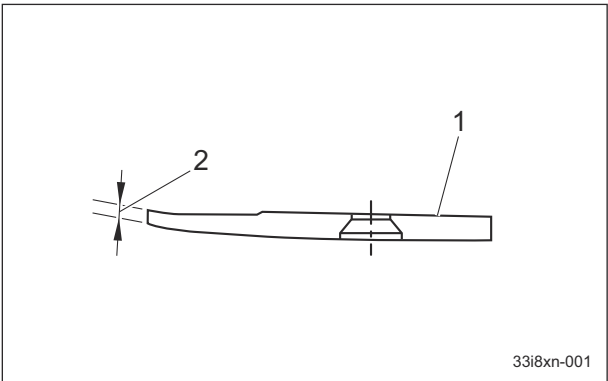
The manufacturer's recommended minimum cutting height is the thickness of the bed knife blade plus 1.5 mm (0.059 in).

The criterion for the blade thickness of the bed knife (bottom blade) and the minimum cutting height recommended by the manufacturer are described below.

Thickness of blade (mm/inch)	Rough minimum cutting height (mm/inch)	Code	Part name	Remarks	
1.0/0.039	2.5/0.098	K2511000490	BEDKNIFE, TAKUMI 1.0-22		For green
		K2511000510	BEDKNIFE, TAKUMI 1.0-22-44.5	Off set 2.5 mm	
1.5/0.059	3.0/0.118	K2511000270 (*2)	BEDKNIFE, 1.5-22		For green
		K2510000320	BEDKNIFE, TIPPED 1.5-22		
		K2511000390	BEDKNIFE, 1.5-22-47	Off set 5 mm	
		K2511000590	BEDKNIFE, 1.5-44.5	Off set 2.5 mm	
2.0/0.079	3.5/0.138	K2511000280 (*1)	BEDKNIFE, 2.0-22		For green
		K2511000350	BEDKNIFE, 2.0-22-47	Off set 5 mm	
		K2511000450	BEDKNIFE, 2.0-22-44.5	Off set 2.5 mm	
2.5/0.098	4.0/0.157	K2511000050	BEDKNIFE, 2.5-22		For green
		K2511000240	BEDKNIFE, 2.5-22-47	Off set 5 mm	
3.0/0.118	4.5/0.177	K2510000060	BEDKNIFE, TIPPED 3.0-62.5-559		For teeing ground/For field

*1: STD for JP

*2: STD for US

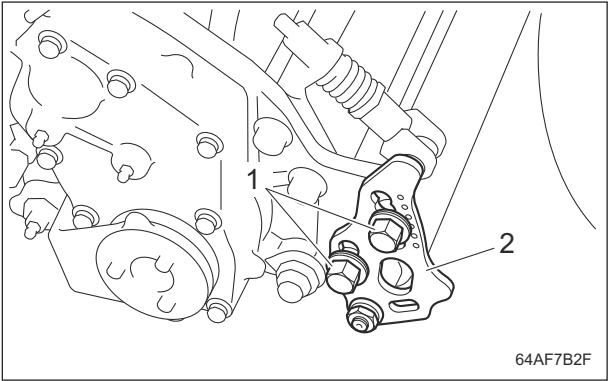


33i8xn-001	
1	Bed knife (bottom blade)
2	Thickness of blade

■Adjustment of Rear Roller

Follow the steps below to set a position that suits your work requirements within the cutting height range.

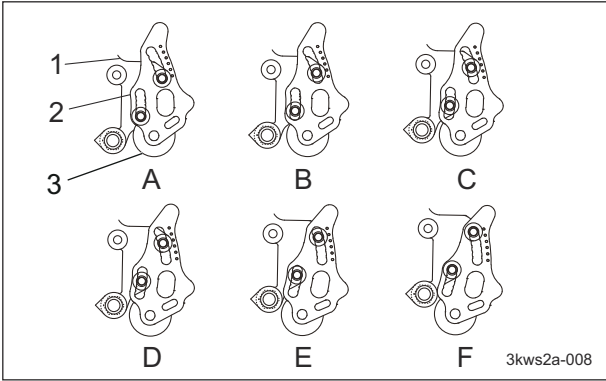
- 1. Loosen the bolts.
- 2. Set the rear roller to the desired position.
- 3. Tighten the bolts to fix the rear roller.



64AF7B2F	
1	Bolt
2	Rear roller bracket

- For greens mowing
You can adjust the rear roller by six stages.
The figure below shows the position of the rear roller bracket with a new reel cutter when using a 2.0 mm (0.079 in) bed knife. The minimum cutting height differs with thickness of the bed knife.
The manufacturer's recommended minimum cutting height is the thickness of the bed knife blade plus 1.5 mm (0.059 in).
"Cutting Height and Blade Thickness of Bed Knife (Bottom Blade)" (Page 6-21)

Note:
With the same cutting height for settings B and C, the volume of clippings will be larger with C since the offset distance is longer.



3kws2a-008		
	1	Mower frame
	2	Rear roller bracket
	3	Rear roller
	A	Use when the reel cutter is worn out
	B	3.5 - 5.0 mm (0.138 - 0.197 in)
	C	3.5 - 10.0 mm (0.138 - 0.394 in)
	D	10.0 - 14.0 mm (0.394 - 0.551 in)
	E	14.0 - 18.0 mm (0.551 - 0.709 in)
*	F	18.0 - 20.0 mm (0.709 - 0.787 in)

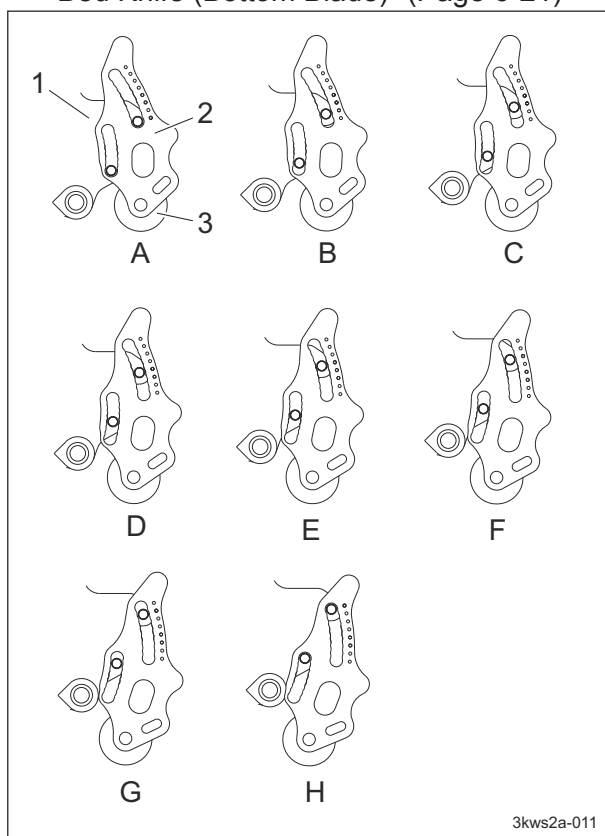
*F: Not recommended by manufacturer.

- For tees mowing

You can adjust the rear roller by eight stages.

The figure below shows the position of the rear roller bracket with a new reel cutter when using a 3.0 mm (0.118 in) bed knife. The minimum cutting height differs with thickness of the bed knife.

"Cutting Height and Blade Thickness of Bed Knife (Bottom Blade)" (Page 6-21)



3kws2a-011

	1	Mower frame
	2	Rear roller bracket
	3	Rear roller
	A	Use when the reel cutter is worn out
	B	6.0 - 13.0 mm (0.236 - 0.512 in)
	C	13.0 - 17.0 mm (0.512 - 0.669 in)
	D	17.0 - 20.0 mm (0.669 - 0.787 in)
*	E	20.0 - 25.0 mm (0.787 - 0.984 in)
*	F	25.0 - 28.0 mm (0.984 - 1.102 in)
*	G	28.0 - 32.0 mm (1.102 - 1.260 in)
*	H	32.0 - 35.0 mm (1.260 - 1.378 in)

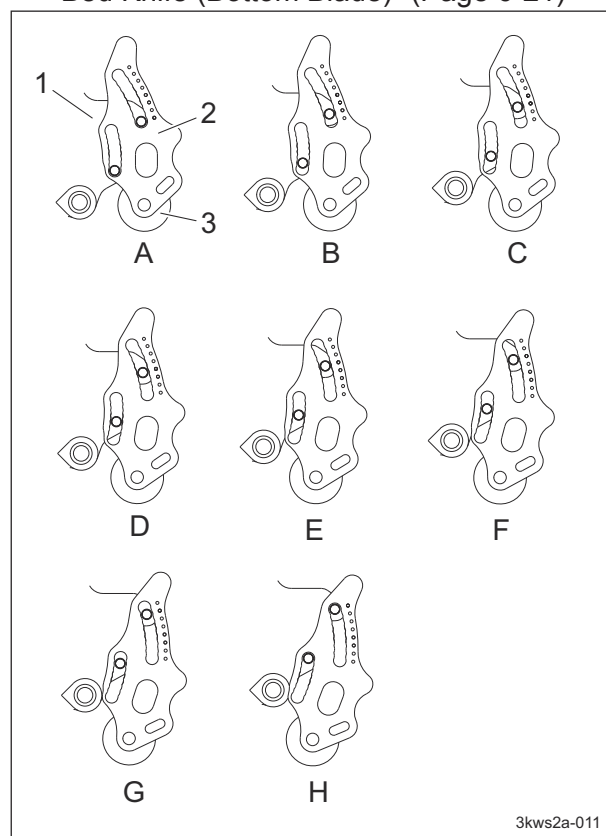
*H: Not recommended by manufacturer.

- For fields mowing

You can adjust the rear roller by eight stages.

The figure below shows the position of the rear roller bracket with a new reel cutter when using a 3.0 mm (0.118 in) bed knife. The minimum cutting height differs with thickness of the bed knife.

"Cutting Height and Blade Thickness of Bed Knife (Bottom Blade)" (Page 6-21)



3kws2a-011

	1	Mower frame
	2	Rear roller bracket
	3	Rear roller
	A	10.0 - 13.0 mm (0.394 - 0.512 in)
	B	13.0 - 17.0 mm (0.512 - 0.669 in)
	C	17.0 - 22.0 mm (0.669 - 0.866 in)
	D	22.0 - 28.0 mm (0.866 - 1.102 in)
	E	28.0 - 33.0 mm (1.102 - 1.299 in)
	F	33.0 - 37.0 mm (1.299 - 1.457 in)
	G	37.0 - 40.0 mm (1.457 - 1.575 in)
*	H	40.0 - 43.0 mm (1.575 - 1.693 in)

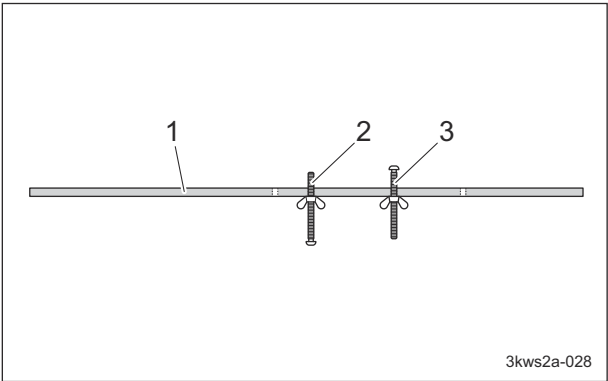
*H: Not recommended by manufacturer.

■Adjustment of Front Roller

 **Caution**

Be sure to perform this adjustment on your own.

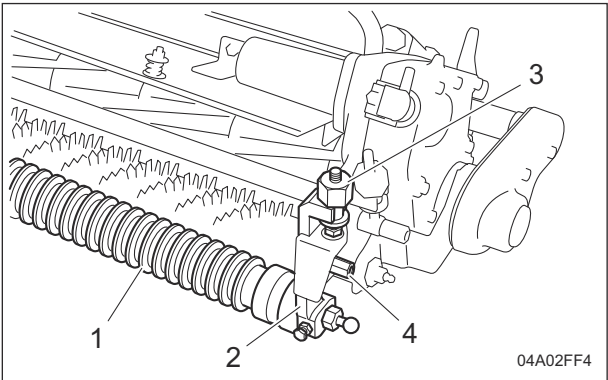
1. Set the slide caliper to the required cutting height, adjust the position of the bottom of the head of the cutting height setting screw on the cutting height gauge, and then securely lock it with a wing nut.



3kws2a-028

1	Cutting height gauge
2	Groomer setting screw
3	Cutting height setting screw

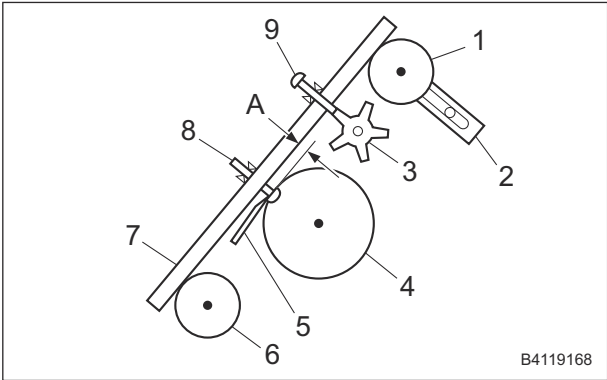
2. Loosen the left and right nuts that secure the front roller bracket.



04A02FF4

1	Front roller
2	Roller bracket
3	Roller adjustment bracket
4	Nut

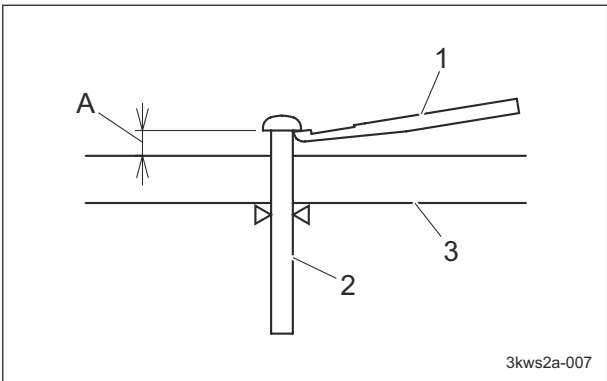
3. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit.



B4119168

1	Front roller
2	Roller bracket
3	Front groomer
4	Reel cutter
5	Bed knife
6	Rear roller
7	Cutting height gauge
8	Cutting height setting screw
9	Groomer setting screw
A	Cutting height

4. Raise or lower the front roller with the roller adjustment bracket to set the position of the front roller so that there is no gap between the bottom of the head of the cutting height setting screw on the cutting height gauge and the tip position of the bed knife.



