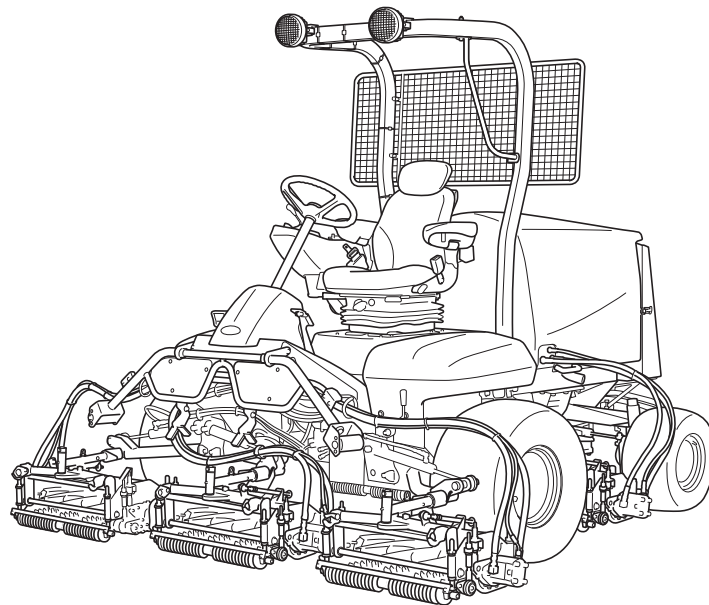


LM551

5-Unit Reel Mower

Owner's Operating Manual



Serial No. LM551 : 10087-

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

BARONESS[®]
Quality on Demand

Original Instructions Ver.1.3

Greeting

Thank you for purchasing the Baroness product. This manual describes the proper handling, adjustment, and inspection of your product. We hope you will use the product safely, and take advantage of its best performance. For details on the handling, adjustment and inspection of the attachments, refer to the Owner's Operating Manual for the attachments.

Keeping The Owner's Operating Manual

Keep this Manual in the bag located in the rear of the seat.



Keeping The Owner's Operating Manual_001

1	Bag
---	-----

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

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

Maintenance should only be performed by a certified specialist.

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





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

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

Kyoeisha Co., Ltd.

Warning Symbols

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

 696cq5-001	Warning symbol
<p>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.</p> <p>Failure to adequately follow these safety precautions may cause an accident.</p>	
<div data-bbox="165 1176 339 1227">  Danger </div> <p>This symbol indicates that serious injury or death will occur if the warning is ignored.</p> <div data-bbox="165 1294 339 1346">  Warning </div> <p>This symbol indicates that serious injury or death may occur if the warning is ignored.</p> <div data-bbox="165 1413 339 1464">  Caution </div> <p>This symbol indicates that injury or damage to property may occur if the warning is ignored.</p> <div data-bbox="165 1532 296 1583"> Important </div> <p>This symbol indicates precautions on the mechanism of the machine.</p>	

Introduction

Precautionary Statement

Caution

The information described in this manual is subject to change for improvement without prior notice.

When replacing parts, be sure to use genuine Baroness parts or parts designated by Kyoisha.

Note that the Baroness product warranty may not apply to defects caused by the use of parts from other companies.

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

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

Purpose

This product is intended for cutting turf grass at golf courses.

Do not use this product in any way other than its intended purpose, and do not modify this product.

Operating this product for other purposes and modifying it may be very dangerous and may cause damage to the product.

In addition, this product is not authorized for operation as a special motor vehicle. Do not operate it on public roads.

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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 English it is the owner's responsibility to explain this manual to them.
3. All operators and mechanics should seek and obtain professional and practical instruction.
The owner is responsible for training the users.
Such instruction should emphasize.

[1] The need for care and concentration when working with ride-on machines.

[2] Control of a ride-on machine sliding on a slope will not be regained by the application of the brake.

The main reasons for loss of control are

- Insufficient wheel grip
- Being driven too fast
- Inadequate braking
- The type of machine is unsuitable for its task
- Lack of awareness of the effect of ground conditions, especially slopes
- Incorrect hitching and load distribution

4. Never allow children or people unfamiliar with these instructions to use or service the machine.
Local regulations may restrict the age of the operator.
5. The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.
6. Keep in mind that the owner, operator, and mechanic are responsible for accidents or hazards occurring to other people or their property.
7. 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, and ear protection. Long hair, loose clothing, or jewelry may get tangled in moving parts. Do not operate the equipment when barefoot or wearing open sandals.
3. Inspect the area where the equipment is to be used and remove all objects such as rocks, toys and wire which can be thrown by the machine.
4. Keep children out of the operating area and under the watchful care of a responsible adult other than the operator.

5. Exercise care in the handling of fuel.

Warning

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

- [1] Store fuel in containers specifically designed for this purpose.
 - [2] Add fuel before starting the engine. Never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot.
 - [3] Refuel outdoors only and do not smoke while refueling.
 - [4] If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until petrol vapours have dissipated.
 - [5] Replace all fuel tanks and container caps securely.
6. Check that operator's presence controls, safety switches and shields are attached and functioning properly. Do not operate unless they are functioning properly.
 7. If the brake operation is faulty or the parking brake lever has noticeable play, be sure to adjust or repair them before operating the machine.
 8. Replace faulty mufflers.
 9. On multi-cylinder/multi-reel machines take care as rotating one cylinder/reel can cause other cylinder/reels to rotate.

Operation

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
2. Only operate in good light, keeping away from holes and hidden hazards.
3. Before attempting to start the engine, disengage all attachments, shift into neutral, and engage the parking brake. Only start engine from the operator's position. Use seat belts if provided.

4. Remember there is no such thing as a safe slope. Travel on grass slopes requires particular care.

To guard against overturning:

- [1] Do not stop or start suddenly when going up or downhill.
 - [2] Engage clutch slowly, always keep machine in gear, especially when traveling downhill.
 - [3] Machine speeds should be kept low on slopes and during tight turns.
 - [4] Stay alert for humps and hollows and other hidden hazards.
 - [5] Never operate across the face of the slope, unless the machine is designed for this purpose.
 - [6] Never drive the machine on a slope with an angle of gradient that is greater than that specified or in a place where there is a danger of the machine slipping.
5. Use extra care while operating machine with a grass catcher or other attachments. They can affect the stability of the machine.
 6. Never operate the machine with damaged guards, shields, or without safety protective devices in place. Be sure all interlocks are attached, adjusted and functioning properly.
 7. Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speed may increase the hazard of personal injury.
 8. Do the following before leaving the operator's position.
 - [1] Stop on level ground.
 - [2] Disengage the power take-off and lower the attachments.
 - [3] Change into neutral and set the parking brake.
 - [4] Stop the engine and remove the key.
 9. Disengage the drive to attachments, stop the engine, and remove the ignition key in the following conditions.
 - [1] Before refueling.
 - [2] Before removing the grass catcher/catchers.
 - [3] Before making height adjustment unless adjustment can be made from the operator's position.
 - [4] Before cleaning blockages.

Safety

- [5] Before checking, cleaning, or working 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.
- 10. Keep hands and feet away from the cutting units and the rotating parts.
- 11. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
- 12. Do not carry passengers.
- 13. Never operate while people, especially children, or pets are nearby.
- 14. Slow down and use caution when making turns and crossing roads and sidewalks.
- 15. Stop the blades rotating before crossing surfaces other than grass.
- 16. Disengage drive to attachments when transporting or not in use.
- 17. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
- 18. Do not operate the machine under the influence of alcohol or drugs.
- 19. Take care when loading or unloading the machine into a trailer or a truck. Load or unload the machine in a flat and safe place. Before loading or unloading, set the parking brake on the truck or trailer, stop the engine, and chock the wheels.
When transporting the machine on a truck or a trailer, set the parking brake, stop the engine, and fasten the machine to the truck with a rope or other suitable restraining device that has sufficient strength.
When using a loading ramp, select one with sufficient strength, length, and width and that will not cause the machine to slip.
- 20. Close the fuel valve before transporting the machine.
- 21. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- 22. Do not take your eyes off the road ahead. Do not operate the machine with no hands.

- 23. Reduce the throttle setting during engine run-out and, if the engine is provided with a shut-off valve, turn the fuel off at the conclusion of operation.
- 24. Do not operate the machine when there is the risk of lightning.

Maintenance and Storage

- 1. Disengage drives on level ground, lower the attachments, set parking brake, stop engine and remove key from ignition. Wait for all movement to stop before adjusting, cleaning or repairing.
- 2. When machine is to be parked, stored, or left unattended, lower the cutting units unless a positive mechanical lock is provided.
- 3. To reduce the fire hazard, keep the engine, silencer/muffler, battery compartment fuel storage area, cutting unit and drives free of grass, leaves, or excessive grease. Clean up oil or fuel spillage.
- 4. Allow the engine to cool before storing in any enclosure.
- 5. Only cover the machine with a sheet after hot parts have sufficiently cooled down.
- 6. Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- 7. If the engine is provided with a shut-off valve, shut off valve while storing or transporting.
- 8. Do not store fuel near flames.
- 9. Never allow untrained personnel to service machine.
- 10. Allow the engine/muffler to cool before checking/maintenance.
- 11. Appropriately manage and correctly use the tools necessary for servicing or adjusting the machine.
- 12. Use jack stands to support components when required.
- 13. Carefully release pressure from components with stored energy.
- 14. Be sure to depressurize the hydraulic system before performing maintenance operations on it such as removing hydraulic equipment.
- 15. 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.

16. 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.
17. Disconnect battery before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.
18. Make sure that parts such as wires are not touching each other and that their covers have not come off.
19. Use care when checking the cylinders/reels and bed knives.
 - [1] Wear gloves and use caution when servicing them.
 - [2] Be careful during adjustment of the machine to prevent entrapment of the fingers between moving blades and fixed parts of the machine.
20. On multi-cylinder/multi-reel machines take care as rotating one cylinder/reel can cause other cylinder/reels to rotate.
21. Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
22. 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.
23. Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
24. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
25. Check the grass catcher frequently for wear or deterioration.
26. If the fuel tank has to be drained, do this outdoors.
27. Swallowing engine coolant can cause injury or death; keep out of reach from children and pets.

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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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Description of Safety Decals and
Instruction Decals Page 3-8

Product Overview

Specifications

Specifications

Model				LM551			
Mower unit type				22 in		26 in	
Dimensions	Total length			116.14 in	295 cm	←	←
	Total width			86.61 in	220 cm	←	←
	Total height	Roof		94.09 in	239 cm	←	←
		Handle		62.99 in	160 cm	←	←
Weight	Machine (empty fuel tank)	LH52	with Groomer, CR brush, ROPS, Light and Ball proof net without Grass catcher	3172.45 lb	1439 kg	-	-
		LH62	with Groomer, CR brush, ROPS, Light and Ball proof net without Grass catcher	3373.07 lb	1530 kg	-	-
		LS62 • 66	with CR brush, ROPS, Light and Ball proof net without Grass catcher	3238.59 lb	1469 kg	3271.60 lb	1484 kg
		Grass catcher (for one machine)			10.14 lb	4.6 kg	-
Minimum turning radius		LH52	Front wheel (outer wheel) outside	120.47 in	306 cm	-	-
			Outer side of unit	136.61 in	347 cm	-	-
		LH62	Front wheel (outer wheel) outside,	120.47 in	306 cm	-	-
			Outer side of unit	136.61 in	347 cm	-	-
		LS62 • 66	Front wheel (outer wheel) outside,	120.47 in	306 cm	←	←
			Outer side of unit	135.83 in	345 cm	139.37 in	354 cm
Engine	Model		Kubota V1505-T-E3B		←		
	Type		Vertical water-cooled 4-cycle diesel engine		←		
	Total displacement		91.41 cu.in.	1498 cm ³ (1.498 L)	←	←	
	Maximum output		33.0 kW (44.9 PS)/3000 rpm		←		
Fuel tank capacity			Diesel 13.47 U.S.gals	Diesel 51.0 dm3 (51.0 L)	←	←	
Fuel consumption			203.0 g/PS • h (rated output)	276 g/kW • h (rated output)	←	←	
Engine oil capacity			1.59 U.S.gals	6.0 dm ³ (6.0 L)	←	←	

Product Overview

Coolant volume		2.64 U.S.gals	10.0 dm ³ (10.0 L)	←	←
Hydraulic tank capacity		8.01 U.S.gals	30.3 dm ³ (30.3 L)	←	←
Operating width (Mowing width)		100.00 in	254 cm	111.02 in	282 cm
Operating height (Mowing height)	LH52	0.197 - 0.787 in	5.0 - 20.0 mm	←	←
	LH62	0.315 - 1.772 in	8.0 - 45.0 mm	-	-
	LS62 • 66	0.394 - 1.811 in	10.0 - 46.0 mm	←	←
Drive	Traveling	HST (Full time 4WD)		←	
	Mowing	Hydraulic (Gear motor drive)		←	
Speed (HST)	Forward	9.94 mph	16.0 km/h	←	←
	Reverse	4.97 mph	8.0 km/h	←	←
Speed (Mechanical)		-		-	
Efficiency		6.03 acres/hour (7.46 mph x mowing width x 0.8)	24,384 m ² /h (12.0 km/h x mowing width x 0.8)	6.69 acres/hour (7.46 mph x mowing width x 0.8)	27,072 m ² /h (12.0 km/h x mowing width x 0.8)
Maximum inclination for operation		15 degrees		←	
Tire size	Front wheel	26.5 x 14.00-12		←	
	Rear wheel	20 x 12.00-10		←	
Tire pneumatic pressure	Front wheel	17.40 psi	120 kPa (1.2 kgf/cm ²)	←	←
	Rear wheel	20.30 psi	140 kPa (1.4 kgf/cm ²)	←	←
Battery		105D31L		←	
Engine plug		-		←	

The factory default maximum engine rpm is 3,100 rpm.

Sound Pressure Level

Sound Pressure Level

This machine was confirmed to have a continuous A-weighted sound pressure level of 84 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

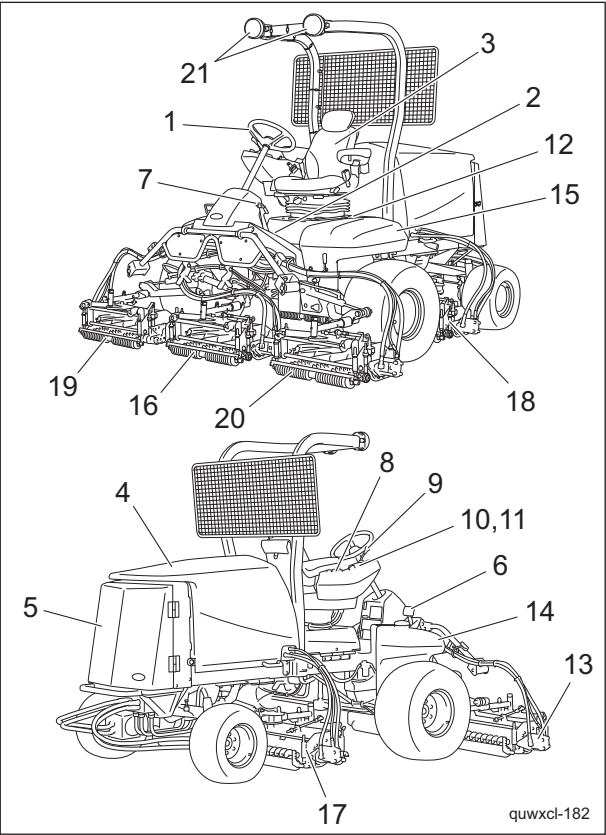
Hand-Arm Vibration

This machine was confirmed not to exceed a vibration level of 2.5 m/s² 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/s² to the whole body by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

Names of Each Section

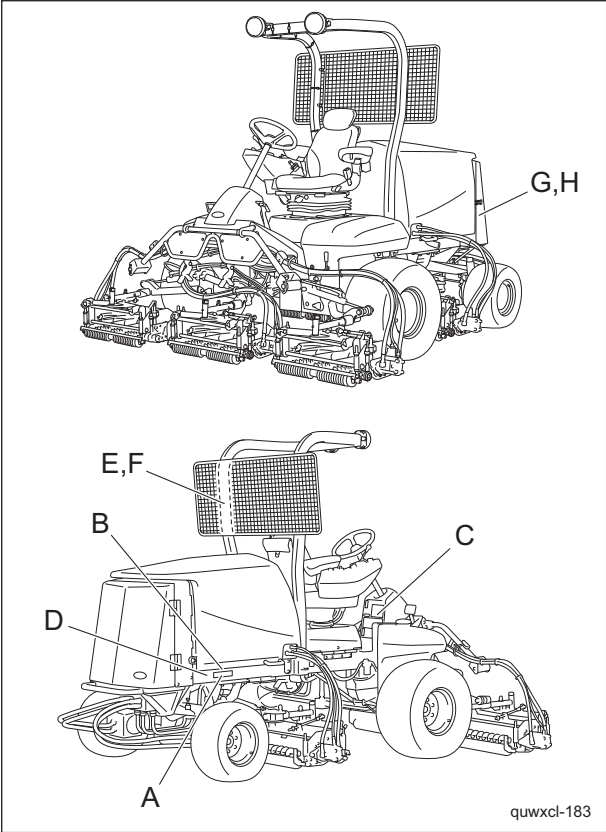


Names of Each Section_001

1	Steering wheel
2	Tilt lever
3	Seat
4	Hood
5	Radiator cover
6	Traveling pedal
7	Brake pedal
8	Throttle lever
9	Mower unit up/down lever
10	Traveling/working selector switch
11	Reel rotation switch
12	Reel forward/reverse switch
13	Reel rotation/stop switching lever
14	Fuel tank
15	Hydraulic tank
16	Mower unit #1
17	Mower unit #2
18	Mower unit #3
19	Mower unit #4
20	Mower unit #5
21	Light

Regulation Decals

Positions of Regulation Decals



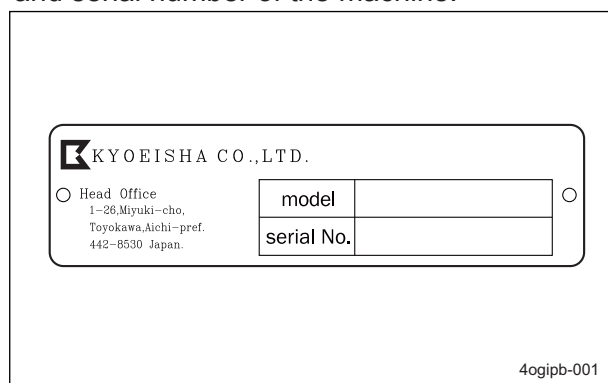
Positions of Regulation Decals_001

A	Serial number plate
B	Specification decal
C	Noise emission decal
D	Year of manufacture decal
E	ROPS compliance decal
F	ROPS caution decal
G	Battery capacity decal
H	Recycle decal

Description of Regulation Decals

Serial Number Plate

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

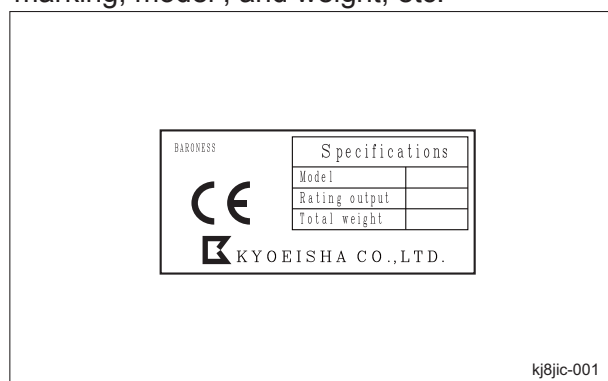


Serial Number Plate_001

Specification Decal

(For Europe)

The Specification decal indicates the CE marking, model, and weight, etc.

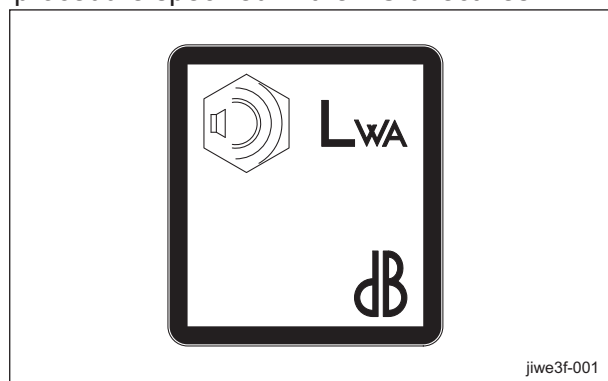


Specification Decal_001

Noise Emission Decal

(For Europe)

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

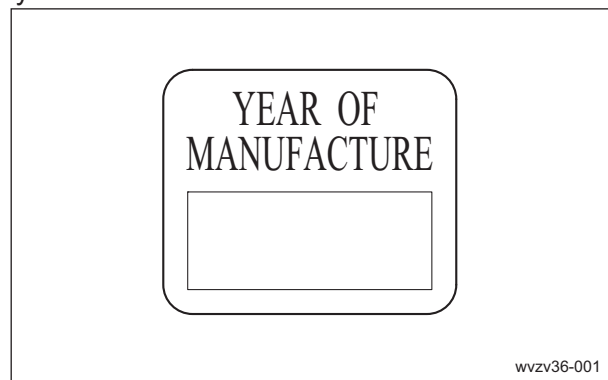


Noise Emission Decal_001

Year of Manufacture Decal

(For Europe)

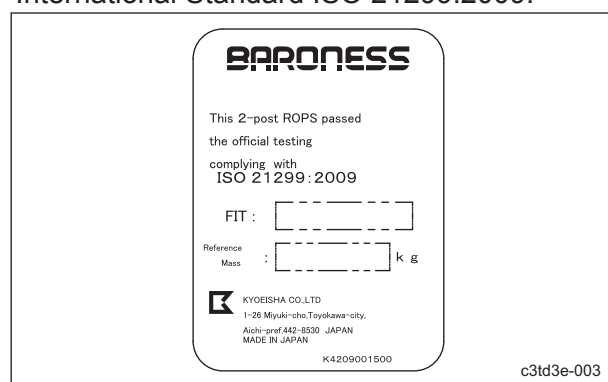
The year of manufacture decal indicates the year when this machine was manufactured.



Year of Manufacture Decal_001

ROPS Compliance Decal

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

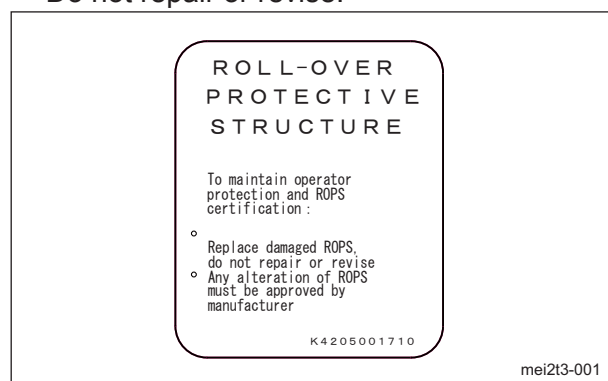


ROPS Compliance Decal_001

ROPS Caution Decal

ROPS caution decal describes the following caution messages.

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

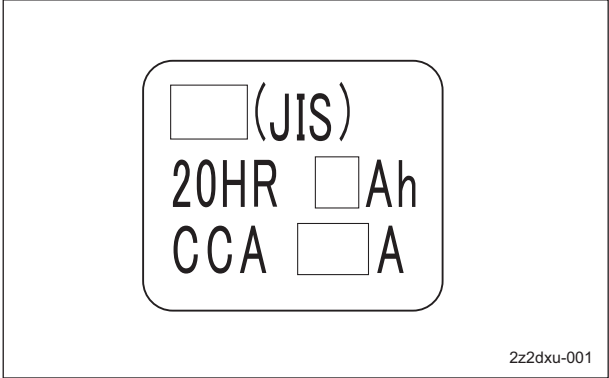


ROPS Caution Decal_001

Product Overview

Battery Capacity Decal

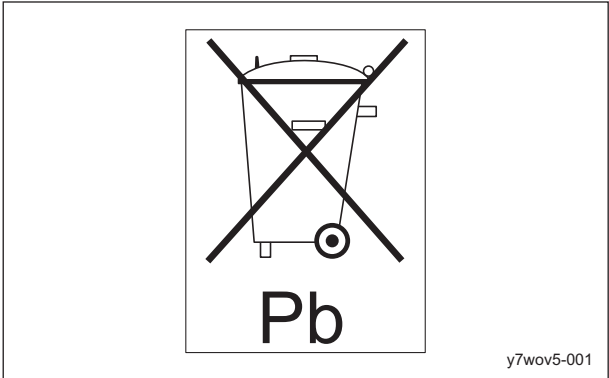
(For Europe)
The battery capacity decal indicates the capacity by 20HR and CCA.



Battery Capacity Decal_001

Recycle Decal

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



Recycle Decal_001

(For USA)



Recycle Decal_002

Safety Signs and Instruction Signs

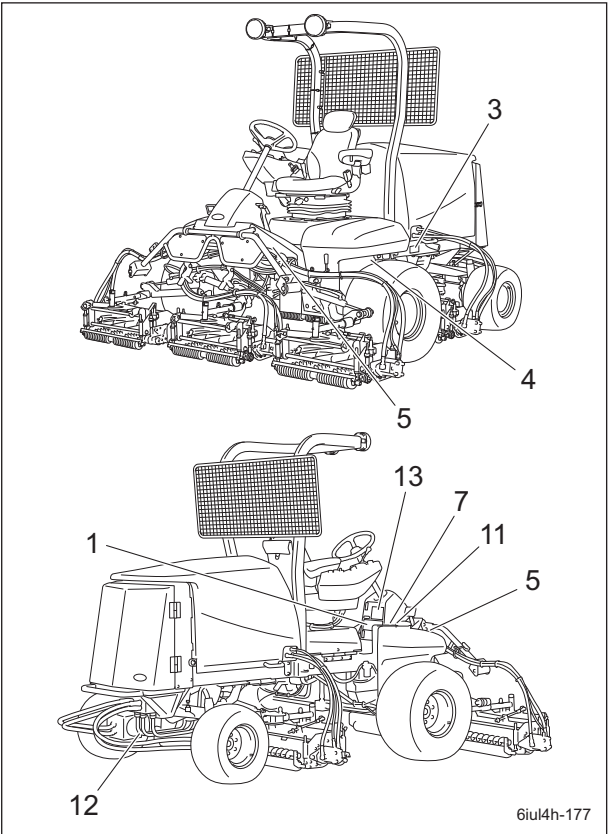
About Safety Signs and Instruction Signs

Important

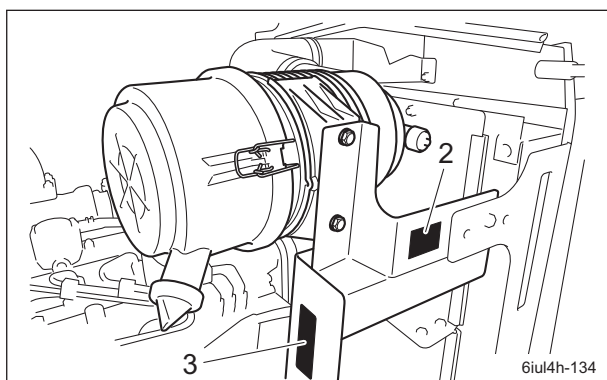
Safety decals and instruction decals are attached to this product. Make sure that they are preserved in their entirety. If they are damaged, become dirty, or peel off, replace them with new ones.

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

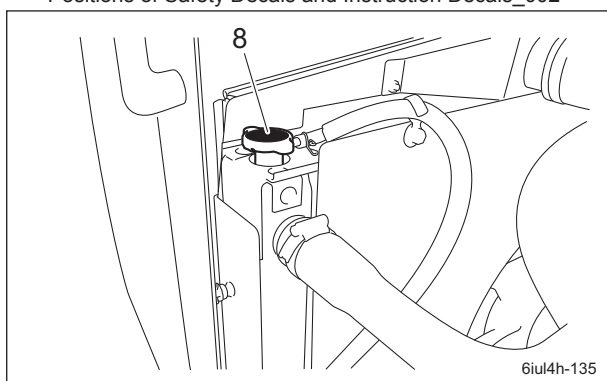
Positions of Safety Decals and Instruction Decals



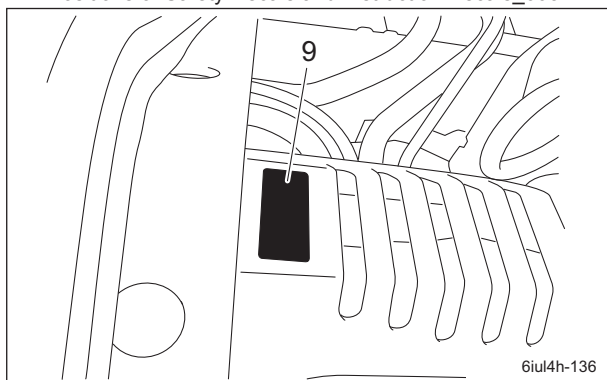
Positions of Safety Decals and Instruction Decals_001



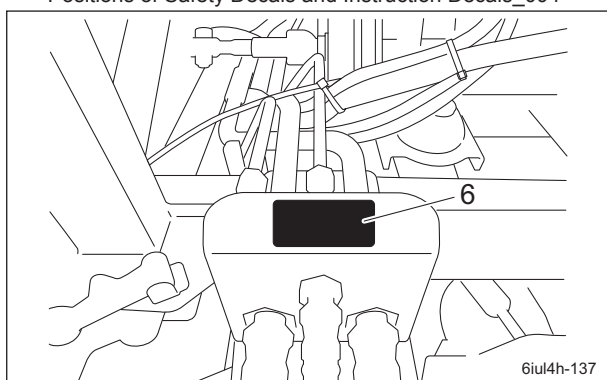
Positions of Safety Decals and Instruction Decals_002



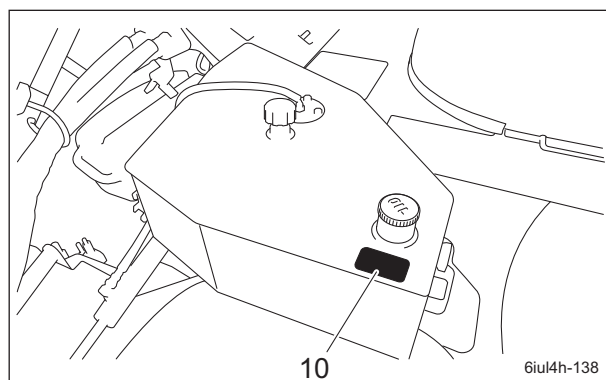
Positions of Safety Decals and Instruction Decals_003



Positions of Safety Decals and Instruction Decals_004



Positions of Safety Decals and Instruction Decals_005



Positions of Safety Decals and Instruction Decals_006

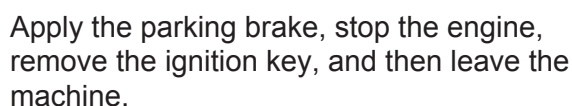
1	Decal for operation 2
2	Caution to rotating object decal
3	Caution to hot parts decal
4	Caution to injury decal
5	Caution for mower lock decal
6	Caution to getting pinched decal
7	Fire prohibited decal
8	Caution for spouting coolant decal
9	PTO caution decal
10	Hydraulic oil icon
11	Diesel fuel icon
12	DO NOT JACK UP decal
13	Caution to noise decal

Decal for Operation 2

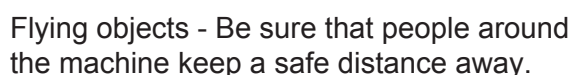
1.



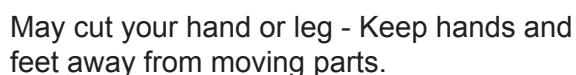
2.



3.



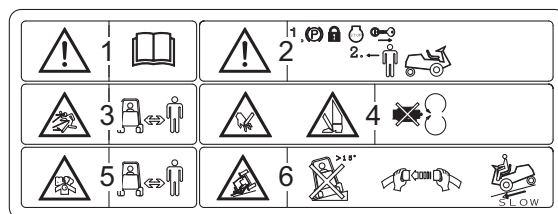
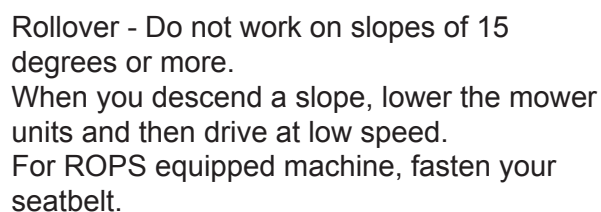
4.



5.



6.



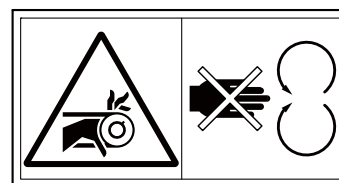
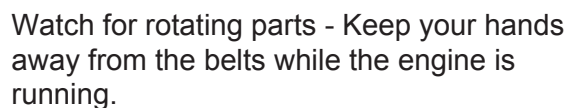
mylisv-001

Decal for Operation 2 001

Caution to Rotating Object Decal

K4205001530

Decal, caution to rotating object



qwsqzx-001

Caution to Rotating Object Decal_001

Product Overview

Caution to Hot Parts Decal

K4205001540

Decal for caution to hot parts



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



xekv4l-001

Caution to Hot Parts Decal_001

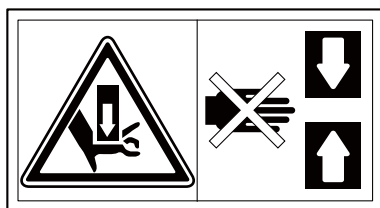
Caution to Injury Decal

K4205001580

Decal, caution to injure



May pinch - There is a risk of being pinched.



tgp289-001

Caution to Injury Decal_001

Caution for Mower Lock Decal

K4205001900

Decal, caution for mower lock

Lock the mower units when traveling or storing with the mower units #4 and 5 raised.



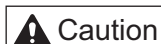
vm5htg-001

Caution for Mower Lock Decal_001

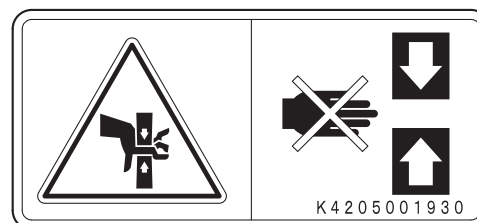
Caution to Getting Pinched Decal

K4205001930

Decal, caution to getting pinched



May pinch - There is a risk of being pinched.



tgp289-002

Caution to Getting Pinched Decal_001

Fire Prohibited Decal

K4205001940

Decal, fire prohibited



Warning

Keep away from fire.



r653fo-001

Fire Prohibited Decal_001

Caution for Spouting Coolant Decal


K4205001970

Decal, caution for spouting coolant



Caution

Caution for spouting coolant - Do not open while hot.
High temperature - Do not touch. Otherwise, you will get burned.



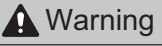
pwb8d2-001

Caution for Spouting Coolant Decal_001

PTO Caution Decal


K4205002000

Decal, caution PTO



Warning

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



w267nz-001

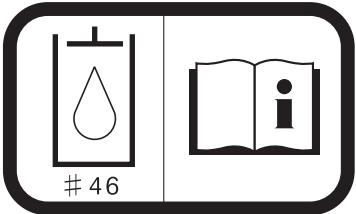
PTO Caution Decal_001

Hydraulic Oil Icon

K4209000980

Hydraulic oil icon

Read the Owner's Operating Manual.

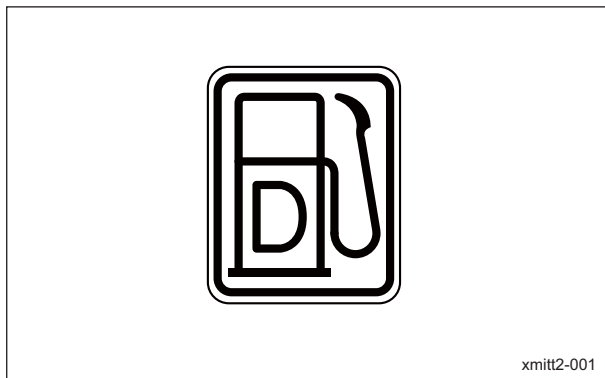


i77xz6-001

Hydraulic Oil Icon_001

Diesel Fuel Icon

K4209001000
Diesel fuel icon
Use diesel fuel.



