

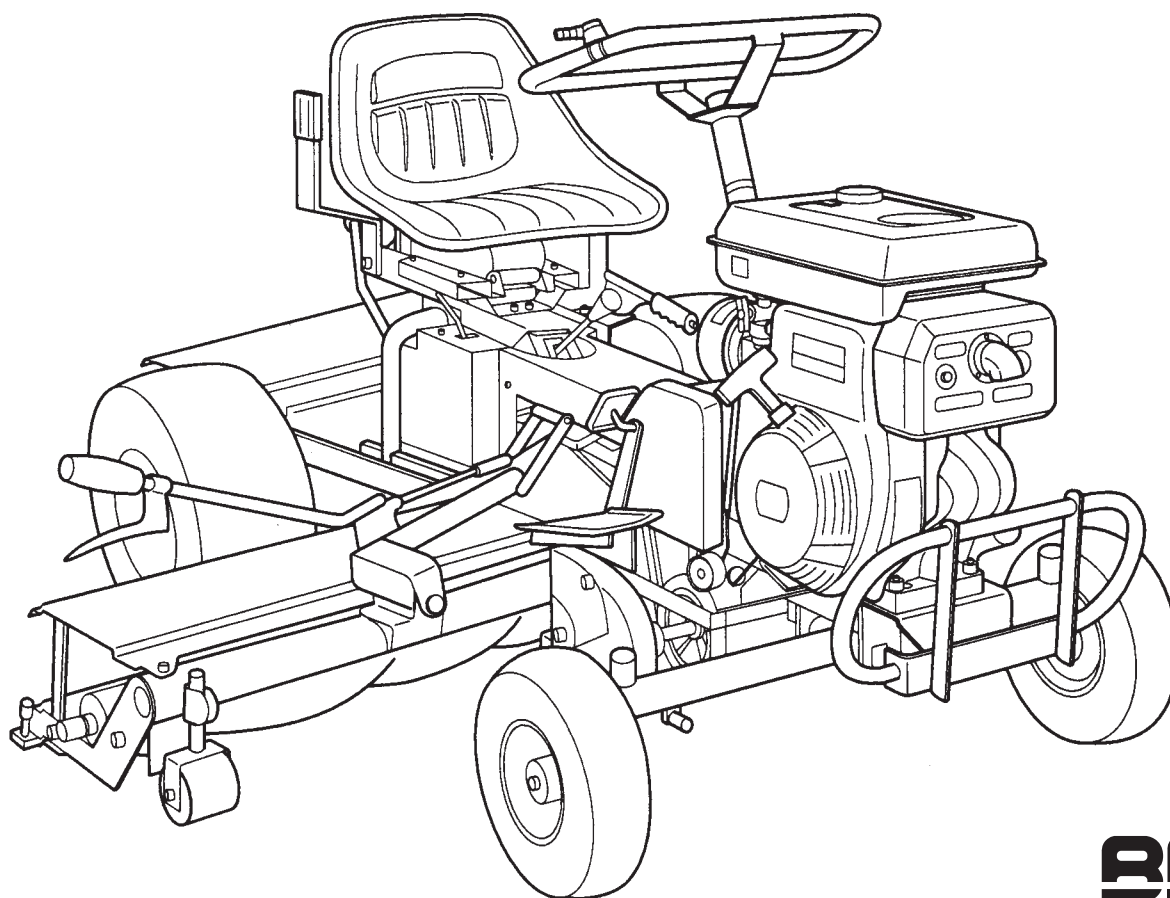
SUPER MOWER

LM180B

BARONESS
Lawn Mower

Owner's Handling Manual

SN13315 and onwards



BARONESS

Greeting

Thank you very much for the riding-type triple lawn mower, Baroness Super Mower LM180B.

This manual explains the method of correct handling, adjustments, and inspection of LM180B. Prior to use, carefully read this Handling Manual, as well as the separate Handling Manual for Engine to thoroughly understand the contents for safe, correct operation.

= NOTE =

- ◆ "Right and left" described in this Manual apply to cases where the machine is viewed from the driver's seat.
- ◆ This machine cannot be driven on a public road.
- ◆ The contents of this Manual are subject to change for improvement without notice.



- Marks attached to this Handling Manual and the machine indicate precautions for safety. Read them carefully.
- Understand well the operating procedures and safety precautions before operating the machine.
- The marks and explanatory sentences should be kept clean. If they are lost or damaged, attach new marks.

