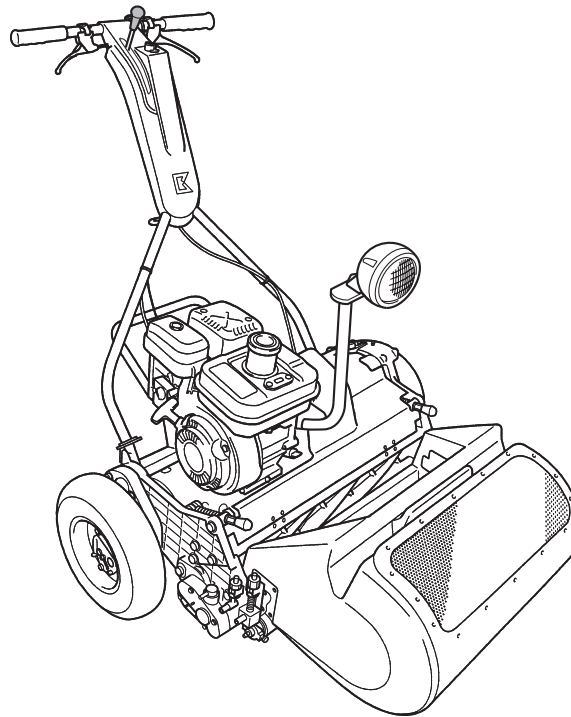


LM56GB ***LM66TB***

Greens Mowers

Owner's Operating Manual



"Required reading" Read this manual and the Owner's Manual for the engine before using the machine.

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Warning for Safety

Warning marks indicate important items for safety.
Observe them strictly.

Warning Marks



Negligence of the warning will cause death or serious injury.



Negligence of the warning may cause death or serious injury.



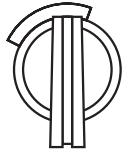
Negligence of the warning may cause injury or property damage.



See the Handling Manual



Danger mark
Hand cut



Engine switch lever



Danger mark
Foot cut



Fuel : Gasoline



Grease
Every 10hours



Hot surface
Burn on hand



CAUTION : Joint shaft

Greeting

Thank you very much for purchasing BARONESS GREEN MOWER.

This Owner's Handling Manual explains the method of correct handling, adjustment, and maintenance of the mower. Thoroughly read the manual before operation. Carefully read the engine operation manual before starting the engine. Mowers undergo thoroughgoing trial operation and inspection before shipment. However, whether or not the mower can exhibit the expected performance depends on the handling method, inspection/adjustment before and after operation, and the properness of lubrication. Handle the mower correctly for safe and excellent operation for an extended period of time.

Owner's Handling Manual

Precautions:

- The name of the model may be different when you make an inquiry about your machine. Advise us of the machine number as well.
- The contents of this manual are subject to change without notice.



CAUTION

The warning marks attached to the machine indicate precautions for safety. Read them carefully. Understand well the operating procedures and safety precautions before using the machine. The marks and explanatory notes should be kept clean. If they are lost or damaged, attach new marks. Never remove the warning marks attached to the machine.

Purpose

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

Safe Operating Practices

The following instructions include the ones from the CEN standard EN 836:1997, ISO standard 5395:1990, and ANSI B71.4-2004.

1. Training

- Read the Owner's operating manual and other training material carefully. Be familiar with the controls, safety signs, and the proper use of the equipment.
- If the operator or mechanic can not read English it is the owner's responsibility to explain this material to them.
- All operators and mechanics should seek and obtain professional and practical instruction. The owner is responsible for training the users.
- Never allow children or people unfamiliar with these instructions to use or service the machine. Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.
- Keep in mind that the owner, operator, and mechanic are responsible for accidents or hazards occurring to other people or their property.

2. Preparation

- 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.
- 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.
- 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.
- Warning - Fuel is highly flammable. Take the following precautions:
 - Store fuel in containers specifically designed for this purpose.
 - 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.
 - Refuel outdoors only and do not smoke while refueling.
 - 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;
 - Refuel all fuel tanks and container caps securely.

- Check that operator's presence controls, safety switches, and shields are attached and functioning properly. Do not operate unless they are functioning properly.
- 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.
- Replace faulty mufflers.

3. Operation

- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Only operate in good light, keeping away from holes and hidden hazards.
- Before attempting to start the engine, disengage all blade attachments, shift into neutral, and engage the parking brake.
- Start the engine or switch on the motor carefully according to instructions and with feet well away from the blade(s).
- Avoid operating the equipment in wet grass, where feasible.
- Always be sure of your footing on slopes.
- Walk never run.
- Look behind and down before backing up to be sure of a clear path.
- Remember there is no such thing as a safe slope. Travel on grass slopes requires particular care. To guard against overturning.
 - Do not mow excessively steep slopes.
 - Do not stop or start suddenly when going up or downhill.
 - Engage clutch slowly, always keep machine in gear, especially when traveling downhill;
 - Machine speed should be kept low on slopes and during turns.
- Never operate the machine with damaged guards, shields, or without safety protective devices in place. Be sure all interlocks are attached, adjusted properly, and functioning properly.
- Do not change the engine governor setting or overspeed the engine. Operating the engine at excessive speeds may increase the hazard of personal injury.
- Do the following before leaving the operator's position:
 - stop on level ground;
 - disengage the cutting unit and traction drive;
 - set the parking brake;
 - stop the engine;

- Stop the engine;
 - before refuelling
 - before removing the grass catcher;
 - before making height adjustment unless adjustment can be made from the operator's position:
 - before clearing blockages;
 - before checking, cleaning, or working on the machine.
 - whenever you leave the machine;
 - 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;
- Keep hands and feet away from the cutting units and the rotating parts.
- Never pick up or carry a lawnmower while the engine is running.
- Never operate while people, especially children, or pets are nearby.
- Slow down and use caution when making turns and crossing roads and sidewalks.
- Stop the blades rotating before crossing surfaces other than grass.
- Disengage drive to attachments when transporting or not in use.
- When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
- Do not operate the machine under the influence of alcohol or drugs.
- Take care when loading or unloading the machine into a trailer or truck. Load or unload the machine in a flat and safe place. Before loading or unloading, set the parking brake on the truck or trailer, stop the engine, and chock the wheels.
- When transporting the machine on a truck or a trailer, set the parking brake, stop the engine, and fasten the machine to the truck with a rope or other suitable restraining device that has sufficient strength.
- When using a running board, select one with sufficient strength, length, and width and that will not cause the machine to slip.
- Close the fuel valve before transporting the machine.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- Do not take your eyes off the road ahead. Do not operate the machine with no hands.
- 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.

4. Maintenance and Storage

- Disengage drives on level ground, lower the attachments, set parking brake, stop engine and disconnect spark plug wire. Wait for all movement to stop before adjusting, cleaning or repairing.
- To reduce the fire hazard, keep the engine, silencer/muffler, fuel storage area, cutting units and drives free of grass, leaves, or excessive grease. Clean up oil or fuel spillage.
- Allow the engine to cool before storing in any enclosure.
- Only cover the machine with a sheet after hot parts have sufficiently cooled down.
- Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- If the engine is provided with a shut-off valve, shut off valve while storing or transporting.
- Do not store fuel near flames.
- Never allow untrained personnel to service machine.
- Allow the engine / muffler to cool before checking / maintenance.
- Appropriately manage and correctly use the tools necessary for servicing or adjusting the machine.
- Use jack stands to support components when required.
- Carefully release pressure from components with stored energy.
- Exercise sufficient care in safety when checking the reel cylinder and bedknife.
 - Wear gloves surely.
 - Exercise sufficient care during adjustment of the blade engagement to avoid getting the fingers caught between the reel cylinder and bedknife.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
- Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
- Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
- Check the grass catcher frequently for wear or deterioration.
- If the fuel tank has to be drained, do this outdoors.