3kws2a-007

1	Bed knife
2	Cutting height setting screw
3	Cutting height gauge
A	Cutting height

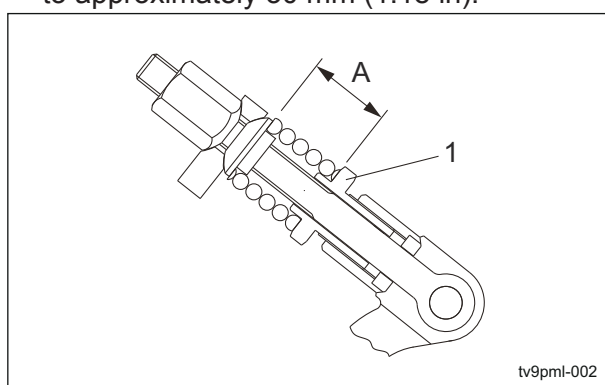
5. Follow the same steps to adjust the cutting height on the opposite side.

6. Tighten the nuts securing the left and right roller brackets, and fix them securely.
7. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit again, and check that it is at the desired cutting height.

Adjustment of Cutter Adjustment Spring

If the diameter of the reel cutter (cutting cylinder) becomes smaller, adjust the cutter adjustment spring.

1. Adjust the blade engagement.
2. Loosen the pipe with cutter adjusting screw, and then adjust the length of the spring coil to approximately 30 mm (1.18 in).



tv9pml-002

1	Pipe with cutter adjusting screw
A	30 mm (1.18 in)

Adjustment of CAM

When the gap at the left frame side between the reel cutter (cutting cylinder) and the bed knife (bottom blade) appears.

1. Loosen the locknut and turn the left cam bush clockwise for the gap size.
When you raise the bed knife (bottom blade) for 0.1mm (0.039 inch), turn the left cam bush clockwise for 30 degrees.

2. Once the adjustment completed, tighten the locknut securely.

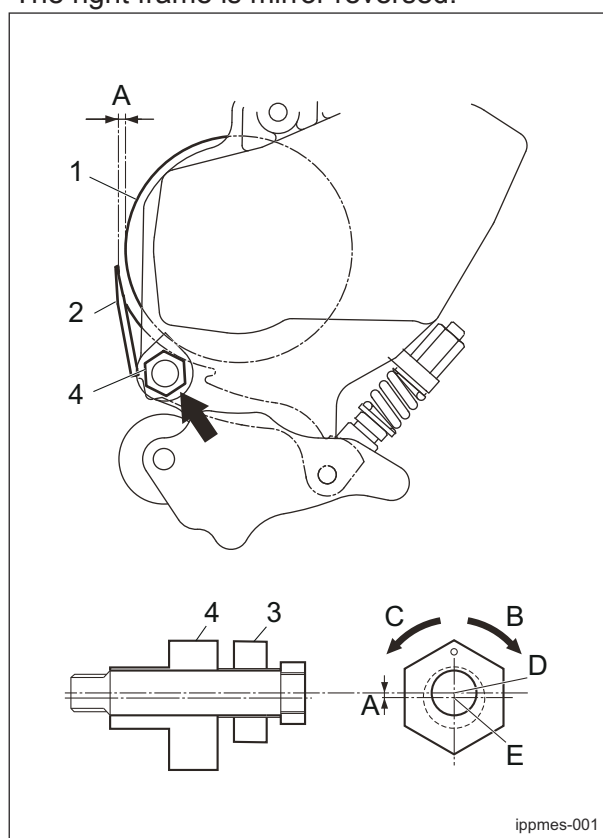
When the gap at the right frame side between the reel cutter (cutting cylinder) and the bed knife (bottom blade) appears.

1. Loosen the locknut and turn the right cam bush anticlockwise for the gap size.
2. Once the adjustment completed, tighten the locknut securely.

Note:

The figure below shows the situation when you see from the left frame.

The right frame is mirror reversed.



ippmes-001

1	Reel cutter (Cutting cylinder)
2	Bed knife (Bottom blade)
3	Lock nut
4	Cam bush
A	Max 0.3 mm (0.012 inch)
B	Bed knife (bottom blade) moving up
C	Bed knife (bottom blade) moving down
D	Center of cutter pin
E	Center of cam bush

Sharpening of Reel Cutter (Cutting Cylinder)

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 unless you have a grinding machine.

 **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**

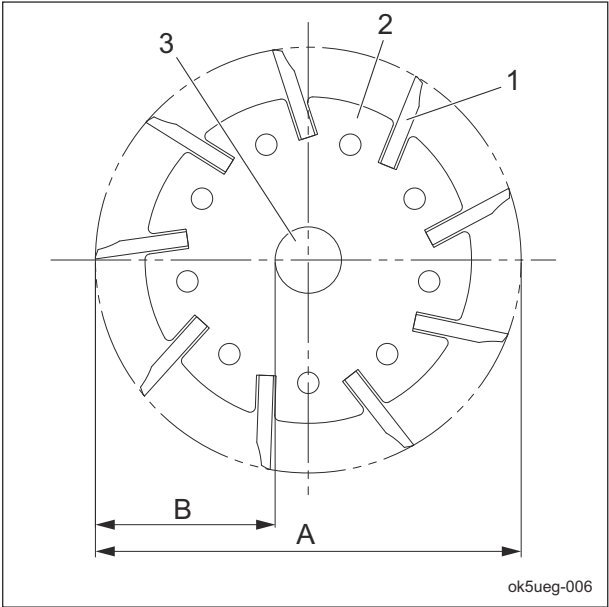
Wear gloves when touching edged tools to avoid cutting your hands.

The criteria for sharpening the reel cutter (cutting cylinder) are described below. However, these criteria are only references and do not guarantee performance of a reel cutter (cutting cylinder).

1. 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)
128 mm (5.04 in)	51.3 mm (2.02 in)	118 mm (4.65 in)	46.3 mm (1.82 in)

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

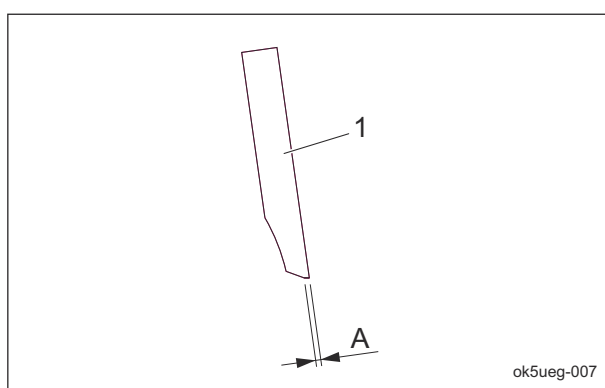


1	Reel cutter (cutting cylinder) blade
2	Reel cutter (cutting cylinder) disc
3	Reel cutter (cutting cylinder) shaft
A	Outer diameter of reel cutter (cutting cylinder)
B	Distance from blade edge to outer edge of reel cutter (cutting cylinder) shaft

2. 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)
128 mm (5.04 in)	2.5 mm (0.10 in) (factory-recommended)



ok5ueg-007

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

Adjustment of Groomer

Note:

Depending on the specifications, this function may not be available.

Important

When using the front groomer, adjust it to suit the conditions on the green.

Important

For adjustment of groomer, be sure to use the cutting height gauge so that the left and right sides will be parallel. Otherwise, it may cause damage on the bearings.

Important

Set the grooming height more than 0 mm (0.0 in) from the ground. Setting the front groomer deeper than the ground surface will cause damage to the groomer shaft, bearings and gears etc.

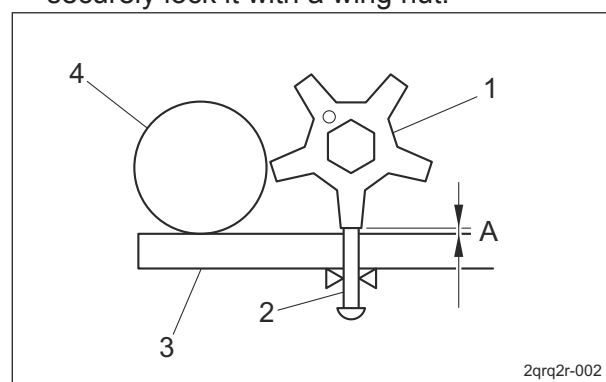
Important

If the groomer is installed with a cutting height of 16 mm (0.63 in) or more, do not raise the groomer height by more than 5 mm (0.20 in) above the cutting height. Otherwise, it may cause damage to the grass catcher and vertical blades.

Important

When using the thatching brush, set it to the same height as the cutting height. If it is set lower, it will wear easily.

1. Set the groomer setting screw of the cutting height gauge to the desired height. Set the slide caliper to the required groomer height, adjust the tip of the groomer setting screw on the cutting height gauge, and then securely lock it with a wing nut.

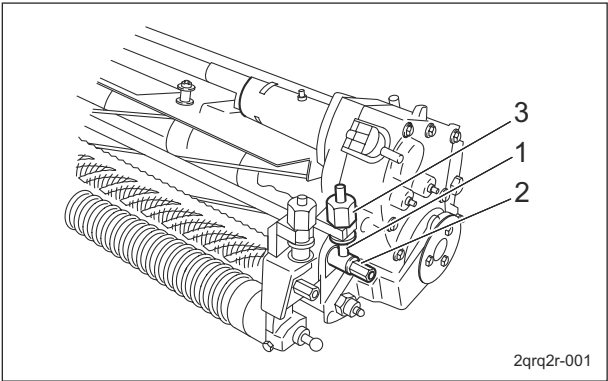


2qrq2r-002

2qrq2r-002

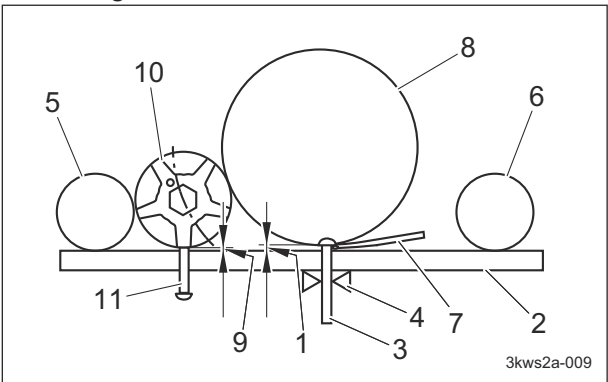
1	Vertical blade
2	Groomer setting screw
3	Cutting height gauge
4	Front roller
A	Groomer height

2. Loosen the nut fixing the left groomer adjustment bolt.



1	Groomer adjustment bolt
2	Nut
3	Groomer adjuster

3. Loosen the nut fixing the right groomer adjustment bolt.
4. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit.



1	Cutting height
2	Cutting height gauge
3	Cutting height setting screw
4	Nut
5	Front roller
6	Rear roller
7	Bed knife (bottom blade)
8	Reel cutter (cutting cylinder)
9	Groomer height
10	Front groomer
11	Groomer setting screw

Important

Adjust the position of the groomer setting screw so that it can contact with the vertical blades.

5. Adjust the groomer adjuster up and down so that the left and right sides can be parallel.
6. Firmly tighten the nut securing the left side groomer adjustment bolt.
7. Firmly tighten the nut securing the right side groomer adjustment bolt.
8. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit again, and check that it is at the desired groomer height.

Adjustment of Thatching Reel

Note:

Depending on the specifications, this function may not be available.

Important

When using the thatching reel, adjust it to suit the conditions on the green.

Important

For adjustment of thatching reel, be sure to use the cutting height gauge so that the left and right sides will be parallel. Otherwise, it may cause damage on the bearings.

Important

Set the thatching reel height more than 0 mm (0.0 in) from the ground. Setting the thatching reel deeper than the ground surface will cause damage to the vertical shaft, bearings and gears etc.

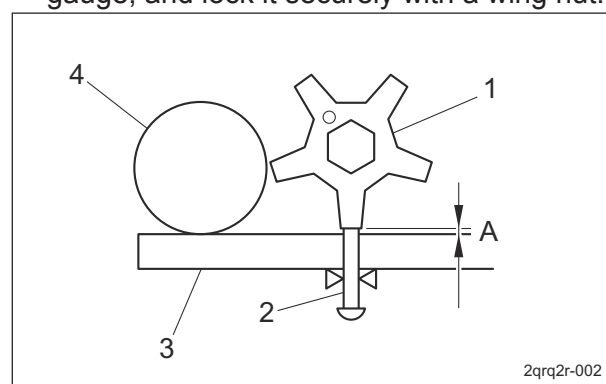
Important

If the thatching reel is installed with a cutting height of 16 mm (0.63 in) or more, do not raise the thatching reel height by more than 5 mm (0.20 in) above the cutting height. Otherwise, it may cause damage to the grass catcher and vertical blades.

Important

When using the thatching brush, set it to the same height as the cutting height. If it is set lower, it will wear easily.

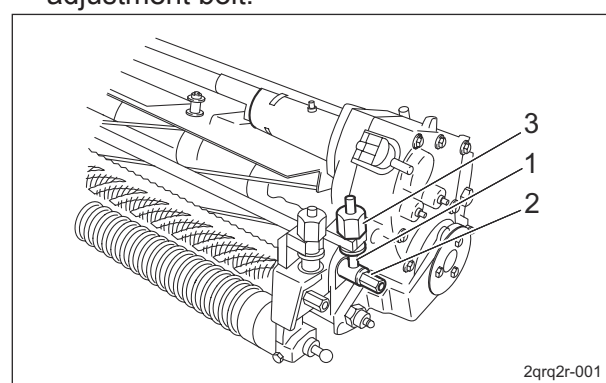
1. Set the caliper to the desired height of the thatching reel, align the tip of the thatching reel setting screw on the cutting height gauge, and lock it securely with a wing nut.



2qrq2r-002

1	Vertical blade
2	Thatching reel setting screw
3	Cutting height gauge
4	Front roller
A	Thatching reel height

2. Loosen the nut fixing the left thatching reel adjustment bolt.



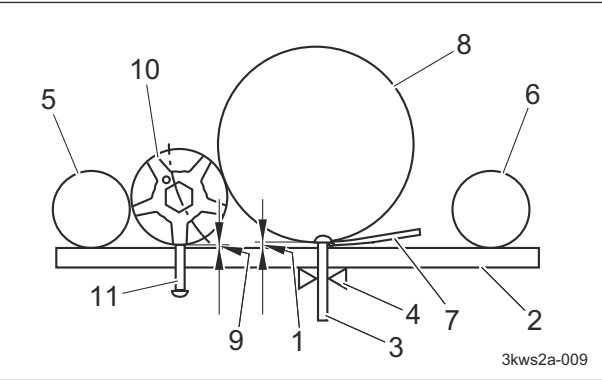
2qrq2r-001

1	Thatching reel adjustment bolt
2	Nut
3	Thatching reel adjuster

3. Loosen the nut fixing the right thatching reel adjustment bolt.

Maintenance

4. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit.