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.

Symbols



----- Caution mark



50h ----- Grease
Every 50hours



----- Hot surface
Burn on hand



----- Attention to
exhaust gas



----- See Handling Manual



----- Danger mark
Hand cut



----- Hand may be
caught in belt



----- Danger of mower
falling



----- Gasoline



----- Danger mark
Foot cut



----- Caution: Flammable



----- Watch for flying objects

Contents

Handling Manual

Warning for Marks	1
-------------------------	---



WARNING




CAUTION



DANGER




CAUTION

1. Safety Precautions	3
1-1 Safety Check before Work	3
1-2 Safety Check during Work	3
1-3 Safety Check after Work	3
2. Names of Portionn	4
3. Inspection before Use	4
3-1 Inspection of Engine Oil	4
3-2 Inspection of Air Cleaner	4
3-3 Inspection of Fuel	5
3-4 Inspection of Oil Leakage.....	5
3-5 Inspection of Tires	5
3-6 Inspection of Belts	5
3-7 Inspection of Mowers	5
4. Operation and Adjustment of Each Section	5
4-1 Start / Stop of Engine	5
 4-2 Operation of Travelling Clutch Lever.....	6
4-3 Operation and Adjustment of Brake Pedal.....	6
4-4 Operation and Adjustment of Diff-Lock Pedal	6
4-5 Operation of Clutch Lever for Right/Left Mowers	6
4-6 Operation of Clutch Lever for Rear Mower	6
4-7 Operation of Change Lever	6
4-8 Operation and Adjustment of Side Brake.....	7
4-9 Adjustment of Mowing Height	7
4-10 Adjustment of Blade Engagement.....	7
4-11 Adjustment of Belt Tension	8



DANGER

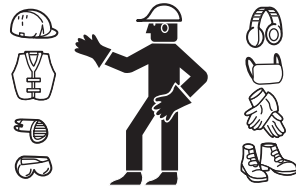
5. Mowing Work	8
5-1 How to Operate	8
5-2 Adjustment before Working	8
 6. Method of Lapping	8
7. Maintenance and Inspection of Portions	9
7-1 Change of Engine Oil	9
7-2 Cleaning of Air Cleaner	9
7-3 Change of Mission Oil	10
7-4 Oiling and Greasing	10
7-5 Inspection of Parts	10
7-6 Maintenance List	10
8. Inspection for Long Storage	11
9. Specifications	11



1. Safety Precautions

Before operating, understand correct operating procedures and safety precautions.

1-1 Safety Check before Work



- ① Wear clothes that fit your body. Wear protectors (goggles, safety shoes, helmet, gloves, etc.) that suit the work.
- ② Learn how to stop the engine in an emergency. When the engine is started, put the change lever in the neutral position.



- ③   Beits, pullets, rotating shafts, etc. are very dangerous when exposed. Check that all the covers are installed at specified positions.
- ④ Check that the brake, steering wheel, tires are normal.
- ⑤ Check that bolts and nuts are not loose. If they are, tighten them.



1) Cautions when engine is started









- ① Check that the side brake is pulled.
- ② Keep away from children and other persons, and operate the machine alone.
- ③ Start the engine only from the driver's seat.

- ④   Do not operate the engine in a poorly-ventilated place. The exhaust gas contains noxious carbon monoxide.

1-2 Safety Check during Work

- ① Pull the traveling lever slowly to prevent sudden starting.