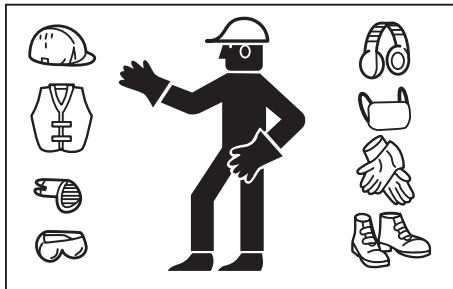
Safety precautions

The lawn mower has a rotating blade reel cylinder (sharp blade), and the safety of operation is subject to the place of use, obstacles, lawn conditions, and many other factors. As a maker, we specifically request the user to thoroughly inspect and maintain the machine, make efforts to become skilful in operating the machine, and correctly and safely use the machine in order to avoid injury on yourself and others.

1) Clothes for safety

⚠ CAUTION

- Wear clothes that will prevent you from being caught in the machine, and wear safety gear, goggles, shoes, helmet, and gloves. It is strongly advised that the operators of this machine wear both goggles and ear defenders for their protection.



2) Emergency relief measures

⚠ CAUTION

- Understand the method of stopping the engine in an emergency.

3) Do not operate the machine in such cases.

⚠ WARNING

- Do not operate the machine when you are tired. If you get tired during machine operation, stop the work and take a rest.
- Do not use the machine when you are sick, drunk, or under the influence of medicine. The visual sensation, nimbleness, or judgment will be adversely affected.
- If you are unaccustomed to the machine operation, thoroughly understand the handling method and safety precautions before use. Do not allow children to operate the machine.

4) When lending the machine to other people

⚠ CAUTION

If you lend the machine to a person who has no knowledge about the safety precautions or handling procedure described in the operation manual, an unexpected accident may result. Thoroughly explain the handling method and hand over the operation manual to the person who will use the machine, having him or her carefully read the operation manual before use.

5) Prohibition of operation or work at night

⚠ WARNING

Do not operate the machine at night or when the view is unclear because of bad weather.

6) Safety inspection before work

⚠ DANGER



- Check that all covers are in position and that no portion is broken.
- Check that bolts and nuts are not loose. If they are loose, tighten them.
- Check that the operation of the brake, levers, and tires is normal.

7) Precautions to take during operation

DANGER



- Check that there is no person or any object that may be broken around the machine during operation.
- Check that there is no player in the vicinity, otherwise a flying golf ball may hit against you.
- Exercise adequate care so that you will not get injured by flying objects or the blade.

CAUTION

- Exercise special care when working on a slope or undulating ground.
- Do not operate the machine in places where there is a risk of toppling or slipping.

DANGER



- Do not touch rotating parts during operation, otherwise you may have your fingers or hands injured.
- Operate the machine at a speed that will allow the machine to stop immediately in an emergency. Do not start the machine or operate the handle suddenly. Be sure to move the machine at a slow speed especially when descending a slope.
- Do not move the throttle lever abruptly to increase the speed, otherwise the front of the machine may jump up.
- When you notice abnormal vibration, unusual sound, or other abnormality in the machine, stop the engine immediately and investigate the cause. Completely repair the machine before reuse.
- When leaving the machine, stop the machine on the level ground and then stop the engine.

DANGER

8) Precautions as to inspection

CAUTION

- Place the machine on the level ground for inspection and repair. Check that all parts are at rest.

WARNING

- Clogging of the cooling air intake of the engine, air intake of the air cleaner, muffler, and exhaust pipe with mown grass or other foreign substances may cause fire due to engine malfunction or overheating. Stop the work immediately, and remove the clogging substance after the overheated section has cooled.
- Keep the warning marks and explanations clean at all times. Replace them with new ones immediately when they are lost or damaged.
- Do not remodel the machine.
- Use parts, oil, and grease specified by our company when changing them.
- Remodeling or operation of the machine with some parts that are not specified by our company may cause damage to the machine or injury.

9) Moving on a public road

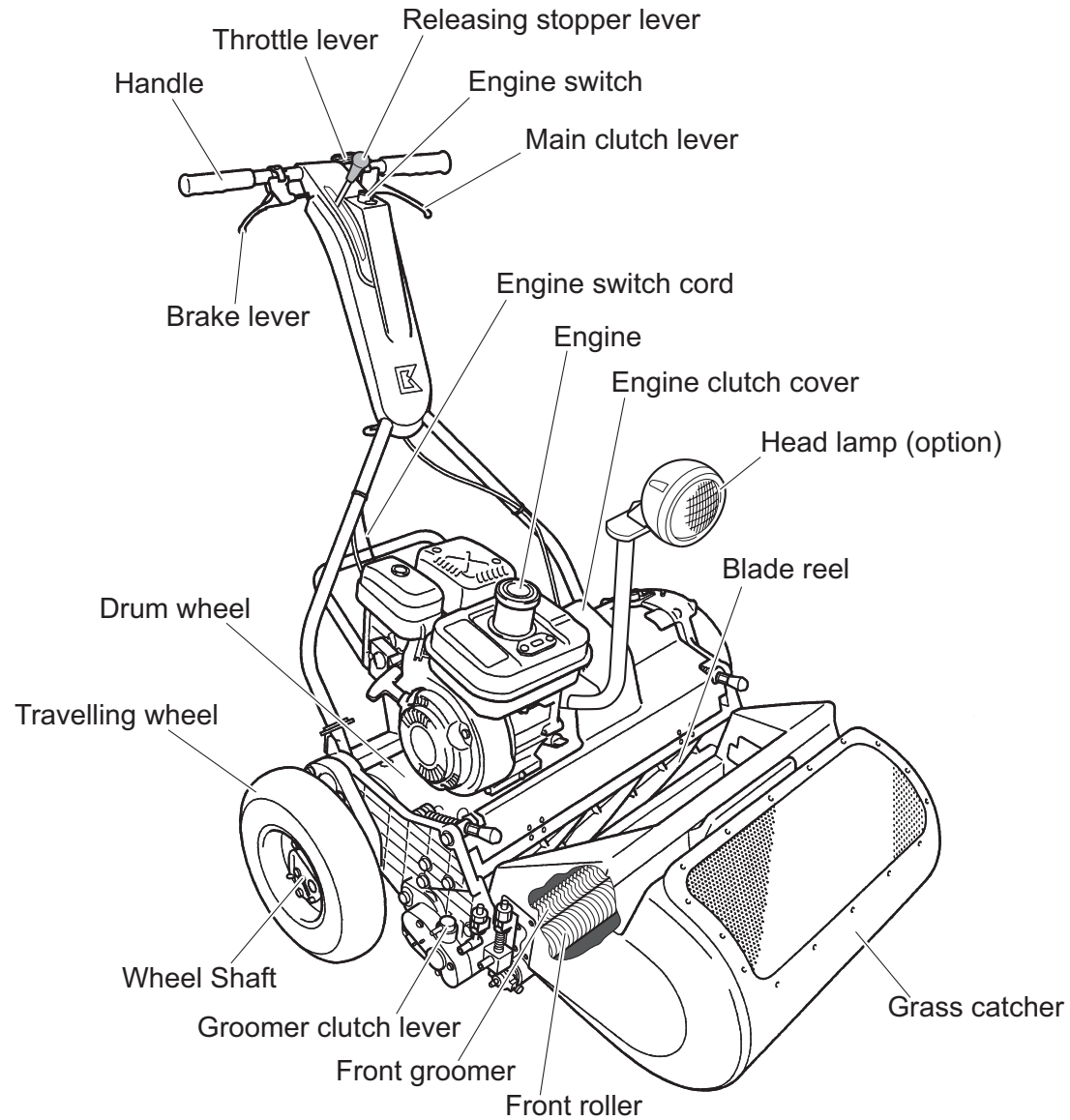
CAUTION

- Running the machine on a public road while you are riding on a sulky is prohibited by the law. Walk and move the machine on a public road.