3kws2a-009

1	Cutting height
2	Cutting height gauge
3	Cutting height setting screw
4	Nut
5	Front roller
6	Rear roller
7	Bed knife (bottom blade)
8	Reel cutter (cutting cylinder)
9	Thatching reel height
10	Thatching reel
11	Thatching reel setting screw

Important

Adjust the position of the thatching reel setting screw so that it can contact with the vertical blades.

5. Adjust the thatching reel adjuster up and down so that the left and right sides will be parallel.
6. Firmly tighten the nut securing the left side thatching reel adjustment bolt.
7. Firmly tighten the nut securing the right side thatching reel adjustment bolt.
8. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit again, and check that it is at the desired thatching reel height.

Adjustment of Thatching Brush

Note:
Depending on the specifications, this function may not be available.

Important

Adjust the thatching brush to suit the conditions on the green.

Important

For adjustment of thatching brush, be sure to use the cutting height gauge so that the left and right sides will be parallel. Otherwise, it may cause damage on the bearings.

Important

Set the thatching brush height more than 0 mm (0.0 in) from the ground. Setting the thatching brush deeper than the ground surface will cause damage to the brush shaft, bearings and gears etc.

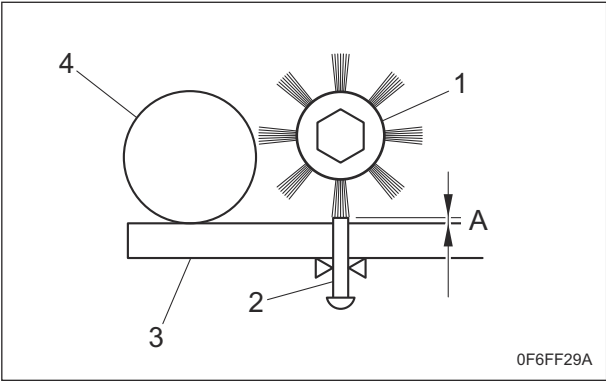
Important

If the thatching brush is installed with a cutting height of 16 mm (0.63 in) or more, do not raise the thatching brush height by more than 5 mm (0.20 in) above the cutting height. Otherwise, it may cause damage to the grass catcher and thatching brush.

Important

When using the thatching brush, set it to the same height as the cutting height. If it is set lower, it will wear easily.

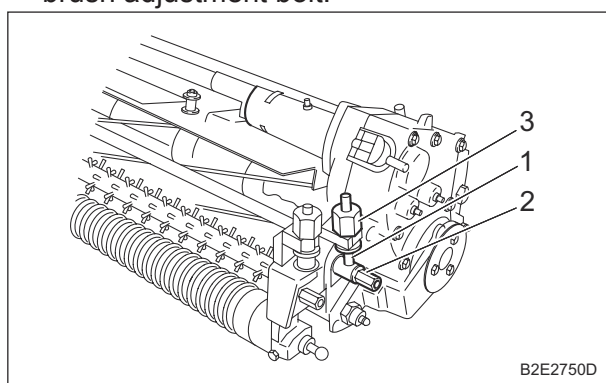
1. Set the caliper to the desired height of the thatching brush, align the tip of the thatching brush setting screw on the cutting height gauge, and lock it securely with a wing nut.



0F6FF29A

1	Thatching brush
2	Thatching brush setting screw
3	Cutting height gauge
4	Front roller
A	Thatching brush height

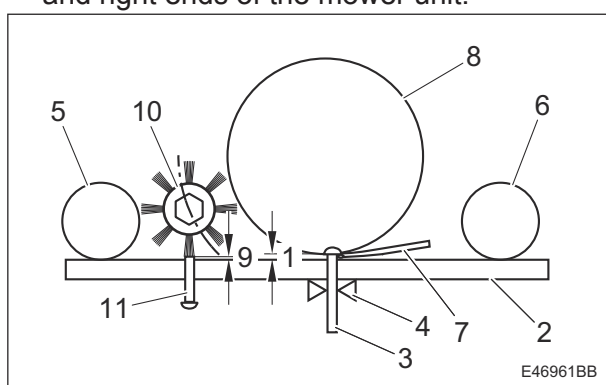
2. Loosen the nut fixing the left thatching brush adjustment bolt.



B2E2750D

1	Thatching brush adjustment bolt
2	Nut
3	Thatching brush adjuster

3. Loosen the nut fixing the right thatching brush adjustment bolt.
4. Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit.



E46961BB

1	Cutting height
2	Cutting height gauge
3	Cutting height setting screw
4	Nut
5	Front roller
6	Rear roller
7	Bed knife (bottom blade)
8	Reel cutter (cutting cylinder)
9	Thatching brush height
10	Thatching brush
11	Thatching brush setting screw

Important

Adjust the position of the groomer setting screw so that it can contact with the vertical blades.

- Adjust the thatching brush adjuster up and down so that the left and right sides will be parallel.
- Firmly tighten the nut securing the left side thatching brush adjustment bolt.
- Firmly tighten the nut securing the right side thatching brush adjustment bolt.
- Bring the cutting height gauge into contact with the front roller and rear roller at the left and right ends of the mower unit again, and check that it is at the desired thatching brush height.

Adjustment of CR brush

Important

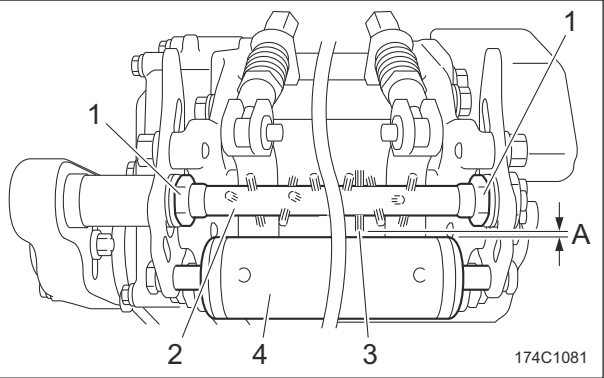
Do not press the brush hard against the rear roller. Doing so may cause the belt to slip or become severed.

Important

The CR brush prevents cut grass from sticking to the rear roller with the rotating brush.

- Loosen the left and right nuts.
- Raise or lower the brush shaft and adjust the gap between the brush tip and rear roller to 0 to 1 mm (0 to 0.4 in).

3. Tighten the loosened left and right nuts.



1	Nut
2	Brush shaft
3	Brush tip
4	Rear roller
A	0 - 1 mm (0 - 0.4 in)

Adjustment of Belt Tension

Warning

Be sure to stop the engine before adjusting the belts.

Warning

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

Important

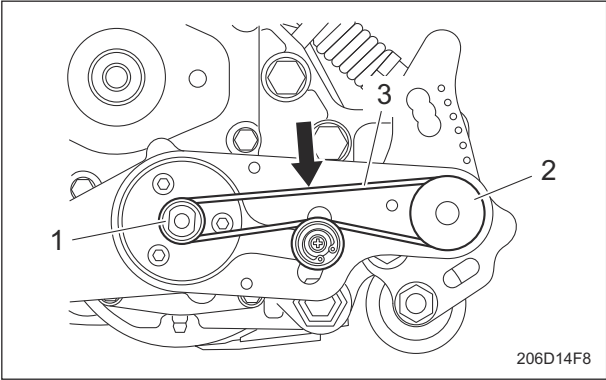
For the specified value of belt tension, refer to Adjusted Values. Check belt tension after rotating the belt several times.

■Adjustment of CR Brush Drive Belt

1. Remove the belt cover.

2. Check the belt tension.

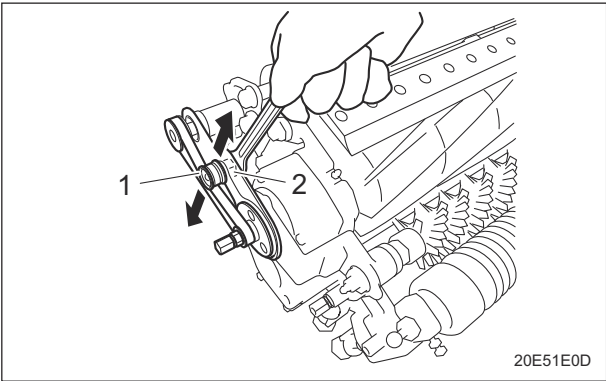
The criterion for the belt tension is that the belt slacks approximately 5 - 6 mm (0.20 - 0.24 in) when you apply a force of 10 Nm (1.0 kgf) to the belt at the middle point between the reel shaft pulley and driving pulley.



1	Reel shaft pulley
2	Driving pulley
3	Belt

3. If the belt tension is not at the approximate value, follow the steps below to adjust it.

- [1] Loosen the nut so the tension pulley can be moved.
- [2] Move the tension pulley in the direction of the arrow so that the slack in the belt is at the approximate value.
- [3] Tighten the nut so the tension pulley cannot be moved.



1	Tension pulley
2	Nut

4. Install the belt cover.

Adjustment of Rear Scraper (Wire Type)

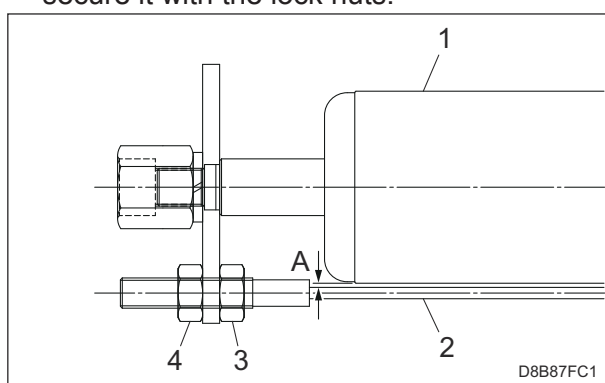
Note:

Depending on the specifications, this function may not be available.

Important

Do not place the scraper in contact with the rear roller too tightly. It will cause the scraper break and slack.

1. Loosen the left and right lock nuts and nuts of the scraper.
2. Adjust the scraper so that there is a clearance of 2.0 to 3.0 mm (0.079 to 0.118 in) between it and the rear roller, and then secure it with the lock nuts.



D8B87FC1

1	Scraper
2	Rear roller
3	Nut
4	Lock nut
A	2.0 - 3.0 mm (0.079 - 0.118 in)

Replacement

Engine

Replacement of Engine Oil

⚠ Caution

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

Important

When you replace the engine oil, be sure to drain it into a bowl and discard it in accordance with local 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).

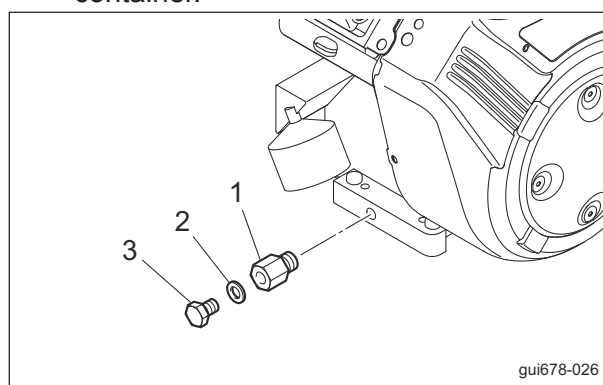
Important

Securely install the oil level gauge and oil filler cap.

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

1. Follow the steps below to remove the old engine oil.

- [1] Start and run the engine to warm up the engine oil.
- [2] With the machine on a level surface, stop the engine.
- [3] Open the hood.
- [4] While not allowing the drain fitting to turn, remove the bolt and seal washer, and then drain the old engine oil into a container.



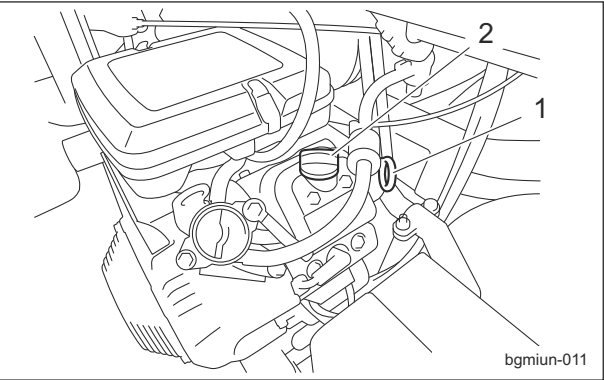
gui678-026

1	Drain fitting
2	Seal washer
3	Bolt

- [5] Install the bolt and seal washer in the engine.

2. Remove the oil filler cap, and then supply new engine oil through the oil filler port until the oil reaches a level in between the upper and lower limit lines on the oil level gauge.

- 3. Supply 1.0 dm³ (1.0 L) of engine oil, remove the oil level gauge, and then insert it all the way to check the oil level.
- 4. After checking the oil level with the oil level gauge, add more engine oil if it is insufficient.
The engine oil quantity (including the oil filter) is approximately 1.6 dm³ (1.6 L).
- 5. Install the oil filler cap.



bgmiun-011

1	Oil level gauge
2	Oil filler cap

- 6. 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 filling the oil.
- 7. Check underneath the machine for oil leakage.
- 8. Close the hood.

Replacement of Engine Oil Filter

 **Caution**

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

Important

When replacing the engine oil filter, be sure to drain the engine oil into a container and discard it in accordance with local laws and regulations.

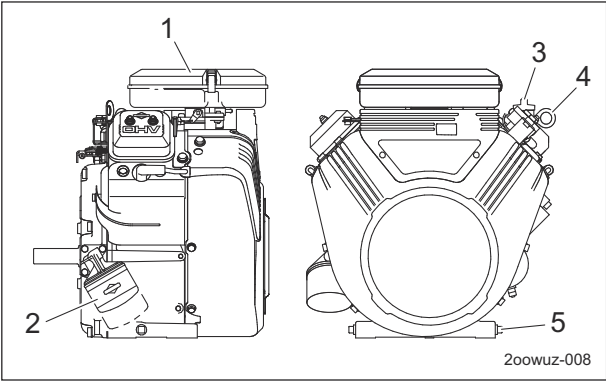
Important

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

Securely install the oil level gauge and oil filler cap.

- 1. With the filter wrench, remove the old filter cartridge.