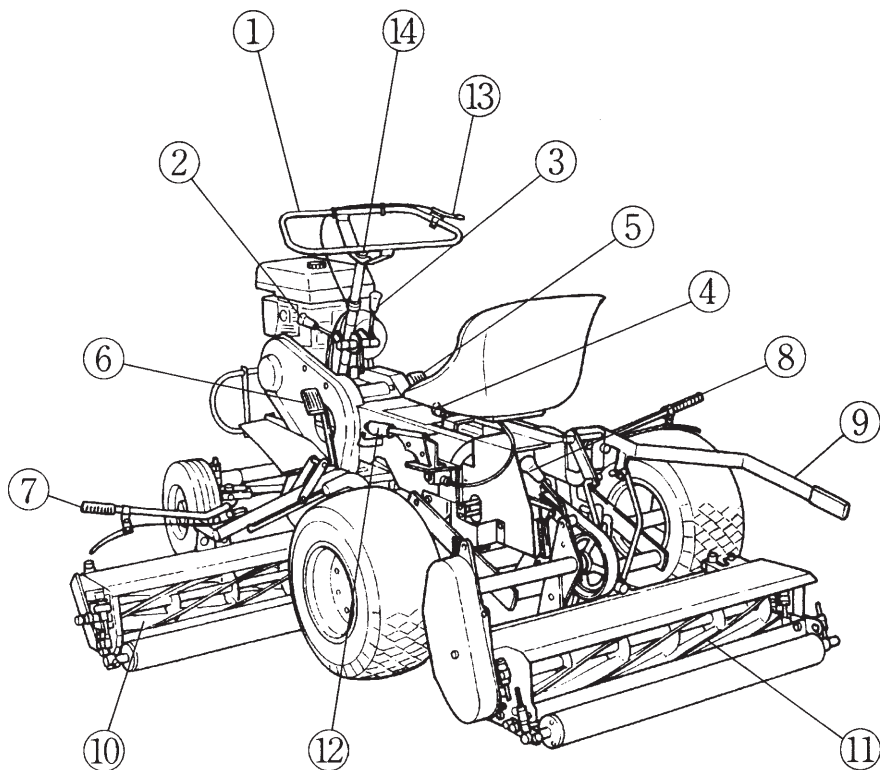
- ②   Be careful not to drop the mower when lifting it.

- ③   Do not put your hand or foot near the blade reel cylinders when they are rotating.
- ④   The blade reel cylinders and bottom blades are very sharp. Handle them carefully.
- ⑤   Fire is strictly prohibited during fuel supply. Supply fuel outdoors after the engine is stopped and cooled.
- ⑥   The engine is very hot during operation. Do not put your hand or combustibles near the muffler and engine.
- ⑦ Always operate the machine at a speed that allows emergency stopping. Avoid sudden starting or sudden turning. Travel at low speed especially when travelling downhill.
- ⑧ Do not operate at a place in danger of falling or slipping.
- ⑨ When leaving the driver's seat, park the machine at a flat place, stop the engine, and pull the side brake.
- ⑩ If any machine abnormality such as abnormal vibration or abnormal noise is noticed during operation, immediately stop the engine, investigate the cause and completely repair before restarting.

1-3 Safety Check after Work

- ① For adjusting, repairing or cleaning, choose a flat place and pull the parking brake.
- ② When doing any work under the raised mower portion or machine, use proper supports to hold it up.
- ③ Keep the caution marks and explanations clean at all times. If they are lost or damaged, attach new labels.
- ④ Do not remodel the machine without permission, otherwise malfunction or danger will result.
- ⑤ Do not store the machine indoors with the fuel left in the tank.
- ⑥ Cool the engine before covering the machine with a sheet, etc.

2. Names of Portions



(Fig. 1)

No.	Name	No.	Name
①	Handle	⑧	Clutch lever for rear mower
②	Traveling clutch lever	⑨	Lifting lever (for rear mower)
③	Clutch lever for right/left mowers	⑩	Left blade reel cylinder
④	Change lever	⑪	Rear blade reel cylinder
⑤	Brake pedal	⑫	Side brake
⑥	Diff-lock pedal	⑬	Throttle lever
⑦	Lifting lever (for right/left mowers)	⑭	Engine stop switch

Table 1

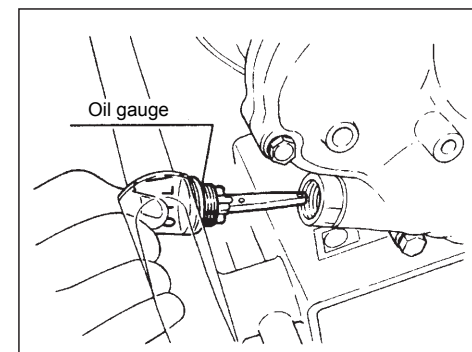
3. Inspection before Use



3-1 Inspection of Engine Oil

For details, see the separate Handling Manual for Engine.

Check the engine oil at a flat place. Put in the oil gauge (without screwing it in) through the oil filter port to check that the oil level is between the two knurl lines on the gauge. If not, supply oil.