10) Storage

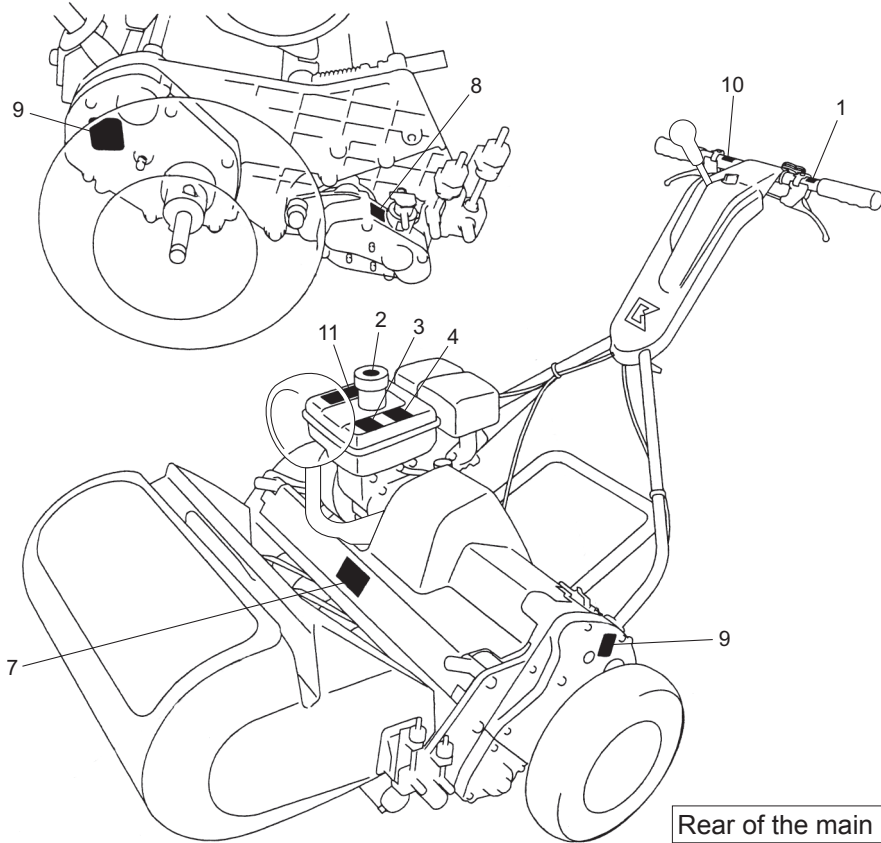
- Wait until the engine cools when covering the machine with a sheet, etc.
- Remove gasoline when the machine will not be operated for more than six months.

Part names

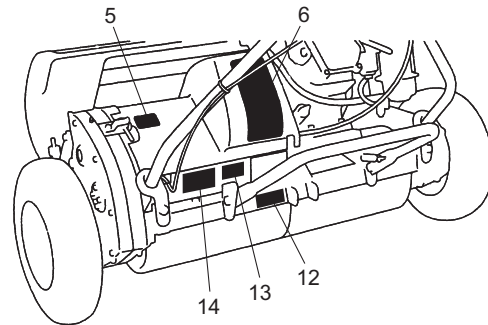


Location of Labels for LM56GA and LM66TA

Right-side of the main unit



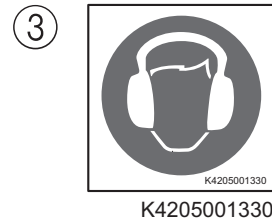
Rear of the main unit



: BRAKE Mark

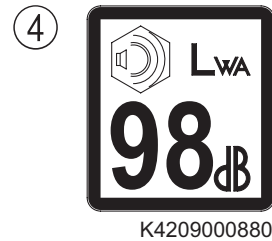


WARNING : Engine oil Warning Mark

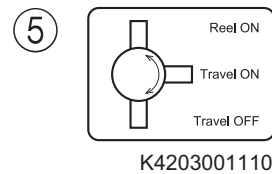


: Noise caution Mark

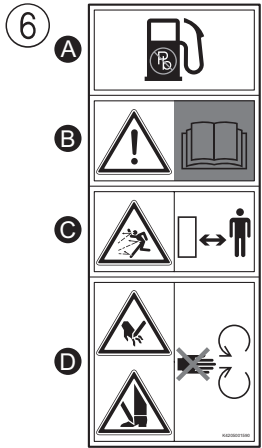
It is strongly advised that the operators of this machine wear ear defenders for their protection.



: LWA 98 Mark



: Clutch Mark (Large)



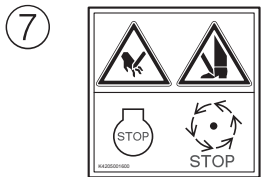
K4205001590

A : Use only unleaded gasoline.

WARNING **B** : Read the owner's manual.

DANGER **C** : Keep a safe distance from the machine.

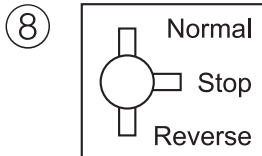
DANGER **D** : Do not open or remove safety shields while engine is running.



K4205001600

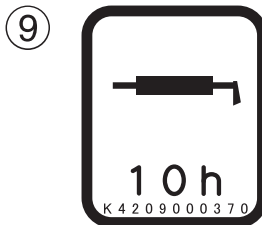
DANGER : Cutting hands or feet

If you do not stop rotating the mower and the engine is not turned off, there is a risk that you may get injured.



K4203001120

: Groomer Made Selector



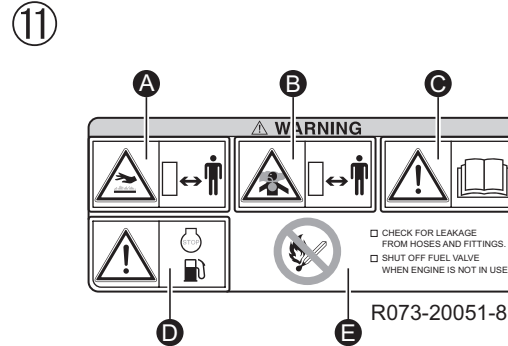
K4205001600

: Grease Up 10h Mark



K4203001040

: Clutch Mark



WARNING

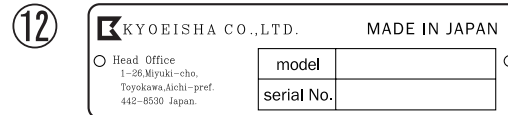
A : Stay clear of the hot surface.

B : Exhaust gas is poisonous. Do not operate in an unventilated area.

C : Read the owner's manual.

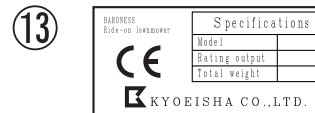
D : Stop the engine before refueling.

E : Fire, open flame and smoking prohibited.



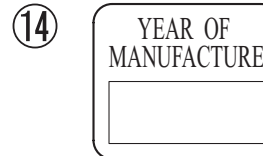
: Serial Number Plate

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



: Specification Decal

The specification decal indicates the CE logo, model name, and weight, etc.



: Year of Manufacture Decal

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

Features of LM56GB · 66GB · 66TB

- The lightest green mower of all models of this class
- The weight balance and undulation following performance have been improved for better green mowing.
- The structure of the clutch has been changed for smooth starting.
- LM56GBF·66GBF are equipped with Front Groomer.
- The front groomer is provided to permit normal and reverse rotation.
(Provided with a groomer.)

Specifications

Model		LM56GB	LM66GB	LM66TB
Length (with grass catcher)		141cm		
Width (without travelling wheel)		94.2cm	103.2cm	
Height (handle)		103cm		
Mowing weight	no groomer	88kg	95kg	
	fully optioned	111kg	109kg	
Mowing section	Mowing width	55.6cm	64.6cm	
	Reel diameter	Φ12.8cm		
	Number of reel blades	9 or 11 blades		7 blades
	Mowing height	3.0~29mm [3.0~27mm] ^{*1}		7.0~29mm
Engine		SUBARU EX13D 3.2kW (4.3hp)/4,000rpm ^{*2}		
Speed (Km/h)		4.8km/h(3,000rpm)		4.4km/ (3,000rpm)

*1 : The indicated lowest mowing height is for general application. It may be adjusted according to the state of green and the bed knife to be installed. The value in the brackets [] is the mowing height of the machine equipped with a groomer.