2oowuz-008

1	Engine
2	Filter cartridge
3	Oil filler cap
4	Oil level gauge
5	Drain plug

- 2. Lightly coat the packing of the new filter cartridge with engine oil.
- 3. Hand-tighten the filter cartridge until the packing contacts the mounting surface, and then hand-tighten additional 1/2 turn.
- 4. Supply engine oil until it reaches the specified level.
"Supply of Engine Oil" (Page 6-7)
- 5. Start the engine, and then stop it after 10 to 20 minutes.
- 6. Make sure that there is no oil leakage at the sealing surface of the filter cartridge.
- 7. Check the engine oil level.
If it is low, supply engine oil until it reaches the specified level.
- 8. Check underneath the machine for oil leakage.

Replacement of Fuel Filter

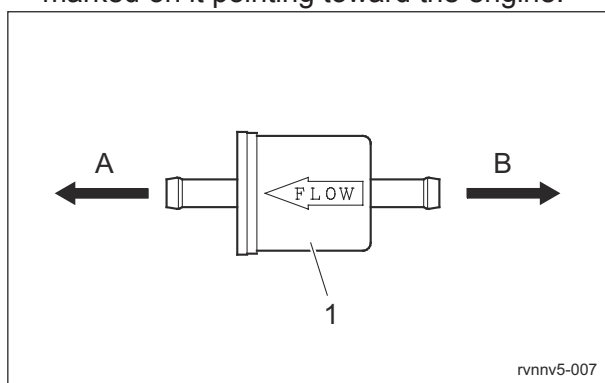
Important

While installing the fuel filter, prevent contamination with dirt or dust. The fuel contaminated with dirt or dust will cause engine failure.

Important

Since the fuel filter is a cartridge, it cannot be disassembled or cleaned.

1. Remove the old fuel filter.
2. Install a new fuel filter with the arrow marked on it pointing toward the engine.



rvnnv5-007

rvnnv5-007

1	Fuel filter
A	Engine
B	Fuel cock

Replacement of Air Cleaner Element

Important

A contaminated air cleaner element may cause malfunction of the engine.

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 element. "Cleaning of Air Cleaner Element" (Page 6-4)

Main Vehicle

Replacement of Hydraulic Oil

Caution

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

Caution

Change oil after the hydraulic system has been sufficiently cooled down.

Important

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

Important

If the oil emulsifies or if it becomes even slightly less transparent, change the oil immediately.

Important

For the hydraulic oil to be used, consult Characteristics of Hydraulic Oil and use the oil whose characteristics are equivalent or superior to those specified there. Especially regarding kinematic viscosity and viscosity index, use of hydraulic oil whose figures are less than those of the specified hydraulic oil will cause a malfunction in the hydraulic circuit.

■ Characteristics of Hydraulic Oil

ISO Viscosity Grade		ISO VG46
Density	15 °C (59 °F)	0.873 g/cm ³ (0.0315 lb/in ³)
API Gravity		30.6
Flash Point (Open Cup)		230 °C (446 °F)
Pour Point		-30 °C (-22 °F)
Kinematic Viscosity	40 °C (104 °F)	46 mm ² /s (46 cSt)
	100 °C (212 °F)	7 mm ² /s (7 cSt)
Viscosity Index		109

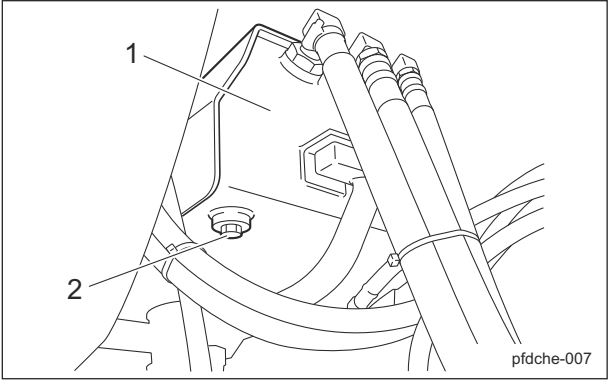
■ Characteristics of Hydraulic Oil with conditions of use
Hydraulic oil of ISO viscosity grade VG68 can be used only if the following condition is met:

- The outside temperature must be 20 °C (68 °F) or more during engine operation.

ISO Viscosity Grade		ISO VG68
Density	15 °C (59 °F)	0.878 g/cm ³ (0.0318 lb/in ³)
API Gravity		29.7
Flash Point (Open Cup)		252 °C (486 °F)
Pour Point		-30 °C (-22 °F)
Kinematic Viscosity	40 °C (104 °F)	68 mm ² /s (68 cSt)
	100 °C (212 °F)	9 mm ² /s (9 cSt)
Viscosity Index		107

Note:
In Japan, "Shell Tellus S2M46 (ISO VG46)" and "Shell Tellus S2M68 (ISO VG68)" meet the characteristics described above. However, in other countries, the specification of Shell Tellus S2M46 and Shell Tellus S2M68 can be below what is required. Please check the product data sheet to ensure that it meets the requirements before using.

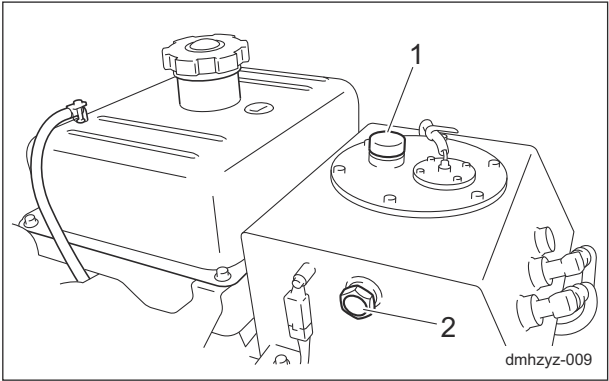
1. Follow the steps below to remove the old oil.
- [1] Start and run the engine to warm up the oil.
 - [2] Lower the mower units on a level surface, and then stop the engine.
 - [3] Remove the drain plug of the hydraulic tank, and then drain the old oil into a container.
 - [4] Wind new sealing tape on the drain plug, and then attach it to the hydraulic tank.



pfdche-007

1	Hydraulic tank
2	Drain plug

2. Open the hood.
3. Follow the steps below to supply new hydraulic oil.
- [1] Open the tank cap.
 - [2] Supply new oil from the oil filler port until the oil level reaches the middle of the oil gauge on the hydraulic tank. The hydraulic tank capacity is approximately 16.0 dm³ (16.0 L).
 - [3] Tighten the tank cap securely.



dmhzyz-009

1	Tank cap
2	Oil gauge

4. Start the engine, and then repeat the steps below a few times.
- Raise and lower the mower units.
 - Turn the steering wheel left and right.
 - Move forward and reverse.
5. Lower the mower units and maintain that position on a level surface, and then check to see if the oil level is at the middle of the oil gauge. If the hydraulic oil level is low, supply oil again until it reaches the specified level.
6. Check underneath the machine for oil leakage.
7. Close the hood.

Replacement of Hydraulic Oil Filter

■ Replacement of Hydraulic Oil Line Filter

Caution

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

Caution

Change filter after the hydraulic system has been sufficiently cooled down.

Important

When replacing the hydraulic oil filter, be sure to drain the oil into a container and discard it in accordance with local laws and regulations.

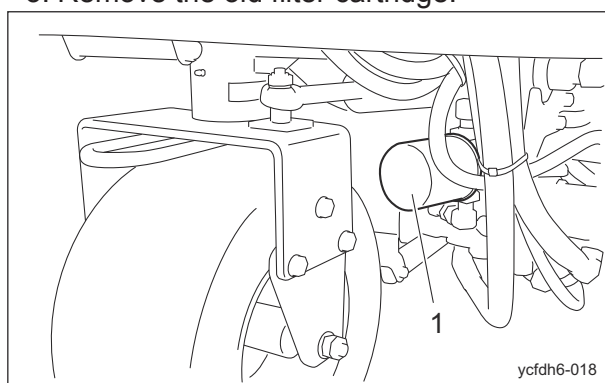
Important

If the hydraulic oil emulsifies or if it becomes even slightly less transparent, change the oil immediately.

Important

Use hydraulic oil whose specification meets the requirements.

1. Lower the mower units on a level surface.
2. Stop the engine.
3. Remove the old filter cartridge.



ycfdh6-018

1	Filter cartridge
---	------------------

4. Lightly coat the packing of the new filter cartridge with hydraulic oil, and then install the cartridge.

5. Screw in the filter cartridge by hand until the packing contacts the mounting surface.
Then tighten additional 1/2 turn from that point.
6. Supply hydraulic oil until it reaches the specified level.
"Supply of Hydraulic Oil" (Page 6-8)
7. Start the engine, and then stop it after 10 to 20 minutes.
8. Make sure that there is no oil leakage at the sealing surface of the filter cartridge.
9. Check the hydraulic oil level.
If it is low, supply hydraulic oil until it reaches the specified level.
10. Check underneath the machine for oil leakage.

■Replacement of Hydraulic Oil Suction Filter

 Caution

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

 Caution

Change filter after the hydraulic system has been sufficiently cooled down.

Important

When replacing the hydraulic oil filter, be sure to drain the oil into a container and discard it in accordance with local laws and regulations.

Important

If the hydraulic oil emulsifies or if it becomes even slightly less transparent, change the oil immediately.

Important

Use hydraulic oil whose specification meets the requirements.

Important

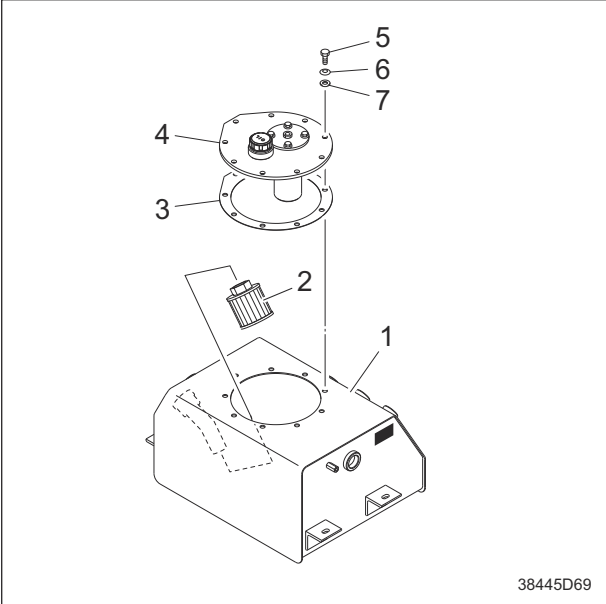
Replace the intake port packing with a new one.

Important

Be careful that dust does not fall into the tank when changing the filter. Otherwise, it will damage the hydraulic system.

1. Lower the mower units on a level surface.
2. Stop the engine.
3. Open the hood.
4. Remove the bolts, spring washers (- #32434) and washers, and then remove the hydraulic tank cap.
5. Remove the old suction filter and packing.
6. Remove all of the old liquid gasket from the hydraulic tank.
7. Remove all of the old liquid gasket and the packing from the hydraulic tank cap.
8. Wash and clean the hydraulic tank cap.

9. Apply liquid gasket to a new packing and then install it to the hydraulic tank cap.
10. Install the new suction filter to the hydraulic tank cap.
11. Install the hydraulic tank cap.



38445D69

1	Hydraulic tank
2	Suction filter
3	Packing
4	Hydraulic tank cap
5	Bolt
6	Spring washer (-#32434)
7	Washer

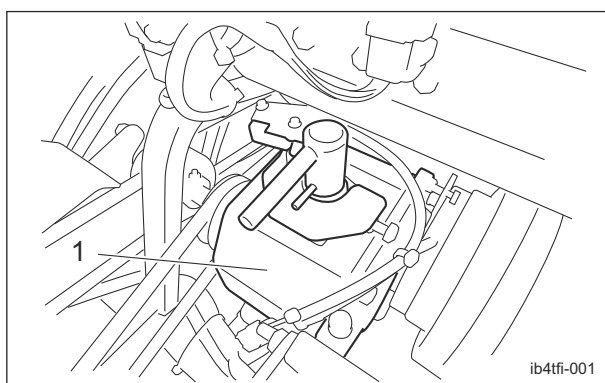
12. Supply hydraulic oil until it reaches the specified level.
"Supply of Hydraulic Oil" (Page 6-8)
13. Start the engine, and stop it after hydraulic oil has been warmed up.
14. Check underneath the machine for hydraulic oil leakage.
15. Close the hood.

Replacement of Transmission Grease

The transmission is located behind the driver's seat.

Change grease every two years.

Grease type	Pyronoc CC1
Grease quantity	400 g (14.11 oz)



ib4tfi-001

1	Transmission
---	--------------

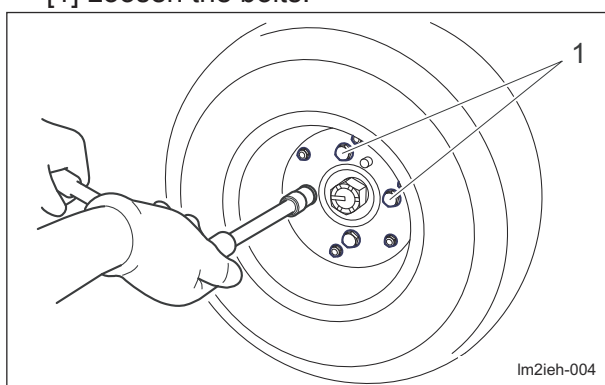
Replacement of Tires

■Replacement of Front Tires

1. Removing front tires

Follow the steps below to remove the front tire:

[1] Loosen the bolts.



lm2ieh-004

1	Bolt
---	------

[2] Securely place the jack beneath the jack-up point of the front left and right frame area, and then raise it until the tire lifts off the ground.

[3] Remove the bolts.

[4] Remove the tire from the wheel mounting base.

2. Installing front tires

Important

Tighten the bolts in the tightening order (crosswise).

Important

Tighten the wheel mounting bolts on the specified torque by using a torque wrench.

For installing the front tires, reverse the removing procedure.

■Replacement of Rear Tire

1. Removing the rear tire from the 2WD machine

Follow the steps below to remove the rear tire from the 2WD machine:

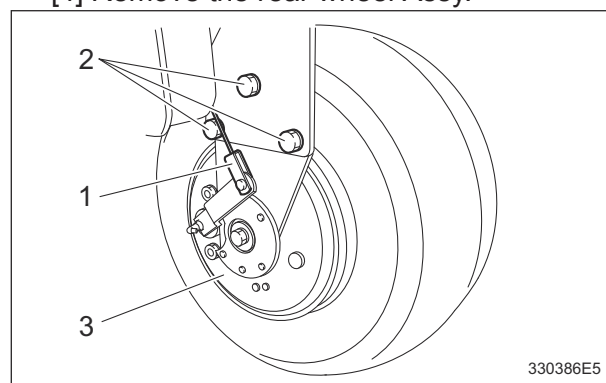
[1] Securely place the jack beneath the jack-up points of the engine mount frame area, and then raise it until the tire lifts off the ground.