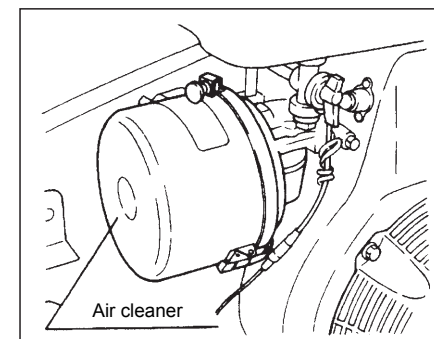
(Fig. 2)

3-2 Inspection of Air Cleaner



For details, see the separate Handling Manual for Engine.

If the air cleaner element is heavily contaminated, engine starting failure, insufficient output, or malfunction will result, and the engine life will be extremely shortened as well. For the cleaning method, see 7-2 Cleaning of Air Cleaner.



(Fig. 3)

3-3. Inspection of Fuel



When fuel is insufficient, supply lead-free gasoline for automobiles.
The tank capacity is approx. 6 litres.

3-4. Inspection of Oil Leakage

Check the bottom of the machine for oil leakage.

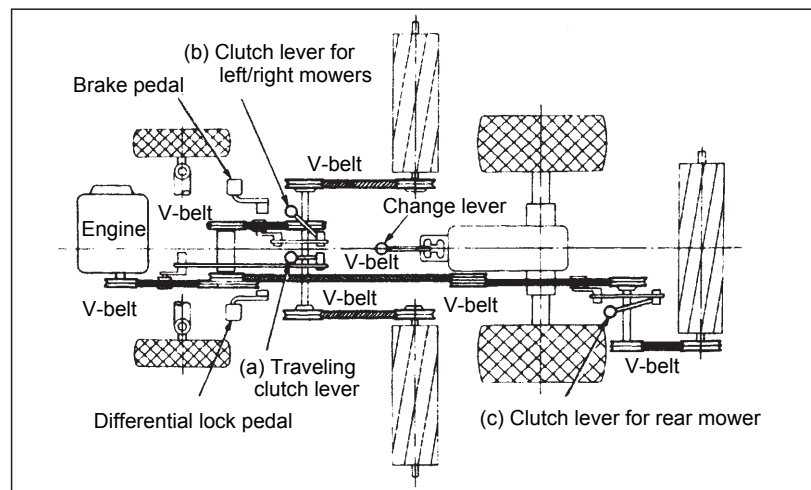
3-5. Inspection of Tires

The mowing height changes according to the pneumatic pressure of the tire.
Keep the pneumatic pressure constant at all times.

	Size of tire	Pneumatic pressure
Front wheel	4.00-5	2.0 kg/cm ²
Rear wheel	18x8.50-8	0.8 kg/cm ²

3-6. Inspection of Belts

Excessive belt tension will damage bearings or break shafts. If belts are excessively loose, slippage and belt damage will result, or the reel rotation and operation speed will not be high enough for mowing. Check the belt for appropriate tension and make sure that there is no crack.



(Fig.4)

Belts are installed as shown in Fig.4. (6 types; 8 in total)

For adjustment of belts, refer to "4-11 Adjustment of Belt Tension."

3-7. Inspection of Mowers

Check the three mower units for the mowing height and sharpness of blades.

4. Operation and Adjustment of Each Section

4-1. Start / Stop of Engine



For details, refer to the engine Handling manual.

1) Start

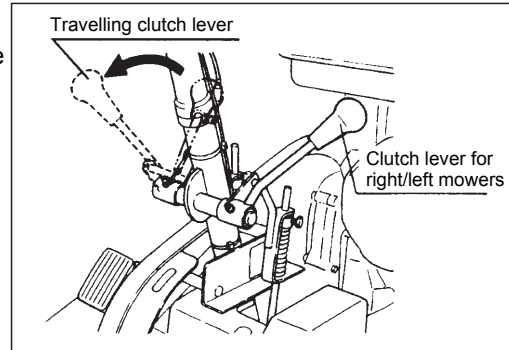
- ① Open the fuel cock, which is under the fuel tank.
- ② Move the throttle lever from the low-speed side slightly to the high-speed side.
- ③ Pull the choke button. Pull the button halfway for restarting, as necessary.
- ④ Pull the start rope hard.
- ⑤ After the engine has started, slowly return the choke button.
- ⑥ Warm up the engine at a slow speed for 1-2 minutes without a load.
- ⑦ Gradually move the throttle lever to high-speed side.