*2 : The factory default maximum engine rpm is 3,400rpm.

	Front groomer		Dethatching reel		Dethatching brush	
	Working width	Number of blades	Working width	Number of blades	Working width	Turning diameter
	(cm)		(cm)		(cm)	(cm)
LM56 Series	51	78	50	39	49	6
LM66 Series	60	92	60	46	57	6

LM56

Sound Pressure Level

This machine was confirmed to have a continuous A-weighted sound pressure level of 87 dB by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

Sound Power Level

This machine was confirmed to have a sound power level of 98 dB by measuring identical machines in accordance with the procedure specified in directive 2000/14/EC.

Vibration Level

This machine was confirmed to transmit a maximum vibration level of 3.07 m/s² to hands and arms by measuring identical machines in accordance with the procedure specified in ISO 5349-1:2001,ISO 5349-2:2001.

LM66

Sound Pressure Level

This machine was confirmed to have a continuous A-weighted sound pressure level of 87 dB by measuring identical machines in accordance with the procedure specified in ISO 5395-1:2013.

Sound Power Level

This machine was confirmed to have a sound power level of 98 dB by measuring identical machines in accordance with the procedure specified in directive 2000/14/EC.

Vibration Level

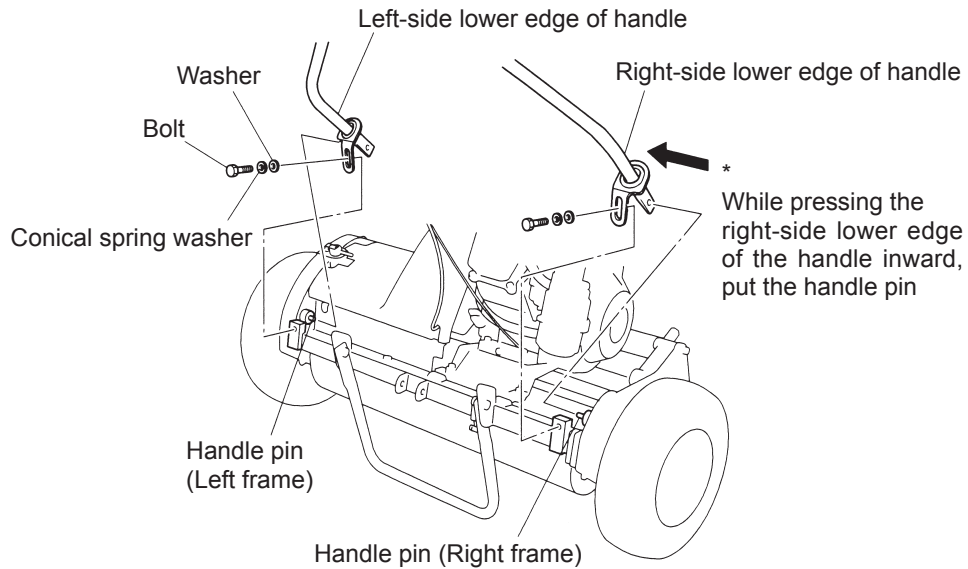
This machine was confirmed to transmit a maximum vibration level of 2.70 m/s² to hands and arms by measuring identical machines in accordance with the procedure specified in ISO 5349-1:2001,ISO 5349-2:2001.

Handling

1. Assembly and adjustment of main unit

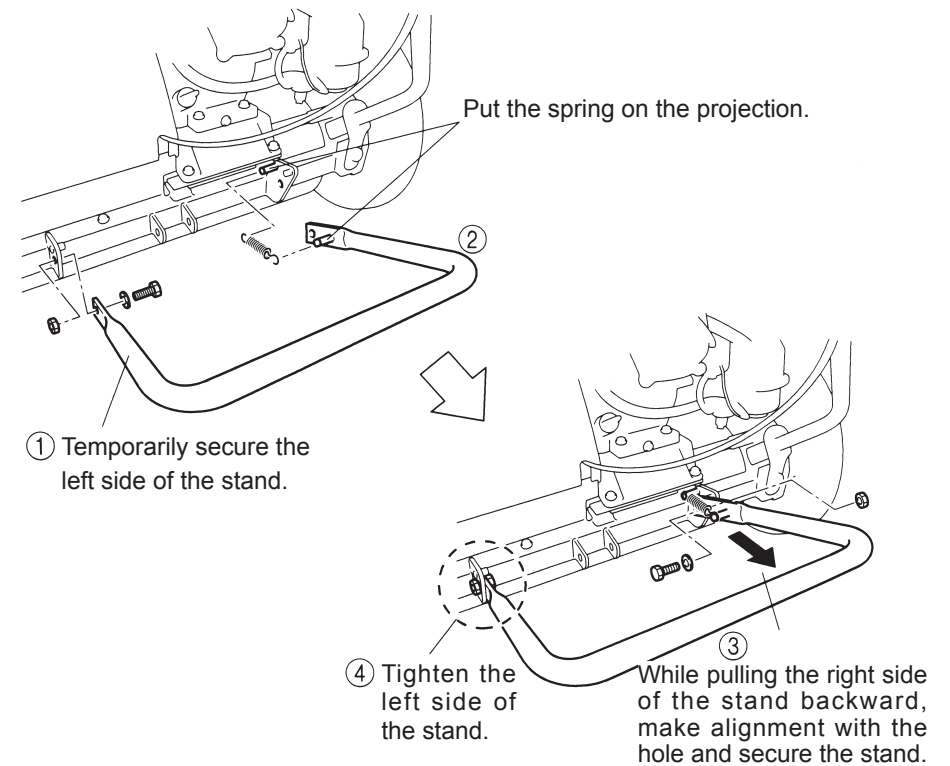
1-1 Installing the handle

- 1) Put the handle pin on the left frame into the hole at the left-side lower edge of the handle.
- 2) While pressing the right-side lower edge of the handle inward, put the handle pin of the right frame into the hole.
- 3) Secure the lower edge (slotted section) of the right and left handles to the frame from the back with the bolt, conical spring washer, and washer.



1-2 Installing the stand

- 1) Temporarily secure the left side of the stand to the frame with the bolt, washer (inside), and nut (outside).
- 2) Put the spring on the projection of the frame and the projection at the right edge of the stand.
- 3) While pulling the right side of the stand backward, make alignment with the hole in the frame, and secure the stand with the bolt, washer (inside), and nut (outside).
- 4) Tighten the bolt, washer, and nut at the left side of the stand that were temporarily secured.



1-3 Confirmation of the operation of clutch lever and brake lever

Check that the clutch and brake operate completely.

When adjustment is necessary, make adjustment according to "5-8. [Important] Adjustment of engine clutch section."

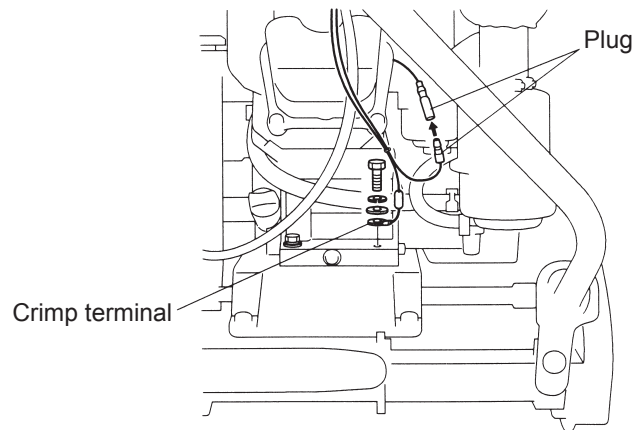
1-4 Connection of engine switch cord

When assembling the handle, check the connection of the engine switch cord. There are two connections - plug and crimp terminal.

1) The plug is connected to the plug that is connected to the engine.