Diesel Fuel Icon_001

Caution to Noise Decal

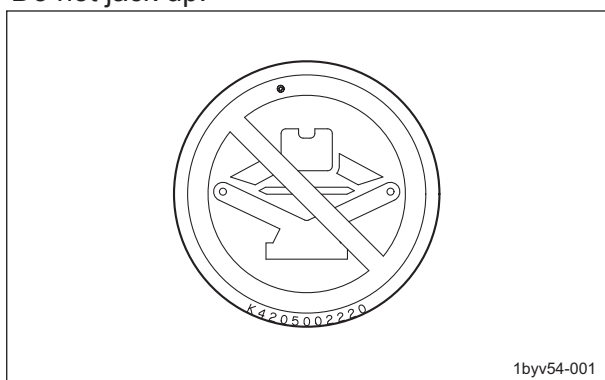
K4205002090
Decal, caution to noise



Caution to Noise Decal_001

DO NOT JACK UP Decal

K4205002220
Decal, DO NOT JACK UP
Do not jack up.



DO NOT JACK UP Decal_001

Product Overview

Handling Instructions

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Handling Instructions

Inspections

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

Radiator Cover

Inspection of Radiator Cover

- 1. Make sure that there is no damage to the radiator cover.
- 2. Make sure that the radiator cover is not contaminated.

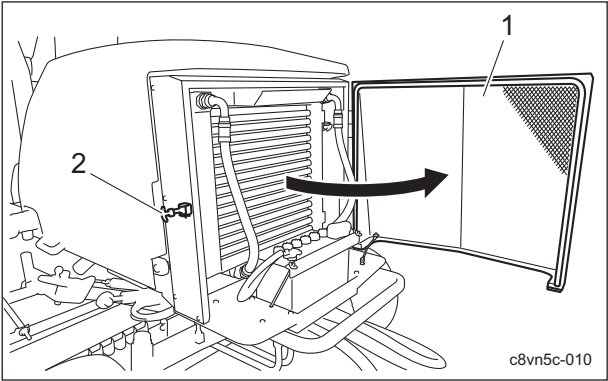
Cleaning of Radiator Cover

Important

An unclean radiator cover may cause overheating or damage to the engine. It may also cause malfunction of the hydraulic system.

If the radiator cover has been contaminated with dust, be sure to clean it. After operating the machine in a dusty environment, it is important to remove dust from the cover as soon as possible.

- 1. Open the radiator cover.



Cleaning of Radiator Cover_001

1	Radiator cover
2	Rubber catch

- 2. Carefully clean the front and back of the radiator cover with water or compressed air.

Radiator

Inspection of Radiator

- 1. Make sure that there is no damage to the radiator.

- 2. Make sure that the radiator is not contaminated.

Cleaning of Radiator

Important

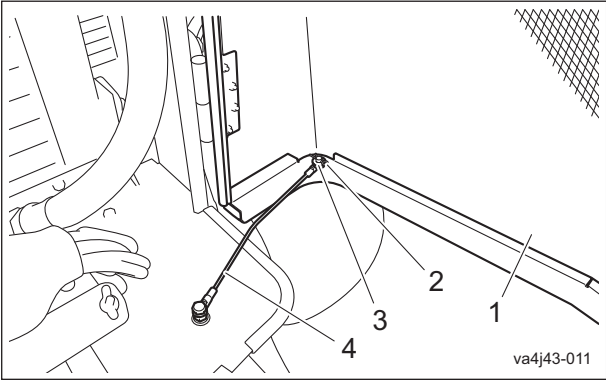
An unclean radiator may cause the engine to overheat or seize. It may also cause malfunction of the hydraulic system.

Important

Do not use solid objects, such as a spatula or screwdriver, or high-pressure water to clean the radiator or oil cooler. Otherwise, special fins or tubes may be damaged, possibly resulting in reduced cooling performance or coolant leakage.

If the radiator has been contaminated with dust, be sure to clean it. Especially after operating the machine in a dusty environment, it is important to remove dust as soon as possible.

- 1. Open the radiator cover.
- 2. Remove the cotter pin and washer, and then remove the cable.

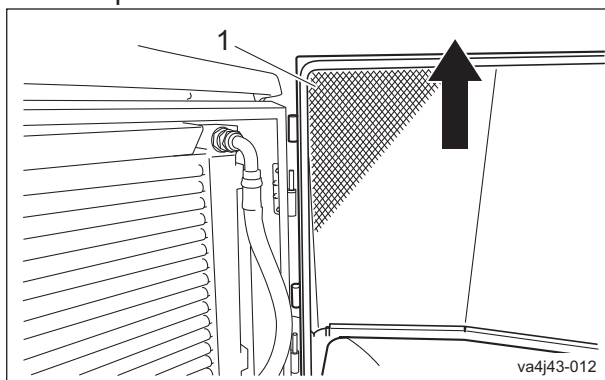


Cleaning of Radiator_001

1	Radiator cover
2	Cotter pin
3	Washer
4	Cable

Handling Instructions

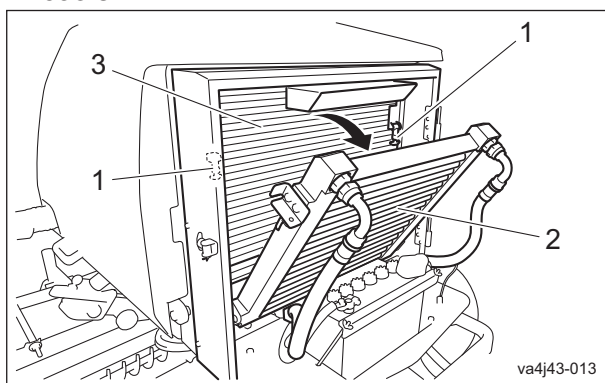
3. Pull up the radiator cover to remove it.



Cleaning of Radiator_002

1	Radiator cover
---	----------------

4. Unlock the rubber catches on the left and right of the oil cooler, and then tilt the oil cooler.

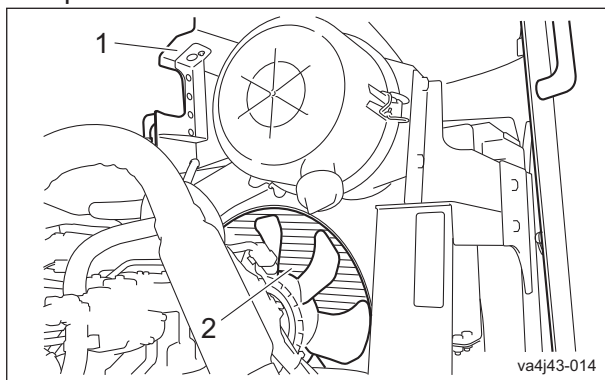


Cleaning of Radiator_003

1	Rubber catch
2	Oil cooler
3	Radiator

5. Carefully clean the radiator with water or compressed air.

6. Open the hood.



Cleaning of Radiator_004

1	Hood
2	Radiator

7. Carefully clean the radiator with water or compressed air.

Coolant

Inspection of Coolant

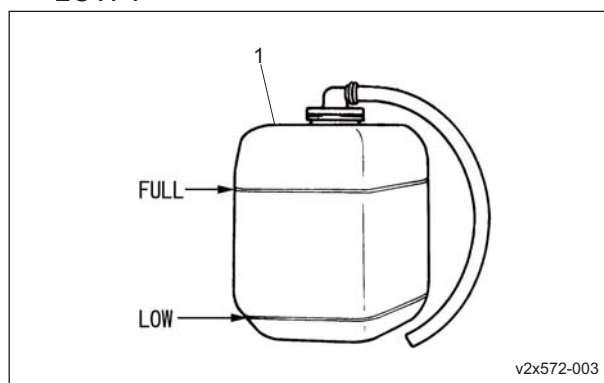
⚠ Caution

Do not touch the radiator or coolant during engine operation or immediately after the engine has been turned off. Otherwise, you may get burned.

⚠ Caution

Inspection should take place after the engine has well cooled down.

1. Make sure that the coolant level in the reserve tank is between "FULL" and "LOW".




Inspection of Coolant_001


1	Reserve tank
---	--------------

Handling Instructions


Coolant Supply

 **Caution**


Do not touch the radiator or coolant during engine operation or immediately after the engine has been turned off. Otherwise, you may get burned.

 **Caution**


Supply coolant after the engine has well cooled down.

 **Caution**

The radiator cap is pressurized. If you remove the radiator cap while the engine is overheated, hot steam will burst out, possibly resulting in burns. Make sure that the water temperature and pressure are reduced, and then grab the cap with a thick cloth and gradually open the cap.

 **Important**

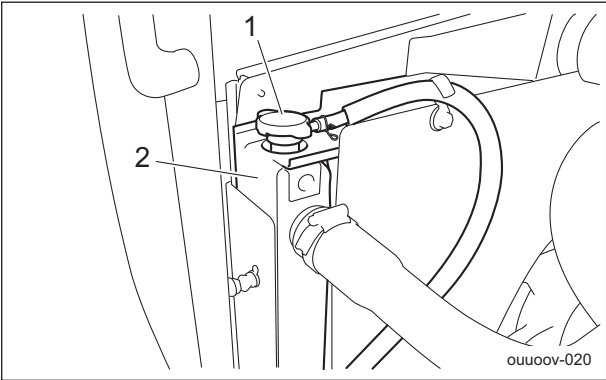
When supplying coolant, be sure to use clean water.

 **Important**

Tightly close the radiator cap. If the cap is loose or incorrectly installed, water may leak and the engine may overheat.

2. If no coolant is in the reserve tank, follow the steps below to supply clean water.

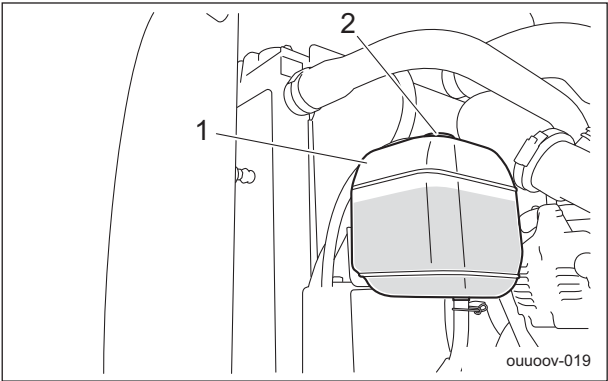
- [1] Open the radiator cap, and then supply clean water up to the opening.
- [2] Open the reserve tank cap, and then supply clean water up to the "FULL" mark.



Coolant Supply_002

1	Radiator cap
2	Radiator

1. If the coolant level in the reserve tank is lower than the "LOW" mark, open the reserve tank cap, and then supply clean water up to the "FULL" mark.



Coolant Supply_001

1	Reserve tank
2	Reserve tank cap

Handling Instructions

Oil Cooler

Inspection of Oil Cooler

1. Make sure that there is no damage to the oil cooler.
2. Make sure that the oil cooler is not contaminated.

Cleaning of Oil Cooler

Important

An unclean oil cooler may cause malfunction of the hydraulic system.

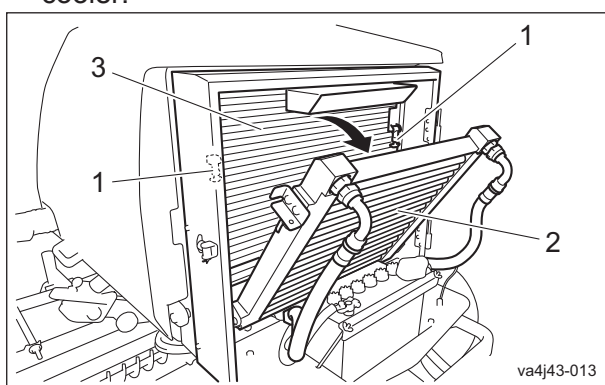
Important

Do not use solid objects, such as a spatula or screwdriver, or high-pressure water to clean the radiator or oil cooler.

Otherwise, special fins or tubes may be damaged, possibly resulting in reduced cooling performance or coolant leakage.

If the oil cooler has been contaminated with dust, be sure to clean it. Especially after operating the machine in a dusty environment, it is important to remove dust as soon as possible.

1. Open the radiator cover.
2. Unlock the rubber catches on the left and right of the oil cooler, and then tilt the oil cooler.



Cleaning of Oil Cooler_001

1	Rubber catch
2	Oil cooler
3	Radiator

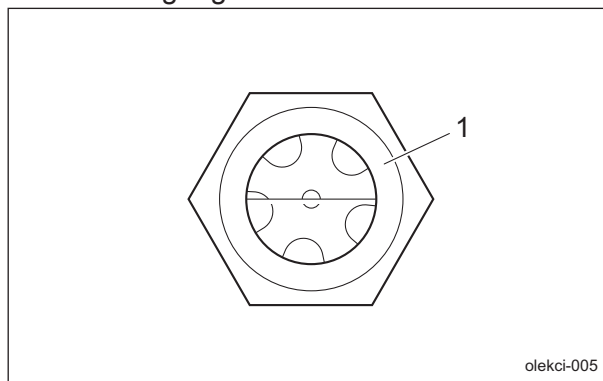
3. Carefully clean the front and back of the oil cooler with water or compressed air.

Hydraulic Oil

Inspection of Hydraulic Oil

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

1. Raise 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.



Inspection of Hydraulic Oil_001

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

3. Check underneath the machine for oil leakage.

Supply of Hydraulic Oil

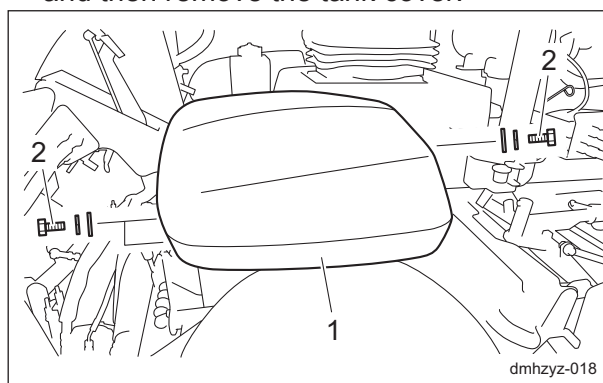
Important

Do not mix different types of oil.

Important

Use Shell Tellus S2M46 (or equivalent) as hydraulic oil.

1. Remove the screws from the tank cover, and then remove the tank cover.



Supply of Hydraulic Oil_001

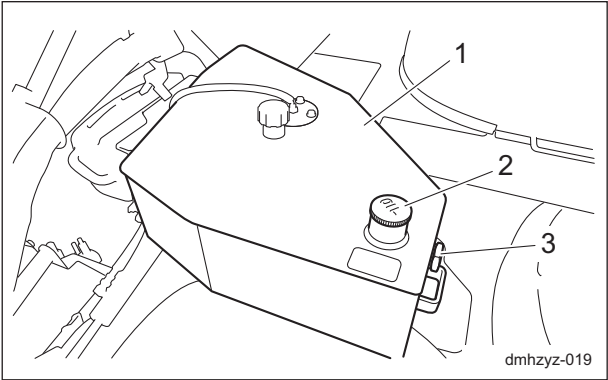
Handling Instructions

1	Tank cover
2	Screw

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

[1] Open the tank cap, and then supply hydraulic oil through the oil filling port until the oil level reaches the middle of the oil gauge on the hydraulic tank.

[2] Tighten the tank cap securely.



Supply of Hydraulic Oil_002

1	Hydraulic tank
2	Tank cap
3	Oil gauge

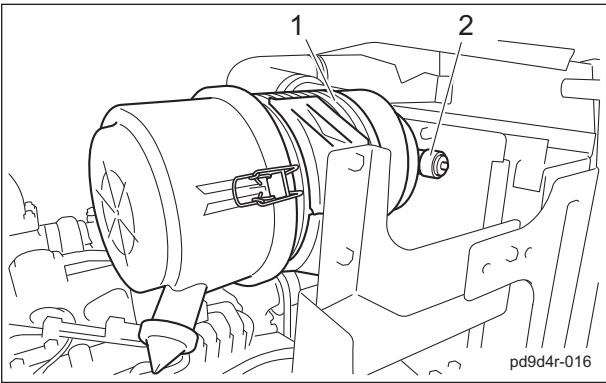
- 3. Start the engine, raise and lower the mower units, and turn the steering wheel right and left. Move forward and reverse repeatedly several times.
- 4. Raise the mower units and maintain that position on a level surface, and then check to see if the oil level is at the middle of the oil gauge. If necessary, supply oil.
- 5. Check underneath the machine for hydraulic oil leakage.
- 6. Install the tank cover.

Air Cleaner

Inspection of Air Cleaner

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

- 1. Inspect the air cleaner by checking the vacuum indicator.
If the air cleaner element is contaminated, the vacuum indicator will display a red ring.



Inspection of Air Cleaner_001

1	Air cleaner
2	Vacuum indicator

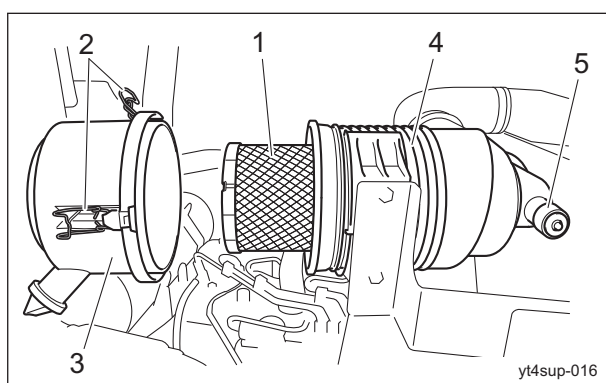
- 2. Make sure that there is no damage to the air cleaner.
- 3. Make sure that the air cleaner element is not contaminated.

Cleaning of Air Cleaner

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

- 1. Follow the steps below to clean the air cleaner.
 - [1] Release the clips, remove the air cleaner cap, and then remove the air cleaner element.
 - [2] While paying close attention not to damage the air cleaner element, tap a solid portion of the air cleaner element or blow compressed air from its inside to remove dust and dirt.
If the air cleaner element is extremely contaminated, replace it with a new one.
 - [3] Attach the air cleaner element to the air cleaner body.
 - [4] Attach the air cleaner cap, and then fix it securely with the clips.

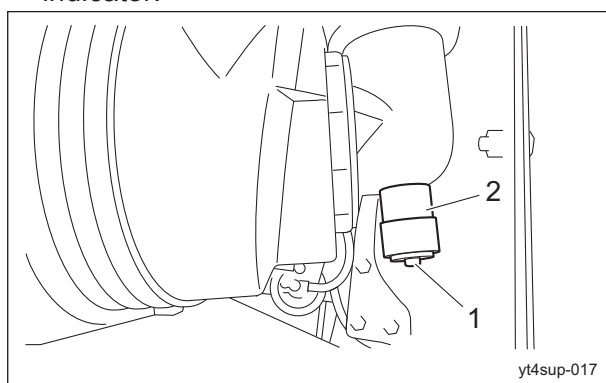
Handling Instructions



Cleaning of Air Cleaner_001

1	Air cleaner element
2	Clip
3	Air cleaner cap
4	Air cleaner body
5	Vacuum indicator

2. Press the reset button for the vacuum indicator.



Cleaning of Air Cleaner_002

1	Reset button
2	Vacuum indicator

Battery

Inspection of Battery

! Danger

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

! Warning

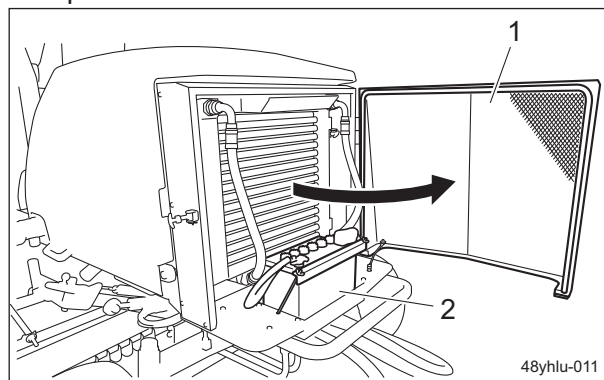
Do not allow the battery fluid level to become lower than the LOWER LEVEL (minimum fluid level line).

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

! Caution

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

1. Open the radiator cover.

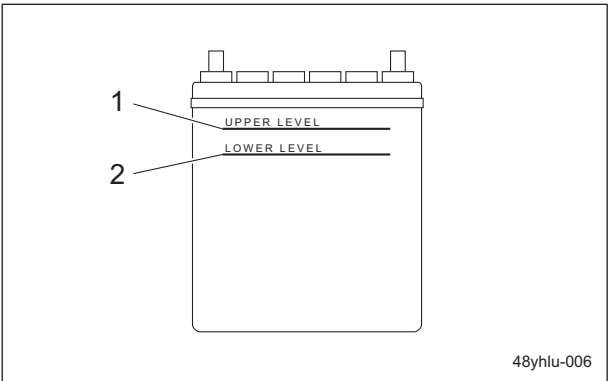


Inspection of Battery_001

1	Radiator cover
2	Battery

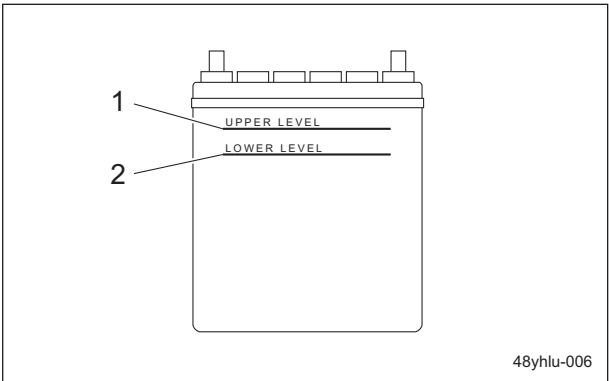
2. Clean the areas around the battery fluid level lines using a cloth dampened with water.
3. Make sure that the battery fluid level is between the UPPER LEVEL (maximum fluid level line) and the LOWER LEVEL (minimum fluid level line).

Handling Instructions



Inspection of Battery_002

1	UPPER LEVEL
2	LOWER LEVEL



Supply of Battery Fluid_001

1	UPPER LEVEL
2	LOWER LEVEL

Supply of Battery Fluid

Danger

Be careful not to let your skin, eyes or clothes, etc., come into contact with the battery fluid or accidentally swallow the fluid. Should your skin or clothes come into contact with the battery fluid, immediately wash them away with water.

Danger

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

Caution

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

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

Tire

Inspection of Tires

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

	Tire size	Pneumatic pressure
Front wheel	26.5 x 14.00-12	120 kPa (1.2 kgf/cm ²)
Rear wheel	20 x 12.00-10	140 kPa (1.4 kgf/cm ²)

Brake

Inspection of Brake

While traveling, depress the brake pedal firmly to make sure that the brake is applied effectively.

Inspection of Parking Brake

- 1. Depress the locking pedal while firmly depressing the brake pedal to lock it and check that the brake is applied effectively.
- 2. Firmly depress the brake pedal and release the locking pedal to release the brake pedal, and then check that the brake is not applied.

Handling Instructions

Belt

Inspection of Belt

Warning

The engine must be stopped when the belt is inspected.

Important

A slacking or damaged belt or damaged fan may cause overheating or lack of a battery charge.

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

Wire

Inspection of Wire

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

Around The Engine

Inspection of Engine-Associated Parts

1. Check the fuel system parts for loosened or cracked joints and leakage. Replace the parts if necessary.
2. Blow compressed air to clean any grass or flammable materials that may be attached on or around the muffler.

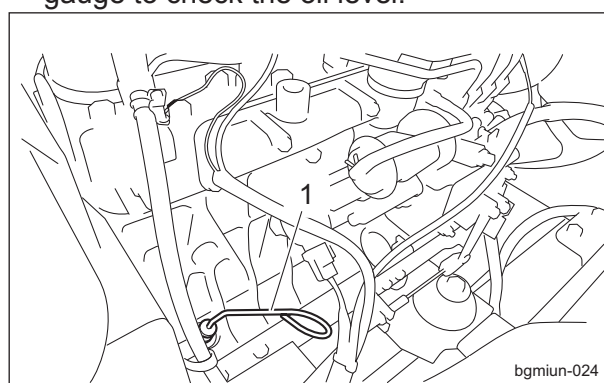
Engine Oil

Inspection of Engine Oil

Important

Securely tighten the oil level gauge and oil filler cap.

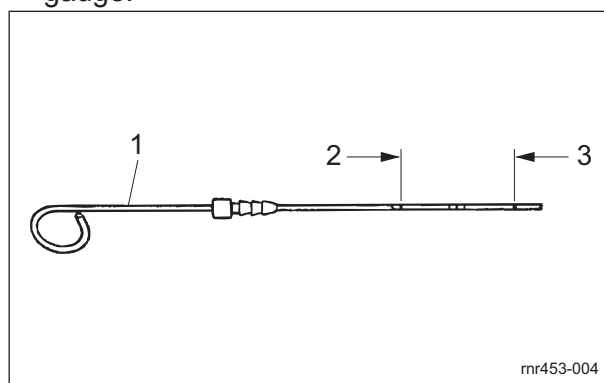
1. Check the oil level 10 to 20 minutes after stopping the engine.
2. Position the machine so that the engine is level, and then fully insert the oil level gauge to check the oil level.



Inspection of Engine Oil_001

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

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



Inspection of Engine Oil_002

1	Oil level gauge
2	Upper limit
3	Lower limit

Handling Instructions

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.

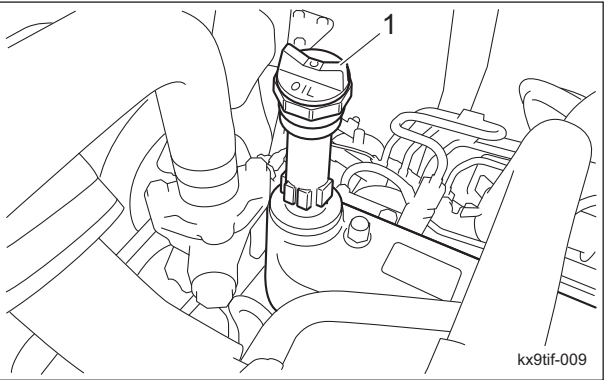
Important

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

Important

Securely tighten the oil level gauge and oil filler cap.

- 1. Engine oil is supplied through the oil filler cap.
Remove the oil filler cap, and then supply new engine oil until the oil reaches a level in between the upper and lower limit lines on the oil level gauge.
- 2. Securely install the oil filler cap.



Supply of Engine Oil_001

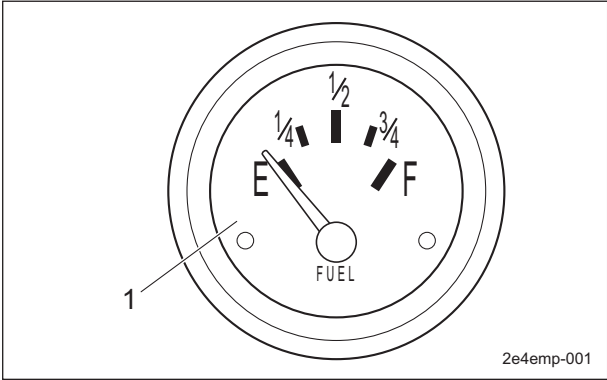
1 Oil filler cap

- 3. It will take a while for the supplied engine oil to descend into the oil pan.
Check the oil level again 10 to 20 minutes after replenishment.

Fuel

Inspection of Fuel Quantity

With the machine on a level surface, observe the fuel gauge in the operation panel to check the fuel level.



Inspection of Fuel Quantity_001

1 Fuel gauge

Supply of Fuel

Warning

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

Warning

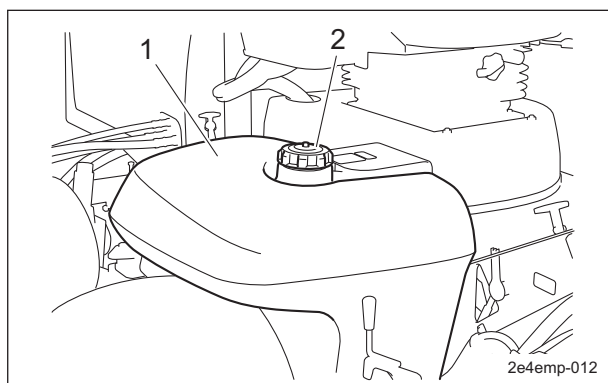
Keep away from fire while fueling.
Do not smoke while fueling.

Warning

Supply fuel after stopping the engine and allowing it to cool down completely.

If the fuel gauge, located in the operation panel, indicates a level close to E (EMPTY), supply fuel (diesel) at your earliest convenience.
The fuel tank capacity is approximately 51.0 dm³ (51.0 L).

Handling Instructions



Supply of Fuel_001

1	Fuel tank
2	Tank cap

Air Bleeding of Fuel System

Important

The air-bleed plug should always be in the closed position except during the air bleeding operation.

Using the machine with the air-bleed plug in the open position may cause the engine to stall.

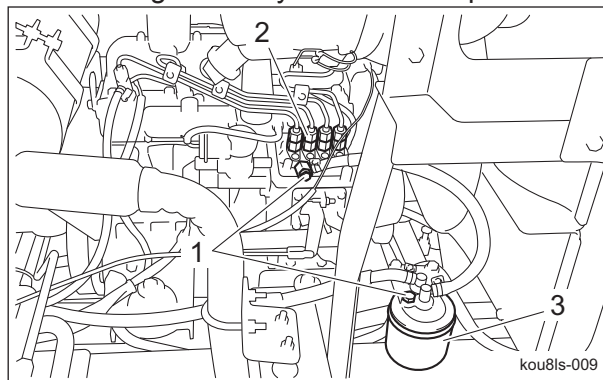
This machine has a function of automatic air bleeding. However, depending on the mechanical structure, it may not bleed air completely. If the automatic air bleeding does not work well, follow the steps below to perform manual air bleeding.

Caution

Do not perform air bleeding when the engine is hot since the fuel may spill on the hot exhaust manifold and a fire might occur.

1. Set the ignition key to the "ON" position.
2. Turn the air-bleed plug on the fuel filter several times to loosen it.
3. When a bubble no longer arises, screw the air-bleed plug to the original position.
4. Open the air-bleed plug on the injection pump.
5. When a bubble no longer arises, screw the air-bleed plug to the original position.

6. Set the ignition key to the "OFF" position.



Air Bleeding of Fuel System_001

1	Air-bleed plug
2	Injection pump
3	Fuel filter

Water Separator

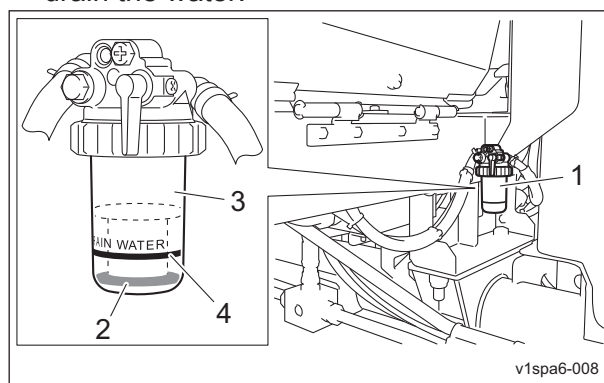
Inspection of Water Separator

Important

Water-contaminated fuel may impair engine startability, decrease output or damage engine parts.

The water separator removes water from the fuel.

1. Make sure that debris and water have not accumulated in the cup. With the float raised, water contamination is confirmed. When the float reaches the drain level, drain the water.



Inspection of Water Separator_001

1	Water Separator
2	Float
3	Cup
4	Drain level

Handling Instructions

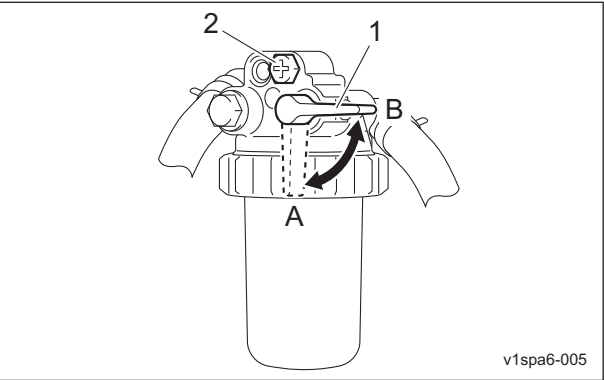
Draining of Water Separator

Important

Water-contaminated fuel may impair engine startability, decrease output or damage engine parts.

Drain the water after at least the number of hours in the Maintenance Schedule and whenever the float is raised by water.

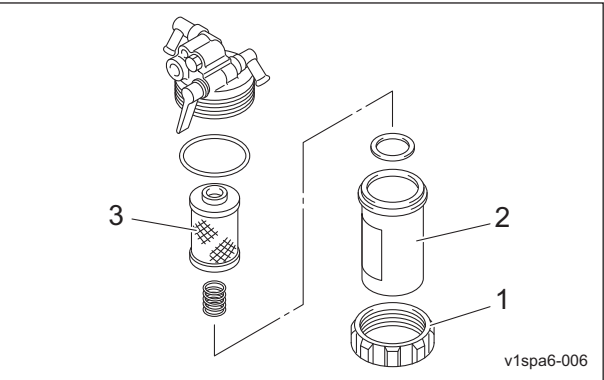
- 1. Stop the engine, and then turn the key switch to the "OFF" position.
- 2. Place a container under the water separator.
- 3. Close the fuel cock of the water separator.



Draining of Water Separator_001

1	Fuel cock
2	Air-bleeding plug
A	ON (open)
B	OFF (close)

- 4. Remove the ring nut, and then remove the cup.



Draining of Water Separator_002

1	Ring nut
2	Cup
3	Element

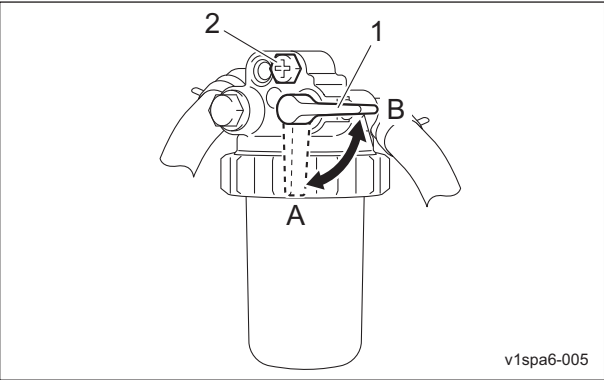
- 5. Drain the water from the cup.

Important

During installation, prevent contamination with dirt or dust.

If the fuel is contaminated with dirt, dust, etc., the fuel injection pump and injection nozzle will become worn.

- 6. Correctly install all parts in their original positions.
- 7. Fill up the fuel tank with fuel.
- 8. Open the fuel cock of the water separator.



Draining of Water Separator_003

1	Fuel cock
2	Air-bleeding plug
A	ON (open)
B	OFF (close)

- 9. Set the ignition key to the "ON" position.
 - 10. Loosen the air-bleed plug to bleed the air.
 - 11. When the cup is filled with fuel, close the air-bleed plug.
 - 12. Set the ignition key to the "OFF" position.
 - 13. If the engine does not start within 15 seconds after switching the ignition key to the "START" position, wait at least 30 seconds, and then repeat the same operation.
- If there is still air in the cup after starting the engine, bleed the air again.

Handling Instructions

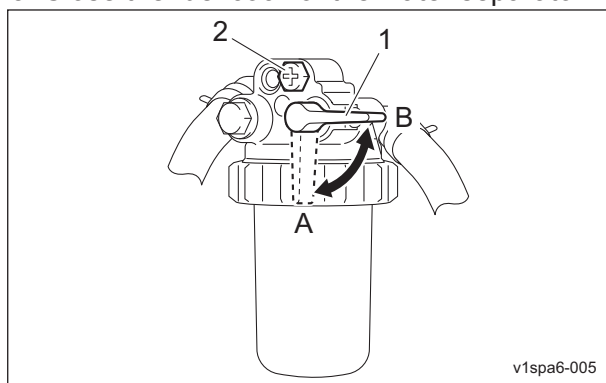
Cleaning of Water Separator

Important

Water-contaminated fuel may impair engine startability, decrease output or damage engine parts.

Clean the water separator after at least the number of hours in the Maintenance Schedule and whenever debris has accumulated in the cup.