2) Stop

- ① Move the throttle lever to the slow-speed, and continue idling for 1-2 minutes.
- ② Turn off the engine switch.
- ③ Close the fuel cock.

4-2 Operation of Travelling Clutch Lever

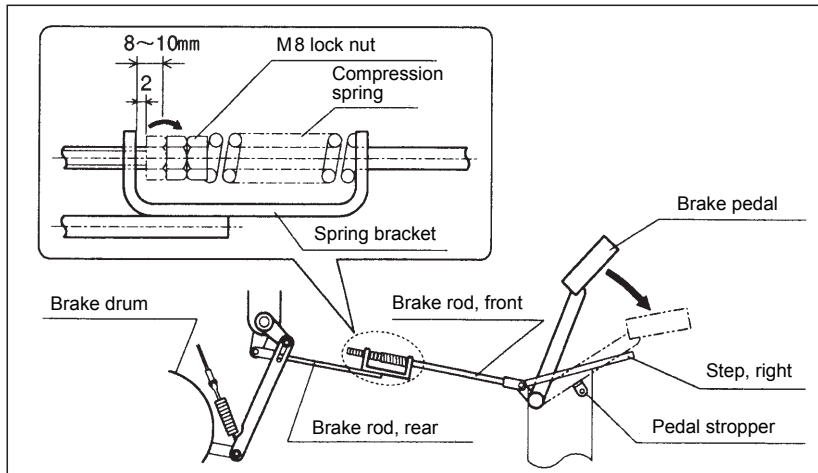
Pull the lever slowly to prevent sudden starting. Start the machine while allowing the belt to slip in the same way as clutch-slipping. (Fig. 5)



(Fig. 5)

4-3 Operation and Adjustment of Brake Pedal

To stop the machine, depress the brake pedal with your right foot until it hits the pedal stopper. If the pedal play increases or the brake does not work properly even if the pedal is depressed up to the stopper, shorten the rod by loosening the lock nut and screwing in the nut. Adjust it so that the clearance between the spring bracket and the double nut will be 8-10mm when the pedal is depressed up to the stopper. (If smaller than 8mm, the brake does not work properly, and if larger than 10mm, the brake may be damaged.) (Fig. 7)



(Fig. 6)

4-4 Operation and Adjustment of Diff-Lock Pedal

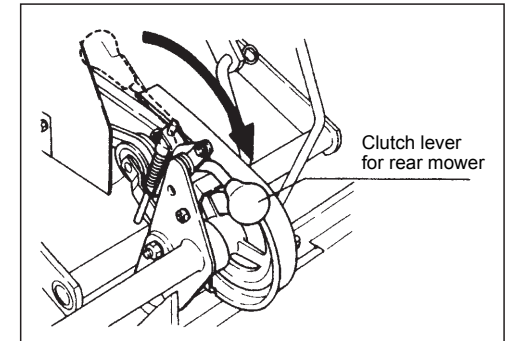
If the pedal on the left is depressed, the differential device is locked to enhance linearity, thus preventing slipping. If the pedal play increases, make adjustment with the adjusting bolts at both ends of the wire.

4-5 Operation of Clutch Lever for Right/Left Mowers

Pull this lever to rotate the right/left mowers. The right and left mowers rotate simultaneously.

4-6 Operation of Clutch Lever for Rear Mower

Pull this lever to rotate the rear mower.

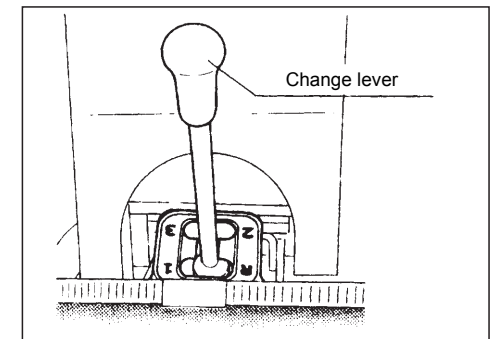


(Fig. 7)

4-7 Operation of Change Lever

A direct change system is adopted for the change lever. The speed change positions are shown in the figure.

◆ Do not change the lever position during travelling.