⚠ WARNING

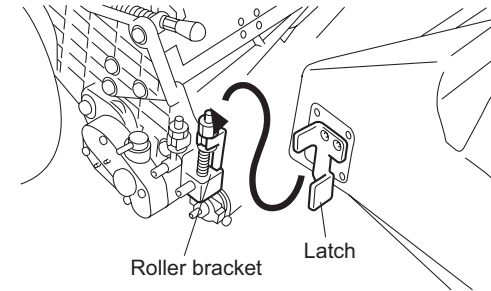
2) The crimp terminal is secured to the engine crankcase with a hexagon bolt. When the connection of the engine switch cord is incomplete, the engine will not stop even if the engine switch is operated. Check that the cord is correctly connected.



1-5 **⚠ CAUTION** Installing / removing basket

Before installing / removing basket, keep machine stop.

When installing basket, hand the side latches (right & left) of basket on the roller brackets. When removing basket, raise the basket up to disengage side latches (right & left) from the roller brackets.



2. Inspection before use

2-1 Greasing



The transmission and intermediate transmission gears are equipped with needle bearings. Grease them every 10 hours. Shortage of grease will cause damage to the needle bearings.

2-2 Inspection of engine oil

Replenish the engine with engine oil. (A correct level will be shown when the engine is placed horizontally.) Change engine oil 8 hours after the initial operation, and every 50 hours from the second time onward. Oil : SAE30.

2-3 Inspection of wire

Check that the clutch wire and brake wire are normal.

2-4 **⚠ DANGER** Inspection of brake

Inspect whether the brake functions completely.

When need to adjust brake, according to "5-6 Brake lever" to adjust it.

3. Fastening of each portion

Many parts are fastened by bolts. Bolts and nuts may be loosened some time after initial operation. Fasten them to the specified torque.

Appropriate fastening torque N.m (kgf-cm)

	Normal bolt	Heat treated bolt
M6	8 (80)	
M8	18 (180)	36 (360)
M10	36 (360)	72 (720)
M16	1.5-pitch left-hand thread: 36 (360)	

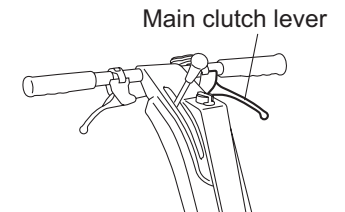
4. Engine starting sequence


4-1 WARNING Before starting engine

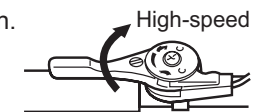
Carefully read the gasoline engine operation manual before starting the engine. The handle cover is equipped with an engine switch. Check the "ON/OFF" positions. Set the engine switch lever in the ON position, set all moving parts in the neutral position. Check for safety - covers are in position and not damaged and there is no person around the machine - before starting the engine. Do not start the engine indoors without an appropriate ventilator.

4-2 CAUTION Starting the engine

1) Do not grip the main clutch lever.



2) Set the throttle lever in the high-speed  position.



3) Set the engine switch in the ON position.



4) Set the strainer lever in the open position.



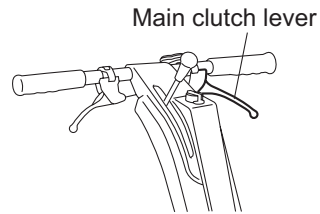
5) Pull the choke lever and pull the recoil starter, and the engine will start.

6) Return the choke lever.

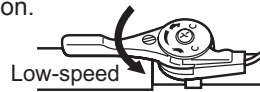
4-3 **CAUTION** Stopping the engine

*Remember the method for stopping the engine in an emergency.

- 1) Do not grip the main clutch lever.



- 2) Set the throttle lever in the low-speed position.



- 3) Set the engine switch in the OFF position.



- 4) Set the strainer lever in the close position.



- 5) Set the engine lever in the OFF position immediately in an emergency.

4-4 **DANGER** Fuel supply



- Keep flame etc. away from the engine when supplying fuel. Stop the engine outdoors and allow it to cool before supplying fuel.
- Keep the machine clean at all times to prevent deposition of dust, grease, or oil.

4-5 **CAUTION** When leaving the machine

- Park the machine on a flat place.
- Check that the engine has stopped and the engine switch lever is "OFF."
- Do not park the machine on a slope.

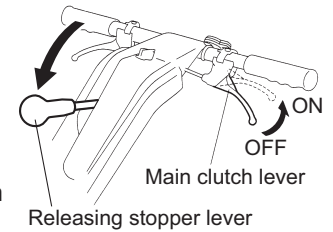
5. Machine operation

5-1 **DANGER** Before operation

- Check that each portion - especially the brake and clutch - operates satisfactorily before starting machine operation.
- Make sure that the machine can be stopped immediately at any time.
- Exercise care so that you and people around the machine will not be injured.

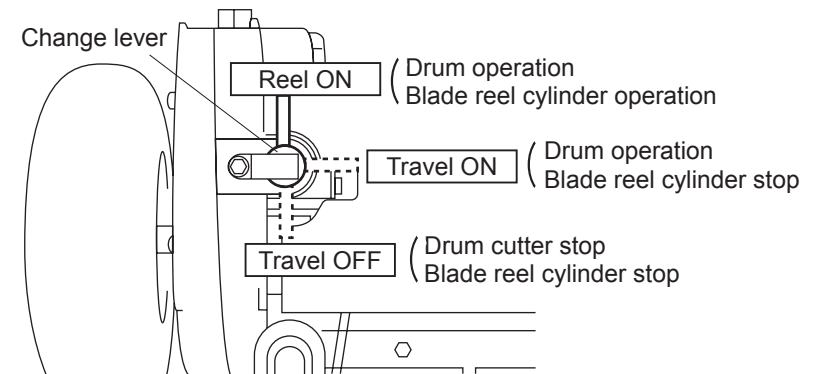
5-2 Main clutch lever

- The clutch lever is on the left side of the handle. Avoid quick operation. Carefully and slowly operate the machine.
- * Pull the clutch lever to transmit traveling drive and the machine begins to move forward. Push the releasing stopper lever before pulling the main clutch lever.



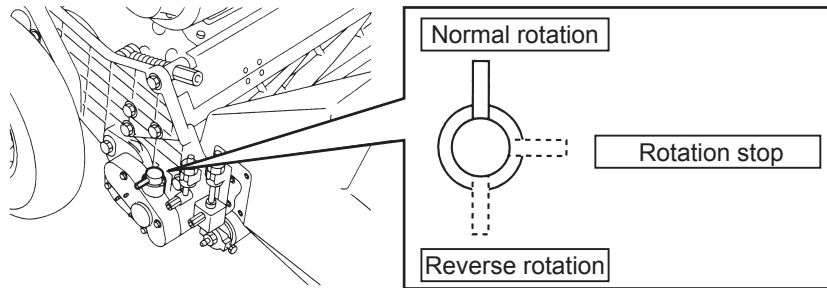
5-3 Change lever

- The change lever is at the top of the left frame. There are three changeover positions. When the lever is in the "Reel ON" position, the drum and cutter operate, entering the mowing mode. When the lever is in the "Travel ON" position, only the drum operates, entering the traveling mode. When the lever is on the "Travel OFF" position, both drum and cutter stop, entering the traveling mode with the engine stopped.



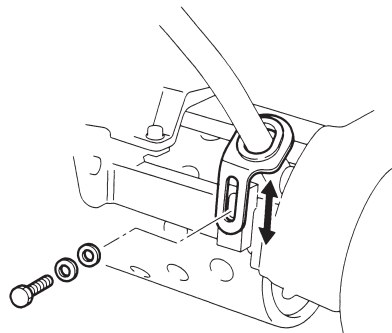
5-4 Groomer clutch lever

The lever is at the top of the groomer gear case on the outside of the right frame. There are three changeover positions - "Normal rotation" (in the same direction as the rotating direction of the blade reel cylinder), "Rotation stop," and "Reverse rotation" (in the direction opposite to the direction of rotation of the blade reel cylinder). Change the positions according to the type of work.