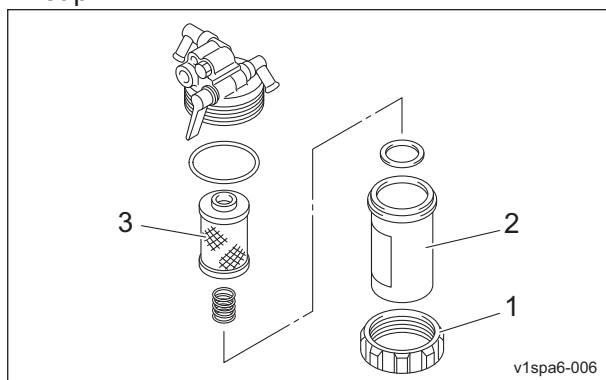
1. Stop the engine, and then turn the key switch to the "OFF" position.
2. Place a container under the water separator.
3. Close the fuel cock of the water separator.



Cleaning of Water Separator_001

1	Fuel cock
2	Air-bleeding plug
A	ON (open)
B	OFF (close)

4. Remove the ring nut, and then remove the cup.



Cleaning of Water Separator_002

1	Ring nut
2	Cup
3	Element

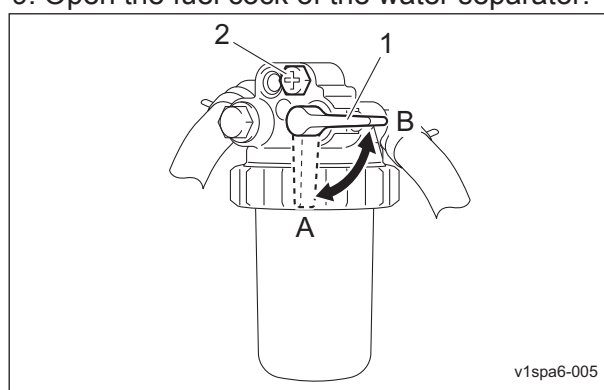
5. Drain the water from the cup.
6. Clean the cup and element with diesel fuel.

Important

During installation, prevent contamination with dirt or dust.

If the fuel is contaminated with dirt, dust, etc., the fuel injection pump and injection nozzle will become worn.

7. Correctly install all parts in their original positions.
8. Fill up the fuel tank with fuel.
9. Open the fuel cock of the water separator.



Cleaning of Water Separator_003

1	Fuel cock
2	Air-bleeding plug
A	ON (open)
B	OFF (close)

10. Set the ignition key to the "ON" position.
 11. Loosen the air-bleeding plug to bleed the air.
 12. When the cup is filled with fuel, close the air-bleeding plug.
 13. Set the ignition key to the "OFF" position.
 14. If the engine does not start within 15 seconds after switching the ignition key to the "START" position, wait at least 30 seconds, and then repeat the same operation.
- If there is still air in the cup after starting the engine, bleed the air again.

Handling Instructions

Fuel Filter

Inspection of Fuel Filter

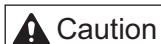
The fuel filter works to remove foreign objects mixed into the fuel.

When the fuel flow becomes insufficient, replace the fuel filter if necessary.

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

Oil Leakage

Inspection of Oil Leakage



When performing maintenance on the hydraulic system, lower the mower units.

After approximately 50 hours of operation, some tightened portions may be loosened and oil and grease may leak.

Be sure to retighten the parts.

Check the bottom of the machine for oil and grease leakage.

Grass Catcher

Inspection of Grass Catcher

The grass catcher may no longer correctly collect grass clippings due to its wear, damage, deformation, etc., caused by frequent use.

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.

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.

Handling Instructions

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 - 1,186.03
M14	106 - 134	1,080.88 - 1,366.40	938.21 - 1,186.03	140 - 188	1,427.58 - 1,917.04	1,239.14 - 1,663.99
M16	152 - 188	1,549.94 - 1,917.04	1,345.35 - 1,663.99	210 - 260	2,141.37 - 2,651.22	1,858.71 - 2,301.26
M18	200 - 240	2,039.40 - 2,447.28	1,770.20 - 2,124.24	280 - 340	2,855.16 - 3,466.98	2,478.28 - 3,009.34
M20	245 - 295	2,498.27 - 3,008.12	2,168.50 - 2,611.05	370 - 450	3,772.89 - 4,588.65	3,274.87 - 3,982.95
M22	-	-	-	530	5,404.41	4,691.03
M24	-	-	-	670	6,831.99	5,930.17
M27	-	-	-	1,000	10,197.00	8,851.00
M30	-	-	-	1,340	14,628.78	11,860.34

Note:

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

Handling Instructions

Principal Tightening Torques

Tightening Torque by Model

LM551

LM551A

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 wheel	Motor	K0013120702	BOLT, HT M12-70	104 - 134	1,060.49 - 1,366.40	920.50 - 1186.03	—
	Wheel mounting base	-	Slotted nut 1-20UNEF of hydraulic motor	280 - 300	2,855.16 - 3,059.10	2,478.28 - 2,655.30	—
	Wheel	K0011120352	BOLT, P1.5 M12-35	110	1121.69	973.61	—
Rear wheel	Motor	K0010120602	BOLT, HT M12-60	104 - 134	1,060.49 - 1,366.40	920.50 - 1186.03	—
	Wheel mounting base	-	Slotted nut 1-20UNEF of hydraulic motor	280 - 300	2,855.16 - 3,059.10	2,478.28 - 2,655.30	—
	Wheel	K0011120352	BOLT, P1.5 M12-35	110	1121.69	973.61	—
Engine		K0017100252	BOLT, SMALL HT P1.25 M10-25	58 - 76	591.43 - 774.97	513.36 - 774.97	—
		K0010121201	BOLT, HT M12-120	67 - 85	683.20 - 886.75	593.02 - 752.34	—
		K3680000030	M3.5 Screw (accessories)	0.78 - 1.18	7.95 - 12.03	6.90 - 10.44	—
Joint		K0024100401	BOLT, W/HEX. HOLE M10-40	62 - 72	632.21 - 734.18	632.21 - 734.18	○
		K0011100252	BOLT, HT P1.25 M10-25	58 - 76	591.43 - 774.97	513.36 - 774.97	—
Tie rod		- (K1610000020)	Slotted nut(END ASSY, TIE-ROD MALE (RH))	45	458.87	398.30	—
		- (K1611000020)	Slotted nut(END ASSY, TIE-ROD MALE (LH))	45	458.87	398.30	—
Piston pump		K0013140452	BOLT, HT M14-45	140 - 188	1,427.58 - 1,917.04	1,239.14 - 1,663.99	—
Cross valve		K0013101202	BOLT, HT M10-120	29 - 38	295.71 - 387.49	256.68 - 336.34	—
Seat		- (K1700000430)	M8 Bolt and Nut (accessories)	-	-	-	○
Mower stopper		K0041060122	SCREW, + FLAT HEAD M6-12	-	-	-	○
ROPS		K001A121101	BOLT, 13T W/HEX HOLE M12-110	104 - 134	1,060.49 - 1,366.40	920.50 - 1186.03	—


Handling Instructions

Adjustment before Work

Adjustment of Steering Wheel

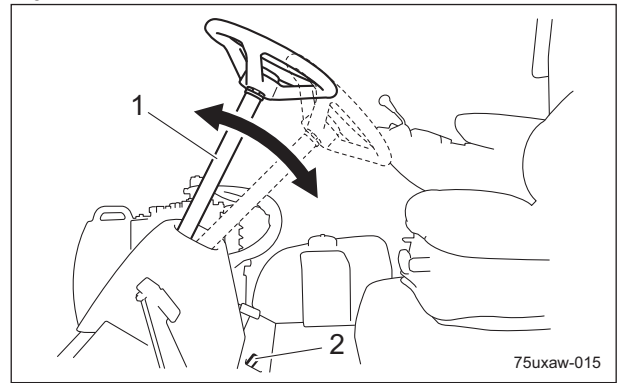
 **Warning**

Do not make adjustments while traveling since doing so is dangerous.

 **Caution**

Be sure the steering wheel position is securely locked.
If it becomes loose while traveling, an unexpected accident may occur.

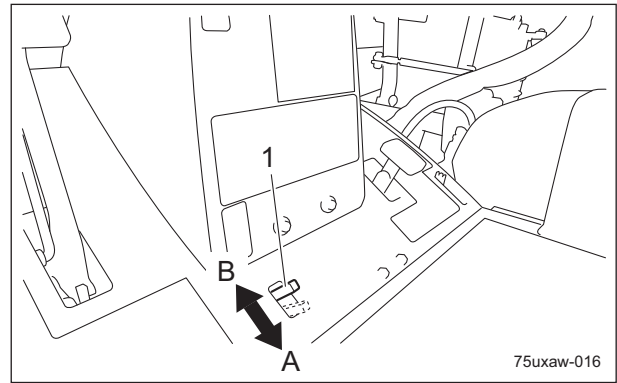
The steering wheel can be adjusted up or down.
Adjust the position to fit the operator.



Adjustment of Steering Wheel_001

1	Steering
2	Tilt lever

Shift the tilt lever to the "FREE" position, move the steering wheel to the position that suits the work requirements, and then shift the tilt lever to the "LOCK" position to secure the steering wheel in place.
The tilt lever is located in the driver's left foot area.

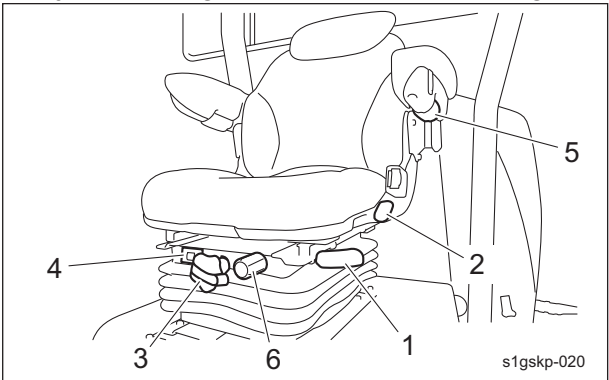


Adjustment of Steering Wheel_002

1	Tilt lever
A	FREE (released)
B	LOCK (locked)

Adjustment of Seat

- Use the adjustment levers to adjust the seat.
Adjust the position to fit the operator.
1. Use the forward/backward adjustment lever to adjust the seat back and forth.
 2. Use the tilt adjustment lever to adjust the angle of the backrest.
 3. Turn the suspension adjustment handle to adjust the firmness of the seat suspension. Refer to the suspension indicator while making adjustments. [45 to 130 kg (99.2 to 286.6 lb)]
 4. Turn the armrest adjustment knob to adjust the angle of the armrests.
 5. Turn the seat height adjustment knob to adjust the height of the seat steplessly. [0 to 60 mm (0 to 2.36 in)]
- Adjust the height of the seat while sitting in it.



Adjustment of Seat_001

1	Forward/backward adjustment lever
2	Tilt adjustment lever
3	Suspension adjustment handle
4	Suspension indicator
5	Armrest adjustment knob
6	Seat height adjustment knob

Handling Instructions

Adjustment of Reel Rotation Control Valves

The reel rotation control valves adjust the rotation speeds of the reel cutters (cutting cylinders).

Adjust according to the operating conditions. A label listing dial settings for corresponding reel rotation speeds is attached.

Adjust the reel rotation control valve to the setting for the reel rotation speed listed on the reel rotation label.

"TURNS" means the rotation number of the dial's counterclockwise rotation started from the state where the dial is fully tightened clockwise.

"POS" means the dial decal number pointed by the indicating screw.

Note:

The factory default reel rotation speed is set to 1,450 rpm.

LH6* / LS6*			LH52		
TURNS	POS	REEL SPEED	TURNS	POS	REEL SPEED
2	6	1,150	1	7	1,250
	8	1,250		8	1,350
3	2	1,350	2	1	1,450
	4	1,450		2	1,550
	6	1,500		3	1,700

FOR 0 (STARTING POS) TURN CW TO MAX POS

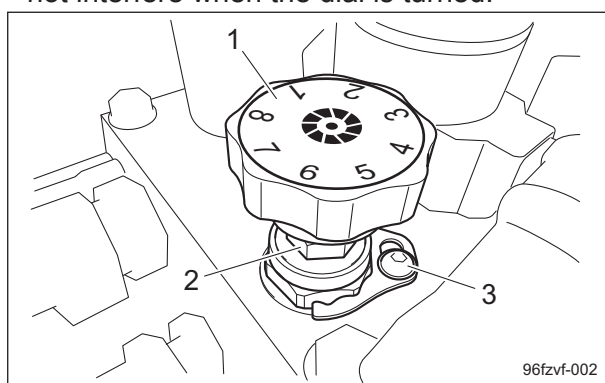
96fzvf-005

Adjustment of Reel Rotation Control Valves_001

1. Stop the engine.
2. Open the underseat cover.
3. Use the specialized wrench (accessory) to loosen the lock nut for the dial.

Note:

Raise the lock nut to a position where it will not interfere when the dial is turned.



Adjustment of Reel Rotation Control Valves_002

1	Dial
2	Lock nut
3	Indicating screw

Important

In order to maintain quality mowing, the reel rotation speed must be the same for all mower units.

4. Turn the dial to set it to the appropriate position.
Set the two dials to the same position.

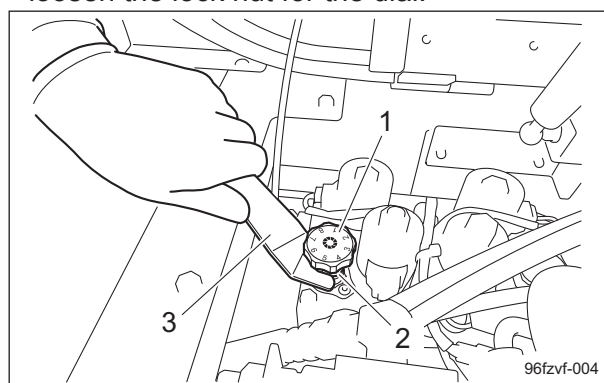


Adjustment of Reel Rotation Control Valves_003

1	Dial (mower units #1, #4 and #5)
2	Dial (mower units #2 and #3)
3	Lock nut
4	Indicating screw
5	Reel rotation label

5. Tighten the lock nut for the dial.
If the dial rotation number is unknown, follow the steps below to adjust the dial.

1. Stop the engine.
2. Open the underseat cover.
3. Use the specialized wrench (accessory) to loosen the lock nut for the dial.

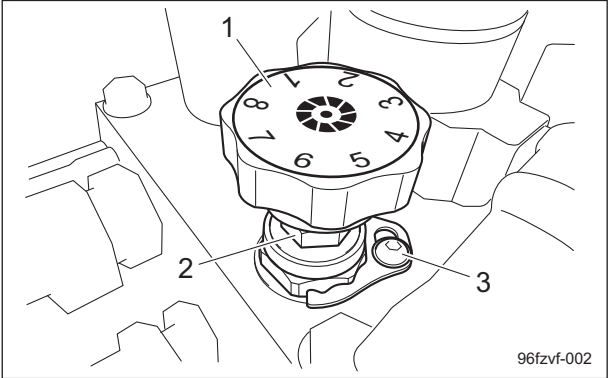


Adjustment of Reel Rotation Control Valves_004

Handling Instructions

1	Dial (mower units #1, #4 and #5)
2	Lock nut
3	Specialized wrench (accessory)

Note:
Raise the lock nut to a position where it will not interfere when the dial is turned.



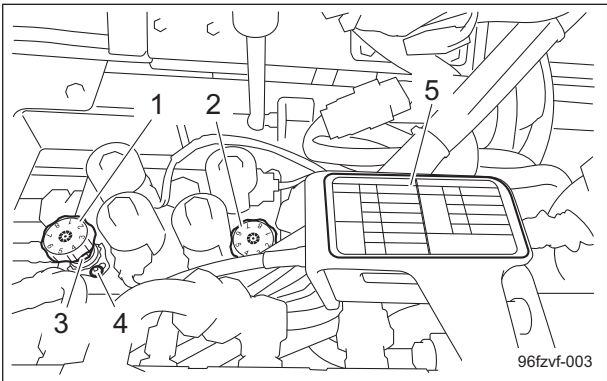
Adjustment of Reel Rotation Control Valves_005

1	Dial
2	Lock nut
3	Indicating screw

- 4. Turn the dial clockwise until it stops.
 - 5. Turn the dial counterclockwise to set it to the appropriate position.
- The amount that the dial is turned differs depending on the mower unit.
For example, the following procedures show the steps to set the reel rotation speed to 1,450 rpm.

When mower unit LS62 or LS66/LH62 is installed:
Turn the dial counterclockwise three times, then an additional 180 degrees.
Position "4" on the dial sticker should be aligned with the center of the indicating screw.

When mower unit LH52 is installed:
Turn the dial counterclockwise two times, then an additional 45 degrees.
Position "1" on the dial sticker should be aligned with the center of the indicating screw.



Adjustment of Reel Rotation Control Valves_006

1	Dial for mower units #1, #4 and #5
2	Dial for mower units #2 and #3
3	Lock nut
4	Indicating screw
5	Reel rotation label

- 6. Use the specialized wrench (accessory) to tighten the lock nut for the dial.

Adjustment of Mower Stopper Pin

The mower stopper pin can prevent or allow tilting of the mower units.
Adjust according to the operating conditions.
Fixed:

- The mowing line while traveling straight ahead is a straight line. (The mowing line is easy to see.)
- The mower units do not tilt while operating on slopes, and incomplete mowing can be reduced.

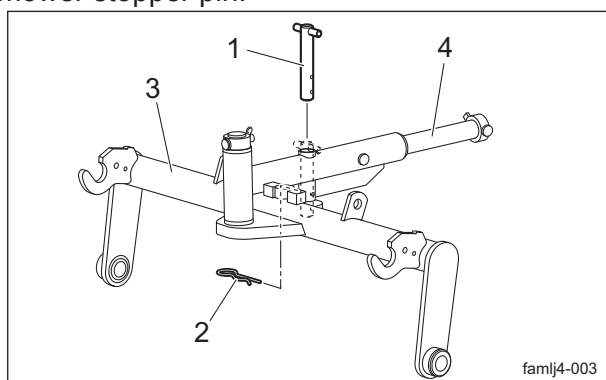
Released:

- It is appropriate when turning while mowing or it is easy to follow undulations.
1. On a level surface, lower all mower units.
 2. Apply the parking brake, and then stop the engine.
 3. Adjust the position of the mower stopper pin, and then insert the cotter pin.

Handling Instructions

To fix:

Insert the cotter pin into the upper hole in the mower stopper pin.

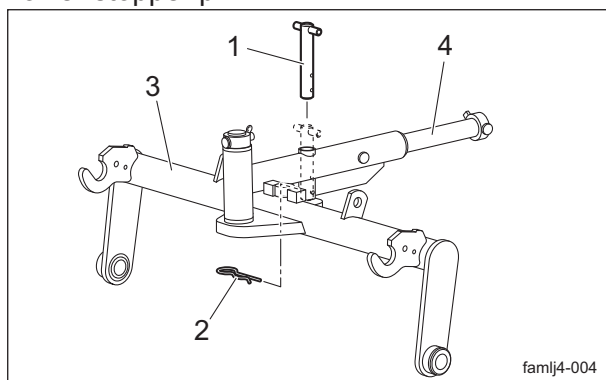


Adjustment of Mower Stopper Pin_001

1	Mower stopper pin
2	Cotter pin
3	Mower arm
4	Mower coupling

To release:

Insert the cotter pin into the lower hole in the mower stopper pin.

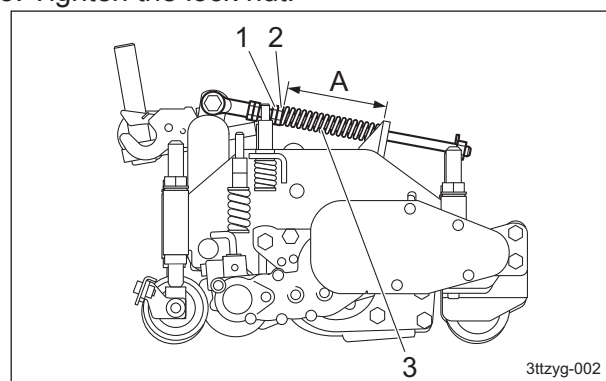


Adjustment of Mower Stopper Pin_002

1	Mower stopper pin
2	Cotter pin
3	Mower arm
4	Mower coupling

The mower stabilizer stabilizes the mower units and prevents an undulating finish (a phenomenon called Marcelling).

1. On a level surface, lower all mower units.
2. Apply the parking brake, and then stop the engine.
3. Loosen the lock nut.
4. Tighten the nut to adjust the length of the spring (compression).
 - Mower #1 to #5: 140.0 mm (5.51 in)
5. Tighten the lock nut.



Adjustment of Mower Stabilizer_001

1	Lock nut
2	Nut
3	Spring
A	140.0 mm (5.51 in)

Adjustment of Mower Stabilizer

Note:

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

Important

After adjusting the cutting height, adjust the mower stabilizer.

Handling Instructions

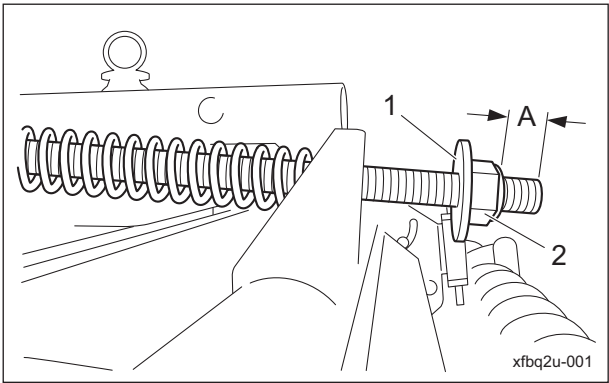
Adjustment of Stopper Nuts

Note:
Depending on the specifications, this function may not be available.
The stopper nut adjusts the movement range of the mower unit.
1. Apply the parking brake, and then stop the engine.

Important

When a grass catcher is installed on LH52 (5-inch mower unit), a large movement range of the mower may cause the grass catcher to come into contact with the front roller when the mower unit is raised.
Exercise care in the position of the stopper nut.

2. Turn the nut to adjust the length of A.
- Mower #1, #4 and #5: 15.0 mm (0.59 in)
 - Mower #2 and #3: 40.0 mm (1.57 in)
- When a grass catcher is installed on LH52 (5-inch mower unit):
- Mower #1, #4 and #5: 30.0 mm (1.18 in)
 - Mower #2 and #3: 40.0 mm (1.57 in)



Adjustment of Stopper Nuts_001

1	Washer
2	Nut
A	Length

Procedure to Start/Stop Engine

Start/Stop of Engine

Procedure to Start Engine

Caution

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

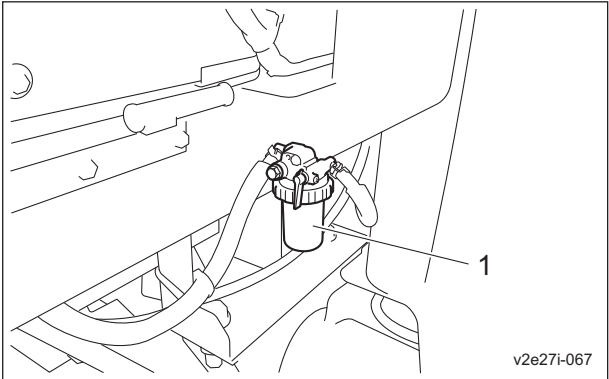
Caution

Be careful of the mower units lowering when the mower unit up/down lever is shifted to the "Down" position and the key switch is turned to the "ON" position while the engine is stopped with the traveling/working selector switch set to the "Working" position.

Important

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

1. Open the fuel cock of the water separator.



Procedure to Start Engine_001

1	Water Separator
---	-----------------

2. Sit on the seat.
3. Make sure that you have depressed the brake pedal and applied the parking brake.
4. Set the reel rotation switch to the "Stop" position.
5. Move the mower unit up/down lever to the neutral position.
6. Make sure that the traveling pedal is in neutral position.

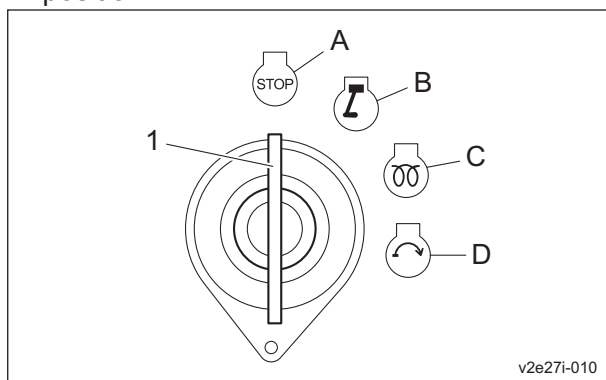
Handling Instructions

7. Move the throttle lever from the "Low speed" position halfway toward the "High speed" position.

Important

The thermo-start lamp turns off at the specified time. However, the lamp turning off is not related to the glow plug generating heat. If the ignition key is left in the "GLOW" position after the lamp is turned off, the plug will still generate heat. The thermo-start lamp will stay illuminated for five seconds.

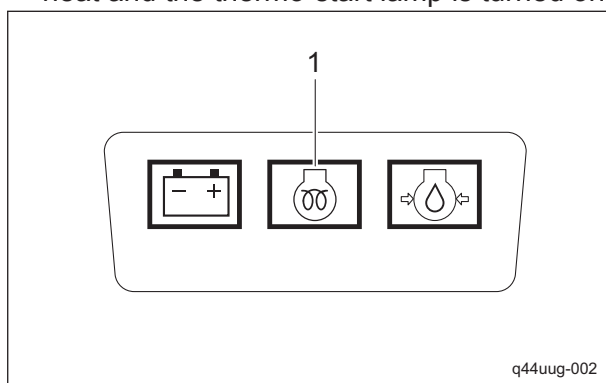
8. Switch the ignition key to the "GLOW" position.



Procedure to Start Engine_002

1	Ignition key
A	OFF
B	ON
C	GLOW
D	START

9. Make sure that the glow plug is generating heat and the thermo-start lamp is turned on.



Procedure to Start Engine_003

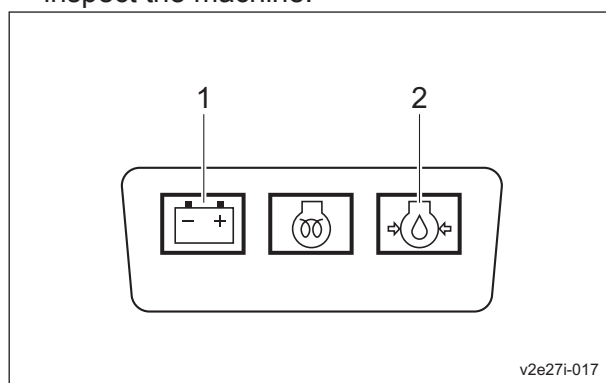
1	Thermo-start lamp
---	-------------------

10. After the thermo-start lamp turns off, immediately set the ignition key to the "START" position.

Important

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

11. When the starter starts rotating and the engine starts, slowly return the ignition key to the "ON" position.
12. Make sure that the charge lamp and oil pressure lamp turn off. If they do not turn off, stop the engine and inspect the machine.



Procedure to Start Engine_004

1	Charge lamp
2	Oil pressure lamp

13. Move the throttle lever to the "Low speed" position, and then warm up the engine for 1 to 2 minutes.
14. Gradually move the throttle lever toward the "High speed" position.

Procedure to Stop Engine

- Set the traveling pedal to the neutral position.
- Depress the brake pedal, and then apply the parking brake lever.
- Set the reel rotation switch to the "Stop" position.
- Shift the throttle lever toward the "Low speed" position, and then let the engine idle for 1 to 2 minutes.
- Switch the ignition key to the "OFF" position.
- Make sure that the engine has stopped.
- Remove the ignition key.
- Leave the driver's seat.

Handling Instructions

9. Close the fuel cock of the water separator.

Safety Mechanisms

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 "OFF" position.
 - The traveling pedal is set to the neutral position.

Important

When you restart the engine after the safety device stops the engine, be sure to return the ignition key to the "OFF" position first, and then restart it.

2. 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 any of 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 "Rotate" position.
However, when the reel reverse switch is set to the "ON" position (reverse rotation), the engine does not stop.

Warning Mechanisms

This machine features various warning mechanisms.

1. Overheat Warning Buzzer
If the water temperature inside the engine exceeds 110 degrees Celsius, a buzzer will sound. (intermittent tone)
2. Hydraulic Oil Level Warning Buzzer
If the oil level in the hydraulic tank decreases by approximately 3.0 dm³ (3.0 L) from the specified level, a buzzer will sound. (continuous tone)

3. Engine Overload Warning Buzzer
If the traveling pedal is depressed and the speed exceeds 12.0 km/h while the pedal stopper is in the "Traveling" position and the reel cutters (cutting cylinders) are rotating, a buzzer will sound. (intermittent tone)
4. Warning Buzzer for Traveling With Brake Applied
If the traveling pedal is depressed while the parking brake is applied, a buzzer will sound. (continuous tone)

Warning Buzzer

There are two warning buzzers, which indicate four warnings.

- Warning buzzer 1 & 2
- Warning buzzer 3 & 4

1. Overheat Warning Buzzer
If the water temperature inside the engine exceeds 110 degrees Celsius, 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. Hydraulic Oil Level Warning Buzzer
If the oil level in the hydraulic tank decreases by approximately 3.0 dm³ (3.0 L) from the specified level, a buzzer will sound. (continuous tone)
When the buzzer sounds, stop the engine immediately, and then inspect the machine and perform any necessary maintenance.
3. Engine Overload Warning Buzzer
If the traveling pedal is depressed and the speed exceeds 12.0 km/h while the pedal stopper is in the "Traveling" position and the reel cutters (cutting cylinders) are rotating, a buzzer will sound. (intermittent tone)
When the buzzer sounds, stop the engine immediately and set the pedal stopper to the "Working" position.
4. Warning Buzzer for Traveling With Brake Applied
If the traveling pedal is depressed while the brake pedal is locked with the locking pedal, a buzzer will sound. (continuous tone)
When the buzzer sounds, firmly depress the brake pedal to release the locking pedal.

Handling Instructions

Operation Method

Cautions for when You Leave The Machine

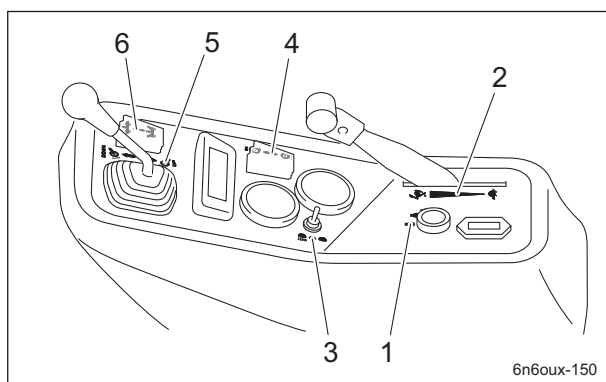
⚠ Caution

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

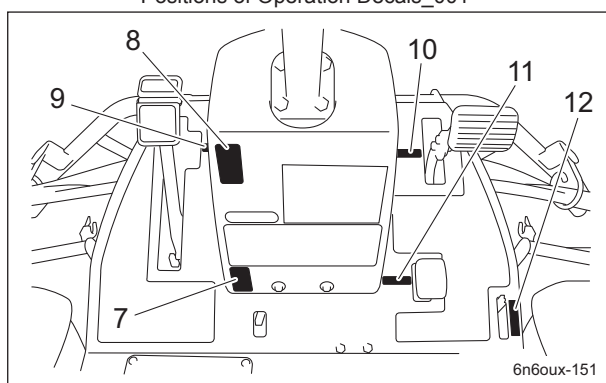
⚠ Caution

Never park the machine on a slope.

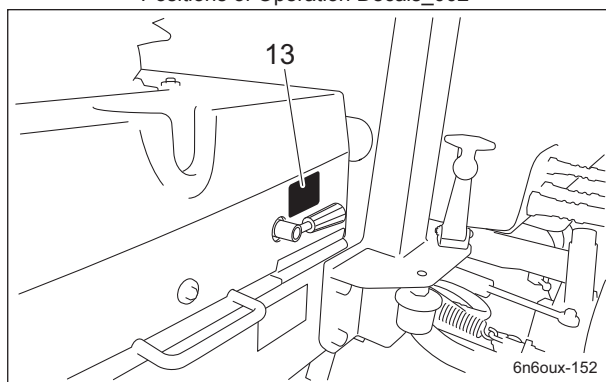
Positions of Operation Decals



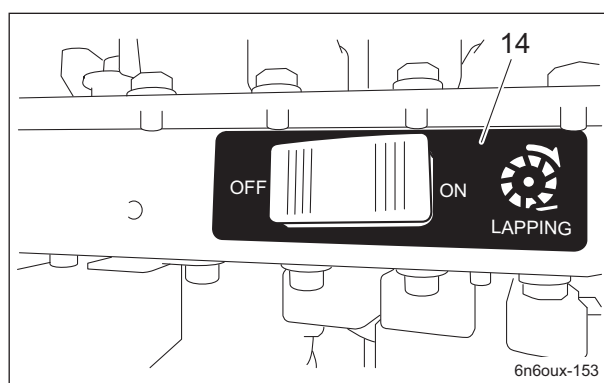
Positions of Operation Decals_001



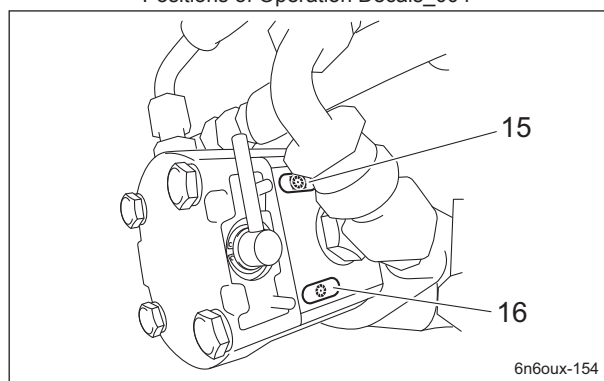
Positions of Operation Decals_002



Positions of Operation Decals_003



Positions of Operation Decals_004



Positions of Operation Decals_005

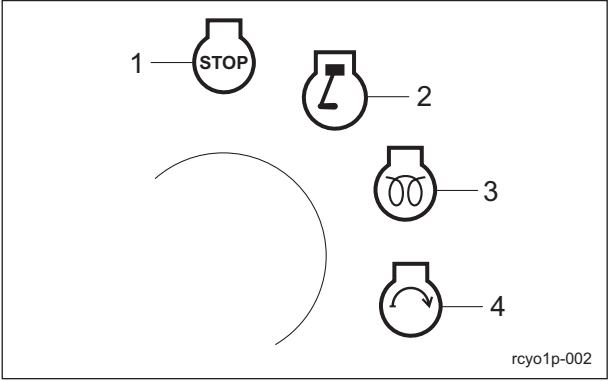
1	Key switch decal
2	Engine rotation decal
3	Light switch mark
4	Reel rotation mark
5	Mower unit up/down decal
6	Traveling/working selector mark
7	Tilt steering decal
8	Parking brake decal
9	BRAKE decal
10	FORWARD decal
11	BACKWARD decal
12	Driving mode shift decal
13	Lever open/close decal
14	Lapping decal
15	Reel rotation decal
16	Reel stop decal

Handling Instructions

Description of Operation Decals

Key Switch Decal

Key switch decal
This indicates the key switch positions.

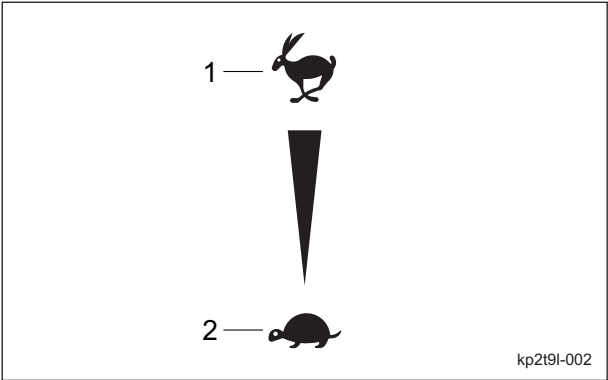


Key Switch Decal_001

1	OFF
2	ON
3	GLOW
4	START

Engine Rotation Decal

Engine rotation decal
This indicates high/low speed of the engine rotation.