(Fig. 8)

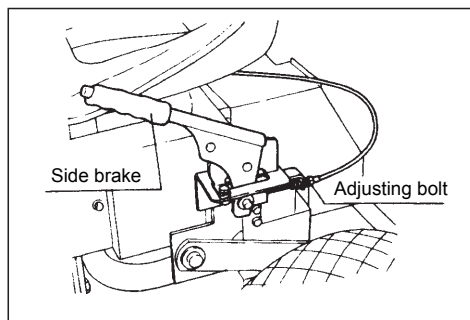
4-8 Operation and Adjustment of Side Brake

1) Operation

The side brake is located on the left side of the saddle. Pull it completely for parking.

While pressing the pushbutton, return the brake lever correctly.

◆ **For parking on a hill, apply scotch in addition to pulling the side brake.**



(Fig. 9)

2) Adjustment

If the side brake does not work properly, make adjustment with the adjusting bolts at both ends of the wire. (Fig. 9)

4-9 Adjustment of Mowing Height

The mowing height is adjusted by moving up/down the roller.

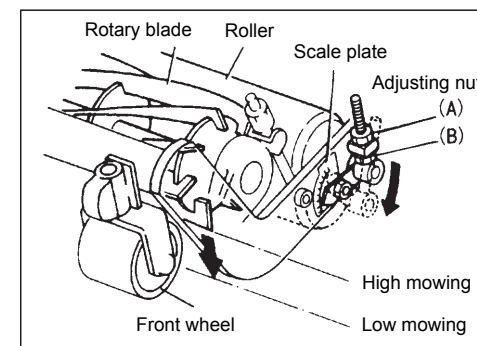
① To increase mowing height

→ Loosen the nut A and lower the roller.

② To decrease mowing height

→ Loosen the nut B and raise the roller.

◆ The front wheel is provided to prevent the blade reel cylinder from damaging a convex portion of the lawn surface. It should not be grounded but should be raised 10-20mm.



(Fig. 10)

4-10 Adjustment of Blade Engagement

To adjust the engagement between the blade reel cylinder and bottom blade, bring the edges entirely into slight contact with each other by using the adjusting nuts so that newspaper can be cut.

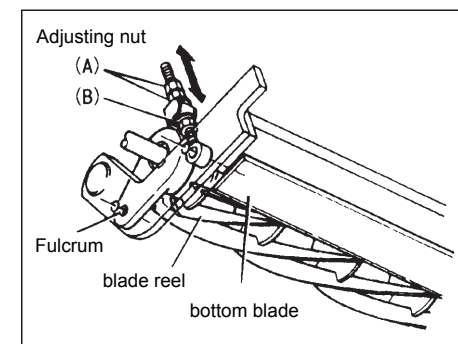
① If gap is created between edges

→ Slightly loosen the nut B and tighten A.

② If tight and difficult to turn

→ Slightly loosen the nut A and tighten B.

◆ **If the newspaper cannot be cut at some places even if the blades are in slight contact, grind them by lapping in good time.**



(Fig. 11)

4-11 Adjustment of Belt Tension

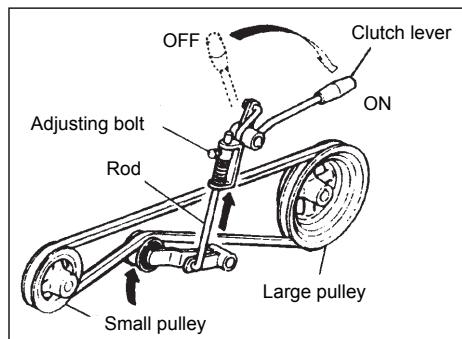
The belt tension is adjusted by changing the rod length with the adjusting bolt or nut.

1) Belt tension clutch (3 places)

Loosen the adjusting bolt, and change the length of the rod.

◆ **Make adjustment so that the belt and large pulley are stopped when the clutch lever is set to OFF.**

- ① Traveling clutch
- ② Right/left mowers clutch
- ③ Rear Mower clutch

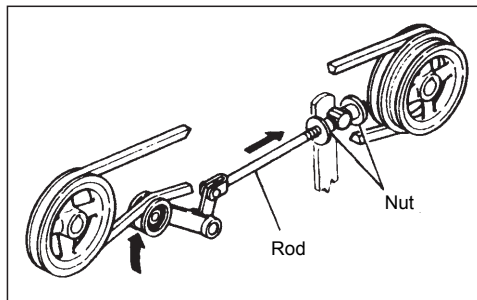


(Fig. 12)

2) Portions where belt is always tensioned (2 places)

Loosen the adjusting nut, and change the length of the rod.