"Jack-Up Points" (Page 6-3)

[2] Remove the wire.

[3] Remove the right/left bolts.

[4] Remove the rear wheel Assy.

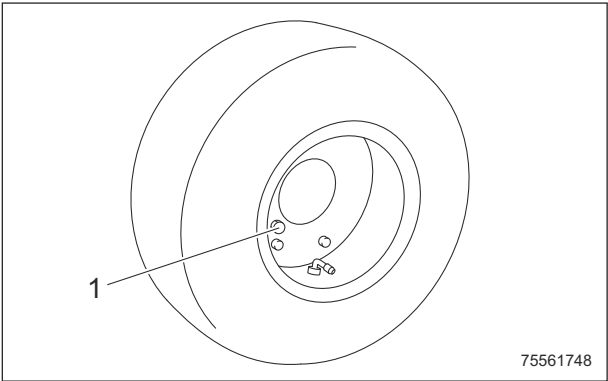


330386E5

330386E5

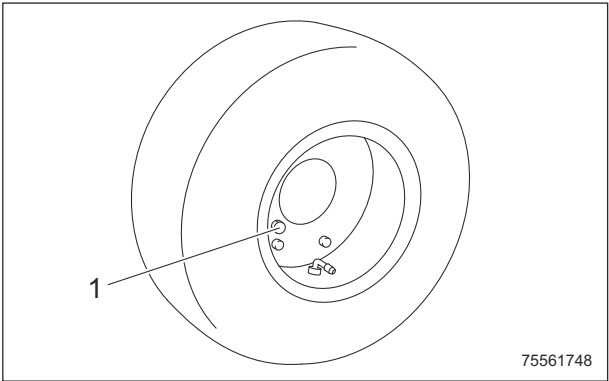
1	Wire
2	Bolt
3	Rear wheel Assy

[5] Remove the bolts.



1	Bolt
---	------

[7] Remove the bolts.



1	Bolt
---	------

[6] Remove the tire from the wheel mounting base.

2. Removing the rear tire from the 3WD machine
Follow the steps below to remove the rear tire from the 3WD machine:

[1] Securely place the jack beneath the jack-up points of the engine mount frame area, and then raise it until the tire lifts off the ground.
"Jack-Up Points" (Page 6-3)

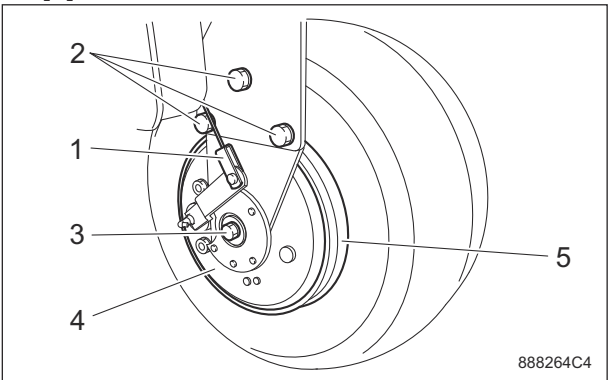
[2] Remove the wire.

[3] Remove right/left the bolt A(s).

[4] Remove the bolt B at the center.

[5] Remove the brake shoe Assy.

[6] Remove the brake drum.



1	Wire
2	Bolt A
3	Bolt B
4	Brake shoe Assy
5	Brake drum

[8] Remove the tire from the wheel mounting base.

3. Installing the rear tire

Important

Tighten the bolts in the tightening order (crosswise).

Important

Tighten the wheel mounting bolts on the specified torque by using a torque wrench.

For installing the rear tires, reverse the removing procedure.

Mower Unit

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.

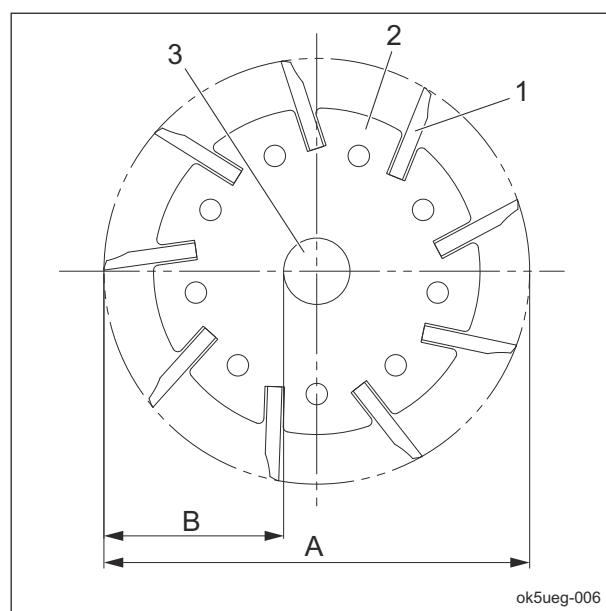
The criteria for replacing the reel cutter (cutting cylinder) are described below. However, these criteria are only a reference and do not guarantee performance like that of a new reel cutter (cutting cylinder).

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)
128 mm (5.04 in)	51.3 mm (2.02 in)	118 mm (4.65 in)	46.3 mm (1.82 in)

Note:

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



ok5ueg-006

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

■Procedure to Install 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.

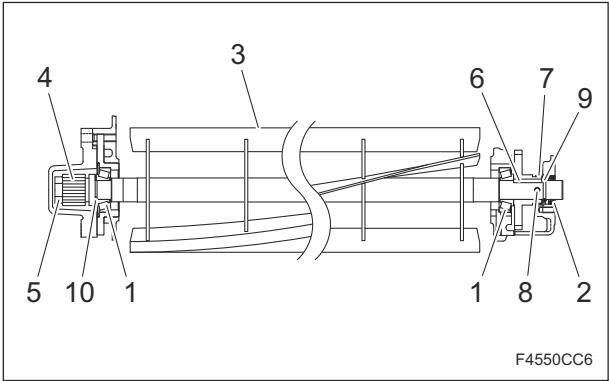
⚠ Caution

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.

Important

Use 30204JRP6 as bearing for the reel cutter.

1. Remove the bearings on the left and right ends of reel cutter, and the oil seal.
2. Fill up the bearings and oil seal with grease (Excelite EP No.2).
3. Attach the reel cutter (cutting cylinder) to the frame.
4. Tighten 20-tooth reel gear and check the bearing for backlash.
5. Loosen 20-tooth reel gear at the level that the reel cutter (cutting cylinder) can be rotated lightly by your hand and you don't feel the backlash.
6. Tighten 20-tooth reel gear on the specified torque again.
Tightening torque: 2.5 N-m (25.49 kgf-cm/ 22.13 lb-in)
7. Tighten the reel gear fixing nut.



F4550CC6

1	Bearing
2	Seal
3	Reel cutter (Cutting cylinder)
4	20-tooth reel gear
5	Reel gear fixing nut
6	Key
7	Cover
8	Pin
9	O-ring
10	Wave washer

Replacement of Bed Knife (Bottom Blade)

⚠ Caution

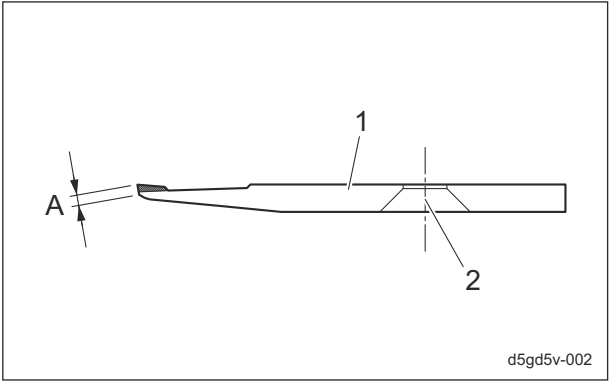
Both the reel cutter (cutting cylinder) and the bed knife (bottom blade) are edged tools. Handle them carefully, since they could cut your hands and feet.

⚠ 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
Standard blade
Replace the bed knife (bottom blade) before it no longer has a front face.

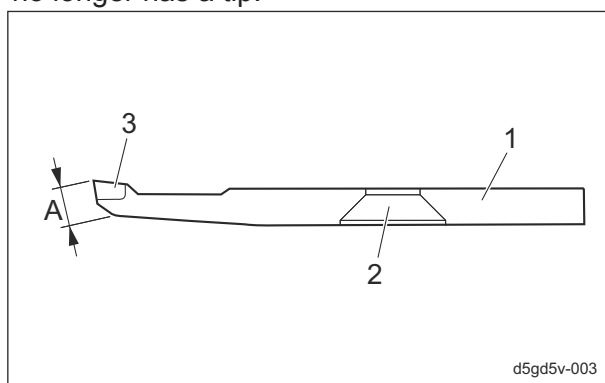


d5gd5v-002

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

High-speed-steel-tipped blade

Replace the bed knife (bottom blade) before it no longer has a tip.



d5gd5v-003

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

Storage

Long-Term Storage

Follow the instructions below for long-term storage of the machine.

1. Cleaning

- Remove dirt, grass clippings, oil stains etc. completely from the main vehicle and engine.

2. Replacing oil

- Inspect and replace the engine oil, hydraulic oil and element.

3. Greasing and lubricating

- Supply oil and apply grease to appropriate parts.

4. Battery

- Remove the negative battery wire.

5. Fuel

- Remove the fuel from the fuel tank.

6. Tire pneumatic pressure

- Set the tire air pressure slightly higher than normal, and then place the machine on a board to avoid humidity.

7. Mower units

- When storing this machine, lower all the mower units unless a positive mechanical lock is provided.

8. Storage location

- Cover the machine and store it in a dry place where it will not be exposed to rain.

Maintenance

Precautions for Repair Page 7-2

Inspection Page 7-2

Inspection of The Operation Status
of The Control UnitPage 7-2

Adjustment Page 7-3

Adjustment of Parking Brake Page 7-3

Adjustment of Work Speed Page 7-3

Adjustment of The Neutral Position
of The Piston Pump Page 7-3

Replacement Page 7-4

Replacement of Flexible WirePage 7-4

Replacement of Fuse Page 7-8

TowingPage 7-9

Towing the Machine in an
EmergencyPage 7-9

Precautions for Repair

Warning

The chapter "Repair" in this manual describes practical measures which should be performed by a mechanic with expertise. The owner should instruct the mechanic with expertise to perform repair service for this machine.

Caution

First, learn well the operations you plan to perform.

Important

Use tools appropriate for each operation.

Important

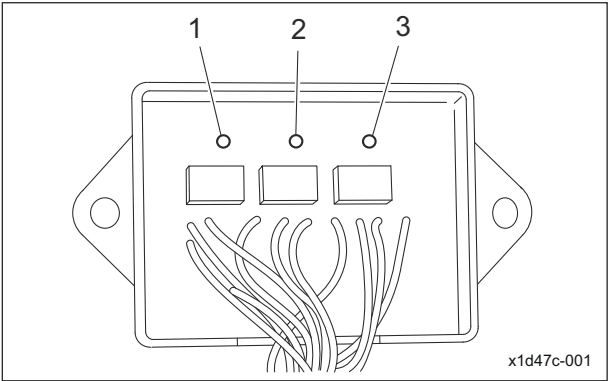
Use Baroness genuine parts for replacement and accessories.
Our product warranty may be void if you use non-genuine parts for replacement or accessories.

Inspection

Inspection of The Operation Status of The Control Unit

Mower Unit Control Relay

The relay box is located behind the seat. This controls Up/Down of the mower unit and Rotate/Stop of the reel cutter (cutting cylinder).
The operating condition can be checked by the illumination of the LEDs.



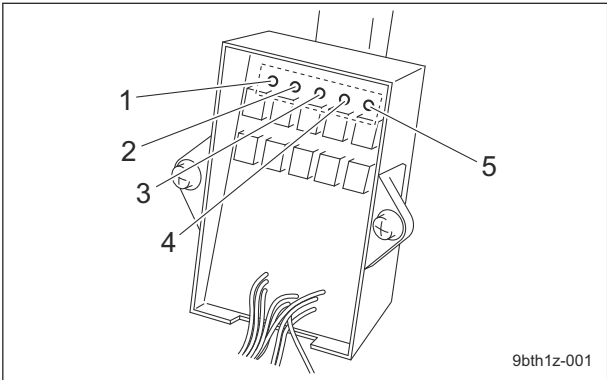
x1d47c-001

Refer to the table below to check the LED status.

		Condition	LED status
1	Front right up/down cylinder (Reel rotation)	Down	ON
		Up	OFF
2	Center mower up/down cylinder (Before pressing Raise/Lower switch)	Up	ON
		Down	OFF
3	Center mower up/down cylinder (After pressing Raise/Lower switch)	Down	ON
		Up	OFF

Interlock Relay

The relay box is located under the underseat cover.
This controls a safety device for starting/stopping the engine.
The operating condition can be checked by the illumination of the LEDs.



9bth1z-001

Refer to the table below to check the LED status.

		Condition	LED status
1	Traveling pedal switch	Neutral	ON
		Depress	OFF
2	Parking brake switch	Pull	ON
		Release	OFF
3	Seat switch	Away	ON
		Seated	OFF
4	Reel rotation switch	ON	ON
		OFF	OFF
5	Transmission selector lever	LAP	ON
		H	OFF
		L	OFF

Adjustment

Adjustment of Parking Brake

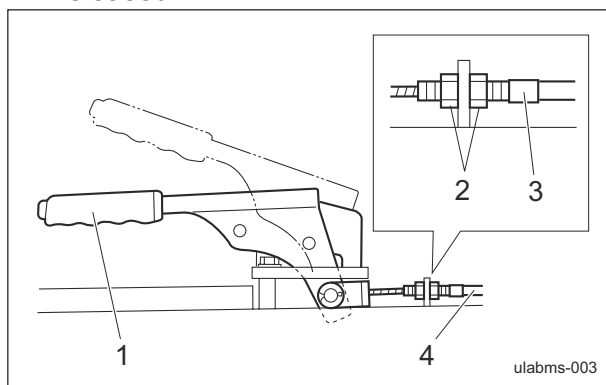
⚠ Caution

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.

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 tightening the brake wire adjustment bolt.
Adjust the parking brake so that it is in the following conditions.
 - Brake applies when the parking brake lever is pulled.
 - The brake shoe does not touch the brake drum when the parking brake lever is released.