5-5 Adjustment of handle height

Move the securing bolt up and down in the slot of the handle guide, which is securing the handle to the frame, in order to adjust the height of the handle according to the operator's working position.



5-6 WARNING Brake lever

The lever is in the right-side grip section of the handle. Grip the lever, and the internal expanding brake set in the second shaft section will operate.

The strength can be adjusted by the screw.

Do not park the machine on the slope.

5-7 Throttle lever

The throttle lever is on the left side of the handle. The lever controls the engine speed. The speed of rotation is 1,400 - 3,400 rpm. Operate at about 3,000 rpm.

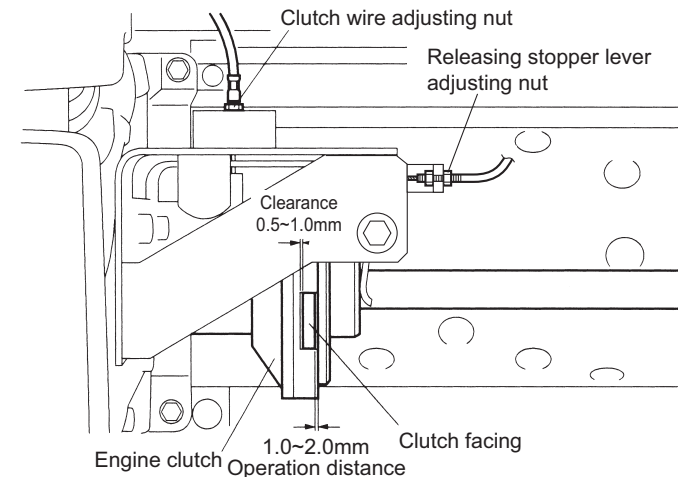
5-8 [IMPORTANT] Adjustment of engine clutch

When reinstalling the engine

Adjust the clearance between the engine clutch and clutch facing so that it will be approx. 0.5 to 1 mm when the travelling clutch is engaged. For adjustment, loosen the four bolts that are securing the engine, and insert a thickness gauge (attached) into the front and rear. Make adjustment so that the gap will be parallel, and then fasten the bolts.

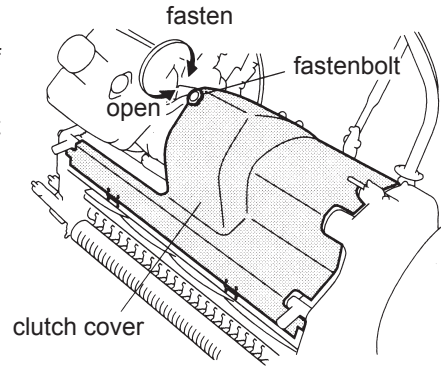
When adjusting the clutch wire

Make adjustment so that the operation distance of the clutch plate between the clutch engagement and disengagement will be 0.8-1 mm.



5-9 Clutch cover

The clutch cover is on the left side of the engine, covering the engine clutch. It is secured by turning the fastenbolt clockwise (by 4-5 turns).



5-10 Travelling wheel

The travelling wheel is used to move the machine from green to green. Set the stand up right, pull the tire holding the lever, and the wheel will come off.

*tire air pressure 120kPa(1.2kg/cm²)

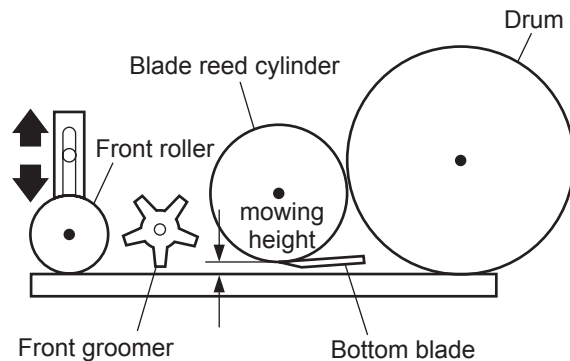
5-11 Transportation

Take care for the safety, when loading to/unloading from the trailer or truck. (Considering the direction of the machine, wearing nonslip shoes, move slowly.)

When holding the machine with rope, pay attention not to bind the wires. Take care not to tie down the engine.

5-12 [IMPORTANT] Adjustment of mowing height

Move the front roller up or down, and the mowing height can be adjusted to a maximum of 27 mm. Use an optional bottom blade when 3 m/m mowingheight is desired.



5-13 [IMPORTANT] Greasing

Periodically fill up respective grease nipples.

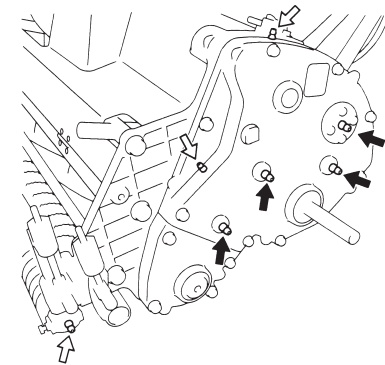
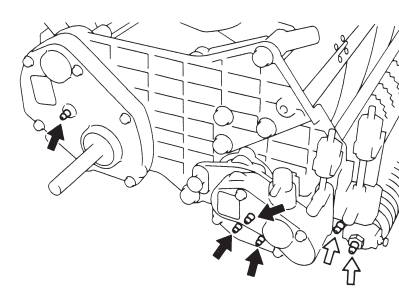
Exercise special care when greasing the sections where needle bearings are used. (Intermediate shaft of the right and left gears and the intermediate shaft of the groomer)

Periodically fill up the grease nipples with approx. 1 g of grease (EXCELITE EP No.2) (one or two times with a compact manual grease pump).

Every 10 hr →	Every 50 hr ⇨
Left frame intermediate shaft (for Reel)	Left gear cover
Right & left frame intermediate shaft (for Drum)	Reel bearing
Differential gear parts	Front roller
Vertical gear case intermediate shaft	Vertical gear case

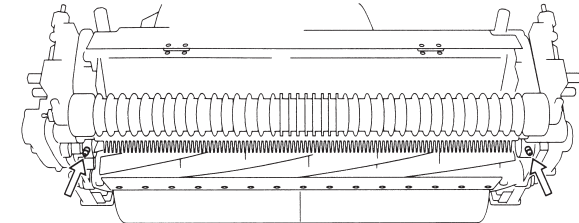
Right-side main unit

Left-side main unit



Every 10 hr →

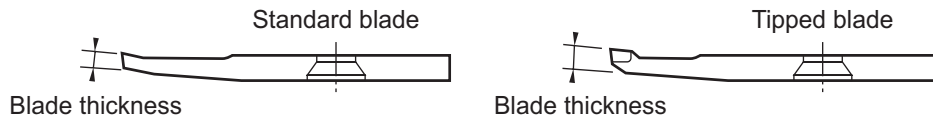
Every 50 hr ⇨



5-14 Setting the mowing height gauge and blade thickness

1) Set the mowing height gauge at the desired height. The minimum mowing height with respect to each bottom blade thickness is shown below.

	Type of blade	Blade thickness (mm)	Min.mowing height(mm)	Code No.	Part Name	Note
LM56GA	Standard blade	1.5	3.0	K2511000270	1.5 bottom blade 55G	Option
		2	3.5	K2511000280	2 bottom blade 55G	
		2.5	4.0	K2511000050	2.5 bottom blade 55G	
	Tipped blade	3	4.5	K2510000060	3 bottom blade 62.5-559	standard
		5	7.0	K2510000160	5 bottom blade 62.5-559	
LM66GA	Standard blade	1.5	3.0	K2511000310	1.5 bottom blade 65G	Option
		2	3.5	K2511000300	2 bottom blade 65G	standard
		2.5	4.0	K2511000200	2.5 bottom blade 65G	
	Tipped blade	3	4.5	K2510000150	3 bottom blade 62.5-648.4	Option
		5	7.0	K2510000170	5 bottom blade 62.5-648.4	



* The minimum mowing height is the height on the average condition green. Lawn may be shaved when the undulation of the green is substantial. Set the mowing height higher in that case.