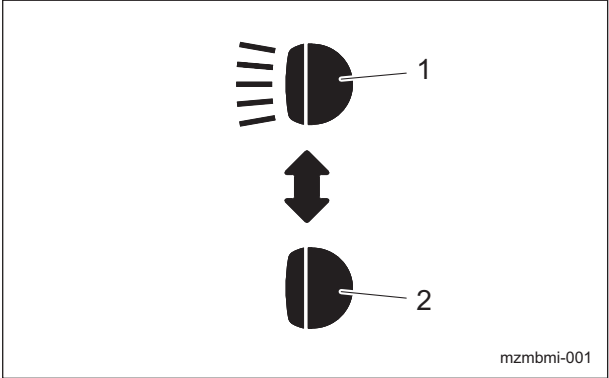


Engine Rotation Decal_001

1	High speed
2	Low speed

Light Switch Mark

Note:
Depending on the specifications, this function may not be available.
Light switch mark
It illustrates ON/OFF of the light.

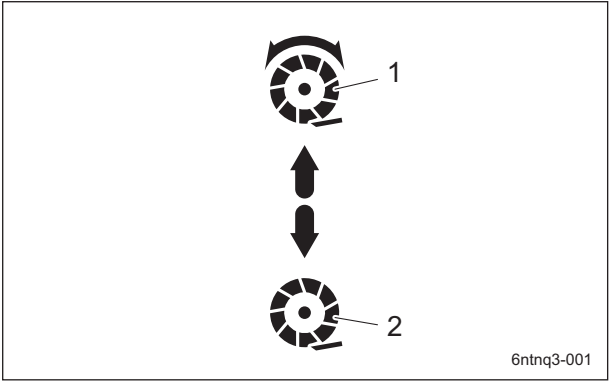


Light Switch Mark_001

1	ON
2	OFF

Reel Rotation Mark

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



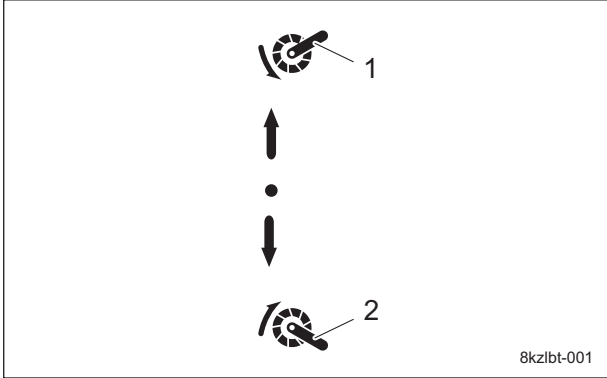
Reel Rotation Mark_001

1	Rotation
2	Stop

Handling Instructions

Mower Unit Up/Down Decal

Decal, mower unit up/down
This indicates the Up/Down positions of the mower unit.

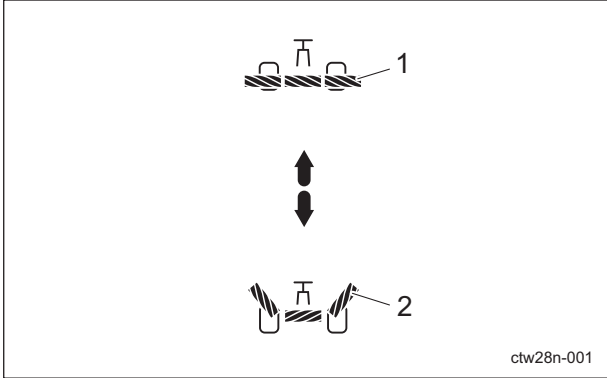


Mower Unit Up/Down Decal_001

1	Down
2	Up

Traveling/Working Selector Mark

Traveling/working selector mark
It illustrates the positions where mower units #4 and #5 stop when they are raised. (ON/OFF of slight lift function)



Traveling/Working Selector Mark_001

1	Working
2	Traveling

Tilt Steering Decal

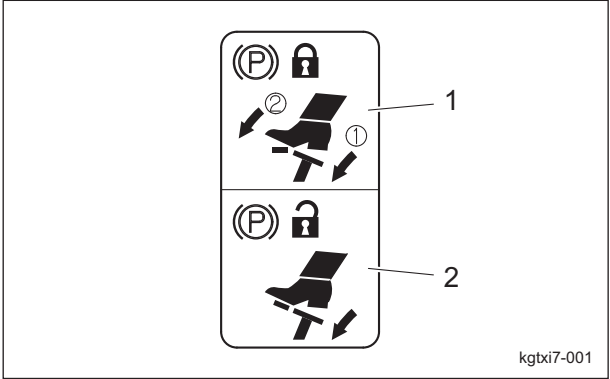
K4203001710
Decal, tilt steering
This illustrates the tilt directions of the steering wheel and the locked/free positions.



Tilt Steering Decal_001

Parking Brake Decal

K4203001700
Decal, parking brake
This shows how to lock and release the parking brake.



Parking Brake Decal_001

1	Lock
2	Release

BRAKE Decal

K4203001450
Decal, BRAKE
This indicates brake.



BRAKE Decal_001

FORWARD Decal

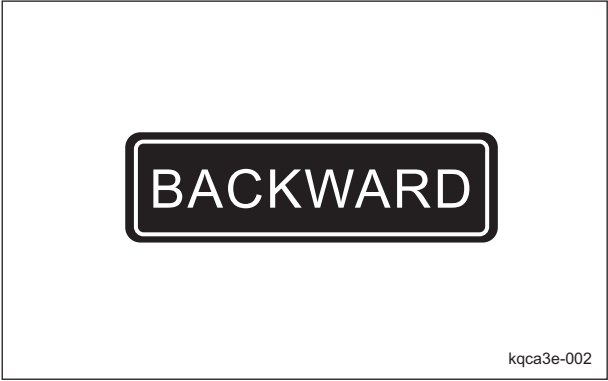
K4203001430
Decal, FORWARD
This indicates forward travel.



FORWARD Decal_001

BACKWARD Decal

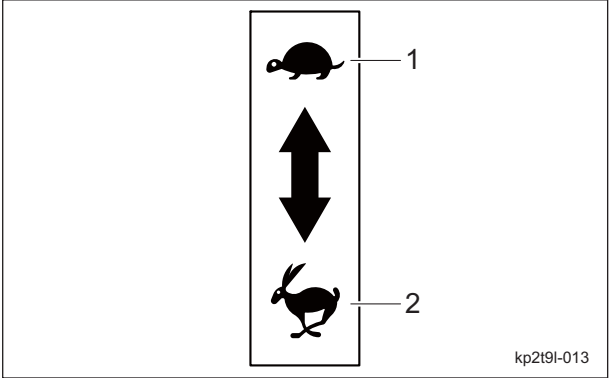
K4203001440
Decal, BACKWARD
This indicates backward travel.



BACKWARD Decal_001

Driving Mode Shift Decal

K4203001740
Decal, shifting driving mode
This indicates high/low speed.

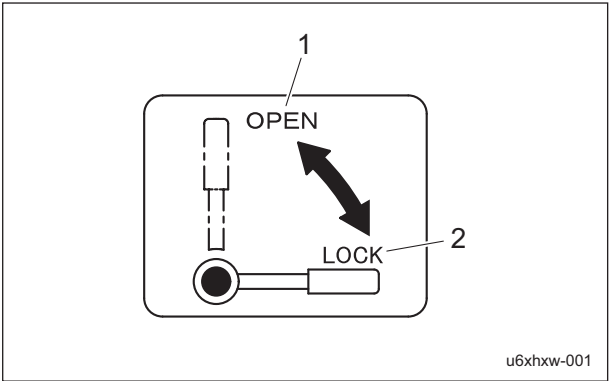


Driving Mode Shift Decal_001

1	Working speed
2	Traveling speed

Lever Open/Close Decal

K4203001720
Decal, open/close lever
This indicates lock/release of open/close lever.



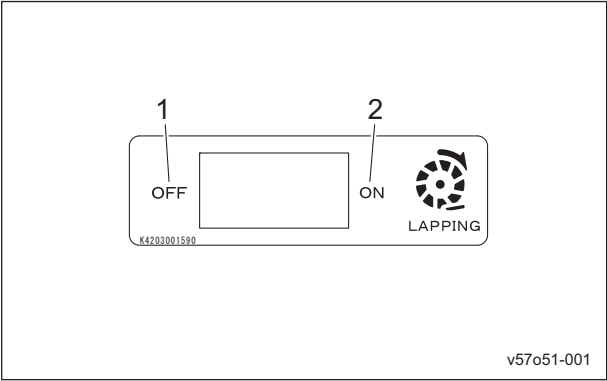
Lever Open/Close Decal_001

1	Release
2	Lock

Handling Instructions

Lapping Decal

K4203001590
Decal, lapping
This indicates rotational direction of the reel cutter (cutting cylinder).

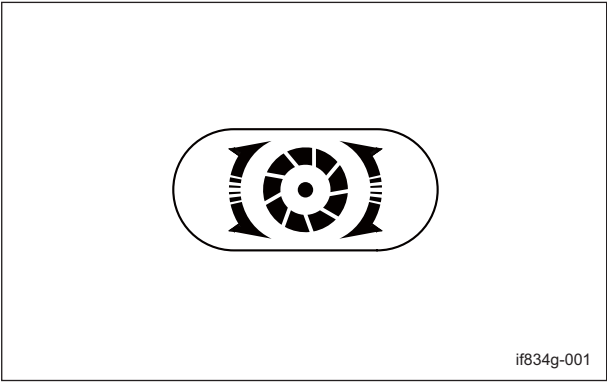


Lapping Decal_001

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

Reel Rotation Decal

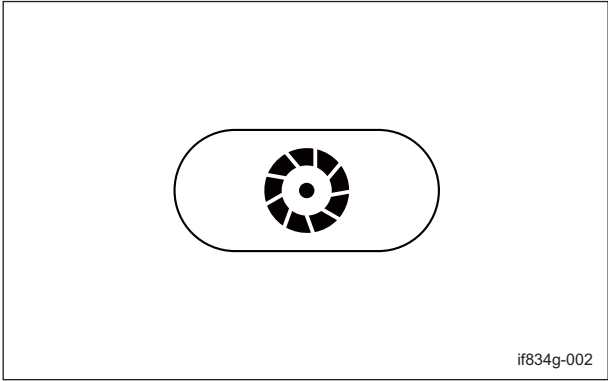
K4203001300
Decal, reel rotation
This indicates rotation of the reel cutter (cutting cylinder).



Reel Rotation Decal_001

Reel Stop Decal

K4203001310
Decal, reel stop
This indicates stop of the reel cutter (cutting cylinder).

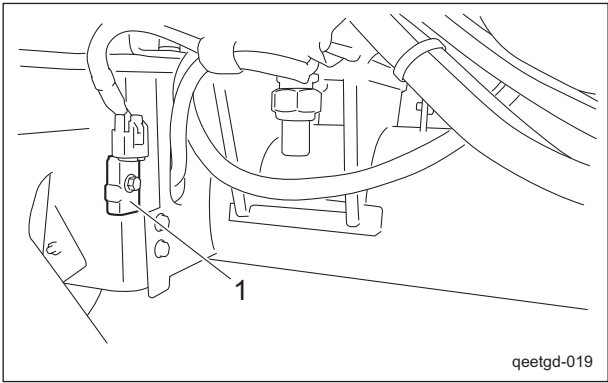


Reel Stop Decal_001

Proximity Sensor

There are four proximity sensors on #1, #2, #4 and #5 mower arm fulcrums. These sensors detect the raised or lowered positions of mower units #1, #2, #4 and #5. The information is related to controlling rotation and stop of the reel cutter (cutting cylinder).

- Mower unit #1

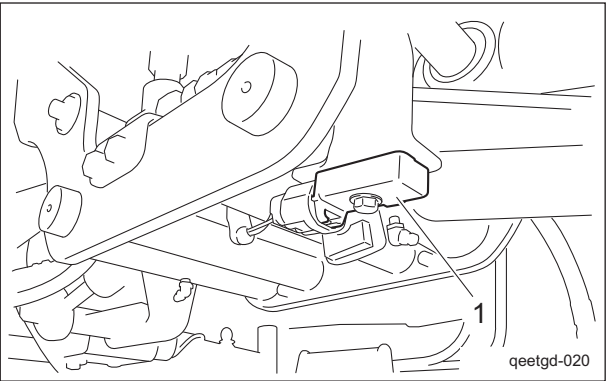


Proximity Sensor_001

1	Proximity sensor
---	------------------

Handling Instructions

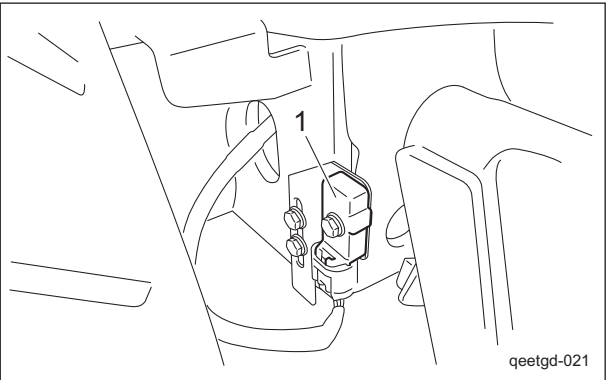
• Mower unit #2



Proximity Sensor_002

1	Proximity sensor
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• Mower units #4 and #5



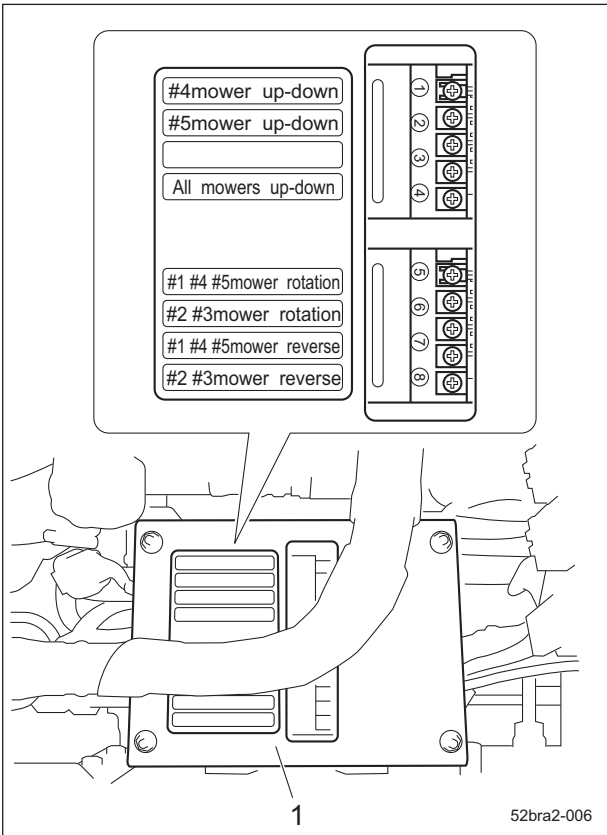
Proximity Sensor_003

1	Proximity sensor
---	------------------

Relays

The relay box is located inside the underseat cover. These relays control traveling/working selection, rotation of the reel cutters (cutting cylinders), and mower unit lowering selection. The operating condition can be checked by the illumination of the LEDs.

- LEDs ① and ② light up when the traveling/working selector switch is in the "Working" position and mower units #4 and #5 are raised.
- LED ③ is not used.
- LED ④ lights up when the mower unit up/down lever is in the "Down" position and the traveling/working selector switch is in the "Working" position.
- LEDs ⑤ and ⑥ light up when the reel rotation switch is in the "ON" position and the mower units are lowered.
- LEDs ⑦ and ⑧ light up when the reel reverse switch is in the "ON" position.



Relays_001

1	Relay box
---	-----------

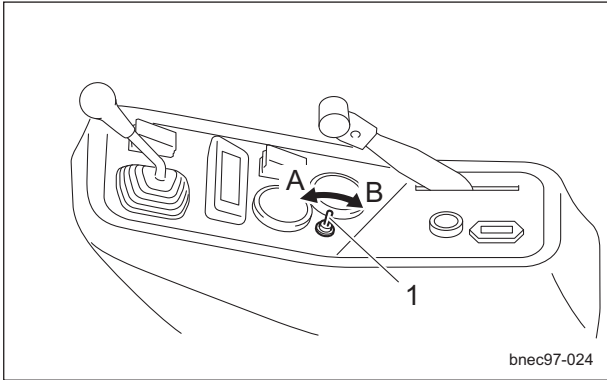
Handling Instructions

Light Switch

Caution

The lights provide auxiliary lighting.
Do not travel or operate the machine at night or under poor visibility.

The light switch is located in the operation panel.
When the switch is set to the "ON" position, the lights turn on. When it is set to the "OFF" position, the lights turn off.



Light Switch_001

1	Light switch
A	ON
B	OFF

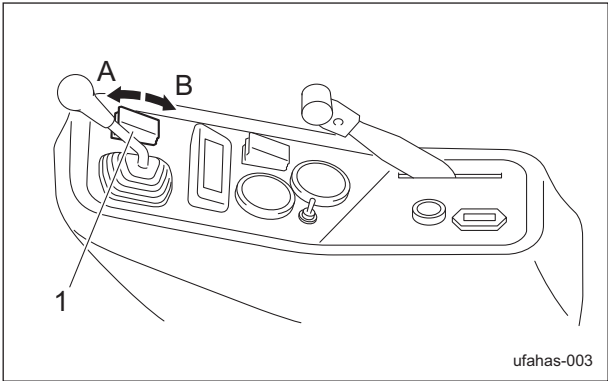
Traveling/Working Selector Switch

Important

Set the traveling/working selector switch to the "Working" position before lowering the mower units.
The mower units cannot be lowered with the switch set to the "Traveling" position.

The traveling/working selector switch is located in the operation panel.

This can change the positions where mower units #4 and #5 stop when they are raised.



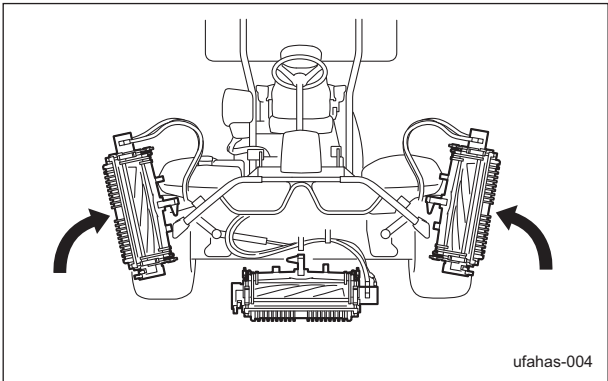
Traveling/Working Selector Switch_001

1	Traveling/working selector switch
A	Working
B	Traveling

When the switch is set to the "Traveling" position, mower units #4 and #5 are raised to their highest positions.

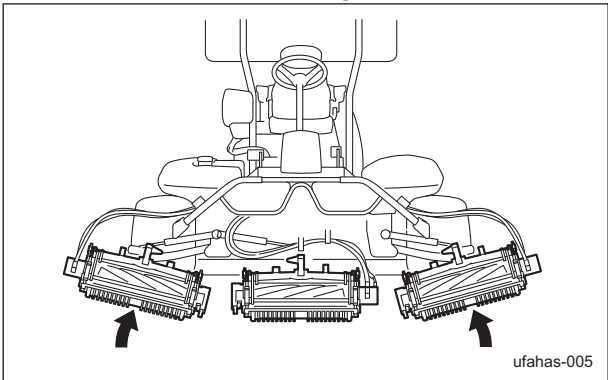
When the switch is set to the "Working" position, mower units #4 and #5 are only raised halfway.

When set to the "Traveling" position



Traveling/Working Selector Switch_002


When set to the "Working" position



Traveling/Working Selector Switch_003

Handling Instructions

Reel Rotation Switch

 Caution

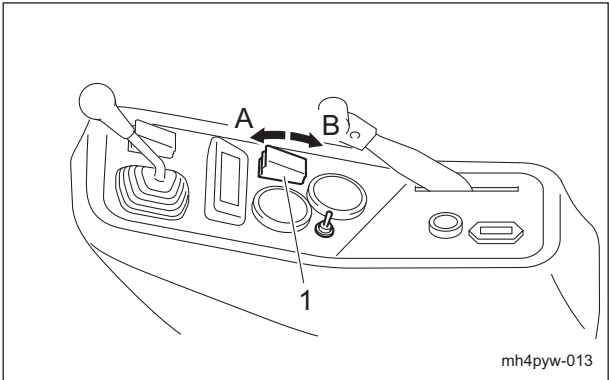
Set the reel rotation switch to the "Rotation" position immediately before starting cutting work. At all other times, be sure to leave the reel rotation switch set to the "Stop" position.

The reel rotation switch is located in the operation panel and operates rotation of the reel cutters (cutting cylinders) of the mower units.

When the reel rotation switch is set to the "Rotation" position, the reel cutters (cutting cylinders) of all mower units will rotate for cutting work. When the reel rotation switch is set to the "Stop" position, the reel cutters (cutting cylinders) will stop.

Note:

When the mower units are raised, the reel cutters (cutting cylinders) do not rotate, even if the switch is set to the "Rotation" position.



Reel Rotation Switch_001

1	Reel rotation switch
A	Rotation
B	Stop

Reel Forward/Reverse Switch

Important

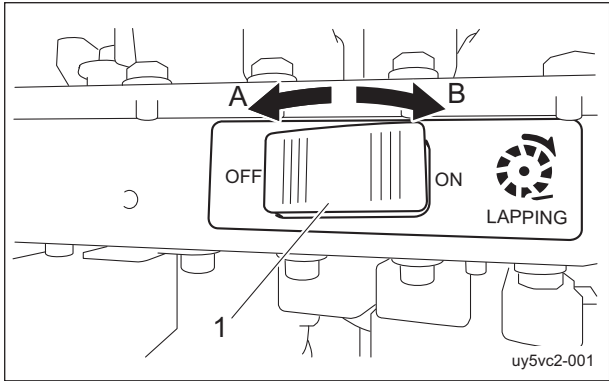
Do not switch between “Forward” and “Reverse” while the reel cutter (cutting cylinder) is rotating. Otherwise, the hydraulic system will malfunction.

Important

If the reel rotation switch is not set to the "Rotation" position, the reel cutter (cutting cylinder) will not rotate.

The reel forward/reverse switch is located inside the underseat cover and switches the rotation direction of the reel cutters (cutting cylinders).

When the reel forward/reverse switch is set to the "Forward" position, the reel cutters (cutting cylinders) of all mower units will rotate for cutting work. When the reel forward/reverse switch is set to the "Reverse" position, the reel cutters (cutting cylinders) will rotate in reverse (back lapping rotation).



Reel Forward/Reverse Switch_001

1	Reel forward/reverse switch
A	Forward
B	Reverse

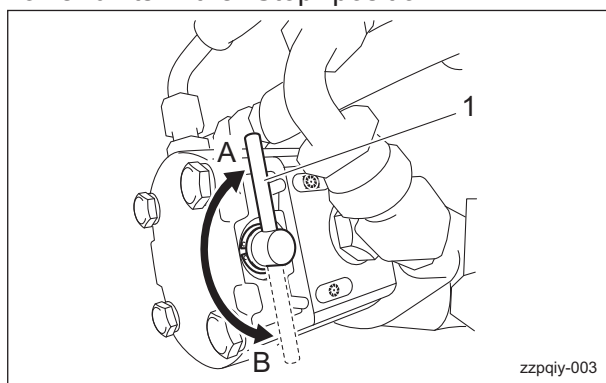
Handling Instructions

Reel Rotation/Stop Switching Lever

⚠ Caution

Before operating the reel rotation/stop switching lever, be sure to set the reel rotation switch to the "Stop" position.

The reel rotation/stop switching lever is located on the reel motor attached to each mower unit. It is used during cutting and back lapping. Shift the lever(s) to the "Rotation" position only for the mower unit(s) to be used for cutting or back lapping. Leave the lever(s) for other mower units in the "Stop" position.



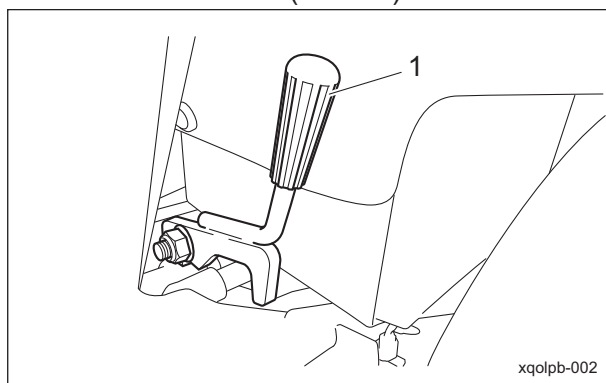
Reel Rotation/Stop Switching Lever_001

1	Reel rotation/stop switching lever
A	Rotation
B	Stop

Mower Lock Lever (Latch)

The mower lock levers (latches) are located in the foot area on the left and right sides and are used when traveling or storing the machine with mower units #4 and #5 raised.

When traveling or storing this machine, hook the mower lock levers (latches) on the arms.



Mower Lock Lever (Latch)_001

1	Mower Lock Lever (Latch)
---	--------------------------

Mower Unit Up/Down Lever

⚠ Caution

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

⚠ Caution

Be careful of the mower units lowering when the mower unit up/down lever is shifted to the "Down" position and the key switch is turned to the "ON" position while the engine is stopped with the traveling/working selector switch set to the "Working" position.

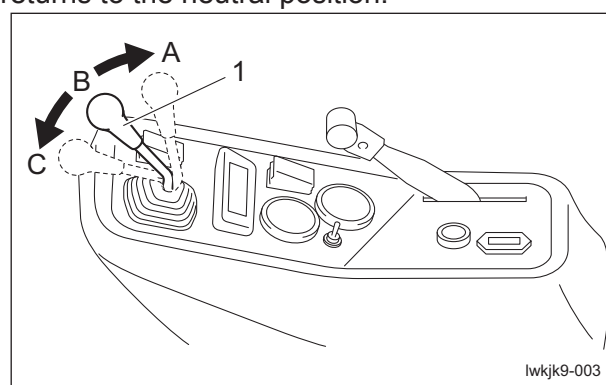
Important

When the mower lock levers (latches) are engaged, do not operate the mower unit up/down lever.

The mower unit up/down lever is located in the operation panel and raises or lowers the mower units.

When the lever is shifted to the "Down" position, the mower units are lowered. When the lever is shifted to the "Up" position, the mower units are raised.

When the lever is shifted to the "UP" position and then released from the hand, the lever returns to the neutral position.



Mower Unit Up/Down Lever_001

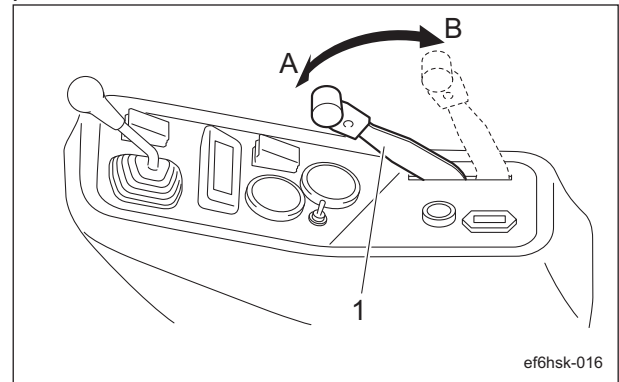
1	Mower unit up/down lever
A	Up
B	Neutral
C	Down

Handling Instructions

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

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.

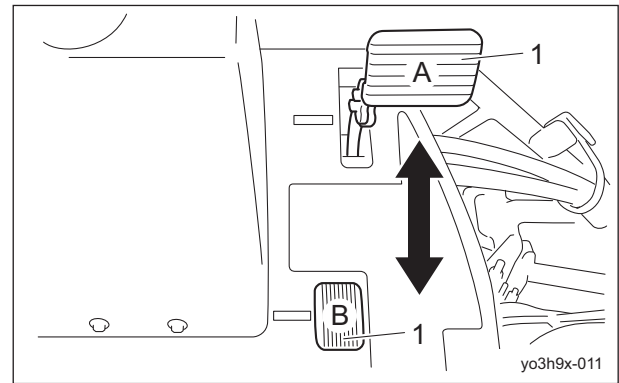


Throttle Lever_001

1	Throttle lever
A	High speed
B	Low speed

Traveling Pedal

The traveling pedal is located in the right foot area.
When forward depressed, the machine travels forward. When backward depressed, the machine travels backward.



Traveling Pedal_001

1	Traveling pedal
A	Forward
B	Backward

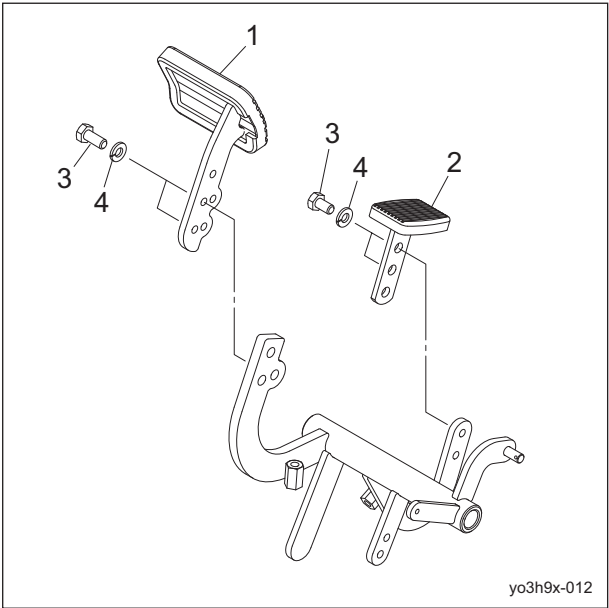
The height and angle of the traveling pedal can be adjusted to fit the operator.

Forward:

The height and angle can be adjusted by changing the installation position of the bolt and spring washer.

Backward:

The height can be adjusted by changing the installation position of the bolt and spring washer.



Traveling Pedal_002

1	Traveling pedal (forward)
2	Traveling pedal (backward)
3	Bolt
4	Spring washer

Handling Instructions

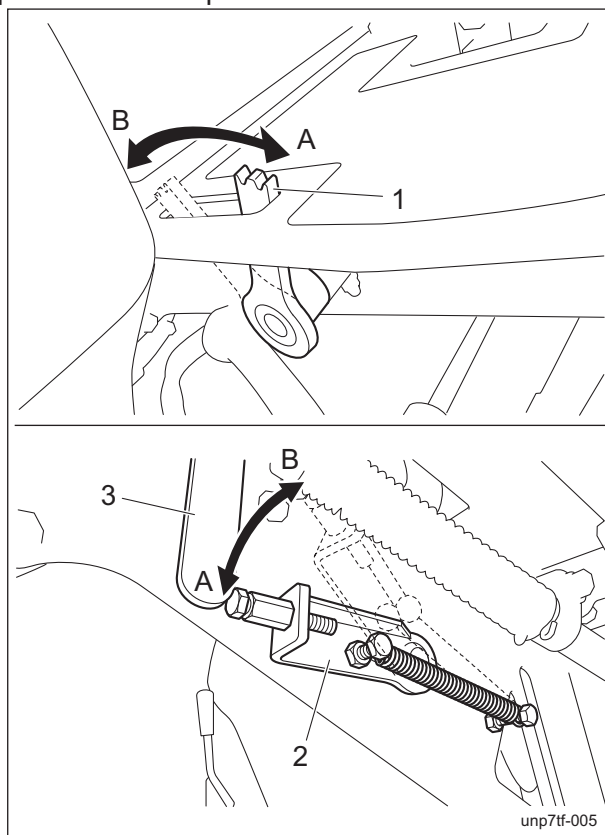
Pedal Stopper

Important

When the traveling speed exceeds 12.0 km/h during cutting operation, a buzzer will sound. If the operation continues, the engine and hydraulic equipments will be damaged.

The pedal stopper is located in the right foot area.

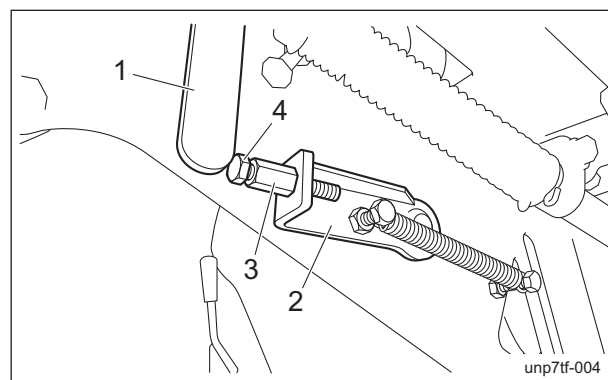
This lever changes the amount that the forward pedal can be depressed.



Pedal Stopper_001

1	Pedal stopper
2	Operating speed lock lever
3	Traveling pedal
A	Working
B	Traveling

Be sure to set the pedal stopper to the "Working" position during operation. You can adjust the amount that the forward pedal can be depressed. Loosen the bolt to adjust to 12 km/h or less.



Pedal Stopper_002

1	Traveling pedal
2	Operating speed lock lever
3	Lock nut
4	Bolt

Brake Pedal

⚠ Caution

When leaving the driver's seat, park the machine on a stable, flat surface and be sure to apply the parking brake.

⚠ Caution

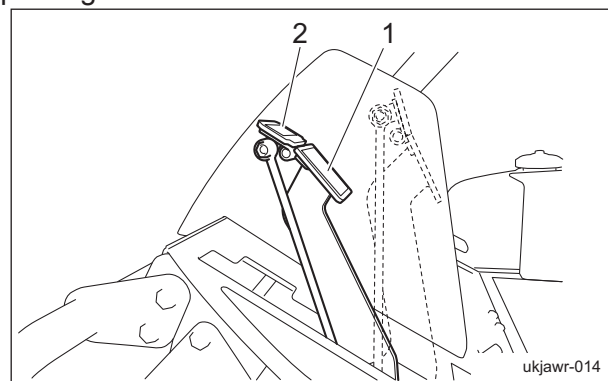
Never park the machine on a slope.

The brake pedal is located in the left foot area. To stop the machine, firmly depress the brake pedal.

When parking, depress the locking pedal while firmly depressing the brake pedal to lock it. To release the brake pedal, firmly depress the brake pedal to release the locking pedal.

Note:

Locking the brake pedal can be used as a parking brake.



Brake Pedal_001

Handling Instructions

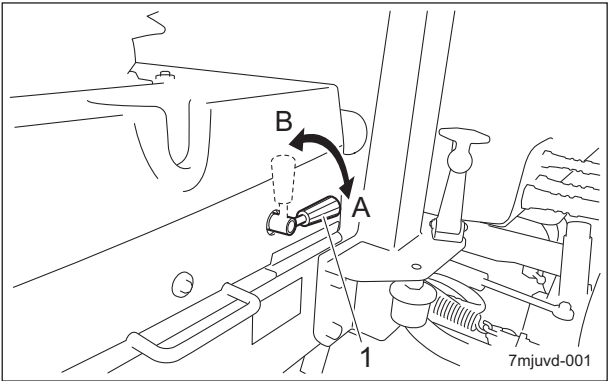
1	Brake pedal
2	Locking pedal

Open-Close Lever

The open-close lever is located at the lower-left side of the seat.

This is used when opening and closing the underseat cover.

When opening the underseat cover, raise the open-close lever to unlock. After closing the underseat cover, lock it.



Open-Close Lever_001

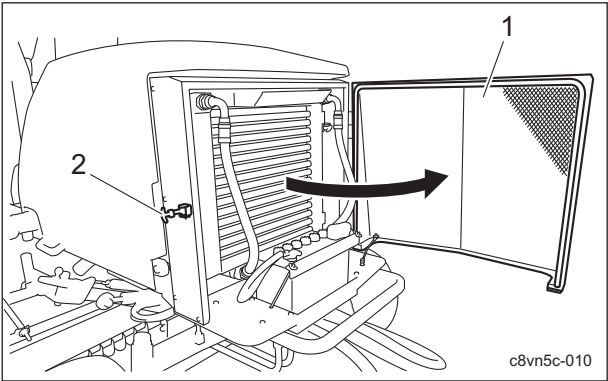
1	Open-close lever
A	Lock
B	Unlock

Radiator Cover

Caution
Do not open the radiator cover in strong winds.

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

1. Release the rubber catch.
2. Open the radiator cover to the right.



Radiator Cover_001

1	Radiator cover
2	Rubber catch

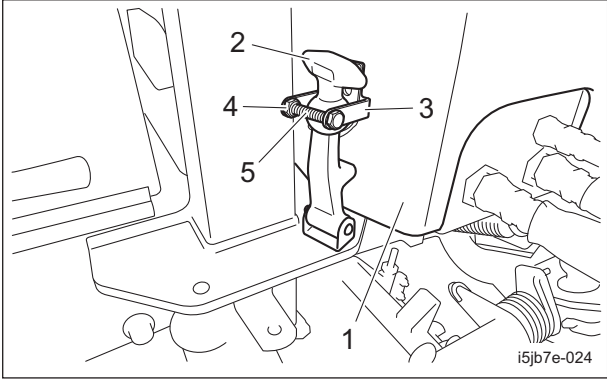
3. Close the radiator cover slowly.
4. Lock the rubber catch securely.