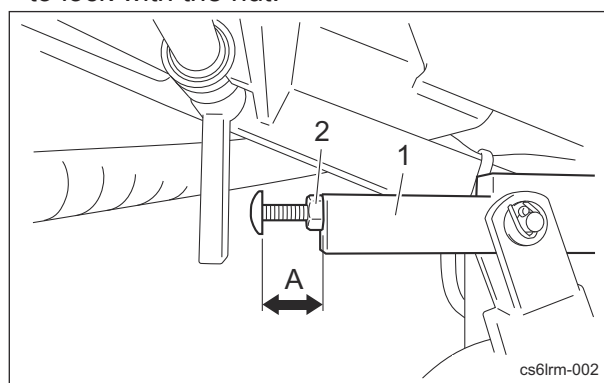
ulabms-003

1	Parking brake lever
2	Lock nut
3	Adjustment bolt
4	Brake wire

- After adjusting the parking brake, check the following.
 - Make sure that the brake applies when the parking brake lever is pulled.
 - Make sure that the heat is not generated in the brake area while traveling the machine.

Adjustment of Work Speed

- Lower the mower units.
- Loosen the locknut on the side of the rod head for the right cylinder.
- Adjust the length of the bolt.
 - Length of the bolt (Longer): Slower
 - Length of the bolt (Shorter): Faster
- Once the adjustment has completed, be sure to lock with the nut.



cs6lrm-002

1	Rod head
2	Lock nut
A	Length of the bolt

Adjustment of The Neutral Position of The Piston Pump

⚠ Caution

Make sure not to touch rotating tires.

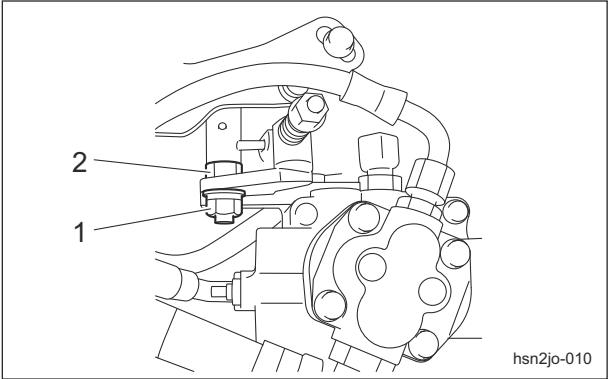
⚠ Caution

When adjusting the neutral position, pay close attention to abrupt start of the machine.
Place the jacks beneath the jack-up points, and then lift the machine until all the tires get off the ground.

- If the machine moves forward or backward while the traveling pedals are released, they are not set to the neutral position.
Follow the steps below to make adjustments.
- Stop the engine.
 - Place the jacks beneath the jack-up points, and then lift the machine off the ground.
"Jack-Up Points" (Page 6-3)
 - Make sure that no tires get contact with the jack stand.

Repair

- 4. Start the engine, and rev it up to the maximum rpm.
- 5. Adjust the neutral position.
 - [1] Loosen the lock nut.
 - [2] Rotate the camshaft slowly until the front wheel stops.Find the position where the front wheel stops and lock the camshaft with the nut.



hsn2jo-010

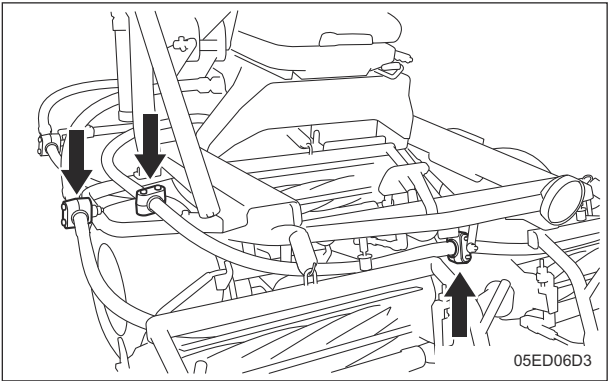
1	Lock nut
2	Cam shaft

Replacement

Replacement of Flexible Wire

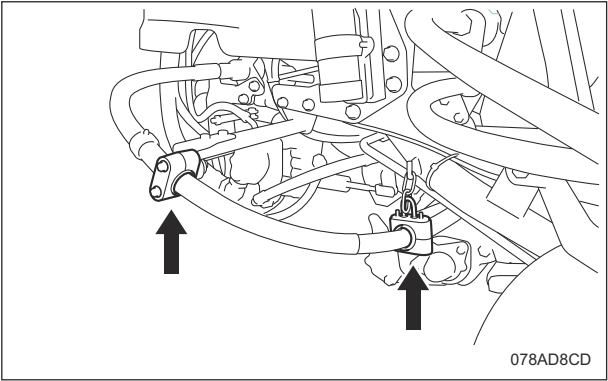
Procedure to Remove Flexible Wire

- 1. Remove the flexible wire clumper.
 - Wire clumpers are installed in the following locations.
 - Front mower units
 - #2: There is one point.
 - #3: There are two points.



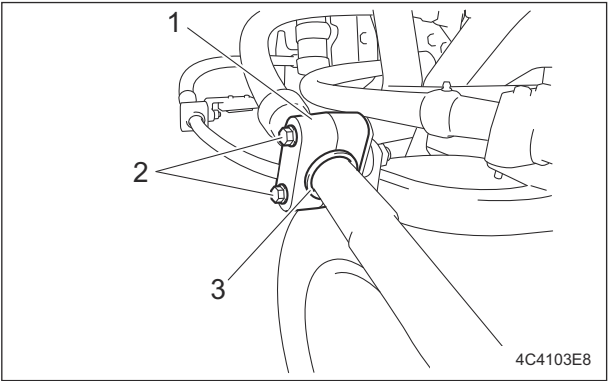
05ED06D3

- Rear mower unit
 - #1: There are two points.



078AD8CD

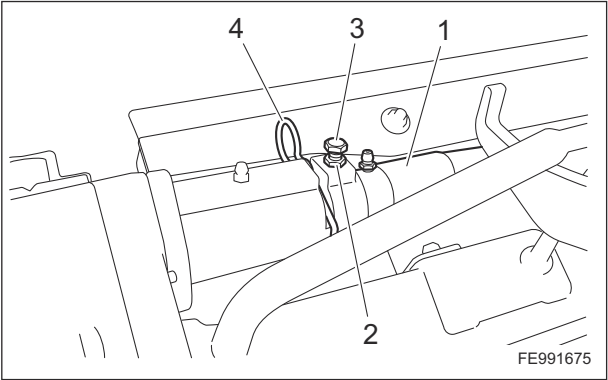
- [1] Loosen the bolt.
- [2] Remove the wire clumper.
- [3] Remove the rubber plate.



4C4103E8

1	Wire clumper
2	Bolt
3	Rubber plate

- 2. Remove the flexible wire on the mower unit side.
 - [1] Loosen the lock nut.
 - [2] Loosen the bolt.
 - [3] Remove the clip.
 - [4] Remove the flexible wire.



FE991675

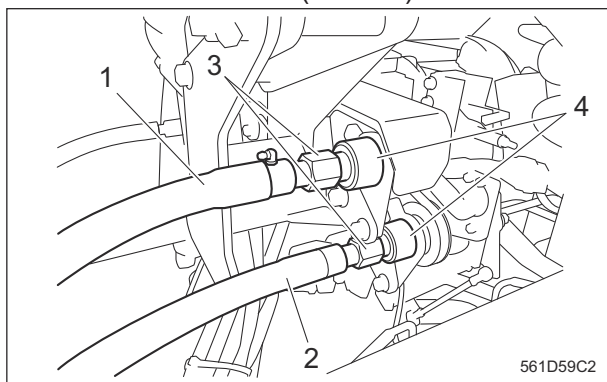
1	Flexible wire
2	Lock nut
3	Bolt
4	Clip

3. Remove the flexible wire on the main vehicle side.

[1] Remove the nut from the housing.

[2] Remove the flexible wire.

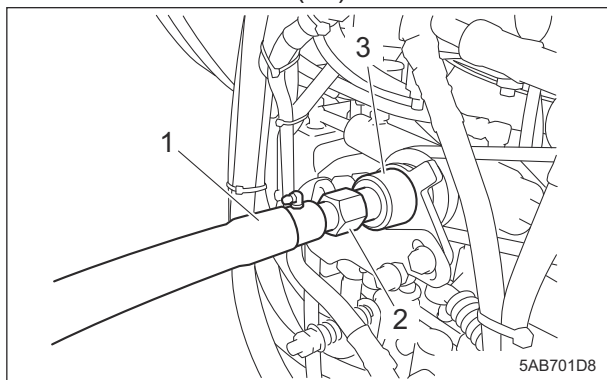
· Front mower unit (#2 · #3)



561D59C2

1	Flexible wire (#2)
2	Flexible wire (#3)
3	Nut
4	Housing

· Rear mower unit (#1)



5AB701D8

1	Flexible wire (#1)
2	Nut
3	Housing

Procedure to Install Flexible Wire

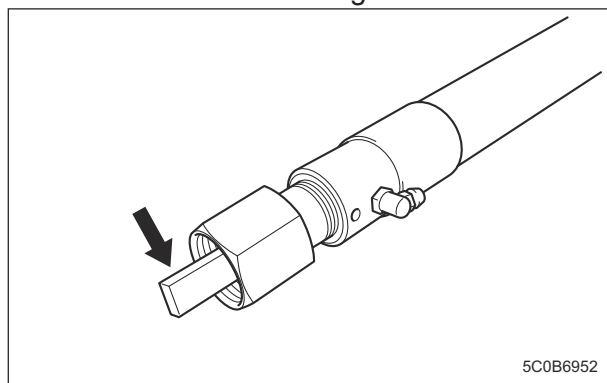
Important

The unsuitable air gap of the electromagnetic clutch may cause damage to the flexible wire.

1. Apply grease to the flexible wire inner edge and the inside of the housing.

Use Moly speed grease No.2.

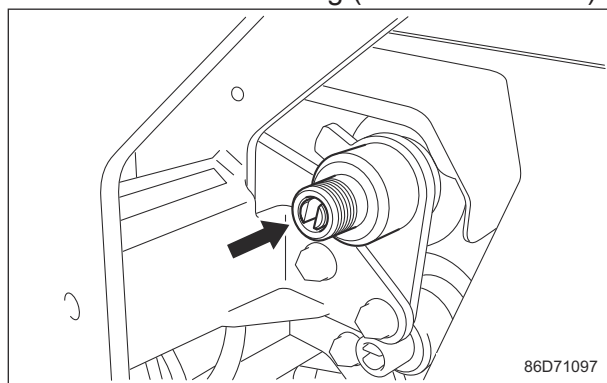
· Flexible wire inner edge



5C0B6952

5C0B6952

· Inside of the housing (Main vehicle side)



86D71097

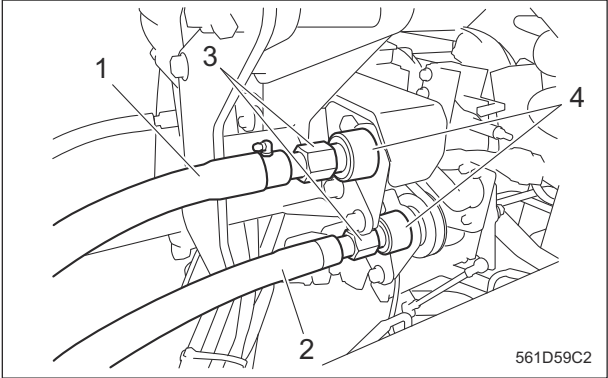
86D71097

2. Install the flexible wire on the main vehicle side.

[1] Insert the flexible wire into the housing.

[2] Tighten the nut to secure the wire.

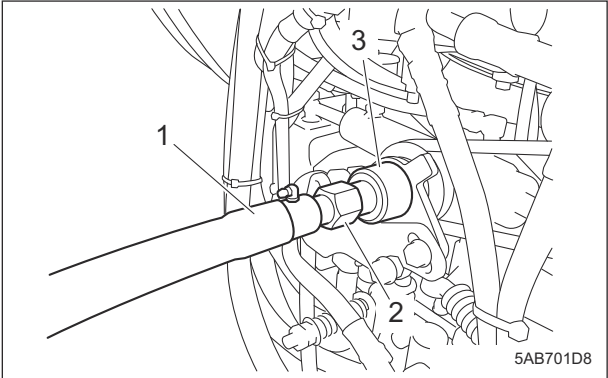
· Front mower unit (#2 · #3)



561D59C2

1	Flexible wire (#2)
2	Flexible wire (#3)
3	Nut
4	Housing

· Rear mower unit (#1)

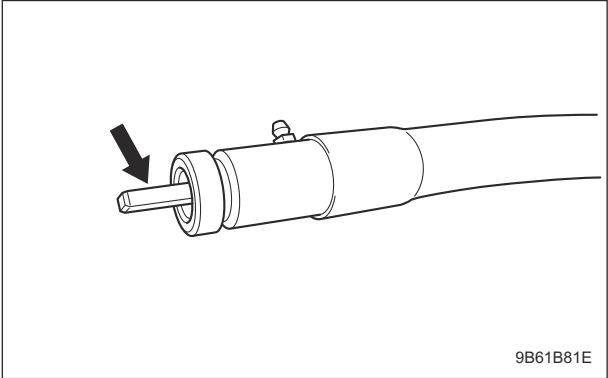


5AB701D8

1	Flexible wire (#1)
2	Nut
3	Housing

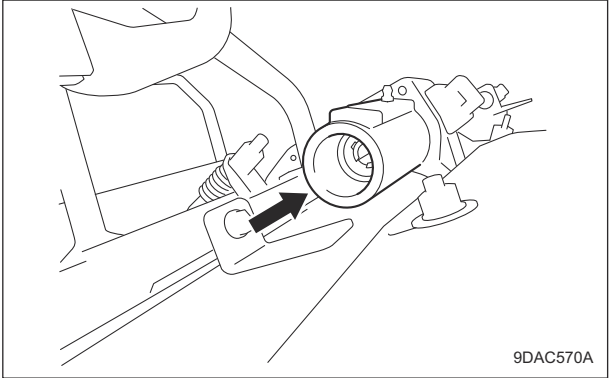
3. Apply grease to the flexible wire inner edge and the inside of the housing.
Use Moly speed grease No.2.