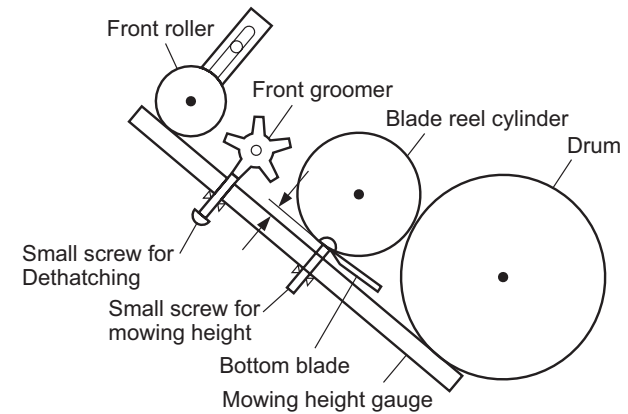
2) Adjust the front groomer according to the condition of the green before use.

* If the groomer blades are set deeper than the ground surface, the shaft may bend. The front groomer, when it is put too low, will apply an excessive load to the engine and transmission section, causing malfunction or failure.

3) When using the grooming brush, adjust the height so that it will be equal to the mowing height.

* The brush will be worn easily when the height is too low.

- 4) [IMPORTANT] Adjustment of front roller height
Bring the mowing height gauge into contact with the front roller and drum (as shown below), and adjust the height of the bottom blade.
- Loosen the tall nut of the roller bracket, and move the front roller up or down with roller adjuster.
 - Position the front roller with the mowing height gauge.
 - Make adjustment at both edges.
 - Tighten the tall nut, and secure the roller bracket.



6. Blade engagement

Check that the engine is at rest before making adjustment.

Grind and adjust the blade reel cylinder and bottom blade entirely so that a newspaper will be cut sharply.

6-1 [IMPORTANT] Lapping

Conduct lapping after mowing operation (before adjusting the engagement).

- 1) Check the entire portion of the blade reel cylinder to check which portion is dull. (If a newspaper cannot be cut in any portion, put in two sheets of paper to carefully check which portion is dull.)
- 2) Connect the lapping machine (RM20B) or lapping bolt (option) to the lapping shaft of the mower.
- 3) Rotate the blade reel cylinder in the direction opposite to the mowing direction, and apply abrasive with a brush only to the portion where a newspaper was sharply cut. The portion where a newspaper was not cut is worn away. Do not apply abrasive to such portions.
* The right side (when viewed from the front of the blade reel cylinder) of the blade reel cylinder will be worn away 3-4 times earlier than the left side. When applying abrasive to the blade reel cylinder, be sure to move the brush from left to right. (See right sketch) When the abrasive is a mixture of powder (#200~#400) and oil, mix them at the rate of 1:3 to 4. The gel compound (option) can be used as it is.
- 4) Keep rotating the blade reel cylinder, and stop rotation when the contact sound disappears. Put in a newspaper again to check the blade reel cylinder entirely for the sharpness of each portion.
- 5) Repeat operations (3) and (4). When the blade reel cylinder and bottom blade are in contact with each other uniformly, apply abrasive to the blade reel cylinder entirely for final lapping.
- 6) After lapping, remove the abrasive with steam, etc.

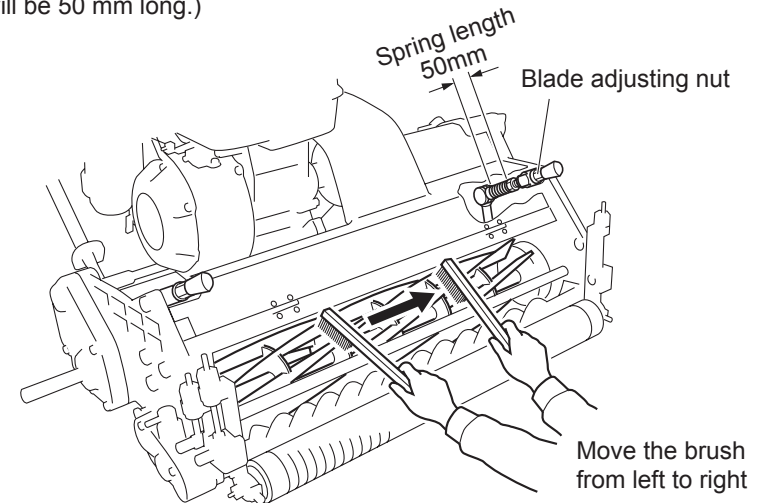


Both blade reel cylinder and bottom blade are edged. Handle them carefully.

Be careful of the fingers, which turn the blade reel cylinder, when cutting a newspaper to check sharpness. Uniformly lap the right and left sides of the bottom blade in contact with the blade reel cylinder, and the life of the blade will be maximized.

6-2 [IMPORTANT] Engagement

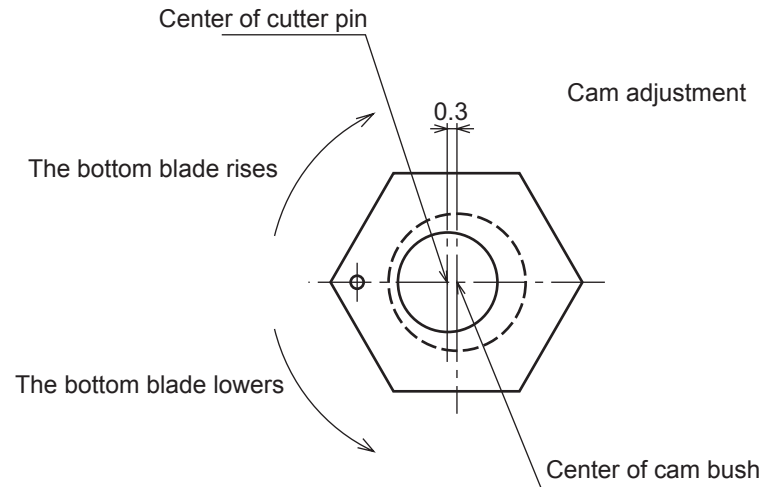
- 1) Lightly engage the blade reel cylinder and bottom blade uniformly on both sides.
- 2) Uniformly adjust the bottom blade on the right and left sides.
Turn the blade adjusting nut clockwise for slight engagement, and turn it counterclockwise for firm engagement.
- 3) Lightly engage both sides to the extent that a newspaper will be cut sharply.
When the blade reel cylinder is worn and the spring pressure decreases, adjust the spring pressure by the spring adjusting screw and 14 nut. (Make adjustment so that the spring will be 50 mm long.)



6-3 [IMPORTANT] Cam adjustment

Turn the cam bush on both sides of the bottom blade, and the blade will be raised and lowered within a maximum range of 0.3 mm. The above method is used when the edges of the blade reel cylinder and bottom blade are not in parallel.

- 1) When there is a gap between the blade reel cylinder and the left frame side of the bottom blade loosen the lock nut, and turn the left cam bush clockwise as much as the gap. Turn it clockwise by 30° to raise the bottom blade by 0.1 mm. After adjustment, firmly fasten the lock nut.
- 2) When there is a gap on the right frame side, loosen the lock nut, and turn the right cam bush counterclockwise as much as the gap.