Hood

Caution
Do not open the hood in strong winds.

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

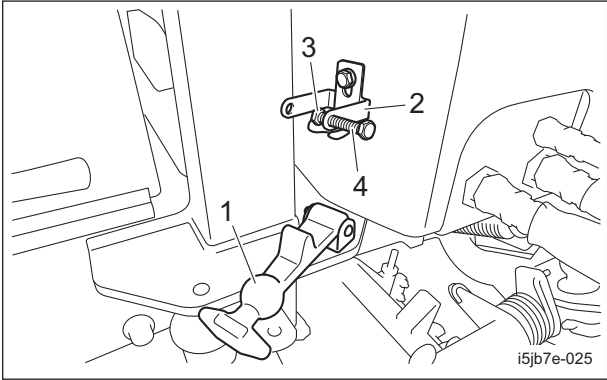
1. Remove the nuts and bolts locking the catch clips on the left and right sides of the hood.



Hood_001

1	Hood
2	Rubber catch
3	Catch clip
4	Nut
5	Bolt

2. Release the rubber catches on the left and right sides.



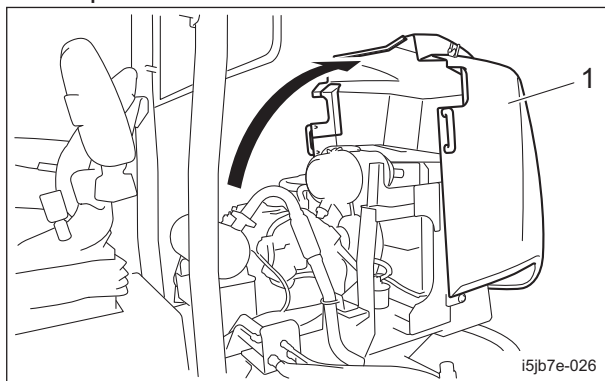
Hood_002

Handling Instructions

1	Rubber catch
2	Catch clip
3	Nut
4	Bolt

3. Make sure that the radiator cover is closed.

4. Lift up the hood.



Hood_003

1	Hood
---	------

5. Close the hood slowly.

6. Securely engage the left and right rubber catches.

7. Install the nuts and bolts locking the left and right catch clips.

Underseat Cover

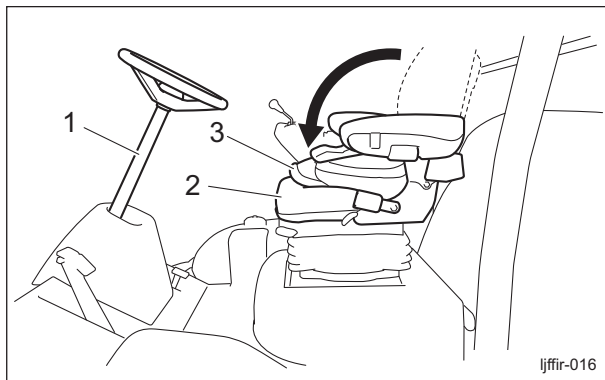
⚠ Caution

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

1. Make sure that the steering wheel is raised completely.

2. Move the seat to the center between the forward and backward positions.

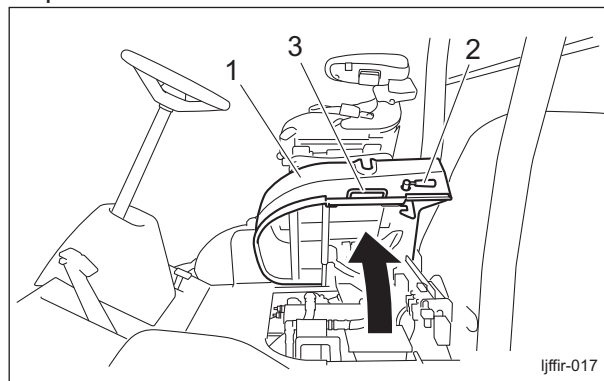
3. Tilt the seat backrest forward.



Underseat Cover_001

1	Steering wheel
2	Seat
3	Backrest

4. While unlocking with the open-close lever, grab the grip and tilt the seat to the right to open the underseat cover.



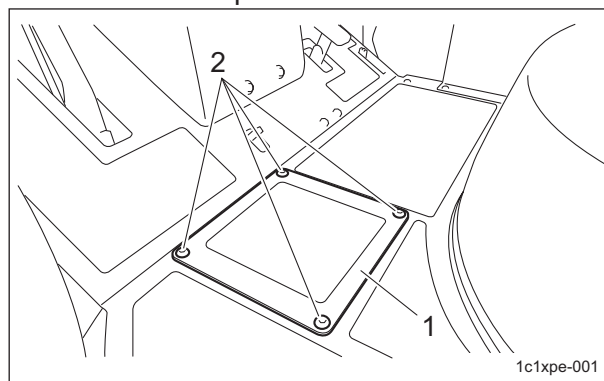
Underseat Cover_002

1	Underseat cover
2	Open-close lever
3	Grip

Step Cover

1. Remove the button head bolts.

2. Remove the step cover.



Step Cover_001

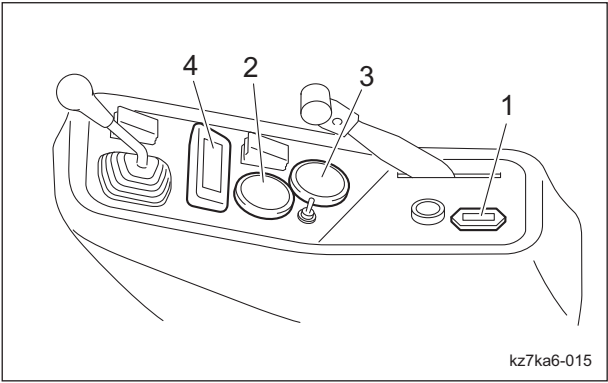
1	Step cover
2	Button head bolt

For installation, reverse the removing procedure.

Handling Instructions

Instruments

Instruments on The Operation Panel



Instruments on The Operation Panel_001

1	Hour meter
2	Water temperature gauge
3	Fuel gauge
4	Pilot lamps (charge lamp, thermo-start lamp, oil pressure lamp)

Water Temperature Gauge

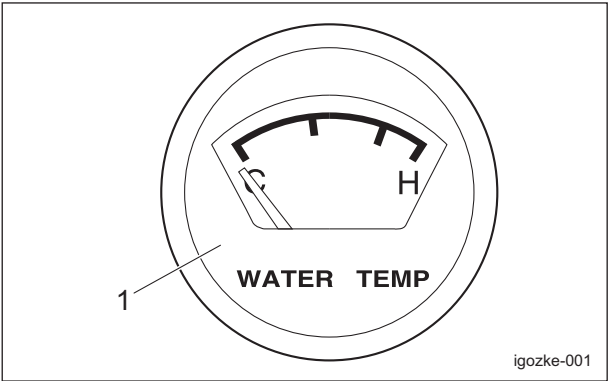
The water temperature gauge is located in the operation panel.

This instrument indicates the water temperature inside the engine.

If the water temperature gauge indicates a level close to "H" during operation, the machine is overheated.

Remove the load from the engine, idle the machine for five minutes, stop the engine, and then inspect the machine and perform any necessary maintenance.

If the water temperature exceeds 110 degrees Celsius, a buzzer will sound. (intermittent tone)



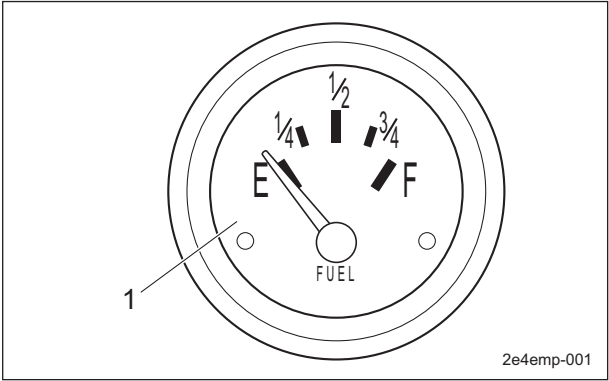
Water Temperature Gauge_001

1	Water temperature gauge
---	-------------------------

Fuel Gauge

The fuel gauge is located in the operation panel.

This instrument indicates the quantity of fuel inside the fuel tank.



Fuel Gauge_001

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

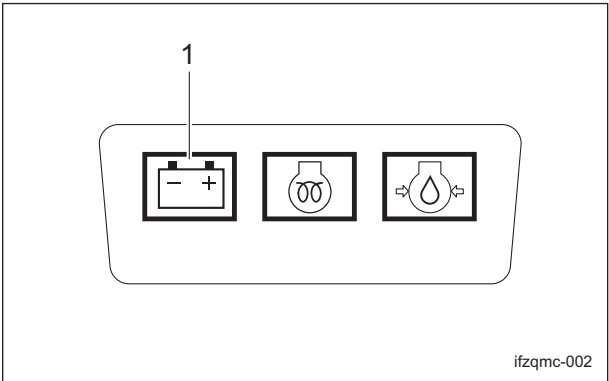
Pilot Lamps

Charge Lamp

The charge lamp is the left pilot lamp located in the operation panel.

It turns on when the ignition key is set to the "ON" position before the engine starts. It turns off when the engine starts and the alternator starts operating properly.

If this lamp illuminates while you are operating the machine, stop the engine immediately, and then inspect the machine and perform any necessary maintenance.



Charge Lamp_001

1	Charge lamp
---	-------------

Handling Instructions

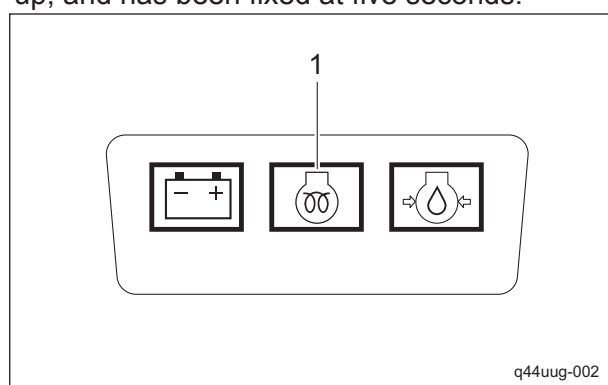
Thermo-Start Lamp

The thermo-start lamp is the middle pilot lamp located in the operation panel.

When the ignition key is set to the "GLOW" position, it illuminates as the glow plug generates heat.

Illumination of the thermo-start lamp is controlled by the glow lamp timer, and the lamp is turned off after a specified amount of time passes.

The duration of illumination indicates an approximate period of time required for warm-up, and has been fixed at five seconds.



Thermo-Start Lamp_001

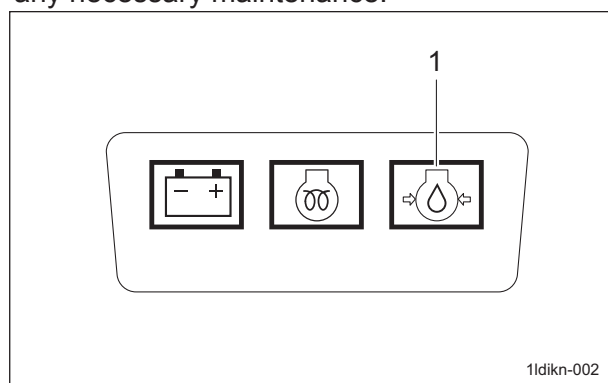
1	Thermo-start lamp
---	-------------------

Oil Pressure Lamp

The oil pressure lamp is the right pilot lamp located in the operation panel.

It turns on when the ignition key is set to the "ON" position before the engine starts. It turns off when the engine starts and engine oil pressure is generated properly.

If this lamp illuminates while you are operating the machine, stop the engine immediately, and then inspect the machine and perform any necessary maintenance.



Oil Pressure Lamp_001

1	Oil pressure lamp
---	-------------------

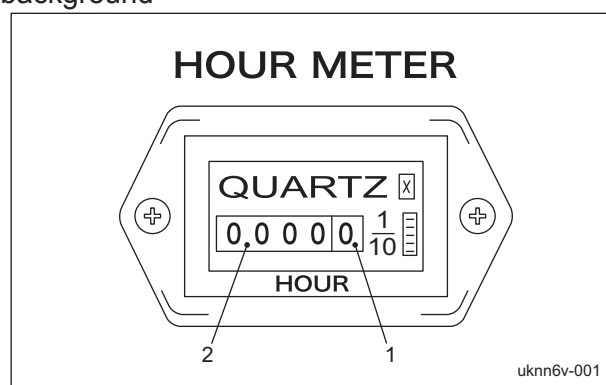
Hour Meter

The hour meter is located in the operation panel, and indicates the accumulated operation time of the engine.

The number in black figures on a white background is incremented every six minutes.

The number in white figures on a black background is incremented every hour. 1/10 wheel ... black figures on a white background

Hour wheel ... white figures on a black background



Hour Meter_001

1	1/10 wheel
2	Hour wheel

Travel of Machine

Traveling Procedure

⚠ Caution

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

⚠ Caution

When traveling, be sure to push the reel rotation switch to the "Stop" side and raise the mower units.

1. Start the engine.
"Procedure to Start Engine" (Page 4-22)
2. Raise all mower units.
3. Firmly depress the brake pedal to release the locking pedal and release the brake pedal.
4. Slowly depress the traveling pedal.
5. The machine starts traveling.


Handling Instructions

Towing The Machine

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

 **Caution**

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

 **Caution**

Before starting the engine, be sure to close the unload valves.

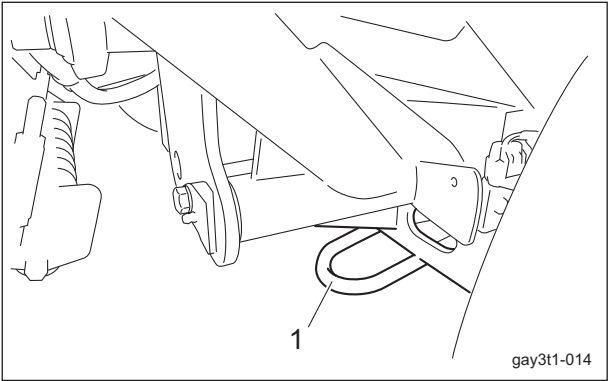
Important

When towing the machine, travel at a speed no more than 3.0 km/h.
In addition, do not tow the machine for more than 3 minutes.
If the towing speed is too fast or there is excessive movement, the pump or motor will be damaged.

Important

Do not loosen the unload valve three turns or more.

1. Stop the engine.
"Procedure to Stop Engine" (Page 4-23)
2. Depress the locking pedal while firmly depressing the brake pedal to lock it.
3. Chock the wheels.
4. Secure the rope to the tow hook.

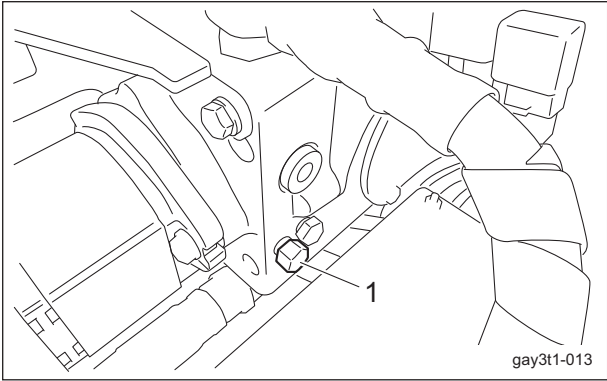


Towing The Machine_001

1	Tow hook
---	----------

5. Open the underseat cover.
"Underseat Cover" (Page 4-37)


6. Turn the unload valve under the seat 1 to 1.5 turns counterclockwise.



Towing The Machine_002

1	Unload valve
---	--------------

7. Close the underseat cover.
8. Remove the wheel stoppers.
9. Firmly depress the brake pedal to release the locking pedal.

 **Warning**

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

10. Tow the machine slowly.

Handling Instructions

Cutting Work

Cutting Work

Warning

Do not start to move or stop the machine abruptly.

To do so is very dangerous. In addition, it may damage the hydraulic system or result in oil leakage.

Caution

Be sure to operate at an appropriate speed for the mowing site.

When cutting over bumpy surfaces, keep the engine rpm steady, and slow down the cutting speed.

Caution

Note that if you stop operating the mower unit up/down lever before the mower units are raised completely, reel rotation may not stop. Reel rotation will be turned on or off based on the sensor-detected position of the mower units.

Caution

After sand topdressing, close the cutter cover. Otherwise, sand may fly out and get in your eyes.

Important

Mow with the lever shifted to the "Down" position.

When the lever is returned to the neutral position, the cylinders are fixed, preventing mowing on undulations.

1. Release the mower lock levers (latches) for mower units #4 and #5.
2. Start the engine.
"Procedure to Start Engine" (Page 4-22)
3. Raise all mower units.
4. Firmly depress the brake pedal to release the locking pedal for releasing the locked brake pedal.
5. Shift the throttle lever to rev the engine up to the maximum rpm.

6. Set the traveling/working selector switch to the "Working" position.
7. Shift the mower unit up/down lever to the "Down" position to lower the mower units.
8. Set the reel rotation switch to the "Rotation" position to rotate the reel cutters (cutting cylinders) of all mower units.

Important

When the traveling speed exceeds 12.0 km/h during cutting operation, a buzzer will sound. If the operation continues, the engine and hydraulic equipments will be damaged.

9. Set the pedal stopper to the "Working" position.
10. Depress the traveling pedal to start cutting work.

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.

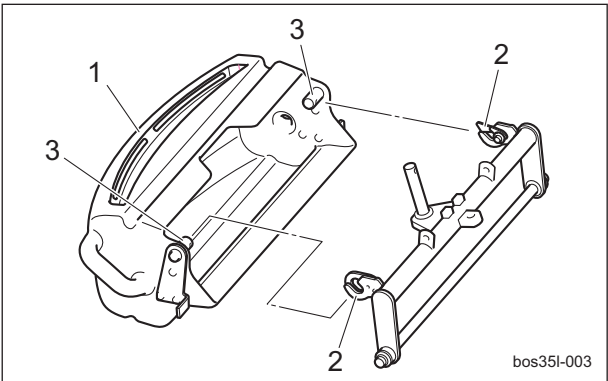
Removal/Installation of Grass Catcher

Caution

Stop the engine before removing or installing the grass catcher.

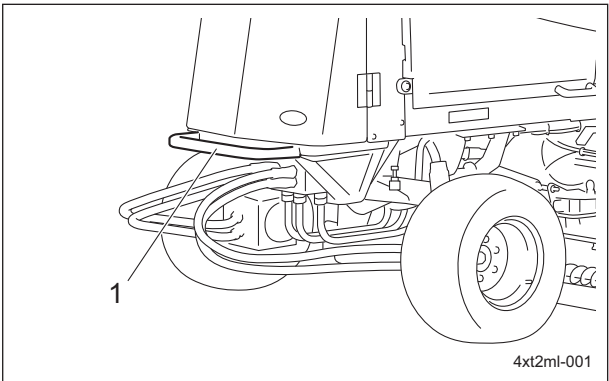
1. Set the reel rotation switch to the "Stop" position.
2. Lower the mower units.
3. Apply the parking brake.
4. Stop the engine.
5. Remove or install the grass catcher.
 - Removal of grass catcher:
Lift up the grass catcher, and remove the mounting pins on the left and right sides of the grass catcher from the grass catcher mounting brackets.
 - Installation of grass catcher:
Install the mounting pins on the left and right sides of the grass catcher into the grass catcher mounting brackets.

Handling Instructions



Removal/Installation of Grass Catcher_001

1	Grass catcher
2	Grass catcher mounting bracket
3	Mounting pin



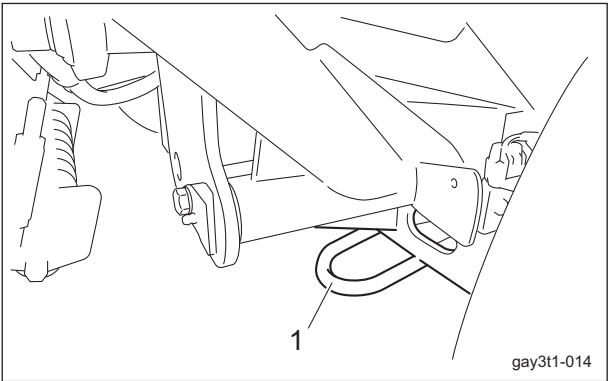
Transporting Procedure_002

1	Bumper
---	--------

Transporting

Transporting Procedure

When using a truck or trailer for transporting, drive the machine forward to load it and in reverse to unload it.
If the roof is installed on the machine, remove it.
Otherwise, the roof may be damaged by wind pressure.
Note:
When tying down the machine, secure the rope at the following locations.
At the front of the machine, use the tow hooks on the left and right of the front axle.



Transporting Procedure_001

1	Tow hook
---	----------

Storage

Before Long-Term Storage

- Remove dirt, grass clippings, debris, oil stains etc. completely.
- Supply oil and apply grease to appropriate parts.
- Remove the negative terminal of the battery.

Maintenance Precautions Page 5-2**Maintenance Schedule Page 5-2**

Adjusted Value Page 5-7

Jacking Up The Machine Page 5-8

About Jacking Up The Machine Page 5-8

Jack-Up Points Page 5-8

Greasing Page 5-9

About Greasing Page 5-9

Greasing Points Page 5-9

Lubrication Page 5-13

About Lubrication Page 5-13

Lubricating Points Page 5-13

Maintenance Work Page 5-15

Swiveling Mower Units #2 and #3 Page 5-15

Removing/Installing Tires Page 5-18

Adjustment of Belt Tension Page 5-18

Adjustment of Parking Brake Page 5-19

Adjustment of Brake Page 5-19

Adjusting The Neutral Position of
The Piston Pump Page 5-21

Adjustment of Control Arm Page 5-21

Adjustment of Stoppers Page 5-22

Adjustment of Mower Unit Leveling
Spring Page 5-22Adjustment of Positions of Mower
Units #2 and #3 Page 5-24

Adjustment of Mower Stopper Page 5-25

Change of Coolant Page 5-29

Change of Hydraulic Oil Page 5-30

Change of Hydraulic Oil Filter Page 5-31

Change of Air Cleaner Page 5-33

Change of Engine Oil Page 5-33

Change of Engine Oil Filter Page 5-34

Change of Fuel Filter Page 5-35

Change of Fuse Page 5-35

Maintenance

Maintenance Precautions

Caution

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

Important

Use tools appropriate for each maintenance operation.

Important

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

Maintenance Schedule

LM551

Follow the maintenance schedule below.

○ . . . Inspect, adjust, supply, clean

● . . . Replace (first time)

△ . . . Replace

Maintenance Item		Before Work	After Work	Every Week	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 800 hrs.	Every 1000 hrs.	Every 1500 hrs.	Every 3000 hrs.	every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
*3	Check engine oil level and contamination	○																		
*3	Check fuel level	○																		
*3	Check coolant level	○																		
*3	Check fan belt	○																		
	Check hydraulic oil level	○																		
	Check hydraulic hoses condition (Moving part)	○																		
	Check tire pressures and condition	○																		
	Check cover condition	○																		

Maintenance

Maintenance Item		Before Work	After Work	Every Week	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 800 hrs.	Every 1000 hrs.	Every 1500 hrs.	Every 3000 hrs.	every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
	Check traveling pedal motion	<input type="radio"/>																		
	Check brake function	<input type="radio"/>																		
	Check brake wire	<input type="radio"/>																		
	Check brake pedal play	<input type="radio"/>																		
	Check oil or water leaks	<input type="radio"/>																		
	Check damaged parts	<input type="radio"/>																		
	Check tightening bolts and nuts	<input type="radio"/>																		
	Check light illumination	<input type="radio"/>																		
	Check meters and lamps	<input type="radio"/>																		By starting the engine
	Check interlock system safety function	<input type="radio"/>																		By starting the engine
	Clean radiator screen		<input type="radio"/>																	
	Clean radiator core		<input type="radio"/>																	
	Clean oil cooler core		<input type="radio"/>																	
	Clean machine exterior		<input type="radio"/>																	
	Clean engine area		<input type="radio"/>																	
	Open air cleaner evacuator valve to remove dust		<input type="radio"/>	<input type="radio"/>																Open valve every week or daily in dusty conditions
	Grease and Lubricate all moving parts				<input type="radio"/>															
*3	Check fuel hoses and clamp bands				<input type="radio"/>															
*3	Check electrical wiring condition (Damage, defacement and joint looseness)				<input type="radio"/>	<input type="radio"/>														50 hours first check, every 100 hours thereafter
	Check looseness of wheel mounting bolt				<input type="radio"/>	<input type="radio"/>														50 hours first check, every

Maintenance

Maintenance Item		Before Work	After Work	Every Week	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 800 hrs.	Every 1000 hrs.	Every 1500 hrs.	Every 3000 hrs.	every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
	Check looseness of wheel mounting bolt				○	○														100 hours thereafter
*3	Change engine oil				●	△	△													50 hours first check, every 100 hours thereafter. 50 hours first check, every 200 hours thereafter possible in the area where the ambient temperature is below 35°C (95°F).
*2	Replace oil filter cartridge				●		△													50 hours first check, every 200 hours thereafter
	Replace hydraulic oil					●			△											100 hours first change, every 500 hours thereafter
*2	Clean air cleaner element (Replace the element after 6-time cleaning)					○										△				Replace every 6 cleanings or every year whichever comes earlier Air cleaner should be cleaned more often in dusty conditions than in normal conditions
*3	Check cracks in cooling fan					○														
	Draining of water separator					○														
*3	Adjust fan belt tension				○	○														50 hours first change, every 100 hours thereafter

Maintenance

Maintenance Item		Before Work	After Work	Every Week	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 800 hrs.	Every 1000 hrs.	Every 1500 hrs.	Every 3000 hrs.	every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
*4	Check exterior of battery					○									○					Check every 100 hours or every month whichever comes earlier
*4	Clean exterior of battery					○									○					Check every 100 hours or every month whichever comes earlier
*4	Check mounting bracket of battery					○									○					Check every 100 hours or every month whichever comes earlier
*4	Check looseness and corrosion of battery terminals					○									○					Check every 100 hours or every month whichever comes earlier
*3	Check battery fluid level					○									○					Check every 100 hours or every month whichever comes earlier
	Replace hydraulic oil filter					●			△											100 hours first change, every 500 hours thereafter
	Replace hydraulic suction filter					●			△											100 hours first change, every 500 hours thereafter
	Check hydraulic hoses condition (Fixed part)						○									○				Check every 200 hours or every year whichever comes earlier
*3	Check radiator hoses and clamp bands						○													
*2	Check intake air line (air cleaner hose)						○													

Maintenance

Maintenance Item		Before Work	After Work	Every Week	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 800 hrs.	Every 1000 hrs.	Every 1500 hrs.	Every 3000 hrs.	every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
	Check closed breather hoses					○														
	Grease mower unit hydraulic motor shafts						○													
*3	Clean water separator							○												
*3	Replace fuel filter cartridge							△												
*3	Clean water jacket and radiator interior								○											
*3	Clean fuel tank interior								○											
*3	Replace fan belt								△								△			Replace every 500 hours or 2 years whichever comes earlier
	Replace antivibration rubber for engine											△						△		Replace every 1000 hours or 4 years whichever comes earlier
	Adjust valve clearance									○										
*1.*2	Check injection nozzle											○								
*1.*2	Check turbocharger												○							
*1.*2	Check injection pump												○							
	Replace hydraulic hoses (Moving part)																△			
*3	Replace radiator hoses and clamp bands																△			
	Replace fuel hoses and clamps																△			
	Replace intake air line (air cleaner hose)																△			
	Replace closed breather hoses																△			
*3	Change radiator coolant (L.L.C.)																△			
*3	Replace battery																△			

Maintenance

Maintenance Item		Before Work	After Work	Every Week	Every 50 hrs.	Every 100 hrs.	Every 200 hrs.	Every 250 hrs.	Every 400 hrs.	Every 500 hrs.	Every 800 hrs.	Every 1000 hrs.	Every 1500 hrs.	Every 3000 hrs.	every month	Every year	Every 2 years	Every 4 years	When Required	Remarks
	Replace hydraulic hoses (Fixed part)																	△		
	Adjust brake cables																		△	
	Replace brake cables																		△	
	Replace cables for traveling																		△	
	Replace brake pads																		△	

- *1: Consult your local Baroness Dealer or local KUBOTA Dealer for this service.
- The items above (*2 marked) are registered as emission related critical parts by KUBOTA in the U.S. EPA nonroad emission regulation.
As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction.
Please see the Engine's Warranty Statement in detail.
- *3: Refer to the Engine's Owner's Manual.
- *4: Refer to the Battery's Owner's Manual.
- The values for consumables are not guaranteed.
- Replace the steering cylinder hoses every 2 years.

Adjusted Value

Fan belt			10 mm (0.39 in)	Belt slack
Mower stabilizer spring			#1 - 5	Total length of spring
Location of stopper nut	LH62	#1, 4, 5	15.0 mm (0.59 in)	
		#2, 3	40.0 mm (1.57 in)	
	LH52	#1, 4, 5	15.0 mm (0.59 in)	
			30.0 mm (1.18 in)	With grass catcher
		#2, 3	40.0 mm (1.57 in)	

Jacking Up The Machine

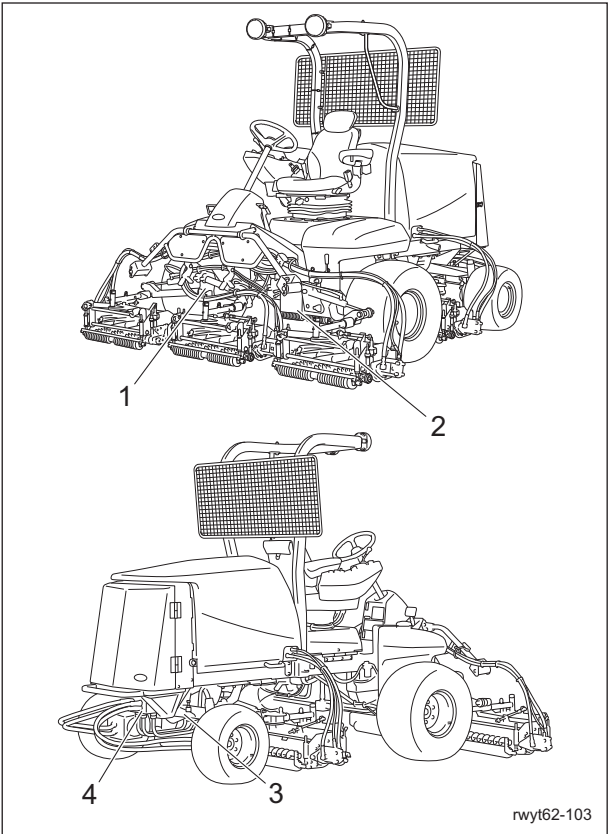
About Jacking Up The Machine

⚠ Warning

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

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

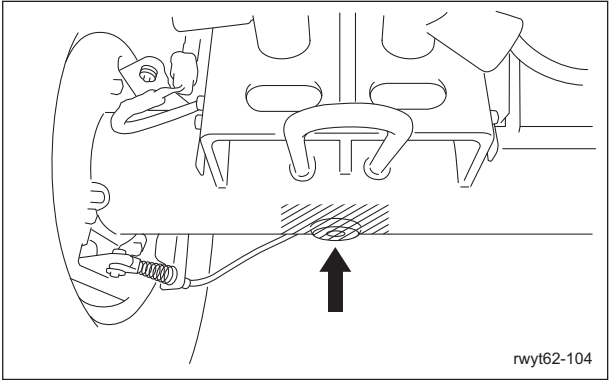
Jack-Up Points



Jack-Up Points_001

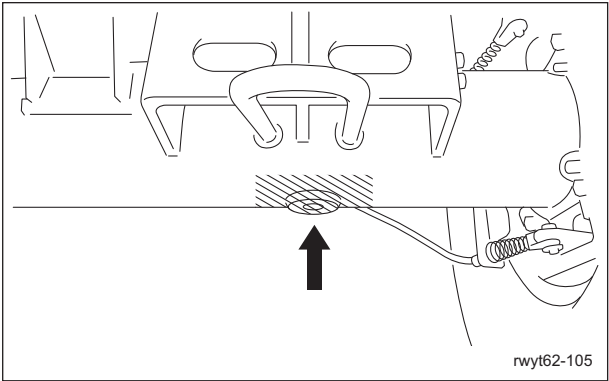
	Jack-up points
1	Front right frame
2	Front left frame
3	Right pivot
4	Left pivot

1. Front right frame



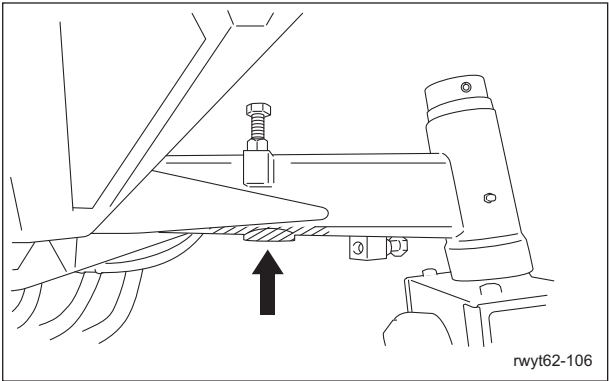
Jack-Up Points_002

2. Front left frame



Jack-Up Points_003

3. Right pivot

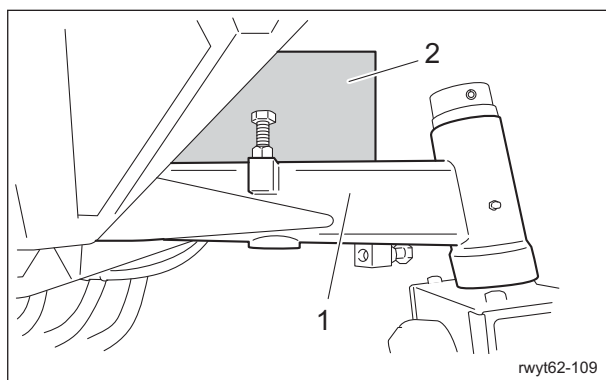


Jack-Up Points_004

When jacking up the machine at the right pivot, place a block of wood between the right pivot and the frame.

Note:

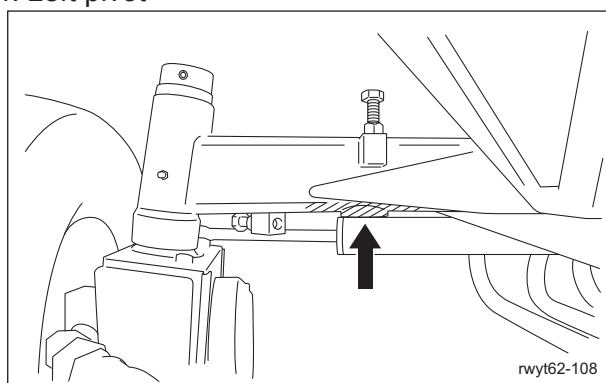
Use a block of wood with a height of approximately 130 mm (5.12 in).



Jack-Up Points_005

1	Pivot
2	Block of wood

4. Left pivot

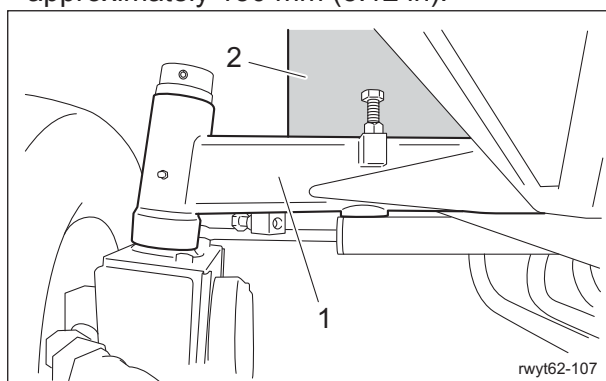


Jack-Up Points_006

When jacking up the machine at the left pivot, place a block of wood between the left pivot and the frame.

Note:

Use a block of wood with a height of approximately 130 mm (5.12 in).