· Flexible wire inner edge



9B61B81E

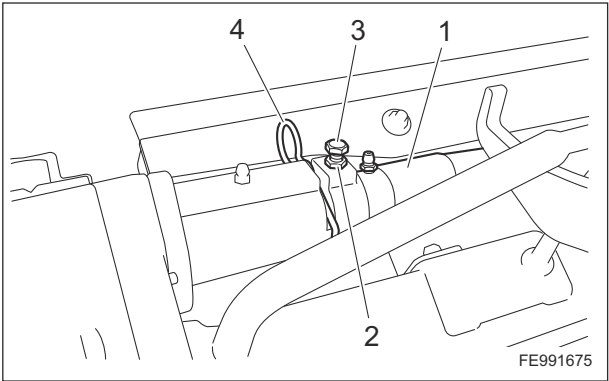
· Inside of the housing (Mower unit side)



9DAC570A

4. Install the flexible wire on the mower unit side.

- [1] Insert the flexible wire into the housing.
[2] Install the clip.
[3] Tighten the bolt.
[4] Fix it with the lock nut.

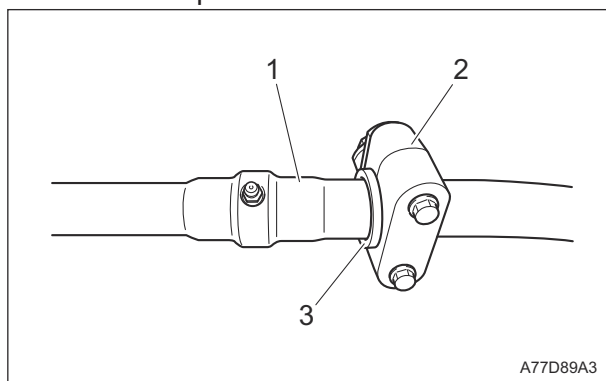


FE991675

1	Flexible wire
2	Lock nut
3	Bolt
4	Clip

5. Install the flexible wire clamber.

- [1] Make sure that the flexible wire does not have forced bends.
- [2] Wind the rubber plate on the wire.
- [3] Tighten the bolt temporarily to install the wire clamber.

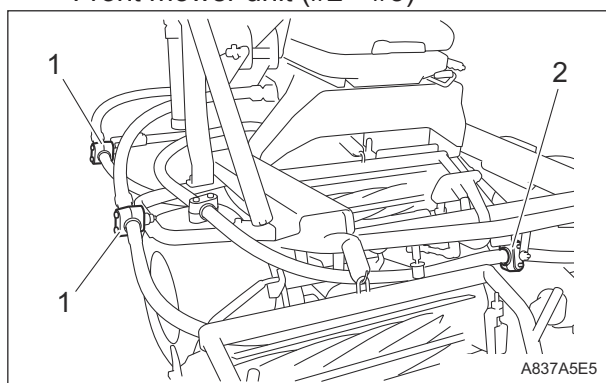


A77D89A3

1	Flexible wire
2	Wire clamber
3	Rubber plate

6. Adjust the position of the wire clamber.
Wire clammers are located in the following locations, and the adjustments vary depending on the location.

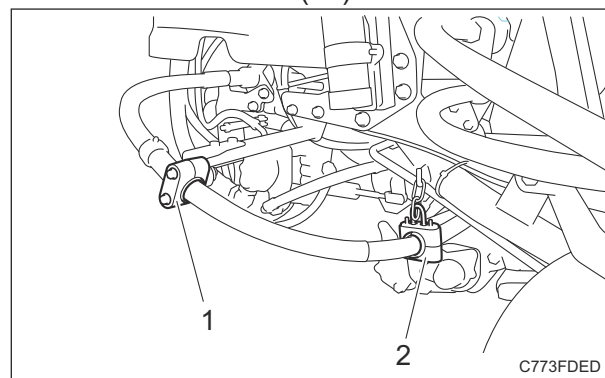
· Front mower unit (#2 · #3)



A837A5E5

1	Wire clamber A
2	Wire clamber B

· Rear mower unit (#1)

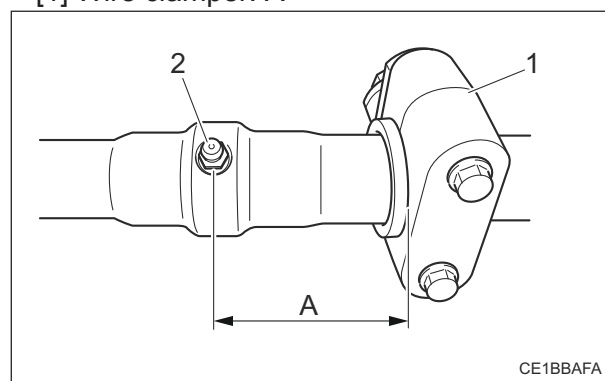


C773FDED

1	Wire clamber A
2	Wire clamber C

The adjustment of the wire clammers is described below.

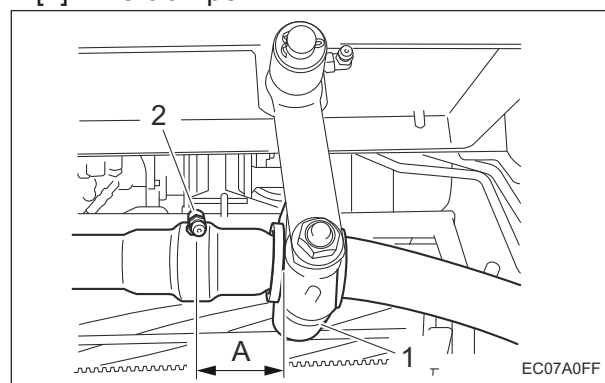
[1] Wire clamber: A



CE1BBAFA

1	Wire clamber A
2	Grease nipple
A	60 mm (2.36 in)

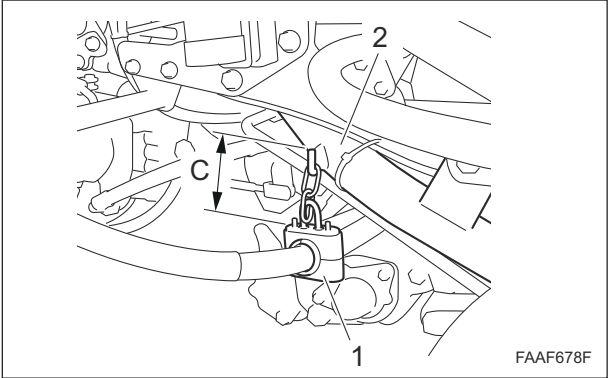
[2] Wire clamber: B



EC07A0FF

1	Wire clamber B
2	Grease nipple
A	40 mm (1.57 in)

[3] Wire clamber: C



FAAF678F	
1	Wire clamber C
2	Wire mounting bracket
C	Vertical

7. After adjustment of the flexible wire clamber position, tighten and secure the bolts.

Replacement of Fuse

Important

When performing maintenance on the electrical system, be sure to remove the negative battery wire.

Important

If a fuse blows, a short may have occurred within the electrical circuit. Check for the cause, such as faulty terminal connections, damaged wiring or terminals, or incorrect wiring.

Important

For fuse replacement, clean the fuse mounting area with use of compressed air before mounting the fuse.

Fuses

The fuses are located under the underseat cover and consist of the light harness fuse and the main harness fuse for the entire circuit.

Main harness fuse

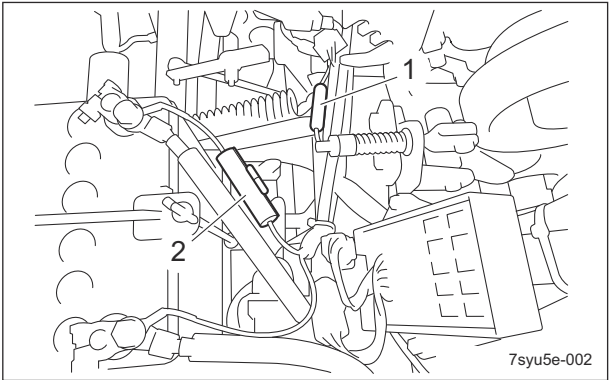
■ #30001 - 32780: Glass fuse 20 A (φ6.4 x 30 mm)

■ #32781-: Mini blade fuse 20 A

Light harness fuse

■ #31396 - 31818: Glass fuse 20 A (φ6.4 x 30 mm)

■ #31819-: Mini blade fuse 20 A



7syu5e-002	
1	Main harness fuse
2	Light harness fuse

Towing

Towing the Machine in an Emergency

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.)

⚠ Caution

Do not tow on slopes.

Important

Do not touch the unload valve except when towing the machine.

Important

Before restarting the engine, be sure to close the bypass.

Important

When towing the machine, obey the following restrictions.

Obey the speed and the time restrictions to prevent damaging the pump or motor.

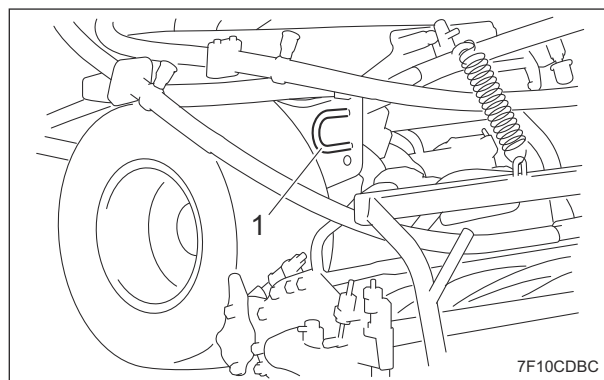
- Speed: Do not travel at a speed more than 3.0 km/h.
- Time: Do not tow the machine for more than 3 minutes.

When towing the machine for more than 3 minutes, start the engine and circulate the hydraulic oil in the hydraulic circuit.

Therefore, do not tow the machine until restart the engine after completed repairs.

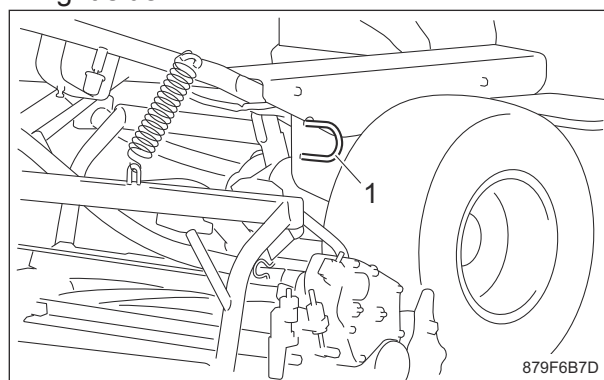
1. Stop the engine.
"Procedure to Stop Engine" (Page 5-14)
2. Apply the parking brake.
3. Choke the wheels.
4. Secure the machine with ropes.
 - Front part of the machine: Use tow hooks on the left and right side of the frame.

Left side



7F10CDBC

Right side



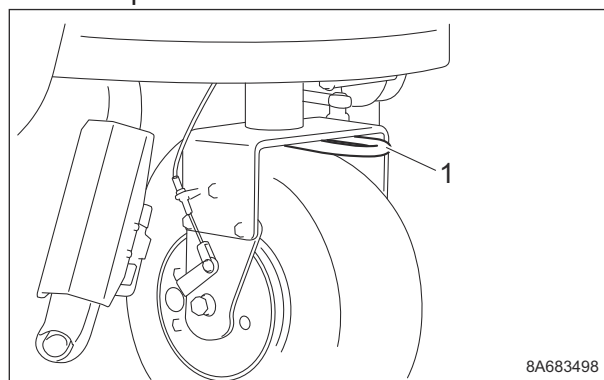
879F6B7D

Important

When using the tow hook on the rear wheel part to tow the machine, you cannot steer the machine.

The tow hook on the rear part of the machine should be used only when the tow hook on the front part cannot be used.

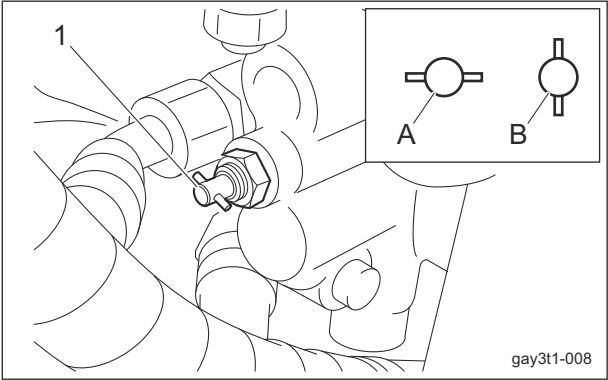
- Rear part of the machine :



8A683498

Repair

5. Open the bypass.
- While pressing the unload valve, rotate it 90 degrees (vertically) to set to the "Unload" position.
- Note:
- The unload valve is located at the lower right of the frame.



gay3t1-008

1	Unload valve
A	Onload
B	Unload

6. Remove the wheel stopper.
7. Release the parking brake.
8. Tow the machine slowly.
9. After towing is completed, close the bypass.
- While pressing the unload valve, rotate it 90 degrees (horizontally) to set it to the "Onload" position.

Tightening TorquesPage 8-2

Standard Tightening TorquesPage 8-2

Principal Tightening Torques Page 8-5

Daily Check List Page 8-7

Maintenance Schedule Page 8-8

List of Adjusted Values Page 8-11

Appended Table

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.

Appended Table

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	13,663.98	11,860.34

Note:

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

Appended Table

Hydraulic Hose

The tightening torques for union joints and union adaptors with parallel pipe threads (G, PF) are shown in the table below.

A union joint or adaptor will not become loose or leak as long as it is tightened by the specified torque.

If fluid leaks from the sealed portion, do not attempt to tighten the union joint or adaptor forcibly.

Examine whether any foreign matter or scratches are present on the seat surface.

Tightening a union joint or adaptor forcibly could damage the connection of the joints.

When tightening a union joint or adaptor, use a torque wrench where possible and firmly tighten it by an appropriate torque.

Nominal diameter of the hose size	Nominal diameter of the parallel pipe threads (G, PF)	Tightening torque		
		N-m	kgf-cm	lb-in
6	1/4	25	254.93	221.28
9	3/8	50	509.85	442.55
12	1/2	60	611.82	531.06
15	3/4	120	1,223.64	1,062.12
19	3/4	120	1,223.64	1,062.12
25	1	140	1,427.58	1,239.14
32	1-1/4	170	1,733.49	1,504.67
38	1-1/2	210	2,141.37	1,858.71
50	2	250	2,549.25	2,212.75

Fittings with Parallel Threads (O-Ring Seal Type)

The tightening torques for fittings with parallel threads (O-ring seal method) are shown in the table below.

Tightening the fitting forcibly with a spanner or other such tool to secure it to a set position could damage the fitting, its washers, and other parts.