- ① Between mission pulley and large pulley on the intermediate shaft.
- ② Between outside pulleys of rear mower portion.



(Fig. 13)

5. Mowing Work



Do not put your hands and feet near the blade reel cylinder when it is rotating.

5-1 How to Operate

- ① Before starting the engine, check the following points.
 - The change lever must be in the neutral position.
 - The travelling clutch lever must be in the "OFF" position.
 - ② Start the engine.
 - ③ Pull the clutch levers of the right/left mowers and rear mower.
 - ④ Slowly pull the travelling clutch lever in the same way as clutch-slipping.
- ◆ **When the machine is started through the above operations, the blade reel cylinders rotate and the mowing work starts.**

5-2 Adjustment before Work

- ① Check the sharpness of the blade. The blade is sharp if newspaper can be cut well.
- ② Try mowing to see if the mowing height of the three mowers is the same.

6. Method of Lapping

Lapping is intermediate finishing that is required temporarily before resharpening the blade. Both blade reel cylinder and bottom blade are simultaneously lapped by applying the abrasive while turning the blade reel cylinder in the direction opposite to the mowing direction.

1) Things to be prepared (special-order products)

- ① Lapping machine Baroness RM20
- ② Abrasive FEL-PRO Clover Reel Sharpening Compound
(genuine product)
- ③ Brush Paint brush
- ④ Tool 17 spanner, etc.
- ⑤ Others Strips of newspaper, gloves, etc.

2) Procedure

For details, see the Handling Manual of Lapping Machine.



- ① Bring the blade reel cylinder and the bottom blade into slight contact with each other uniformly at right and left. Cut newspaper into strips and check which portion of the blade is dull.
 - ② Connect the lapping machine and the blade reel cylinder shaft of the mower.
 - ③ Rotate the blade reel cylinder in the direction opposite to the mowing direction and apply the abrasive with a brush to the portion where the newspaper was cut well.
 - ④ Idle the machine for a while, and then switch off the lapping machine when contact noise is no longer heard.
 - ⑤ Trialily cut the newspaper strips with the entire width of the blade reel cylinder, and note portions of cutting well and not well.
- ◆ Repeat the above steps ①~⑤ When the blade reel cylinder and bottom blade are uniformly engaged (brought into contact) with each other entirely, wash off the abrasive to finish the work.



- ◆ The edges are very sharp. Be sure to wear gloves when touching the blades.
- ◆ The blade reel cylinder must be rotated in the direction opposite to the mowing direction.
- ◆ It is dangerous when you apply the abrasive with a brush to the rotating blade reel cylinder. Be careful that your hand and brush wil not be caught.
- ◆ When cutting the newspaper, pay attention to your fingers that will turn the blade reel cylinder.
- ◆ Should the abrasive enter your eyes, immediately wash your eyes with water. If the condition is serious, consult a doctor.

7. Maintenance and Inspection of Portions

Before checking, clean the machine body. The parts of operating portions and consumables should be periodically maintained and replaced as necessary.

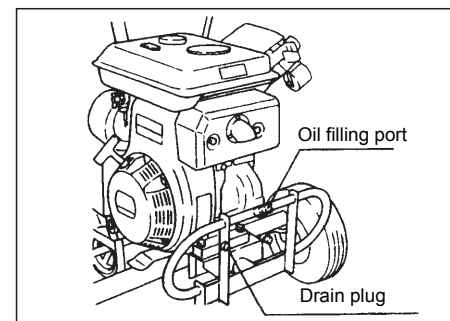
7-1 Change of Engine Oil



For details, see the Handling Manual for Engine.

If the engine oil is contaminated or running short or if poor-quality oil is used, the life of the engine will be extremely shortened. For changing oil, drain the oil through the drain plug when the engine is stopped and warm.

First time	after 20-hour operation
Second time and later	every 50-hour operation
Oil quantity	approx. 1.2 litres
SAE viscosity	SAE30 in summer, SAE20 in winter



(Fig. 14)

7-2 Cleaning of Air Cleaner



For details, see the Handling Manual for Engine.

Periodically clean the air cleaner so that clean air can be supplied to the engine.