Jack-Up Points_007

1	Pivot
2	Block of wood

Greasing

About Greasing

Since there may be adhesion or damage due to lack of grease on moving parts, they must be greased.

Add urea-based No. 2 grease in accordance with the Maintenance Schedule.

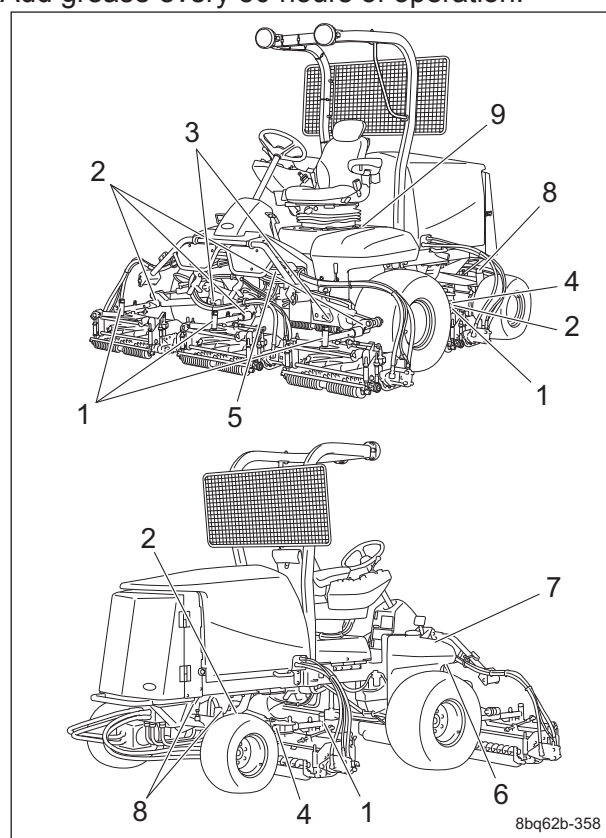
Other locations where the specified grease or lubricant is used are indicated in "Greasing Points".

Add grease using the specified grease or lubricant.

Greasing Points

Grease nipples are installed in the following locations.

Add grease every 50 hours of operation.

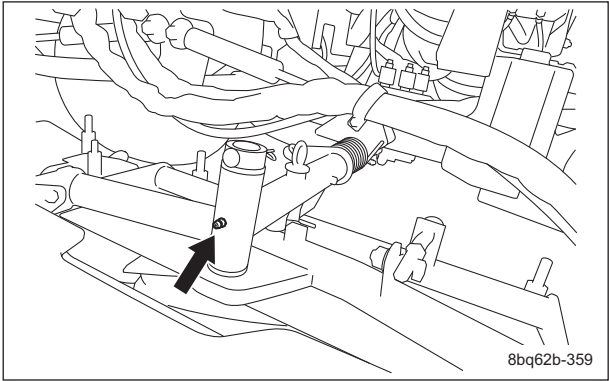


Greasing Points_001

	Location	No. of greasing points
1	Mower arm fulcrum	5
2	Lift arm fulcrum	5
3	Lift arm fulcrum shaft	3
4	Swiveling bracket fulcrum	2
5	Brake pedal shaft fulcrum	1
6	Traveling pedal shaft fulcrum	1
7	Pedal stopper	1
8	Pivot	3
9	Joint	1

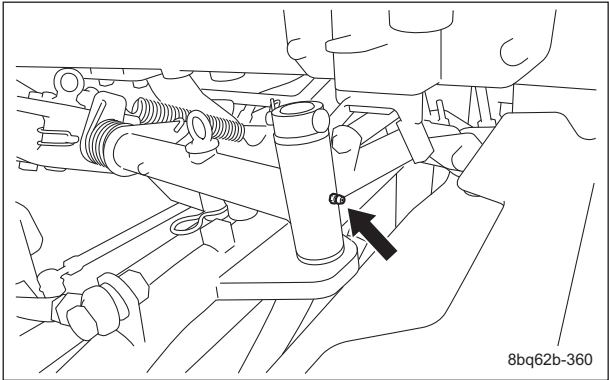
1. Mower arm fulcrum
There is one greasing point on each mower arm fulcrum.

Mower unit #1



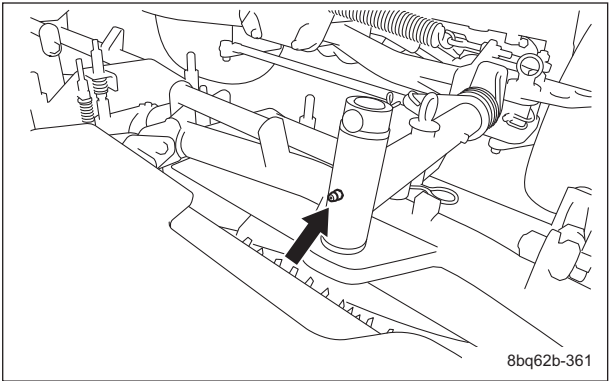
Greasing Points_002

Mower unit #2



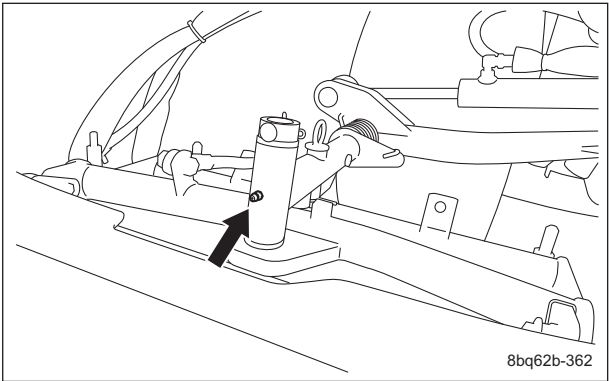
Greasing Points_003

Mower unit #3



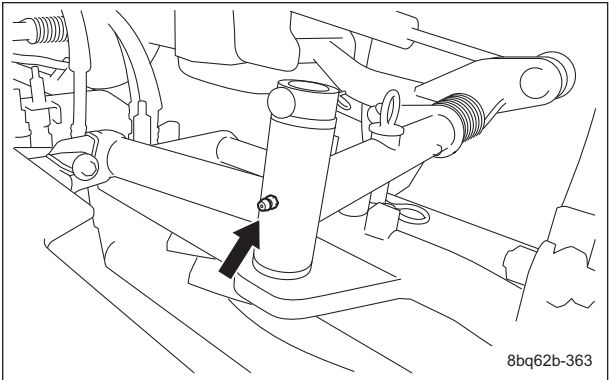
Greasing Points_004

Mower unit #4



Greasing Points_005

Mower unit #5

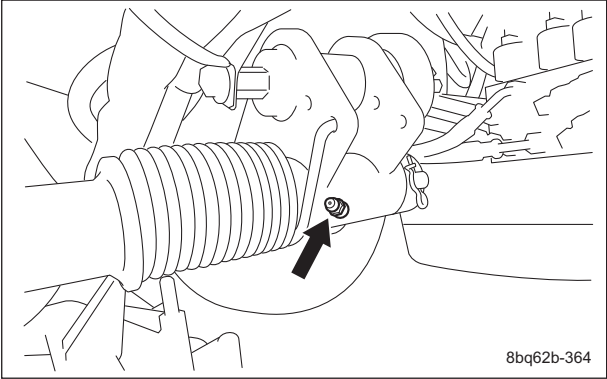


Greasing Points_006

2. Lift arm fulcrum

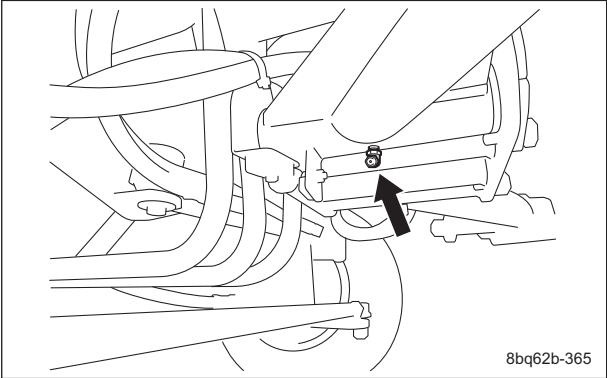
There is one greasing point on each lift arm fulcrum connected to the mower unit.

Mower unit #1



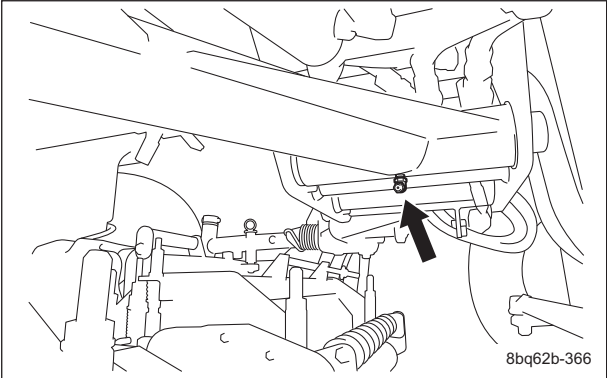
Greasing Points_007

Mower unit #2



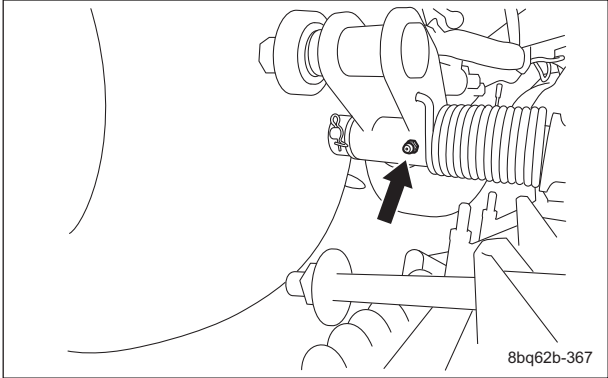
Greasing Points_008

Mower unit #3



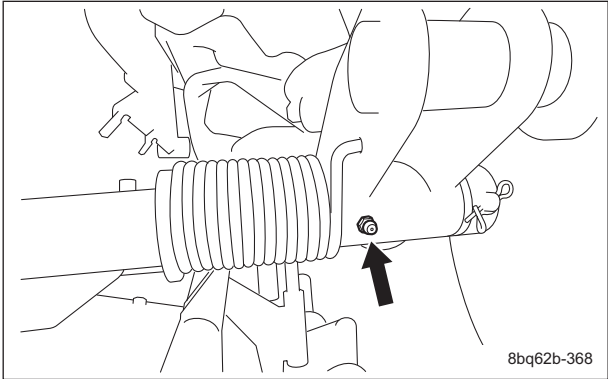
Greasing Points_009

Mower unit #4



Greasing Points_010

Mower unit #5

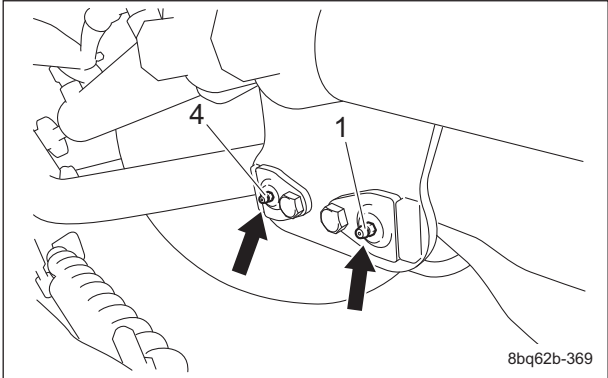


Greasing Points_011

3. Lift arm fulcrum shaft

There is one greasing point on each lift arm fulcrum shaft connected to the mower unit.

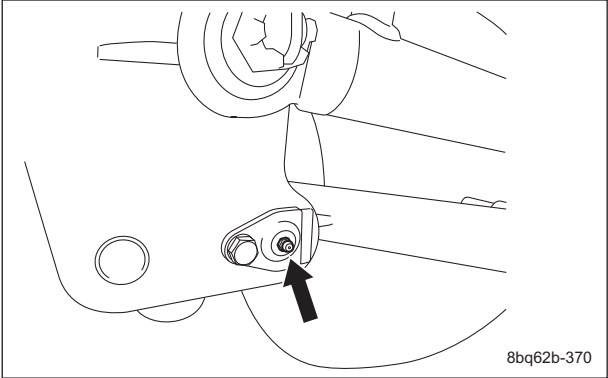
Mower units #1 and #4



Greasing Points_012

1	Mower unit #1
2	Mower unit #4

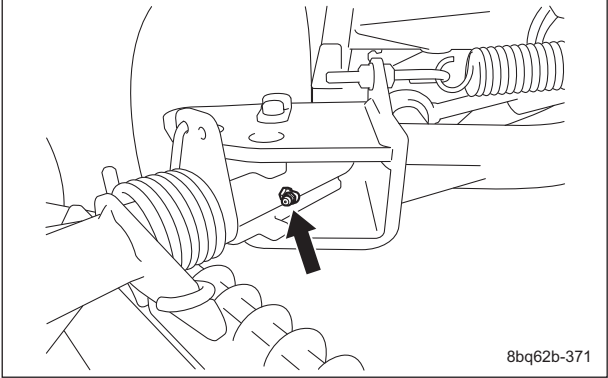
Mower unit #5



Greasing Points_013

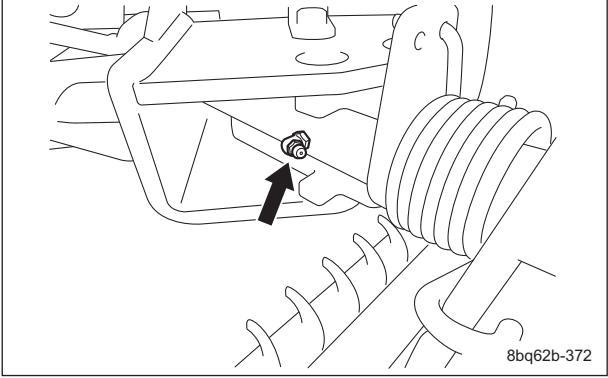
4. Swiveling bracket fulcrum
- There is one greasing point on each swiveling bracket fulcrum connected to the mower unit.

Mower unit #2



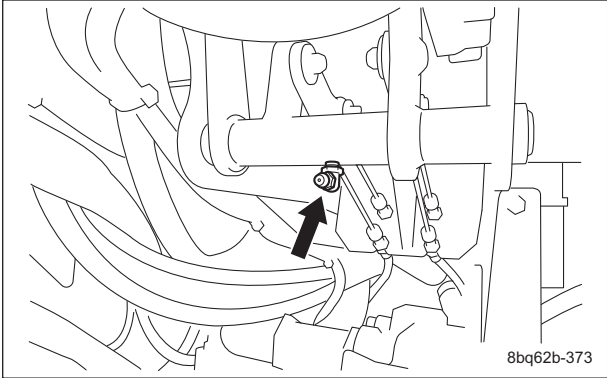
Greasing Points_014

Mower unit #3



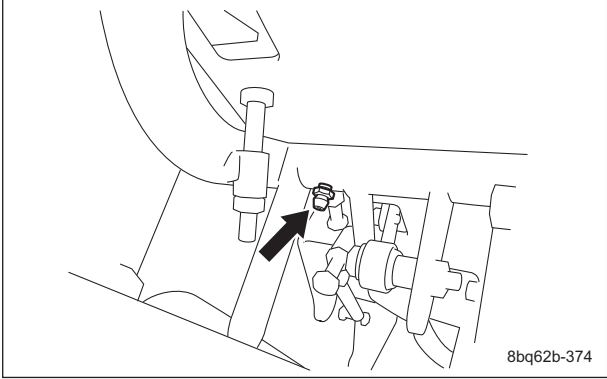
Greasing Points_015

5. Brake pedal shaft fulcrum



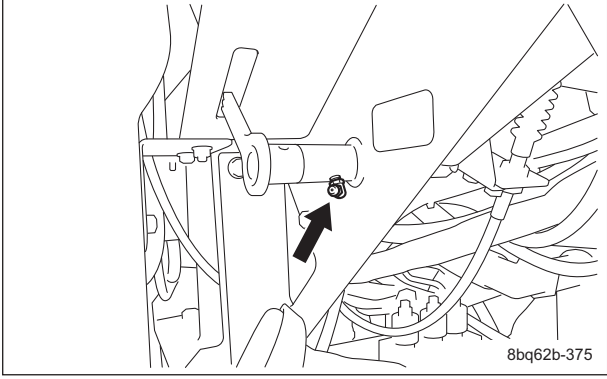
Greasing Points_016

6. Traveling pedal shaft fulcrum



Greasing Points_017

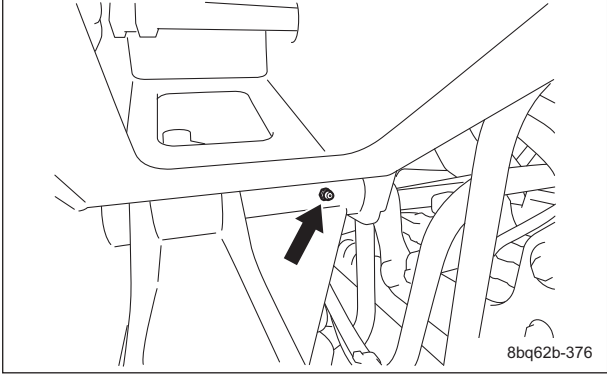
7. Pedal stopper



Greasing Points_018

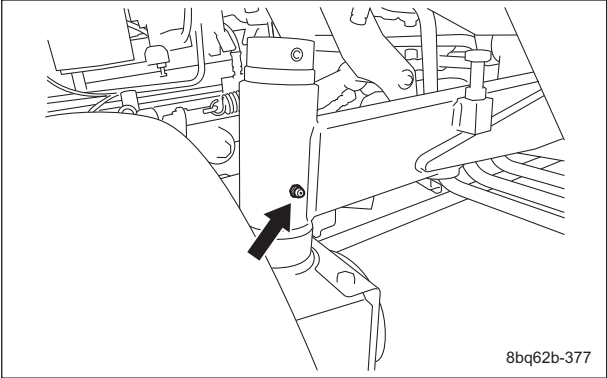
8. Pivot

Rear wheel Middle



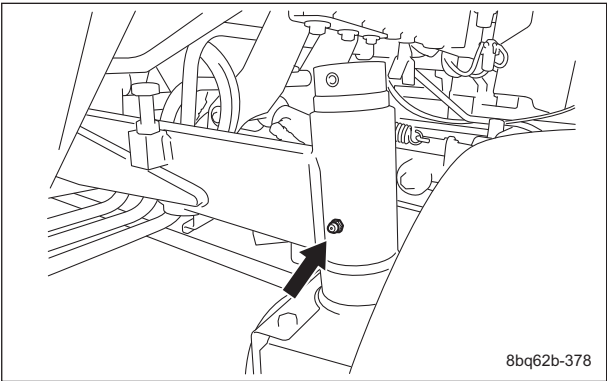
Greasing Points_019

Rear wheel Left



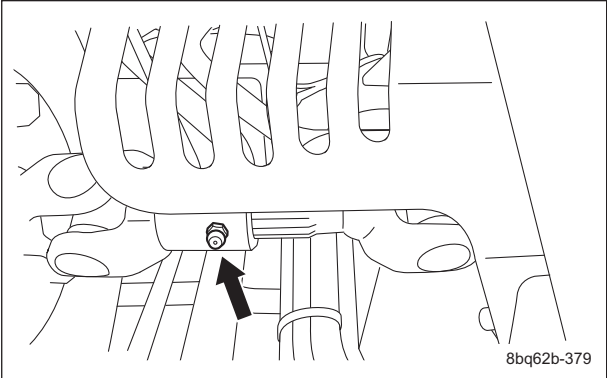
Greasing Points_020

Rear wheel Right



Greasing Points_021

9. Joint



Greasing Points_022

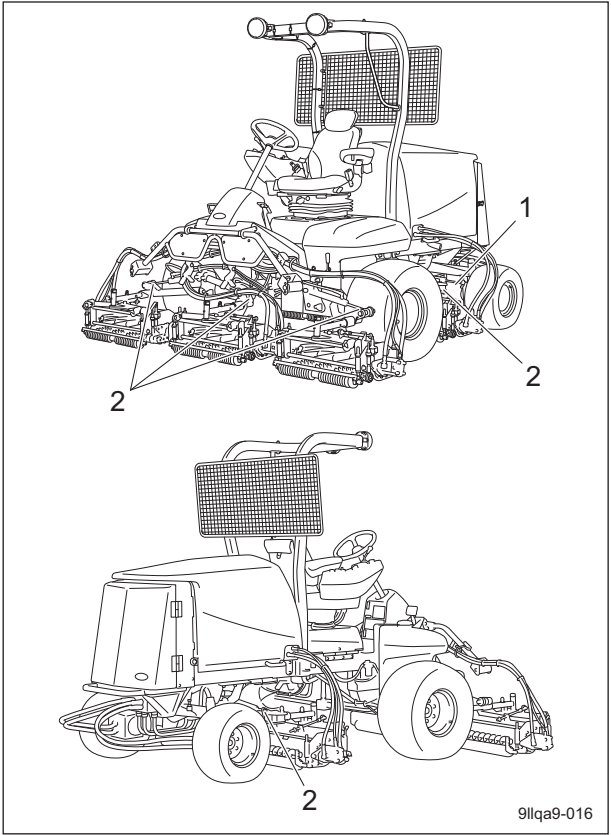
Lubrication

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.

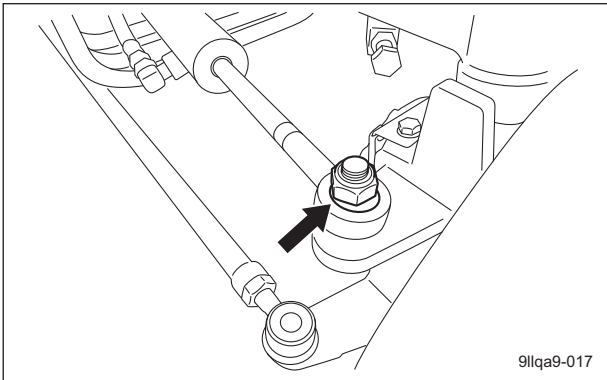


Lubricating Points_001

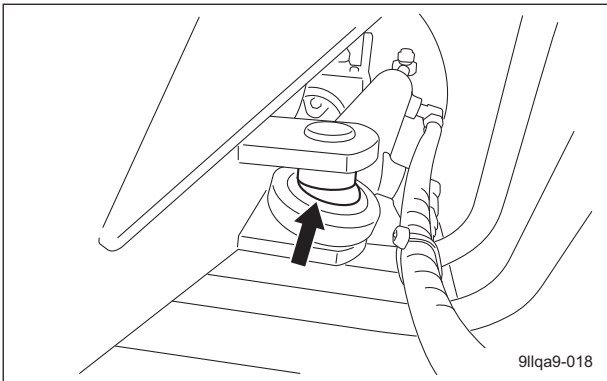
	Location	No. of greasing points
1	Steering cylinder spherical bearing	2
2	Mower cylinder spherical bearing	10

Maintenance

1. Steering cylinder spherical bearing
There are two locations.



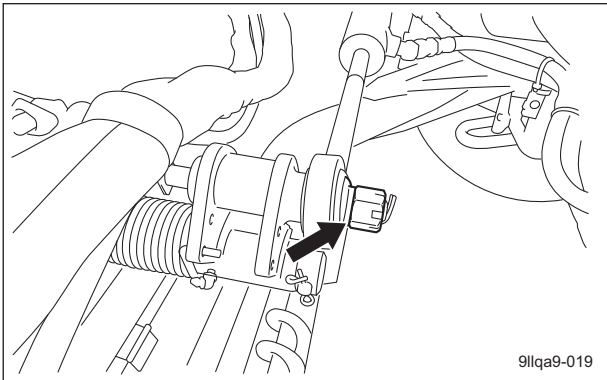
Lubricating Points_002



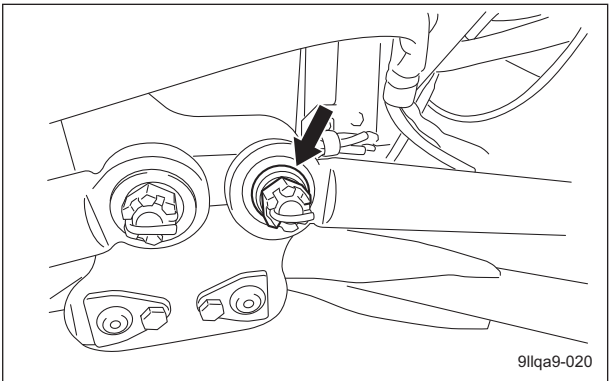
Lubricating Points_003

2. Mower cylinder spherical bearing
There are two locations on each mower cylinder.

Mower unit #1

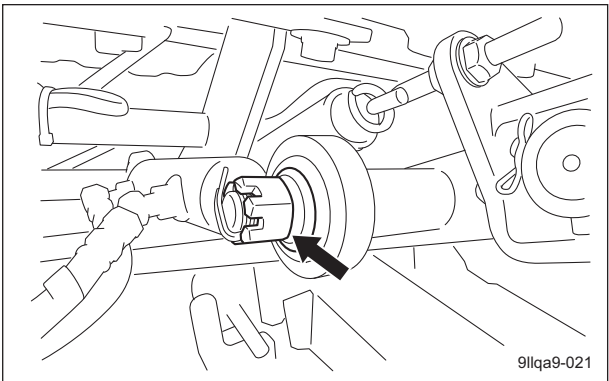


Lubricating Points_004

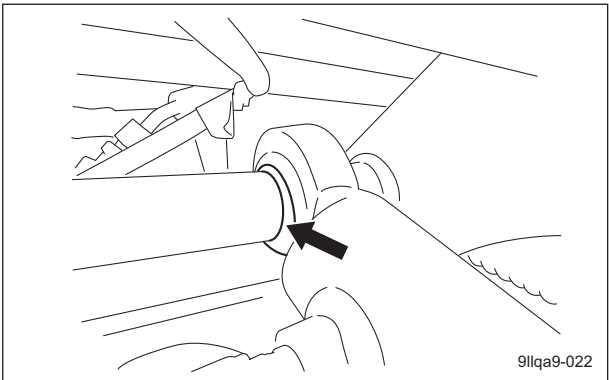


Lubricating Points_005

Mower unit #2

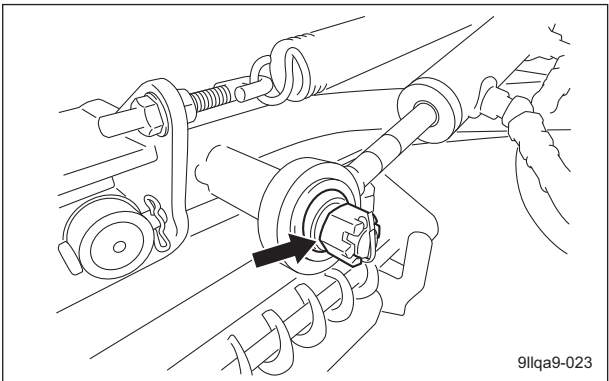


Lubricating Points_006

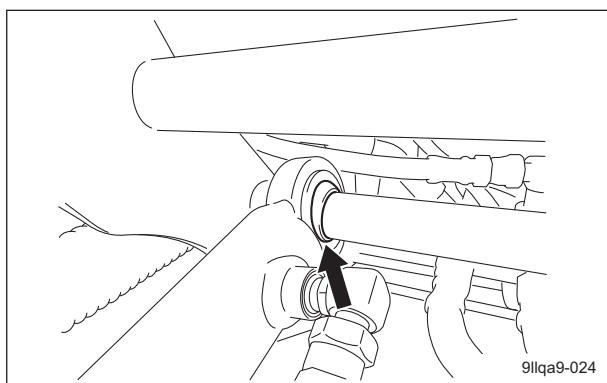


Lubricating Points_007

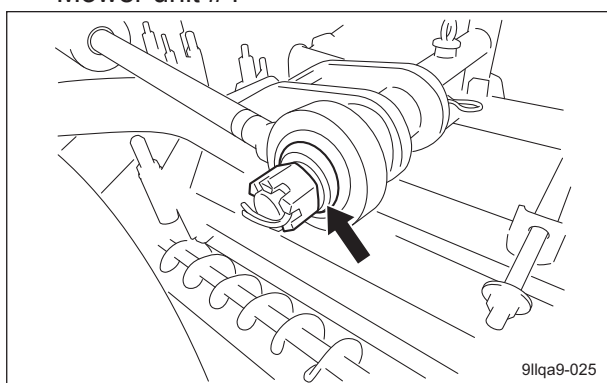
Mower unit #3



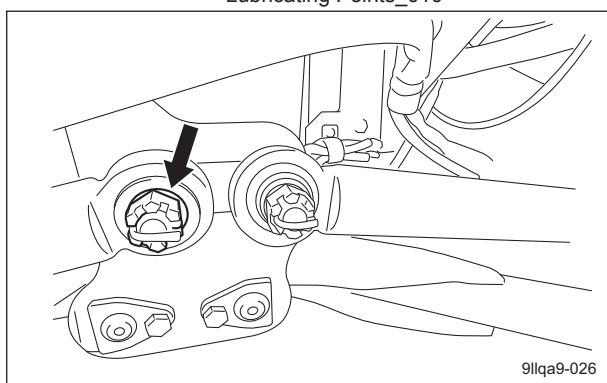
Lubricating Points_008



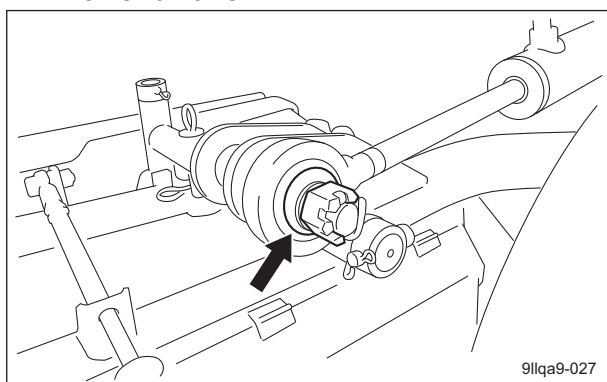
Lubricating Points_009

Mower unit #4

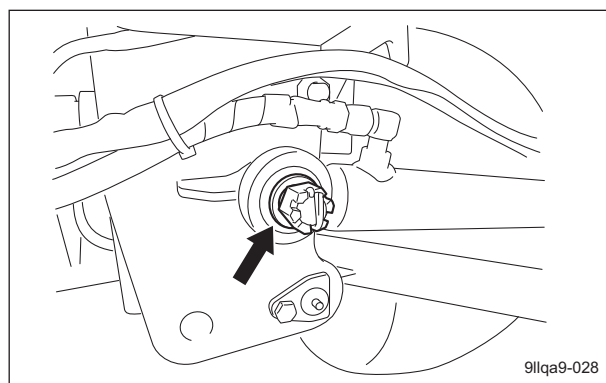
Lubricating Points_010



Lubricating Points_011

Mower unit #5

Lubricating Points_012



Lubricating Points_013

Maintenance Work**Swiveling Mower Units #2 and #3****⚠ Caution**

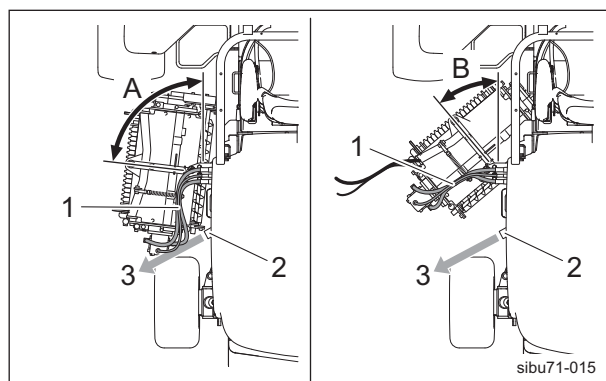
Both the reel cutter (cutting cylinder) and the bed knife (bottom blade) are edged tools. Handle them carefully, since they could cut your hands or legs.

⚠ Caution

Be careful not to inhale exhaust gas while swiveling the mower units.

Important

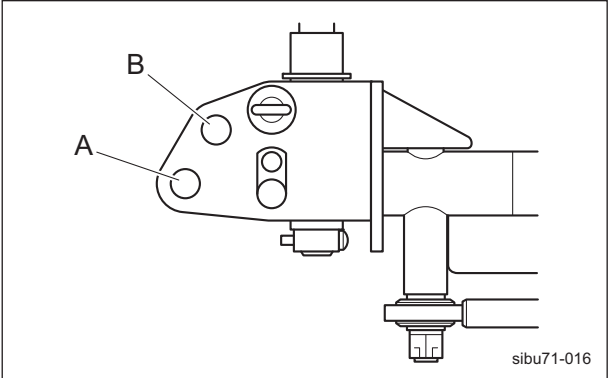
Do not swivel the mower unit #3 toward the outside beyond the angle 45° during back lapping with the engine running. Exhaust gas can be emitted toward hydraulic hoses and it may damage them.



Swiveling Mower Units #2 and #3_001

Maintenance

1	Hydraulic hose
2	Muffler
3	Exhaust gas
A	Mower unit swivel angle 90°
B	Mower unit swivel angle 45°

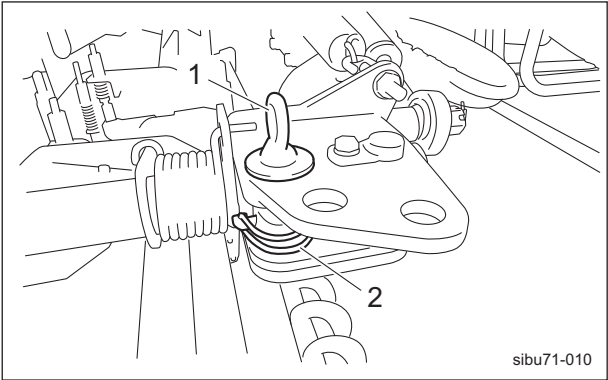


Swiveling Mower Units #2 and #3_002

A	Mower unit swivel angle 90°
B	Mower unit swivel angle 45°

Maintenance can be performed more easily with mower units #2 and #3 swiveled.

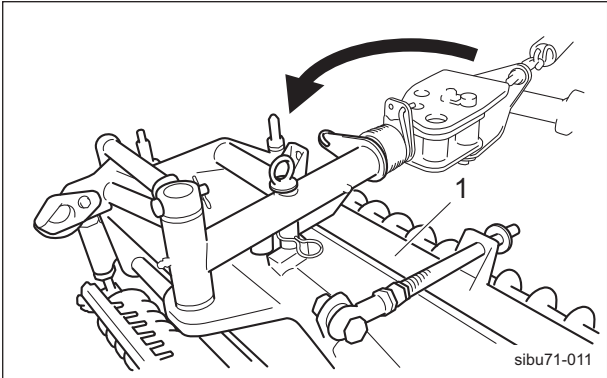
- 1. Lower the mower units, and then stop the engine.
- 2. Remove the pipe pin, and then remove the grip pin.



Swiveling Mower Units #2 and #3_003

1	Grip pin
2	Pipe pin

- 3. Swivel the mower unit toward the outside of the main vehicle.

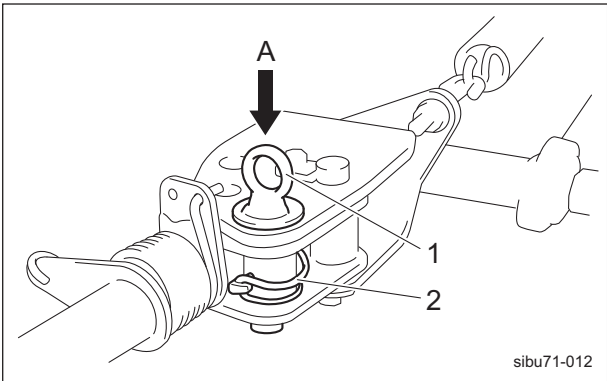


Swiveling Mower Units #2 and #3_004

1	Mower unit
---	------------

- 4. Fully insert the grip pin into the locking hole for maintenance, and then install the pipe pin in the grip pin.
The installation location for the locking hole for maintenance differs depending on whether the mower unit is installed in the front or rear position.