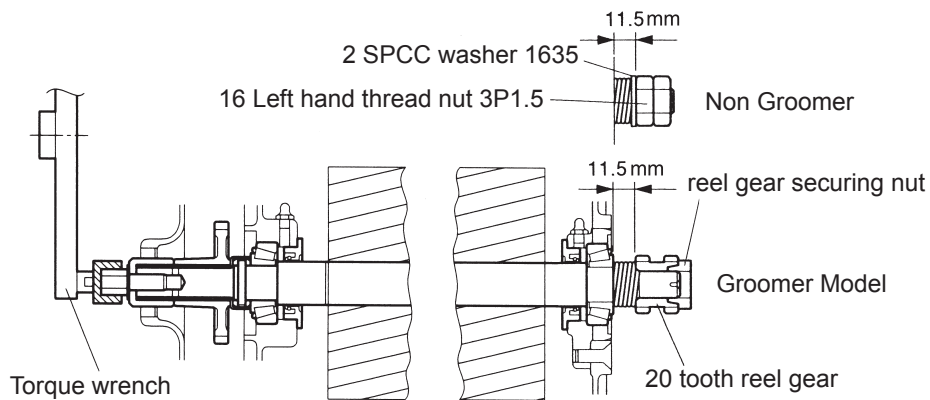
- 1) Replace the bearings and reel shaft seals on both sides of the blade reel cylinder. Use the bearing 30204JRP6 that has the smallest error.
- 2) Sufficiently apply grease (EXCELITE EPNO2) to the bearing and seal. (Apply grease to the bearing while turning the roller.)
- 3) Method to fasten nut after installing the blade reel cylinder

[IMPORTANT] Tighten the nut until the length of the spring reaches 11.5 mm, and lock the nut. A certain preload will be applied by the spring pressure. The rotational torque of the blade reel cylinder should be $0.8\sim 1.0\text{N} \cdot \text{m}$ ($8\sim 10\text{kgf} \cdot \text{cm}$). If it is not, check the bearing and seal.

6-4 Cylindrical grinding and installation of blade reel cylinder

Cylindrically grind the blade reel cylinder when it is worn away and has become conical. (Ask the dealer you purchased the machine from for cylindrical grinding.)

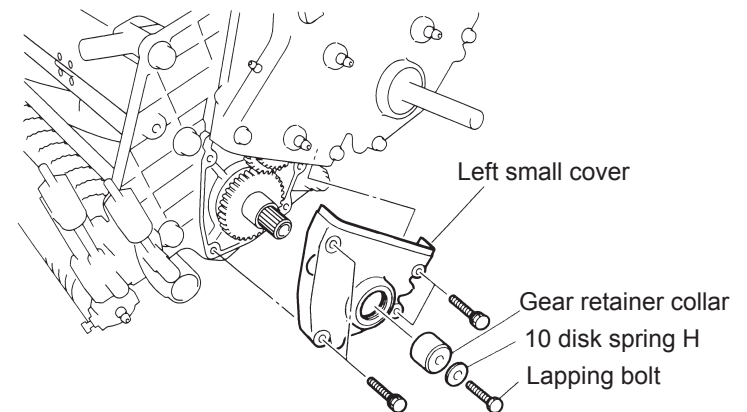
6-5 [IMPORTANT] Installation of blade reel cylinder



6-6 Attaching/detaching the small cover

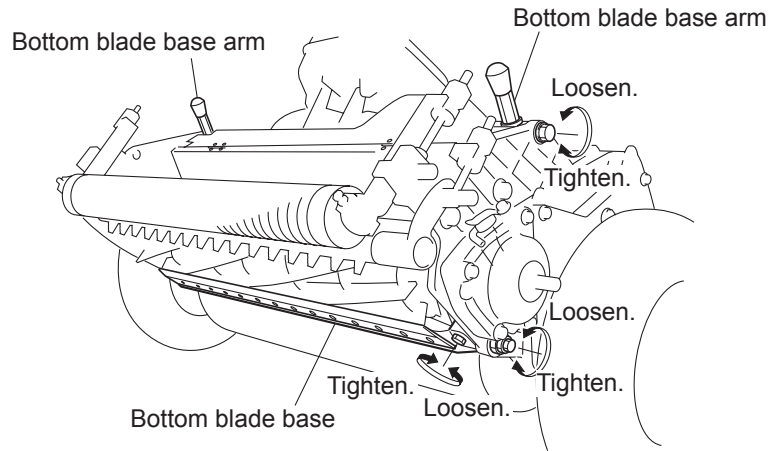
Remove the lapping bolt and the gear retainer collar in this order, and then remove the left small cover.

Attach the left small cover, and then attach the gear retainer collar and lapping bolt in this order. (Attach the left small cover so that the reel cutter shaft will be at the center of the oil seal of the left small cover.)



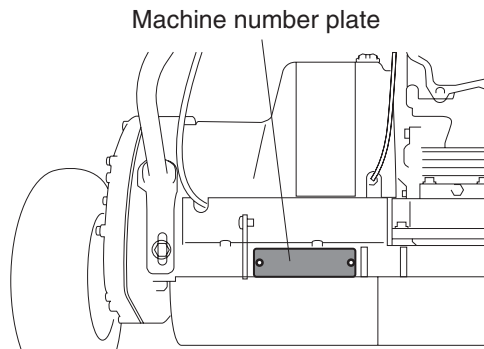
6-7 Attaching/detaching the bottom blade base

Remove the bottom blade base arm, and then remove the bottom blade base.
Attach the bottom blade base, and then attach the bottom blade base arm.



6-8 Machine number plate attaching position

The type and serial number are marked on the machine number plate.
It is attached to the back portion on the rear frame stay.



6-9 Specification for maintenance

Qty of engine oil	0.6dm ³ (0.6L)
Plug	NGK BR4HS
Capacity of gasoline tank	2.3dm ³ (2.3L)
Tire air pressure	120kpa (1.2kg/cm ²)
Engine speed	1400~3400rpm

6-10 Position of mower during maintenance

If the mower handle is left leaned on the ground for a long time during maintenance, engine oil may enter the engine combustion chamber and cause the engine to run improperly.

Be careful not to keep this position long.

7. Long-term storage

- 1) For the engine, refer to the engine operation manual.
- 2) Cylindrically grind the blade reel cylinder every six months.
- 3) Replace the bearing (30204JRP6) and seal on both sides of the blade reel cylinder every season. (Replace them even if they have not been used for many hours.)
- 4) Clean the machine, and apply grease or oil to respective sliding sections.

8. CAUTION Precautions for engine operation

For the engine, refer to the engine operation manual.



- 1) Use gasoline for automobiles as the fuel of the engine.
- 2) Completely change engine oil when the machine has been used for eight hours after the initial operation, because the machine is used under tough conditions with vibration and dust, and change oil every 50 hours after that. The quantity of engine oil is 0.6 dm³ (0.6L). Use SAE30.
- 3) Always cover the suction port of the air cleaner with a cleaner cover bag during operation. Be sure to clean the air cleaner element before using the machine.

DANGER



- 4) Fire is strictly prohibited during fuel supply. Be careful of a lit cigarette. Replenish the fuel tank outdoors after the stopped engine has been cooled. Wipe off the spilt fuel completely.
- 5) Do not start the engine in a building without a proper ventilator.

CAUTION



- 6) The muffler and the area around the exhaust port of the muffler will become hot. Do not bring gasoline, matches, dry grass, or other inflammables near hot portions.

CAUTION

- 7) Inspection before operation
Check the joint of fuel pipe, etc. for looseness or damage. Check bolts and nuts in respective sections for looseness.

CAUTION

- 8) Wear appropriate clothes. An apron, towel on the belt, long string, etc. will cause you to be caught in rotating parts.

- 9) When the machine is to be stored for a long time exceeding 5 months, remove gasoline from the engine.

10) Engine maintenance schedule

To keep the engine in satisfactory status at all times, be sure to conduct maintenance and inspection according to the following table:

9. Maintenance Schedule

Engine				
Maintenance	Before use	Every 8hr	Every 10hr	Every 50hr
Cleaning of each part/inspection of tightening	○			
Inspection and addition of fuel	○			
Inspection and cleaning of air cleaner	○			
Inspection and addition of engine oil	○			
Engine oil change		only after the initial operation		○
Main unit				
Maintenance		Every 8hr	Every 10hr	Every 50hr
Inspection and cleaning of recoil starter dust proofing net	○			
Cleaning of each part/inspection of tightening	○			
Inspection and adjustment of blade engagement	○			
Inspection and adjustment of mowing height	○			
Greasing and oiling			○	○
Removal of mown grass and dust	○			

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