When tightening an adjustable elbow, use a torque wrench where possible and firmly tighten it by an appropriate torque.

Nominal diameter of thread	Tightening torque		
	N-m	kgf-cm	lb-in.
1/4	34.32 - 49.03	349.96 – 499.96	303.77 – 433.96
3/8	68.65 - 78.45	700.02 – 799.95	607.62 – 694.36
1/2	98.07 - 117.68	1,000.02 – 1,199.98	868.02 – 1,041.59
3/4	147.10 - 176.52	1,499.98 – 1,799.97	1,301.98 – 1,562.38
1	245.17 - 274.59	2,500.00 – 2,799.99	2,170.00 – 2,430.40
1-1/4	294.20	2,999.96	2,603.96
1-1/2	294.20	2,999.96	2,603.96
2	392.27	3,999.98	3,471.98

Appended Table

Principal Tightening Torques

Tightening Torque by Model

LM315GC

Tighten the following bolts and nuts at the torque specified in the table.

For thread locking adhesive, apply a middle strength thread locker (ThreeBond 1322 or equivalent anaerobic sealant).

Location	Code	Part name	Tightening torque			Thread locking adhesive
			N-m	kgf-cm	lb-in	
Front frame	K0010080202	Bolt, heat-treated M8-20	23 - 38	234.53 - 387.49	203.57 - 336.34	-
Engine coupling	Joint	K0010080152	23 - 38	234.53 - 387.49	203.57 - 336.34	-
	Belt collar	K0010080302	23 - 38	234.53 - 387.49	203.57 - 336.34	-
Diesel engine	Engine mount	K0017100252	45 - 57	458.87 - 581.23	398.30 - 504.51	-
	Wire mounting adjuster	K0011100302	45 - 57	458.87 - 581.23	398.30 - 504.51	-
	Muffler mounting adjuster	K0011100352	45 - 57	458.87 - 581.23	398.30 - 504.51	-
	Pulley mounting adjuster	K0010080202	23 - 38	234.53 - 387.49	203.57 - 336.34	-
	Engine pulley D	K0010080202	23 - 38	234.53 - 387.49	203.57 - 336.34	-
	Clamping plates	K0010080252	14 - 19	142.76 - 193.74	123.91 - 168.17	-
Electric components for engine	-	Starter B terminal (M8)	5.9 - 11.7	60.16 - 119.30	52.22 - 103.56	-
	-	Alternator B terminal (M6)	5.9 - 9.8	60.16 - 99.93	52.22 - 86.74	-
	-	Glow plug connection terminal nut (M4)	1.0 - 1.8	10.20 - 18.35	8.85 - 15.93	-
Front wheel	Wheel	K0010100302	58 - 76	591.43 - 774.97	513.36 - 672.68	-
	Wheel mounting base	K0138240002	180 - 200	1,835.46 - 2,039.40	1,593.18 - 1,770.20	-
3WD rear wheel	Motor	K0000120502	52 - 67	530.24 - 683.20	460.25 - 593.02	-
	Wheel	K0013101202	58 - 76	591.43 - 774.97	513.36 - 672.68	-
	Wheel mounting base	K0138240002	180 - 200	1,835.46 - 2,039.40	1,593.18 - 1,770.20	-
	Brake Assy	K0010080252	14 - 19	142.76 - 193.74	123.91 - 168.17	-

Appended Table

Location		Code	Part name	Tightening torque			Thread locking adhesive
				N-m	kgf-cm	lb-in	
2WD rear wheel	Wheel	K0010100302	Bolt, heat-treated M10-30	45 - 57	458.87 - 581.23	398.30 - 504.51	-
	Brake drum	K0010100302	Bolt, heat-treated M10-30	45 - 57	458.87 - 581.23	398.30 - 504.51	-
Mower unit	Reel shaft	LM315GB2102Z0	Reel gear fixing nut	2.5	25.49	22.13	-
	Reel shaft (with Groomer)	LM315GB2101Z0	20-tooth reel gear	2.5	25.49	22.13	-
	Bed knife (Bottom blade)	K0071000222	Screw, heat-treated flathead M6-12	7 - 9	71.38 - 91.77	61.96 - 79.66	-
	Groomer reel	K0160000602	17 special nut P1M4	5 - 10	50.99 - 101.97	44.26 - 88.51	-
	Gearbox	LM315GA1817Z0	Reverse shaft	52 - 67	530.24 - 683.20	460.25 - 593.02	○
		LM315GA1816Z0	Intermediate shaft	52 - 67	530.24 - 683.20	460.25 - 593.02	○
	Front roller	K6083000042	Connected pin, 15-19	29 - 38	295.71 - 387.49	256.68 - 336.34	-
		K0071000152	Bolt, Left-handed Thread	29 - 38	295.71 - 387.49	256.68 - 336.34	-
	Groomer mounting	K6809000270	Screw	18	183.55	159.32	-
		LM315GA1835Z0	Mower mounting bolt, left	20	203.94	177.02	-
LM315GA1836Z0		Mower mounting bolt, right	20	203.94	177.02	-	
Proximity switch NO V-out		K0100050002	NUT, M5	2.5	25.49	22.13	-
ROPS pillar right/left		K0010120402	Bolt, heat-treated M12-40	104 - 134	1,060.49 - 1,366.40	920.50 - 1,186.03	-
CR Brush		LM315GC7603Z2	Pulley, reel shaft	14 - 19	142.76 - 193.74	123.91 - 168.17	○
Steering wheel		K0105160002	NUT, P1.5 M16-3	88	897.34	778.89	-
Battery terminal		K3612000090	+ Battery terminal 4013-39-1	9	91.77	79.66	-
		K3612000100	- Battery terminal 4013-39-2	9	91.77	79.66	-

Appended Table

Daily Check List

LM315GC (Gasoline Model)

● . . . Inspect, adjust, supply, clean (first time)

○ . . . Inspect, adjust, supply, clean

▲ . . . Replace (first time)

△ . . . Replace

Maintenance Item			Before Work	After Work	Remarks
Engine	*1	Check engine oil	○		
	*1	Check fuel	○		
		Check fuel filter	○		
		Check fuel strainer	○		
		Check air cleaner	○		
		Check engine area	○		
	*1	Clean engine area		○	
Main vehicle		Check hydraulic oil	○		
		Check tire	○		
	*2	Check battery	○		
		Check cover	○		
		Check wire	○		
		Check traveling pedal	○		
		Check brake lever	○		
		Check steering wheel	○		
		Check oil or water leaks	○		
		Check machine exterior	○		
		Check bolts and nuts	○		
		Check hour meter	○		
		Check interlock system	○		
		Check light	○		
		Check grass catcher	○		
		Clean machine exterior		○	
Mower unit		Check reel cutter and bed knife	○		
		Check cover	○		
		Check roller	○		
		Check groomer	○		
		Check CR brush	○		
		Check mower unit appearance	○		
		Check bolts and nuts	○		
		Clean mower unit		○	

• *1: Refer to the Engine's Owner's Manual.

• *2: Refer to the Battery's Owner's Manual.

Appended Table

Maintenance Schedule

LM315GC (Gasoline Model)

● . . . Inspect, adjust, supply, clean (first time)

○ . . . Inspect, adjust, supply, clean

▲ . . . Replace (first time)

△ . . . Replace

Maintenance Item			Before Work	After Work	Every 8 hrs.	Every 50 hrs.	Every 100 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 700 hrs.	Every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
Engine	*1	Clean air cleaner element					○										Air cleaner should be cleaned more often in dusty conditions than in normal conditions
		Clean fuel strainer					○										
	*1	Check muffler					○										
	*1	Check valve clearance						○									
	*1	Replace engine oil				▲	△										
	*1	Replace engine oil filter				▲	△										
	*1	Replace spark plug					△										
	*1	Replace air cleaner element							△				△				Check every 400 hours or every year whichever comes earlier
	*1	Replace fuel filter							△				△				Check every 400 hours or every year whichever comes earlier
		Replace fuel hoses and clamp bands												△			
Main vehicle		Check hydraulic hose (Moving part)	○														
		Check belt	○														
		Check electrical wiring				●	○										
		Check wheel mounting bolts				●	○										
		Check hydraulic hose (Fixed part)					○					○					Check every 100 hours or every month whichever comes earlier
		Check aligning shafts of engine and pump												○			Visual check
		Grease and lubricate				○											

Appended Table

Maintenance Item			Before Work	After Work	Every 8 hrs.	Every 50 hrs.	Every 100 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 700 hrs.	Every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
Main vehicle	*5	Grease and Lubricate flexible wires	○		○	○											Maintenance schedules differ according to greasing points
	*3.*5	Adjust air gap of EM clutch											○				Air gap 0.2 - 0.3 mm (0.008 - 0.01 in)
		Replace hydraulic oil					▲			△							
		Replace hydraulic oil suction filter					▲			△							
		Replace hydraulic oil line filter					▲			△							
		Replace transmission grease												△			
	*2	Replace battery												△			
	*3	Replace hydraulic hoses (Moving part)												△			
	*3.*4	Replace hydraulic hoses (Moving part) relating to steering												△			
	*3	Replace hydraulic hoses (Fixed part)													△		
		Replace Belt														△	
	*3	Replace brake cables														△	
	*3	Replace traveling cable														△	
		Replace throttle wire														△	
	*3	Replace flexible wire									△						
	*3	Replace brake shoe														△	
Mower unit		Check blade engagement	○														
		Check cutting height	○														
		Check groomer height	○														
		Check of CR brush belt					○										
		Clean inside of CR brush belt cover					○										
		Grease			○	○											Maintenance schedules differ according to greasing points

Appended Table

Maintenance Item			Before Work	After Work	Every 8 hrs.	Every 50 hrs.	Every 100 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 700 hrs.	Every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
Mower unit		Clean and grease cam bush of the bed knife								○			○				Every 500 hours or every year whichever comes earlier, and when replacing a bedknife additionally
		Backlap		○												○	Manufacturer recommends after work
		Engage blades														○	
		Adjust mowing height														○	
		Adjust cutter adjustment spring														○	
		Adjust cam														○	
		Reground reel cutter														○	
		Adjust groomer														○	
		Adjust CR brush														○	
		Adjust drive belt tension of CR brush														○	
	*3	Replace bearing in the gear case											△				
	*3	Replace bearing of the front and rear rollers											△				
	*3	Replace oil seal in the gear case											△				
	*3	Replace oil seal of the front and rear rollers											△				
	*3	Replace grease in the gear case											△				
	*3.*5	Add grease to reel cutter shaft bearing											○				
	*3	Replace CR brush bearing											△				

- *1: Refer to the Engine's Owner's Manual.
- *2: Refer to the Battery's Owner's Manual.
- *3: Consult your local Baroness Dealer for this service.
- *4: Be sure to replace hydraulic hoses for steering cylinder and hydraulic hoses for hydraulic motor of wheel relating to steering every two years.
- *5: Failed maintenance may largely cause damage to the flexible wires.
- The values for consumables are not guaranteed.

List of Adjusted Values

Cutter adjustment spring	30 mm (1.18 in)	Total length of spring
Reel Cutter Drive Belt	13 ± 2 mm (0.51 ± 0.08 in)	Belt slack under load of 55 N (5.5 kgf)
Transmission input belt	50 mm (1.97 in)	Total length of spring

Appended Table

Daily Check Records Page 9-2

Maintenance RecordsPage 9-5

Records

Daily Check Records

LM315GC (Gasoline Model)
Use this table freely for your records of the daily check.

Model		Serial Number									
Items											
Engine	Check engine oil										
	Check fuel										
	Check fuel filter										
	Check fuel strainer										
	Check air cleaner										
	Check engine area										
	Clean engine area										
Main vehicle	Check hydraulic oil										
	Check tire										
	Check battery										
	Check cover										
	Check wire										

Items											
Main vehicle	Check traveling pedal										
	Check brake lever										
	Check steering wheel										
	Check oil or water leaks										
	Check machine exterior										
	Check bolts and nuts										
	Check hour meter										
	Check interlock system										
	Check light										
	Check grass catcher										
	Clean machine exterior										
Mower unit	Check reel cutter and bed knife										
	Check cover										
	Check roller										

Records

Items											
Mower unit	Check groomer										
	Check CR brush										
	Check mower unit appearance										
	Check bolts and nuts										
	Clean mower unit										

Maintenance Records

LM315GC (Gasoline Model)

Use this table freely for your records of the maintenance.

Model		Serial Number									
Engine	Clean air cleaner element										
	Clean fuel strainer										
	Check muffler										
	Check valve clearance										
	Replace engine oil										
	Replace engine oil filter										
	Replace spark plug										
	Replace air cleaner element										
	Replace fuel filter										
	Replace fuel hoses and clamp bands										
	Check hydraulic hose (Moving part)										
Main vehicle	Check belt										

Records

Items											
Main vehicle	Check electrical wiring										
	Check wheel mounting bolts										
	Check hydraulic hose (Fixed part)										
	Check aligning shafts of engine and pump										
	Grease and lubricate										
	Grease and Lubricate flexible wires										
	Adjust air gap of EM clutch										
	Replace hydraulic oil										
	Replace hydraulic oil suction filter										
	Replace hydraulic oil line filter										
	Replace transmission grease										
	Replace battery										
	Replace hydraulic hoses (Moving part)										
	Replace hydraulic hoses (Moving part) relating to steering										

Items											
Main vehicle	Replace hydraulic hoses (Fixed part)										
	Replace Belt										
	Replace brake cables										
	Replace traveling cable										
	Replace throttle wire										
	Replace flexible wire										
	Replace brake shoe										
Mower unit	Check blade engagement										
	Check cutting height										
	Check groomer height										
	Check of CR brush belt										
	Clean inside of CR brush belt cover										
	Grease										
	Clean and grease cam bush of the bed knife										

Records

Items											
Mower unit	Backlap										
	Engage blades										
	Adjust mowing height										
	Adjust cutter adjustment spring										
	Adjust cam										
	Regrind reel cutter										
	Adjust groomer										
	Adjust CR brush										
	Adjust drive belt tension of CR brush										
	Replace bearing in the gear case										
	Replace bearing of the front and rear rollers										
	Replace oil seal in the gear case										
	Replace oil seal of the front and rear rollers										
	Replace grease in the gear case										

Items											
Mower unit	Add grease to reel cutter shaft bearing										
	Replace CR brush bearing										

Records



KYOEISHA CO., LTD.

1-26, Miyuki-cho, Toyokawa-city, Aichi-pref, 442-8530 Japan
Phone: (81) 533-84-1390
<https://www.baroness.co.jp>