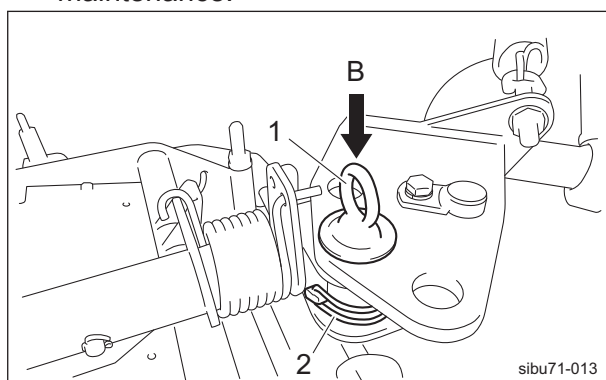
Mower unit position: Front
Use the rear locking hole (A) for maintenance.



Swiveling Mower Units #2 and #3_005

1	Grip pin
2	Pipe pin

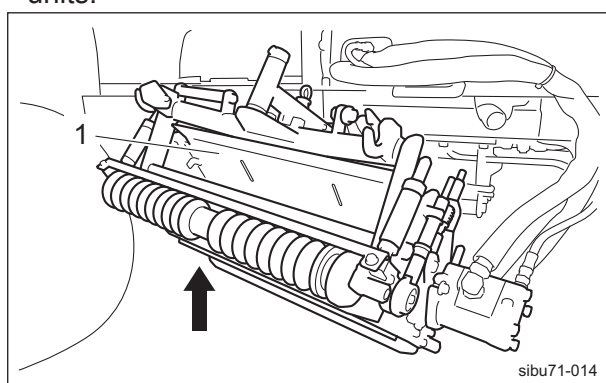
Mower unit position: Rear
Use the center locking hole (B) for maintenance.



Swiveling Mower Units #2 and #3_006

1	Grip pin
2	Pipe pin

5. Start the engine, and then raise the mower units.



Swiveling Mower Units #2 and #3_007

1	Mower unit
---	------------

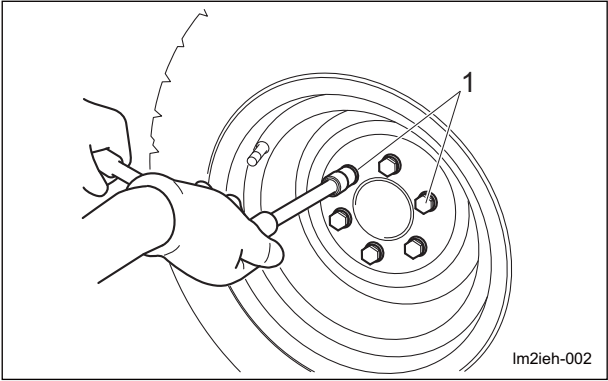
6. After the maintenance is completed, reverse the procedure to return the machine to its original condition.

Removing/Installing Tires

Front Tires

Follow the steps below to remove the front tires:

1. Loosen the bolts.



Front Tires_001

1 Bolt, heat-treated

2. Securely place the jack beneath the jack-up point of the front left/right frame area, and then raise it until the tire lifts off the ground. "Jack-Up Points" (Page 5-8)
3. Remove the bolts.
4. Remove the tire from the wheel mounting seat.

Important

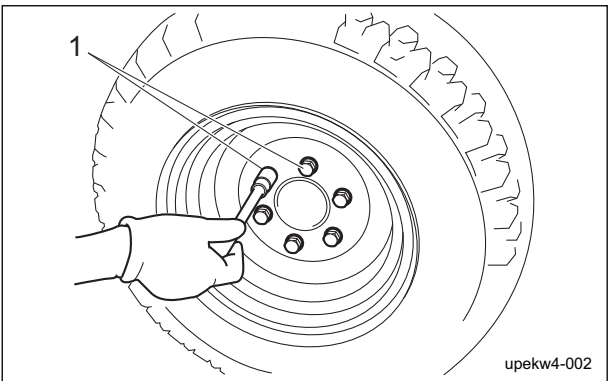
Tighten the bolts in the tightening order (diagonally).

For installing the front tires, reverse the removing procedure.

Rear Tire

Follow the steps below to remove the rear tire.

1. Loosen the bolts.



Rear Tire_001

1 Bolt, heat-treated

2. Securely place the jack beneath the jack-up point of the pivot, and then raise it until the tires lift off the ground. "Jack-Up Points" (Page 5-8)
3. Remove the bolts.
4. Remove the tire from the wheel mounting base.

Important

Tighten the bolts in the tightening order (diagonally).

For installing the rear tire, reverse the removing procedure.

Adjustment of Belt Tension

Warning

Be sure to stop the engine before adjusting the belts.

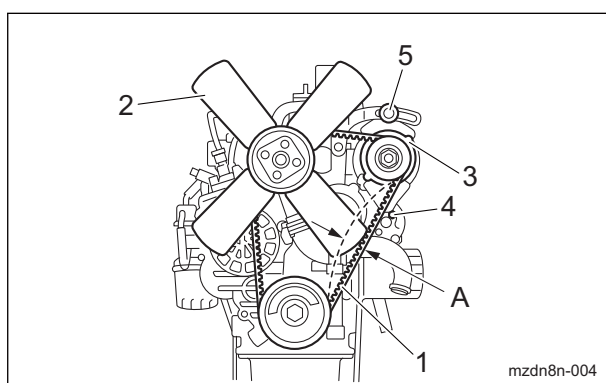
Important

Before making sure of belt tension, rotate the belt several times.

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

Fan Belt

1. Press the middle of the belt with your finger to check the belt tension.
2. If the belt tension is incorrect, loosen bolt A and bolt B (securing the alternator), and then move the alternator to adjust the tension.

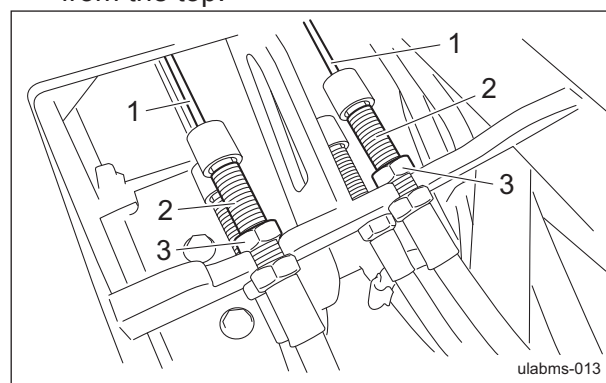


Fan Belt_001

1	Fan Belt
2	Blade
3	Alternator
4	Bolt A
5	Bolt B
A	10 mm (0.39 in)

1	Brake pedal
2	Latch
3	Notch
A	Fourth or fifth notch

[2] Adjust the adjustment bolt so that the latch is positioned in the fourth or fifth notch from the top.



Adjustment of Parking Brake_002

1	Brake wire
2	Adjustment bolt
3	Lock nut

Adjustment of Parking Brake

⚠ Caution

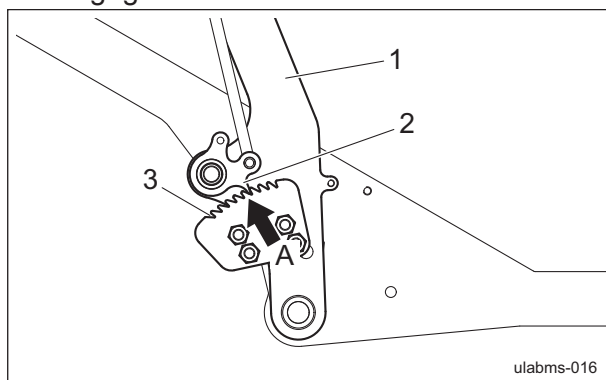
Make sure that the brake wire is not cracked or damaged.

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 whenever there is any abnormality.

1. Stop the engine.
2. Remove the step cover.
3. Follow the steps below to adjust the parking brake.

[1] Depress the locking pedal while firmly depressing the brake pedal to lock it and engage the latch in a notch.



Adjustment of Parking Brake_001

Adjustment of Brake

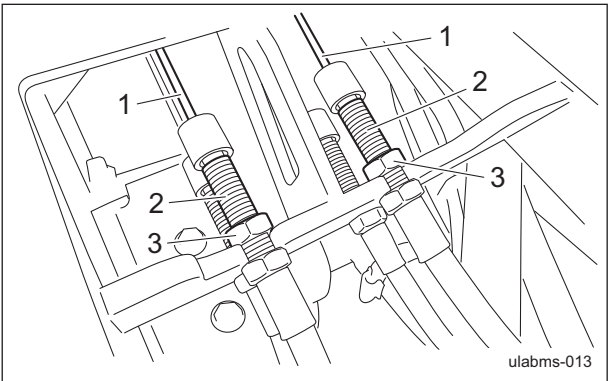
⚠ Caution

If the brake wire is cut, the machine will be unable to stop.
If the brake wire is cracked or damaged, immediately replace it with a new one.
If the brake is not sufficiently effective, adjust the brake wire.

Important

Adjust the play of the brake pedal so that it is as small as possible and the brakes do not drag when released.

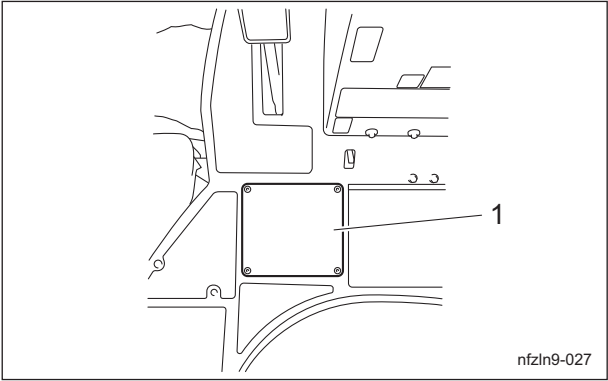
Adjust the brake by using the adjustment bolt on the brake wire.



Adjustment of Brake_001

1	Brake wire
2	Adjustment bolt
3	Lock nut

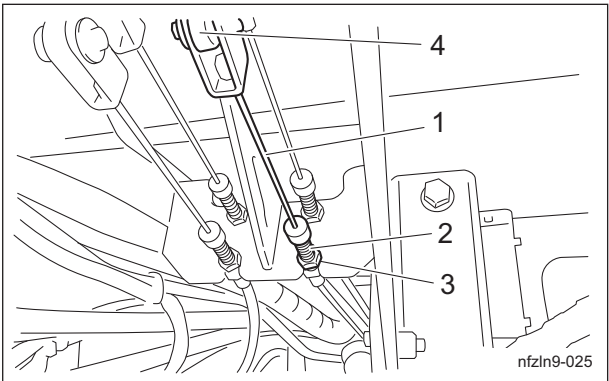
1. Stop the engine.
2. Remove the step cover.



Adjustment of Brake_002

1	Step cover
---	------------

3. Adjust the travel of the brake pedal by tightening the brake wire adjustment bolt.
 - If the brake pedal play is too large, the braking power will be decreased and the pedaling will be light.
 - If the brake pedal play is too small, the braking power will be increased and the pedaling will be heavy.



Adjustment of Brake_003

1	Brake wire
2	Adjustment bolt
3	Lock nut
4	Brake pedal

4. Start the engine.
5. Drive the machine to check the following.
 - Make sure that heat is not generated in the brake area.
 - Make sure that the left and right brakes are equally effective.

Caution

If the left and right brakes are not equally effective, an unexpected accident may occur.

6. If the left and right brakes are not equally effective, make fine adjustments by using the adjustment bolts on the brake wires.

Break-In of Brakes

If the brake shoes or brake pads are worn, replace them with new ones. Immediately after replacement, drive to break in the brakes if the effectiveness of the brakes is low. While driving, lightly operate the brakes to break in the contact areas.

Adjusting The Neutral Position of The Piston Pump

⚠ Caution

Make sure not to touch rotating tires.

⚠ Caution

While adjusting the neutral position, the machine may start to move. Securely place jacks beneath the jack-up points, and then raise the machine until all tires lift 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.

1. Stop the engine.
2. Securely place jacks beneath the jack-up points, and then lift the machine off the ground.
"Jack-Up Points" (Page 5-8)
3. Make sure that no tires get contact with the jack stand.
4. Open the underseat cover.
5. Start the engine, and rev it up to the maximum rpm.
6. Adjust the neutral position.

Note:

The lock nut uses a 1/2 inch wrench, and the traction adjusting cam uses a 1/4 inch wrench.

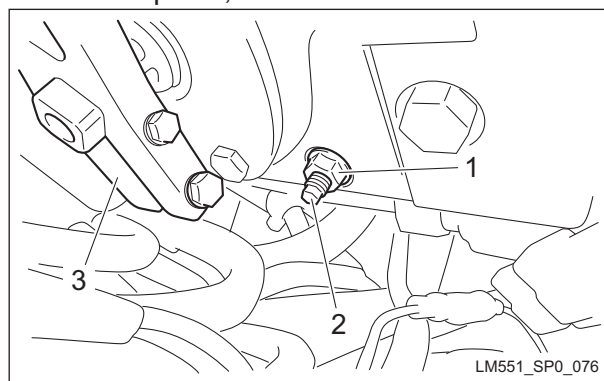
Follow the steps below to adjust the neutral position.

[1] Loosen the lock nuts.

[2] Slowly rotate the traction adjusting cam until all tires stop.

- If the tires move in the direction of forward travel, rotate the traction adjusting cam clockwise.
- If the tires move in the direction of backward travel, rotate the traction adjusting cam counterclockwise.

Find the position where all tires stop, and then, while holding the traction adjusting cam in place, secure it with the lock nut.



Adjusting The Neutral Position of The Piston Pump_001

1	Lock nut
2	Traction adjusting cam
3	Cam lever

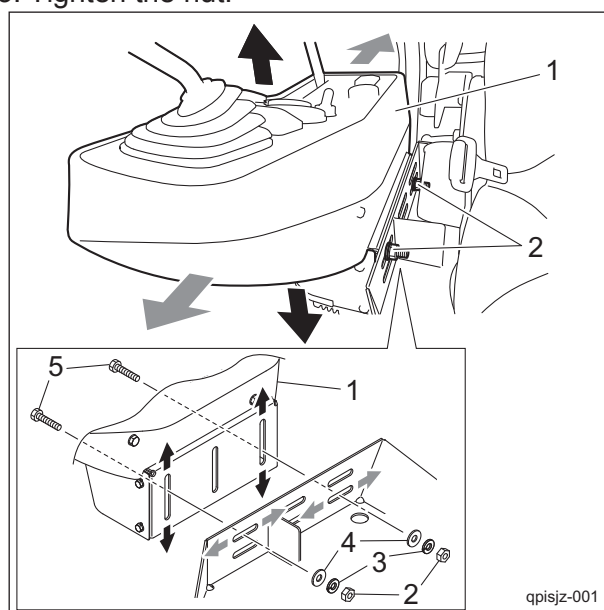
7. Check that the tires do not move.

Adjustment of Control Arm

The control arm can be adjusted up or down and forward or backward.

Adjust the position to fit the operator.

1. Loosen the nut.
2. Slide the control arm up or down and forward or backward to the appropriate position.
3. Tighten the nut.



Adjustment of Control Arm_001

1	Control arm
2	Nut
3	Spring washer
4	Washer
5	Bolt

Adjustment of Stoppers

Important

The installation method and installation position of the stoppers differ depending on the mower unit model.

The stopper is installed to prevent the mower arm from interfering with the frame when swiveling the mower units #2 and #3. Install in the appropriate position.

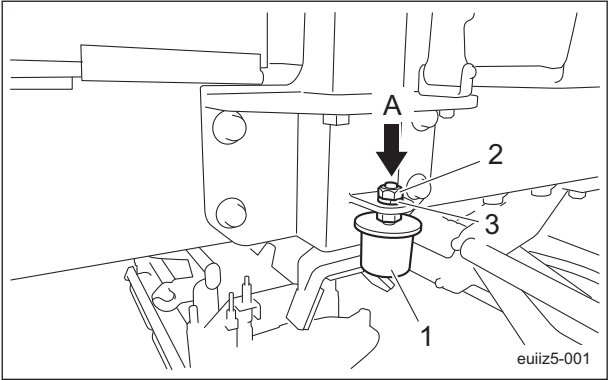
Note:

The stopper is not used when the mower units LS66 installed.

The stopper installation position for each mower unit model is described below.

A: Installed at the lower position

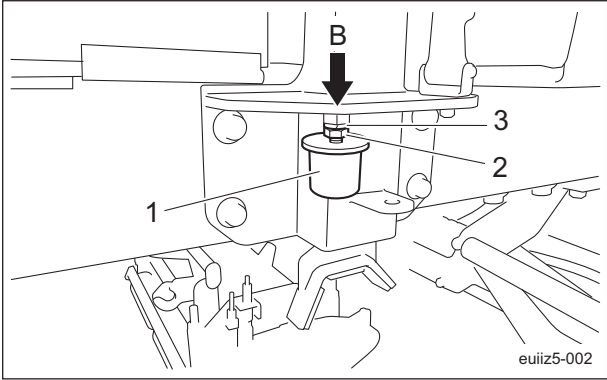
- LS62
- LH52



Adjustment of Stoppers_001

1	Stopper
2	Nut
3	Spring washer

B: Installed at the upper position
• LH62



Adjustment of Stoppers_002

1	Stopper
2	Nut
3	Spring washer

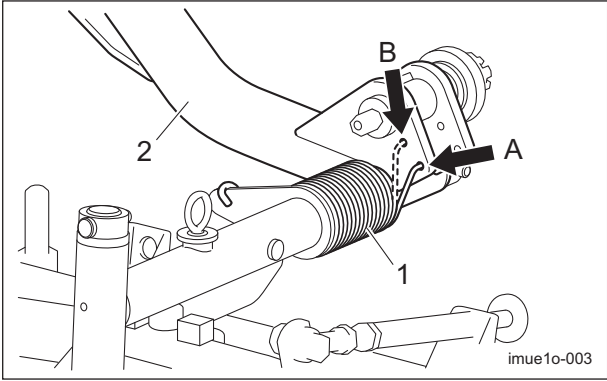
Adjustment of Mower Unit Leveling Spring

A coil spring is installed on the mower unit coupling.

This keeps the mower unit level.

Adjust the coil spring with the holes in the lift arm.

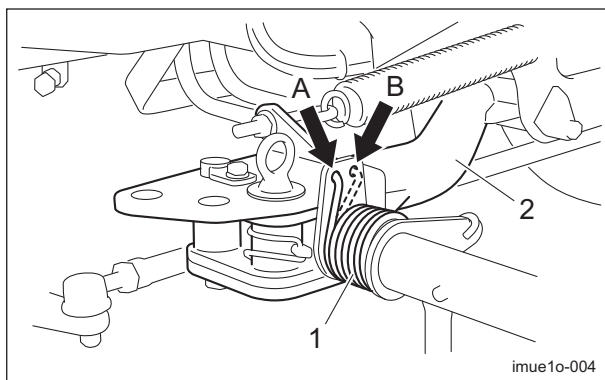
Mower unit #1



Adjustment of Mower Unit Leveling Spring_001

1	Coil spring
2	Lift arm
A	22 in mower unit
B	26 in mower unit

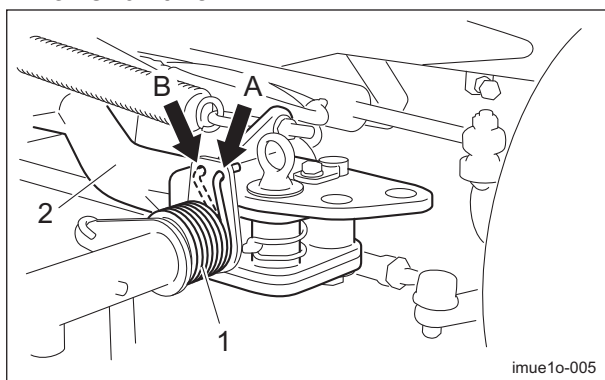
Mower unit #2



Adjustment of Mower Unit Leveling Spring_002

1	Coil spring
2	Lift arm
A	22 in mower unit
B	26 in mower unit

Mower unit #3

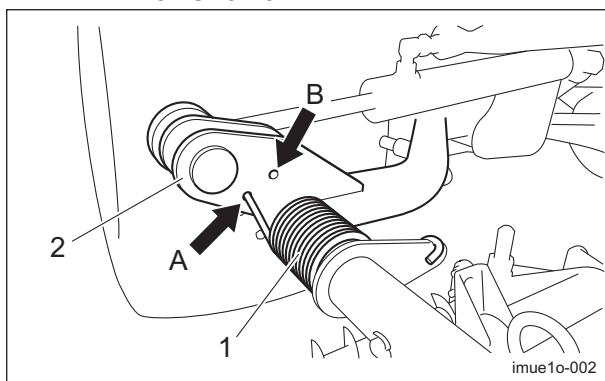


Adjustment of Mower Unit Leveling Spring_003

1	Coil spring
2	Lift arm
A	22 in mower unit
B	26 in mower unit

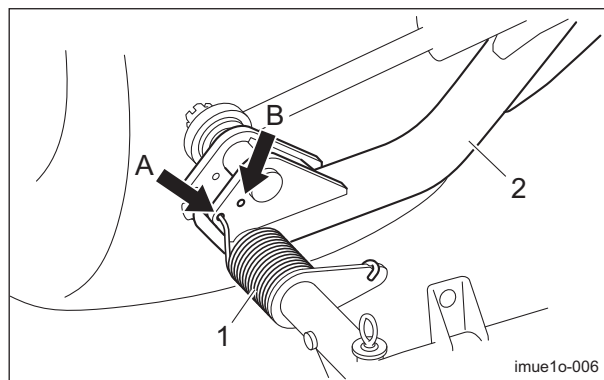
Mower unit #4

22 in mower unit



Adjustment of Mower Unit Leveling Spring_004

26 in mower unit

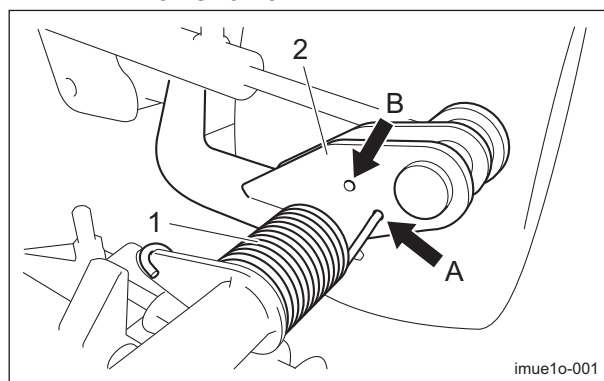


Adjustment of Mower Unit Leveling Spring_005

1	Coil spring
2	Lift arm
A	Light spring load (standard position)
B	Heavy spring load

Mower unit #5

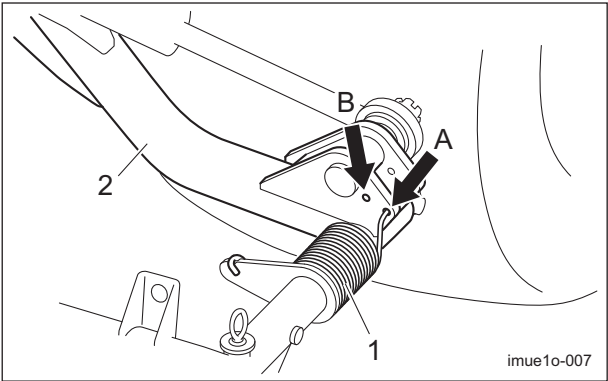
22 in mower unit



Adjustment of Mower Unit Leveling Spring_006

1	Coil spring
2	Lift arm
A	Light spring load (standard position)
B	Heavy spring load

26 in mower unit



Adjustment of Mower Unit Leveling Spring_007

1	Coil spring
2	Lift arm
A	Light spring load (standard position)
B	Heavy spring load

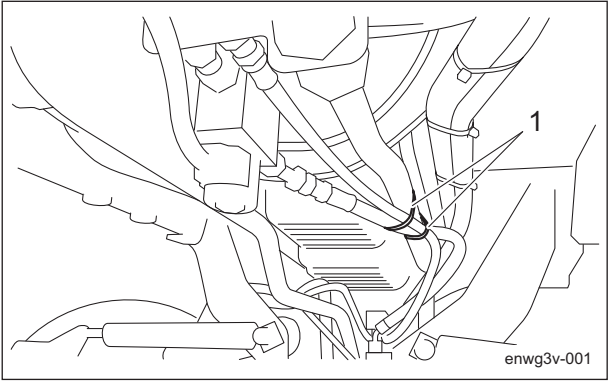
Adjustment of Positions of Mower Units #2 and #3

Important

When the grass catcher is installed, move the mower units to the rear position.

Mower units #2 and #3 can be slid to the front position or rear position. The slide distance is 200 mm (7.87 in).

1. On a level surface, lower all mower units.
2. Move the mower unit up/down lever to the neutral position.
3. Depress the locking pedal while firmly depressing the brake pedal to lock it.
4. Stop the engine.
5. Remove the clamps from the mower unit up/down cylinder hoses.



Adjustment of Positions of Mower Units #2 and #3_001

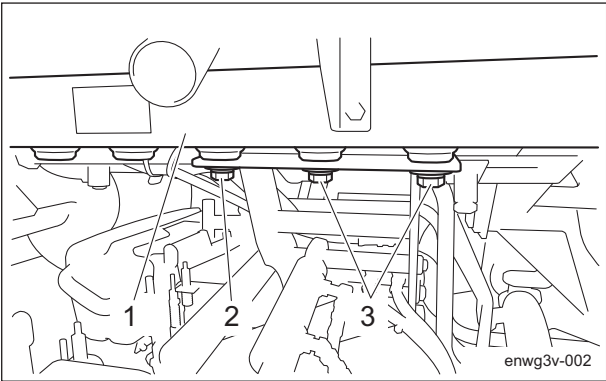
1	Clamp
---	-------

Important

Since mower units #2 and #3 are connected, slide them at the same time.

6. Follow the steps below to slide the mower units.

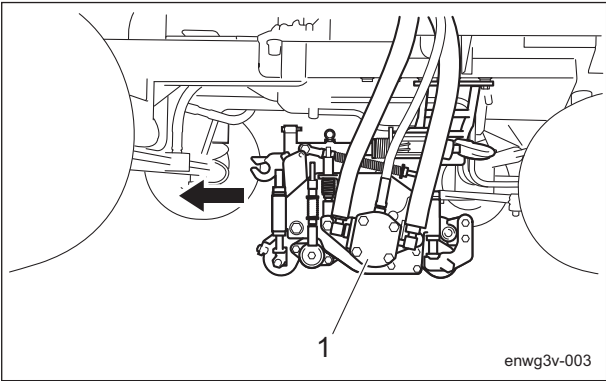
- When moving to the front position:
[1] Loosen bolt A of mower unit #3.
[2] Remove bolts B of mower unit #3.



Adjustment of Positions of Mower Units #2 and #3_002

1	Frame
2	Bolt A
3	Bolt B

- [3] In the same way, loosen bolt A and remove bolts B of mower unit #2.
- [4] Slide mower units #2 and #3 from the rear position to the front position.

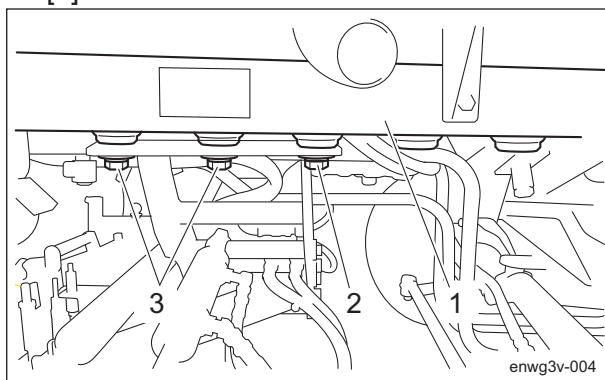


Adjustment of Positions of Mower Units #2 and #3_003

1	Mower unit
---	------------

- [5] Install bolts B of mower unit #3.
 - [6] In the same way, install bolts B of mower unit #2.
 - [7] Tighten bolt A and bolts B on both sides.
- When moving to the rear position:
[1] Loosen bolt A of mower unit #3.

[2] Remove bolts B of mower unit #3.

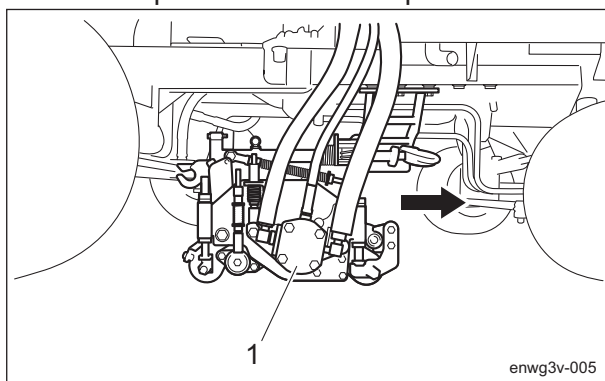


Adjustment of Positions of Mower Units #2 and #3_004

1	Frame
2	Bolt A
3	Bolt B

[3] In the same way, loosen bolt A and remove bolts B of mower unit #2.

[4] Slide mower units #2 and #3 from the front position to the rear position.



Adjustment of Positions of Mower Units #2 and #3_005

1	Mower unit
---	------------

[5] Install bolts B of mower unit #3.

[6] In the same way, install bolts B of mower unit #2.

[7] Tighten bolt A and bolts B on both sides.

7. Adjust the mower stoppers of mower units #2 and #3.

"Adjustment of Mower Stoppers for Mower Unit #2 and #3" (Page 5-26)

8. Re-secure the mower unit up/down cylinder hoses with clamps.

Adjustment of Mower Stopper

Adjustment of Mower Stoppers for Mower Unit #1

The mower stopper is installed to prevent the mower unit from interfering with the frame.

The attaching direction of the mower stopper for mower unit #1 differs according to the type of mower unit.

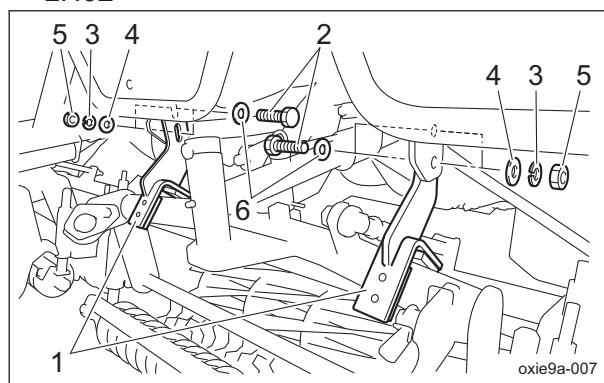
Install in the appropriate direction.

1. Loosen the nuts of the right and left mower stoppers.
2. Place the right and left mower stoppers to the highest position and attach them temporarily.
3. On a level surface, raise all mower units.
4. Depress the locking pedal while firmly depressing the brake pedal to lock it.
5. Stop the engine.
6. Follow the steps below to adjust the position of the mower stopper.

[1] Loosen the nuts of the right and left mower stoppers.

[2] Tighten the nuts of the right and left mower stoppers in a position where the mower unit is leveled and the mower arm contacts the center of the mower stopper.

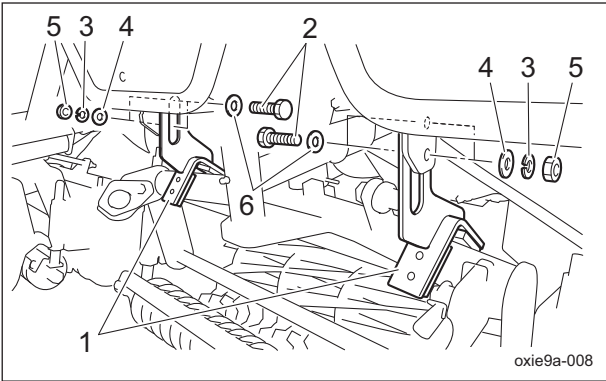
LH62



Adjustment of Mower Stoppers for Mower Unit #1_001

1	Mower stopper
2	Bolt
3	Spring washer
4	Washer
5	Nut
6	Washer

LH52 • LS62 • LS66



Adjustment of Mower Stoppers for Mower Unit #1_002

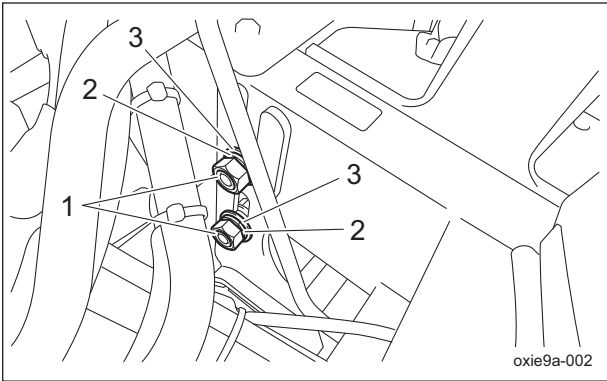
1	Mower stopper
2	Bolt
3	Spring washer
4	Washer
5	Nut
6	Washer

Adjustment of Mower Stoppers for Mower Unit #2 and #3

The mower stopper is installed to prevent the mower unit from interfering with the frame. The type and attaching direction of the mower stopper for mower unit #2 and #3 differ according to the type of mower unit. And adjust the attaching position of the mower stopper for mower unit #2 and #3 according to the attaching position (front or rear) of the mower unit. Install in the appropriate direction.

1. On a level surface, lower all mower units.
2. Depress the locking pedal while firmly depressing the brake pedal to lock it.
3. Stop the engine.
4. Open the hood.
5. Open the underseat cover.

6. Remove the nuts of the mower stopper.



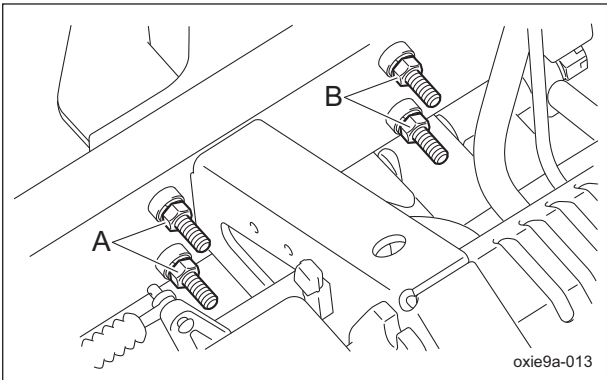
Adjustment of Mower Stoppers for Mower Unit #2 and #3_001

1	Nut
2	Spring washer
3	Washer

7. Adjust the mower stopper position.

- To set the mower unit in the front position, attach the mower stopper in the "front position".
- To set the mower unit in the rear position, attach the mower stopper in the "rear position".

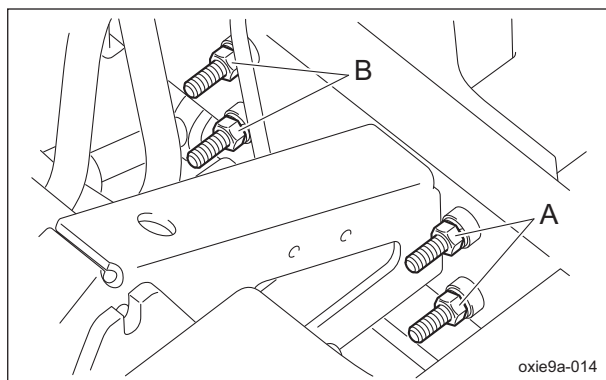
Mower unit #2



Adjustment of Mower Stoppers for Mower Unit #2 and #3_002

A	Mower stopper front position
B	Mower stopper rear position

Mower unit #3



Adjustment of Mower Stoppers for Mower Unit #2 and #3_003

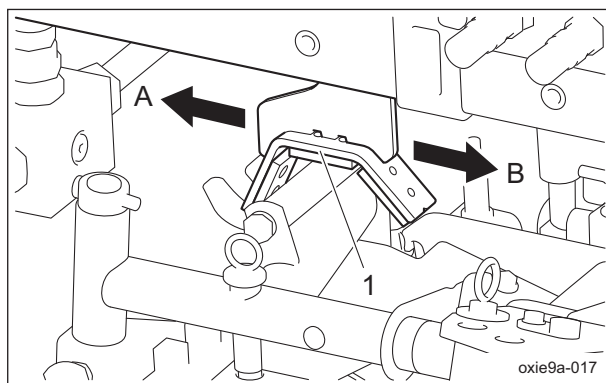
A	Mower stopper front position
B	Mower stopper rear position

8. Attach the mower stoppers temporarily.
9. Start the engine.
10. Raise all mower units.
11. Tighten the mower stopper nuts previously attached in a position where the mower unit is leveled and the mower stopper contacts the mower arm.

Note:

The relationship between the mower unit type and the mower stopper is as follows.

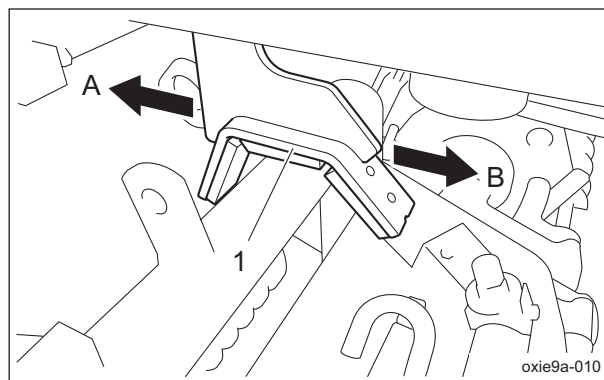
LH62



Adjustment of Mower Stoppers for Mower Unit #2 and #3_004

1	Mower stopper
A	Front
B	Rear

LH52 • LS62



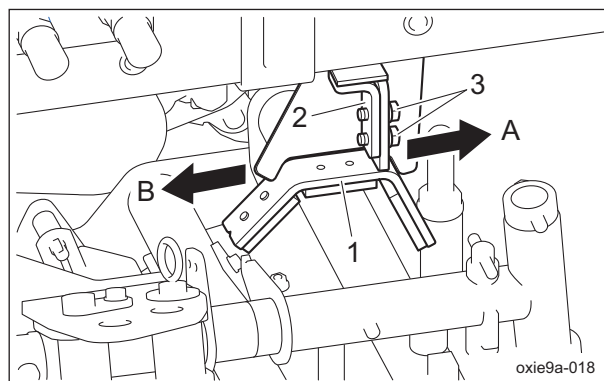
Adjustment of Mower Stoppers for Mower Unit #2 and #3_005

1	Mower stopper
A	Front
B	Rear

LS66

Mower unit #2

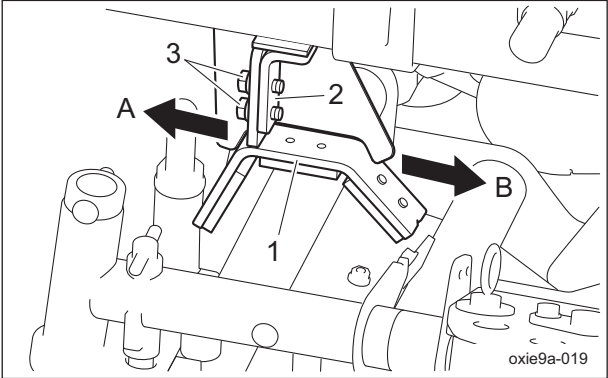
After installing the mower stoppers, press the stopper auxiliary fitting COMP firmly against the bottom side of the frame and secure it with the bolts.



Adjustment of Mower Stoppers for Mower Unit #2 and #3_006

1	Mower stopper
2	Stopper auxiliary fitting COMP
3	Bolt
A	Front
B	Rear

LS66
Mower unit #3
After installing the mower stoppers, press the stopper auxiliary fitting COMP firmly against the bottom side of the frame and secure it with the bolts.



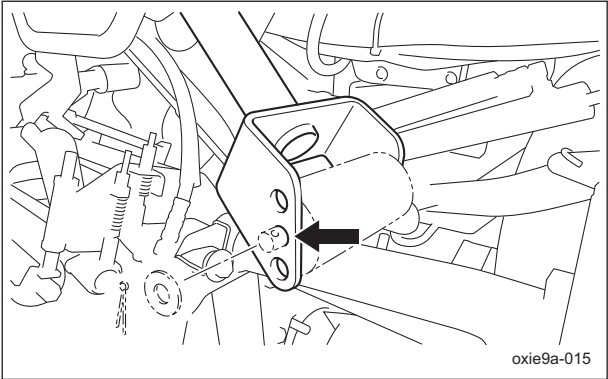
Adjustment of Mower Stoppers for Mower Unit #2 and #3_007

1	Mower stopper
2	Stopper auxiliary fitting COMP
3	Bolt
A	Front
B	Rear

Adjustment of Mower Stoppers for Mower Unit #4 and #5

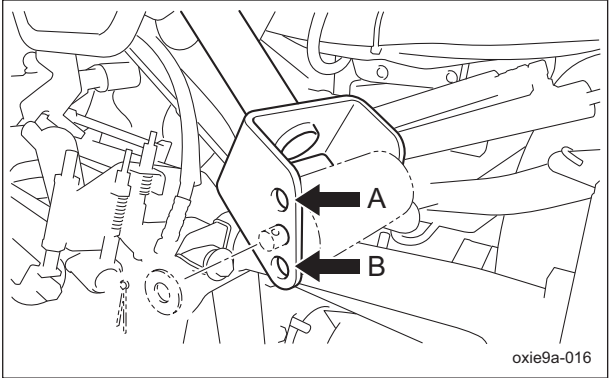
The mower stopper is installed to prevent the mower unit from interfering with the frame. The attaching position of the mower stopper for mower unit #4 and #5 differs according to the type of mower unit. Install in the appropriate direction. The relationship between the mower unit type and the mower stopper attaching position.

LH62



Adjustment of Mower Stoppers for Mower Unit #4 and #5_001

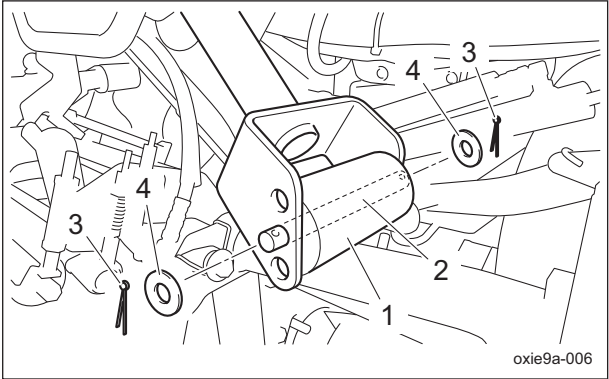
LH52 • LS62



Adjustment of Mower Stoppers for Mower Unit #4 and #5_002

A	LS62
B	LH52

1. On a level surface, lower all mower units.
2. Depress the locking pedal while firmly depressing the brake pedal to lock it.
3. Stop the engine.
4. Follow the steps below to adjust the mower stopper position.
 - [1] Remove the cotter pin and washer.
 - [2] Install the roller shaft and rubber roller in the specified position.
 - [3] Attach the cotter pin and washer.



Adjustment of Mower Stoppers for Mower Unit #4 and #5_003

1	Rubber roller
2	Roller shaft
3	Cotter pin
4	Washer

LS66
For the mower unit LS66, the adjustment is not required.

Change of Coolant

⚠ Caution

Do not touch the radiator or coolant during engine operation or immediately after the engine has been turned off. Otherwise, you may get burned.

⚠ Caution

Change coolant after the engine has well cooled down.

⚠ Caution

The radiator cap is pressurized. If you remove the radiator cap while the engine is overheated, hot steam will burst out, possibly resulting in burns. Make sure that the water temperature and pressure are reduced, and then grab the cap with a thick cloth and gradually open the cap.

Important

When changing the coolant, be sure to drain it into a container and discard it in accordance with local laws and regulations.

Important

When changing the coolant, be sure to mix clean water and antifreeze (long-life coolant), and then pour it into the radiator and reserve tank.

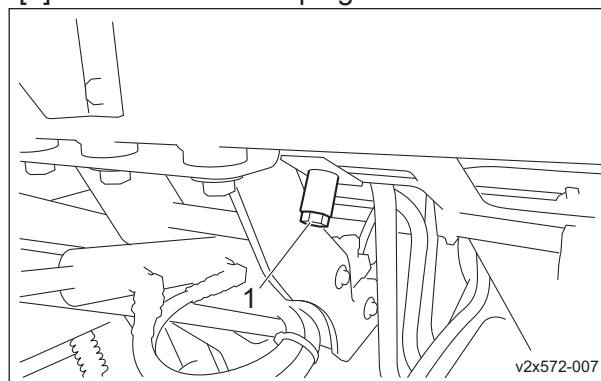
Important

Tightly close the radiator cap. If the cap is loose or incorrectly installed, water may leak and the engine may overheat.

When mixing antifreeze and clean water, refer to "Relationship between concentration of long-life coolant (LLC) and freezing temperature" below for the mixing ratio.
Relationship between concentration of long-life coolant (LLC) and freezing temperature

Freezing temperature	LLC concentration (volume %)
Down to -10 °C (14 °F)	20 %
Down to -15 °C (5 °F)	30 %
Down to -20 °C (-4 °F)	35 %
Down to -25 °C (-13 °F)	40 %

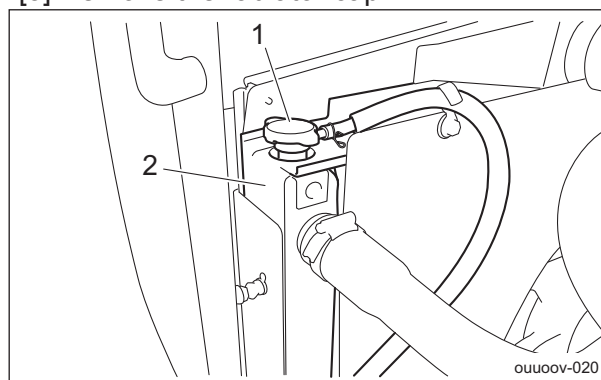
1. Stop the engine, and then allow the radiator to cool.
2. Open the hood.
3. Follow the steps below to drain the coolant.
 - [1] Position a container to drain the coolant into.
 - [2] Remove the drain plug from the radiator.



Change of Coolant_001

1	Radiator drain plug
---	---------------------

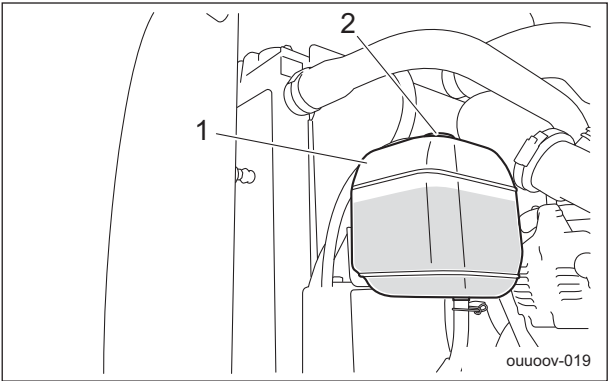
- [3] Remove the radiator cap.



Change of Coolant_002

1	Radiator cap
2	Radiator

[4] Remove the reserve tank.



Change of Coolant_003

1	Reserve tank
2	Reserve tank cap

[5] Open the reserve tank cap, and then drain the coolant.

4. Install the reserve tank.
5. Clean the radiator with clean water to remove any debris or rust.
6. Drain all water from the radiator.
7. Follow the steps below to fill with coolant.
The coolant quantity, including the reserve tank, is 10.0 dm³ (10.0 L).
 - [1] Install the drain plug.
 - [2] Supply clean water and antifreeze into the radiator up to the radiator cap opening.
 - [3] Close the radiator cap.
 - [4] Supply clean water and antifreeze into the reserve tank up to the "FULL" mark.
 - [5] Close the reserve tank cap.
8. Start the engine, and then idle for several minutes to bleed air from the system.
9. Stop the engine, and then allow the radiator to cool.
10. Check if the coolant level in the reserve tank is between "FULL" and "LOW", and then supply coolant if necessary.
11. Close the hood.

Change of Hydraulic Oil

Caution

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

Important

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

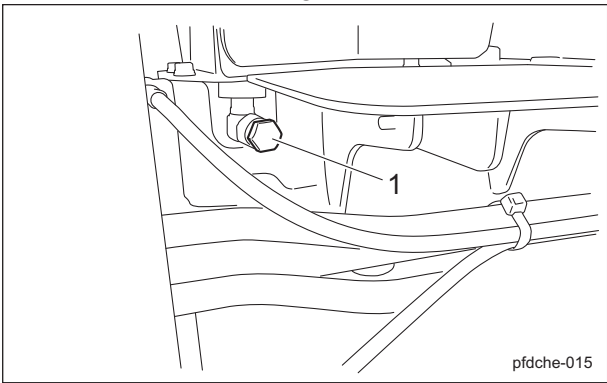
Important

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

Important

Use Shell Tellus S2M46 (or equivalent) as hydraulic oil.

1. Follow the steps below to remove the old oil.
 - [1] Start and run the engine to warm up the oil.
 - [2] On a level surface, lower the mower units, and then stop the engine.
 - [3] Remove the drain plug of the hydraulic tank and drain the old oil into a bowl.
 - [4] Install the drain plug.

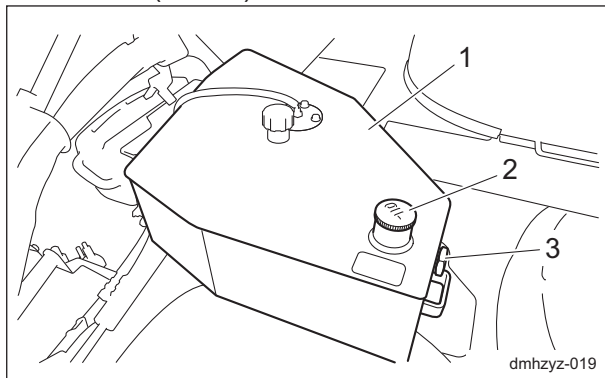


Change of Hydraulic Oil_001

1	Drain plug
---	------------

2. Remove the tank cover.

- Open the tank cap, and then pour new oil from the fill port until the oil level reaches the middle of the oil gauge on the hydraulic tank. The hydraulic tank capacity is approximately 30.3 dm³ (30.3 L).



Change of Hydraulic Oil_002

1	Hydraulic tank
2	Tank cap
3	Oil gauge

- Tighten the tank cap securely.
- Start the engine, raise and lower the mower units, and turn the steering wheel left and right. Move forward and reverse repeatedly several times.
- Raise 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 necessary, supply oil.
- Check underneath the machine for hydraulic oil leakage.
- Install the tank cover.

Change of Hydraulic Oil Filter

Change of Hydraulic Oil Line Filter

Caution

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

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.

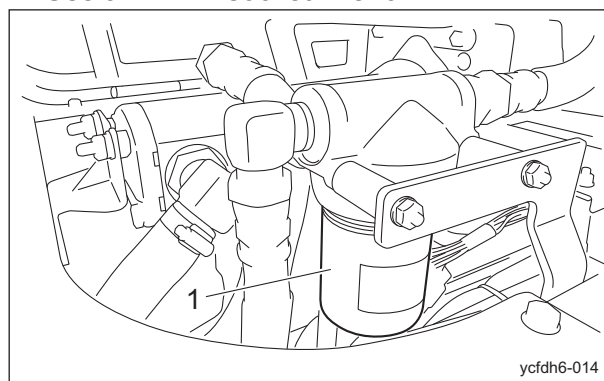
Important

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

Important

Use Shell Tellus S2M46 (or equivalent) as hydraulic oil.

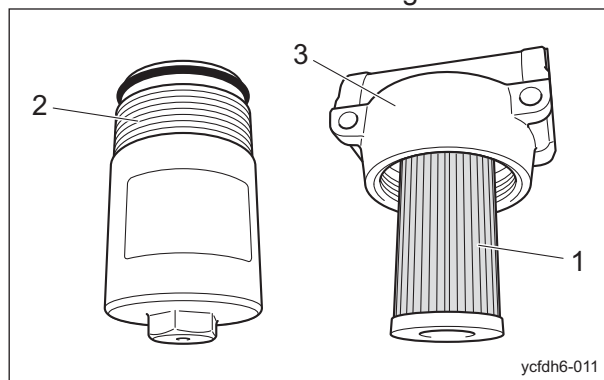
- On a level surface, lower the mower units, and then stop the engine.
 - Loosen the filter case and remove it.
- Note:
Use a 24 mm socket wrench.



Change of Hydraulic Oil Line Filter_001

1	Filter case
---	-------------

- Remove the old filter cartridge.

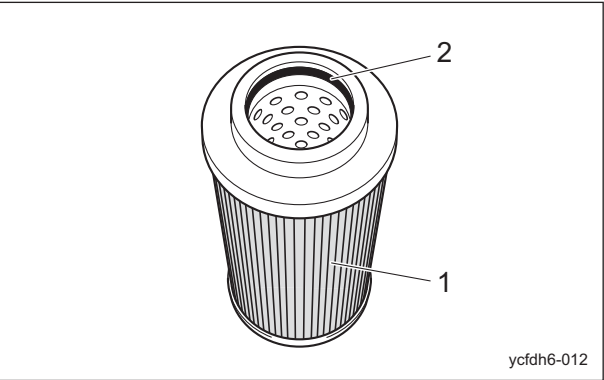


Change of Hydraulic Oil Line Filter_002

1	Filter cartridge
2	Filter case
3	Body

Maintenance

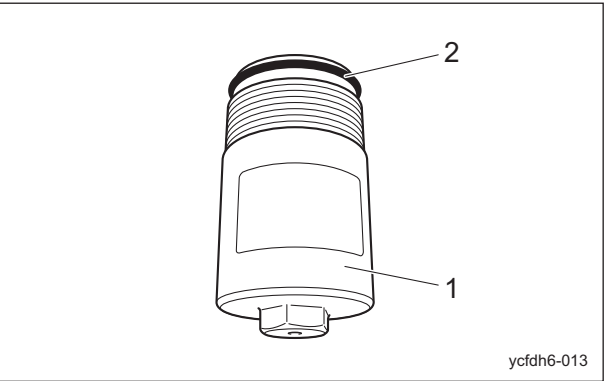
4. Lightly coat the O-ring of the new filter cartridge with hydraulic oil, and then install the cartridge.



Change of Hydraulic Oil Line Filter_003

1	Filter cartridge
2	O-ring

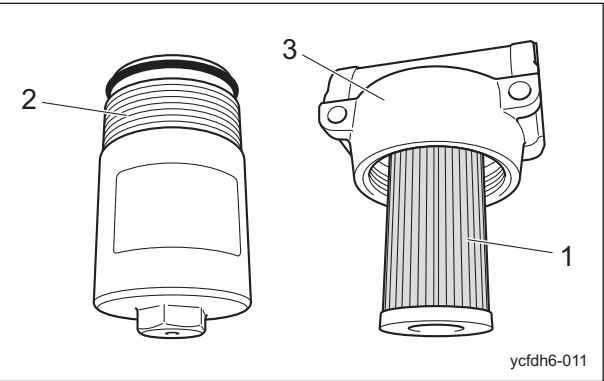
5. Clean the inside of the filter case.
6. Make sure that there is no damage to the O-ring of the filter case, and then lightly coat the O-ring with hydraulic oil.



Change of Hydraulic Oil Line Filter_004

1	Filter case
2	O-ring

7. Install the filter case onto the body, firmly hand-tighten it, and then tighten it to 25 to 35 N·m (254.93 to 356.90 kgf·cm).



Change of Hydraulic Oil Line Filter_005

1	Filter cartridge
2	Filter case
3	Body

8. Supply hydraulic oil until it reaches the specified level.
"Supply of Hydraulic Oil" (Page 4-5)
9. Start the engine, and then after the hydraulic oil has warmed up, stop the engine.
10. Check underneath the machine for hydraulic oil leakage.

Change of Hydraulic Suction Filter

Caution

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

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.

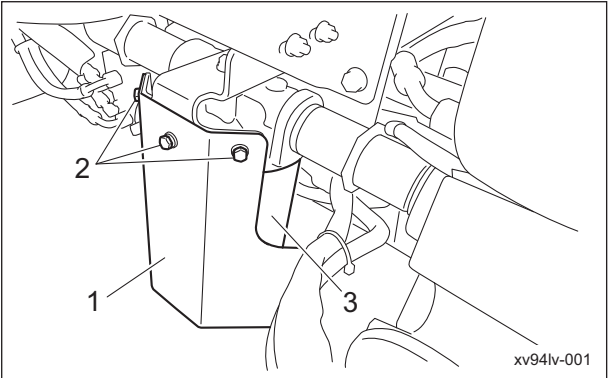
Important

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

Important

Use Shell Tellus S2M46 (or equivalent) as hydraulic oil.

1. On a level surface, lower the mower units, and then stop the engine.
2. Remove the filter protection plate.

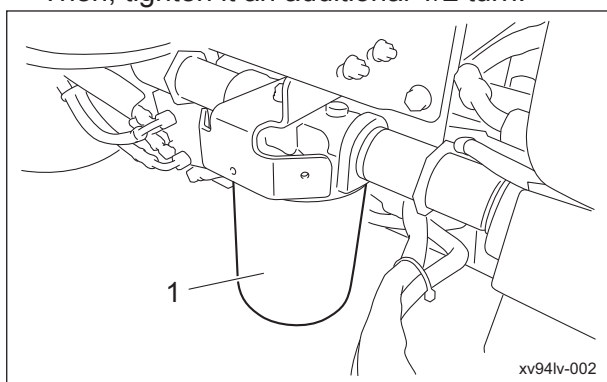


Change of Hydraulic Suction Filter_001

1	Filter protection plate
2	Bolt
3	Filter cartridge

3. Remove the old filter cartridge.
4. Lightly coat the packing of the new filter cartridge with hydraulic oil, and then install the cartridge.
5. Firmly tighten the filter cartridge by hand so that the packing contacts the mounting surface.

Then, tighten it an additional 1/2 turn.



Change of Hydraulic Suction Filter_002

1	Cartridge filter
---	------------------

6. Supply hydraulic oil until it reaches the specified level.
"Supply of Hydraulic Oil" (Page 4-5)
7. Start the engine, and then after the hydraulic oil has warmed up, stop the engine.
8. Check underneath the machine for hydraulic oil leakage.
9. Install the filter protection plate.

Change of Air Cleaner

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

To maximize the life of the engine, replace the air cleaner element at the appropriate times.

1. The timing for replacing the air cleaner element is described below.

- [1] Replace the air cleaner element in accordance with the Maintenance Schedule.
- [2] If it is significantly contaminated, replace it, even if the hours of operation do not exceed the specified time.

2. Replace the air cleaner element by following the same steps as for cleaning the air cleaner.

"Cleaning of Air Cleaner" (Page 4-6)

Change of Engine Oil

⚠ Caution

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

Important

When changing the engine oil, be sure to drain it 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 CF or higher, with an SAE Viscosity that is appropriate for the operating environment (ambient temperature).

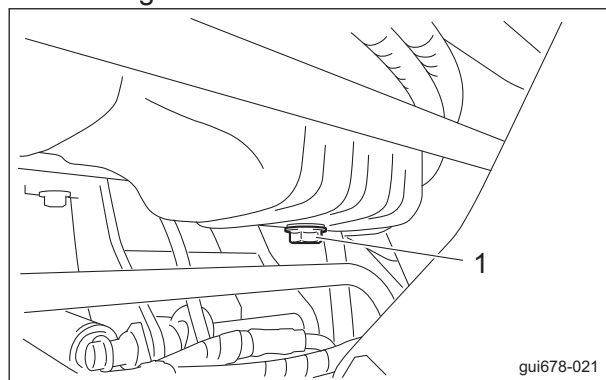
Important

Securely tighten the oil level gauge and oil filler cap.

Change the engine oil more frequently if it 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] Remove the drain plug, and then drain the old engine oil into a container.

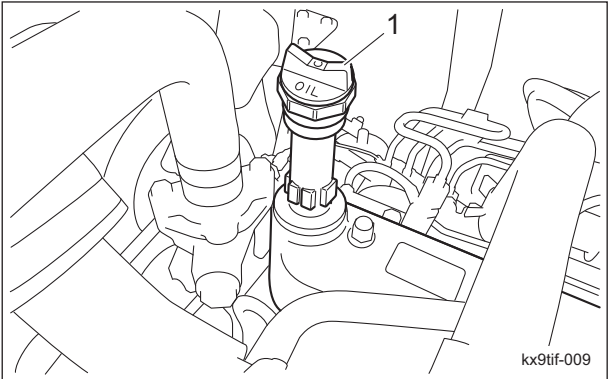


Change of Engine Oil_001

Maintenance

1 Drain plug

- [4] Re-place the drain plug.
2. Remove the oil filler cap, and then supply new engine oil until the oil reaches a level in between the upper and lower limit lines on the oil level gauge.
The engine oil quantity is approximately 6.0 dm³ (6.0 L).
3. Securely install the oil filler cap.



Change of Engine Oil_002

1 Oil filler cap

4. It will take a while for the supplied engine oil to descend into the oil pan.
Check the oil level again 10 to 20 minutes after replenishment.
5. Check underneath the machine for oil leakage.

Change 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.

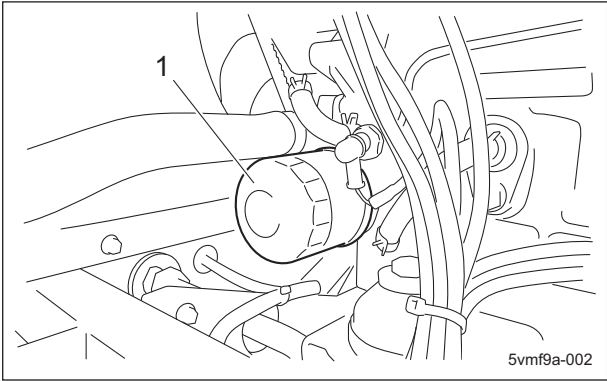
Important

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

Important

Securely tighten the oil level gauge and oil filler cap.

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



Change of Engine Oil Filter_001

1 Filter cartridge

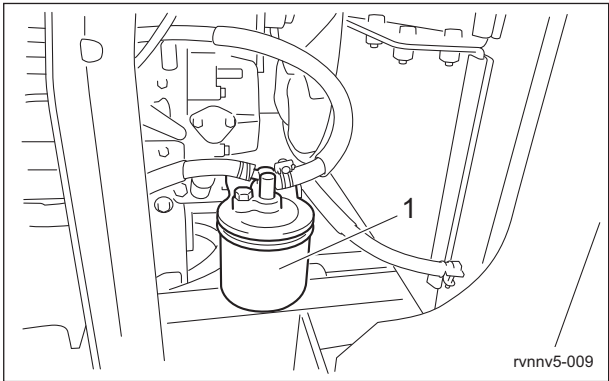
2. Lightly coat the packing of the new filter cartridge with engine oil.
3. Hand-tighten the filter cartridge until the packing contacts the sealing surface, and then firmly hand-tighten (without using a filter wrench).
4. Supply engine oil until it reaches the specified level.
"Supply of Engine Oil" (Page 4-10)
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.

Change of Fuel Filter

Important

During installation, prevent contamination with dirt or dust.
If the fuel is contaminated with dirt, dust, etc., the fuel injection pump and injection nozzle will become worn.

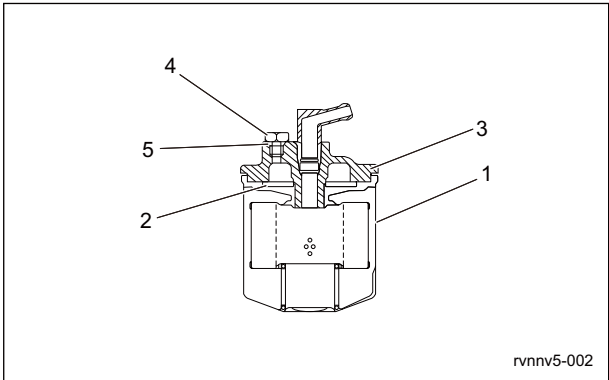
Since the fuel filter is a cartridge, it cannot be disassembled or cleaned.
If dust or dirt accumulates in the fuel filter, the fuel flow will become insufficient.
Replace the fuel filter at the appropriate times.



Change of Fuel Filter_001

1	Fuel filter
---	-------------

- 1. Follow the steps below to replace the fuel filter.
- [1] Using a filter wrench, remove the fuel filter cartridge.
- [2] Lightly coat the packing of the new cartridge with fuel, and then firmly hand-tighten the cartridge, without using the filter wrench.



Change of Fuel Filter_002

1	Cartridge
2	Packing
3	Cover
4	Air-bleeding plug
5	O-ring

- 2. When the ignition key is set to the "ON" position and the fuel pump is operated after replacement, air bleeding will occur automatically.
If the automatic air bleeding is not available, remove air manually.

Change of Fuse

Fuse Box

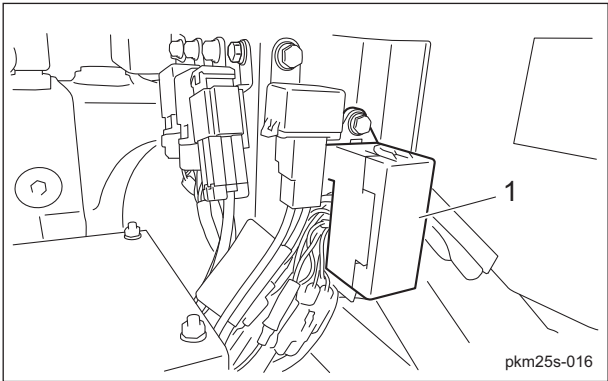
Important

Before performing maintenance on the electrical system, be sure to disconnect the negative terminal of the battery.

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.

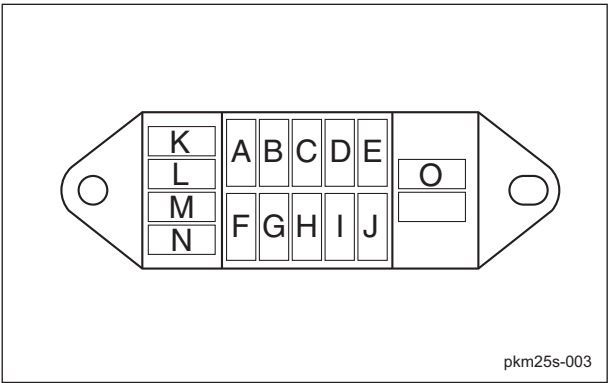
The fuse box includes spare fuses and tools.



Fuse Box_001

1	Fuse box
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The machine uses a mini fuse for automobiles.
Replace an old fuse with a new fuse of the specified capacity.



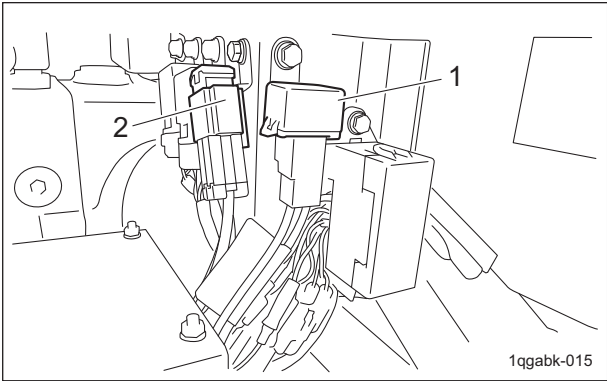
Fuse Box_002

A	5 A	Timer unit
B	5 A	Thermo-start lamp
C	5 A	Fuel gauge, water temperature gauge, charge lamp, oil pressure (engine oil pressure) lamp, water temperature buzzer, hydraulic oil buzzer, hour meter
D	15 A	Relay box L, #4 proximity sensor, #5 proximity sensor, proximity sensor (operation lever), proximity sensor (traveling pedal position detection), delay timer (mower units #2 & #3 lowering)
E	15 A	Relay box R, proximity switch, delay timer (seat), #2 proximity sensor, reel forward/reverse switch
F	-	(Unused)
G	5 A	Timer unit
H	5 A	Alternator
I	5 A	Fuel pump, reel rotation switch
J	5 A	Neutral sensor, parking brake sensor
K	5 A	Spare
L	5 A	
M	15 A	
N	15 A	
O	Tool	

Fusible Link

Fuse capacities of the fusible links are 30 A and 50 A.

- Engine stop solenoid: 30 A
- Battery: 50 A



Fusible Link_001

1	Fusible link (30 A)
2	Fusible link (50 A)

EU Declaration of Conformity

Product Identification

Product : Lawnmower
Make : BARONESS
Type : LM551
Version(s) : Not Applicable
Starting Serial No. : **10029**
Measured Sound Power Level : LWA 99.79 dB
Guaranteed Sound Power Level : LWA 103 dB
Manufacturer Name : Kyoisha Co., Ltd.
Address : 1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan

Conforms to the following Directives

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

We have been designed and manufactured using the following specifications

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

Technical Documentation

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

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

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

Conformity assessment procedures

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

Involved Notified Body (2000/14/EC)

Name : TÜV SÜD Industrie Service GmbH
Address : Westendstraße 199 80686 München
Certificate : Notified Body NB0036 according 2000/14/EC

Place : Japan

Date : 30 January 2020 (30 / 1 / 2020)

Signature :

A. Hayashi

Name : Akio Hayashi

Position : Quality Dept. Manager

(fr)

Déclaration de conformité UE

Identification du produit

Produit : Tondeuse à gazon
Fabriquant : BARONESS
Type : LM551
Version(s) : Non applicable
Numéro de série de début : **10029**
Niveau de puissance acoustique mesuré : LwA 99.79 dB
Niveau de puissance acoustique garanti : LwA 103 dB
Fabricant Nom : Kyoisha Co., Ltd.
Adresse : 1-26, Miyuki-cho, Toyokawa, préfecture d'Aichi, Japon

Conforme aux directives suivantes :

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

Conception et fabrication en respect des spécifications suivantes :

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

Fiche technique

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

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

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

Procédures d'évaluation de la conformité

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

Organisme notifié impliqué (2000/14/CE)

Nom : TÜV SÜD Industrie Service GmbH
Adresse : Westendstraße 199 80686 München / Munich Deutschland / Germany
N° de certificat : Notified Body NB0036 according 2000/14/EC

Declaración de conformidad de la UE

Identificación del producto

Producto: Cortacésped
 Marca: BARONESS
 Tipo: LM551
 Versión: No aplicable
 N.º de serie inicial: **10029**
 Nivel de potencia sonora medido: LWA 99.79 dB
 Nivel de potencia sonora garantizado: LWA 103 dB
 Fabricante: Kyoeisha Co., Ltd.
 Dirección: 1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japón

Cumple las siguientes Directivas

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

Se ha diseñado y fabricado utilizando las siguientes especificaciones

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

Documentación técnica

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

Compilador del archivo técnico (2006/42/CE)

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

Procedimientos de evaluación de conformidad

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

Organismo notificado implicado (2000/14/CE)

Nombre: TÜV SÜD Industrie Service GmbH
 Dirección: Westendstraße 199 80686 München / Munich Deutschland / Germany
 Certificado: Notified Body NB0036 according 2000/14/EC

EU-Konformitätserklärung

Produktbeschreibung

Produkt: Rasenmäher
 Marke: BARONESS
 Modell: LM551
 Version(en): Nicht zutreffend
 Startseriennummer: **10029**
 Gemessener Schallleistungspegel: LWA 99.79 dB
 Garantierter Schallleistungspegel: LWA 103 dB
 Hersteller: Kyoeisha Co., Ltd.
 Adresse: 1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan

Entspricht den folgenden Richtlinien

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

Unter Anwendung der folgenden Bestimmungen entwickelt und hergestellt

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

Technische Dokumentation

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

Technische Unterlagen erstellt von (2006/42/EG)

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

Konformitätsbewertungsverfahren

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

Beteiligte benannte Stelle (2000/14/EG)

Name: TÜV SÜD Industrie Service GmbH
 Adresse: Westendstraße 199 80686 München / Munich Deutschland / Germany
 Bescheinigung: Notified Body NB0036 according 2000/14/EC

EU-försäkran om överensstämmelse

Produktidentifikation

Produkt :	Gräsklippare
Märke:	BARONESS
Typ:	LM551
Version(er):	Ej aktuellt
Serienummer startar på:	10029
Uppmätt ljudeffektnivå:	LWA 99.79 dB
Garanterad ljudeffektnivå:	LWA 103 dB
Tillverkare	Namn: Kyoeisha Co., Ltd.
Adress:	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan

Uppfyller följande direktiv

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

Följande kravspecifikationer har följts vid konstruktion och tillverkning

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

Teknisk dokumentation

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

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

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

Förfarande för bedömning av överensstämmelse

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

Anmält organ (2000/14/EG)

Namn:	TÜV SÜD Industrie Service GmbH
Adress:	Westendstraße 199 80686 München / Munich Deutschland / Germany
Certifikat :	Notified Body NB0036 according 2000/14/EC

BARONESS[®]
Q u a l i t y o n D e m a n d

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Aichi-pref, 442-8530 JAPAN Fax: +81-533-84-1220