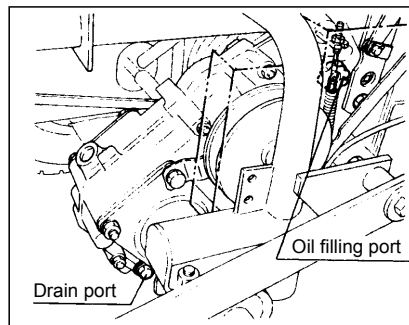
- ① Clean the urethane foam with white kerosene, and then immerse it in a mixture of three parts white kerosene and one part engine oil, and firmly squeeze before installing.
- ② Clean the element with white kerosene, immerse it in the mixture of three parts white kerosene and one part engine oil, and then shake/squeeze it before installing.

7-3 Change of Mission Oil

The oil filling port is located at the top on the right side of the mission case.

The drain port is located at the bottom on the right side of the mission case.

First time	after 50-hour operation
Second time and later	every 300 hours or every year
Oil quantity	approx. 2 litres
Specified oil	Oil No. 90 for automobile



(Fig. 15)

7-4 Oiling and Greasing 50h

Always supply oil to moving parts and periodically grease them with a grease nipple.

7-5 Inspection of Parts

Check and maintain bearings, various seals, belts, pulleys, wires, tires, plugs, etc. periodically, and replace parts as necessary.

7-6 Maintenance List

◆ Do maintenance earlier than the time shown below as necessary.

Maintenance item		Hourly	50H	200H	Yearly
Engine	Inspection/supply of engine oil	○			
	Change of engine oil		○		
	Cleaning of ignition plugs		○		
	Cleaning of air cleaner		○		
	Cleaning of fuel strainer			○	
	Adjustment of ignition plug clearance			○	
	Removal of cylinder head carbon				○
	Cleaning of carburetor				○
	Checking/fitting of inlet valve/exhaust valve				○
	Overhaul				○
Machine	Inspection of tire air pressure	○			
	Inspection of looseness of screws	○			
	Inspection of fuel level	○			
	Inspection of oil leakage	○			
	Inspection of cutting quality of blade	○			
	Oil supply to sliding portions		○		
	Inspection of belt tension		○		
	Adjustment of wires		○		

Table 2

8. Inspection for Long Storage

For the engine, see the Handling Manual of Engine.



1) Changing oil

Change the engine oil/mission oil, etc.

2) Oiling

Supply oil to moving parts, and apply grease to the blade reel cylinder and bottom blade to prevent rusting.



3) Draining fuel

If the engine is not used for one month or longer, drain the fuel from the fuel tank and carburetor to prevent defective starting and operation due to deterioration of the fuel.

4) Air pressure of tires

Set the air pressure slightly higher than the standard, and place the tires on plates to protect them from humidity.

5) Storage place

Cover the machine and store it at a dry place not exposed to rain.

9. Specifications

1) Mowers

Number of units	3
Mowing width	188cm
Reel diameter	16.3cm
Reel width	Right/left 66cm, rear 77cm
Number of reel blades	7 (5 optional)
Mowing height	13-50mm

Table 3

2) Engine

Name	Robin EH30B
Type	Air-cooled 4-cycle vertical OHV type gasoline engine
Total displacement	291cc
Continuous rated output	7.8PS/1800rpm
Maximum output	9.0PS/1800rpm
Maximum torque	3.9kgm/1250rpm
Fuel consumption	230g/PS _h (at continuous rated output)
Specified lubricating oil	Engine oil for automobile (SAE30 API CF/SF)
Quantity of lubricating oil	1.2 litres
Fuel tank capacity	6 litres (lead-free gasoline for automobile)

Table 4

3) Machine

Number of speeds	Forward : 3 speeds, backward : 1 speed
Speed	1st speed : 3.1km/h
	2nd speed : 6.4km/h
	3rd speed : 9.4km/h
	Back : 3.1km/h
Grade ability	20
Travelling clutch	Belt tension type
Brake	Internal expanding type 5 inches
Wheel	Front 4.00-5
	Rear 18x8.50-8
Minimum turning radius	230cm
Total length	215cm
Total width	208cm
Total height	102cm
Total weight	350kg (with mowers)
Efficiency	84a/h (mowing width x 2nd speed x 0.7)

Table 5

CE Declaration of Conformity

We, Kyoeisha Co., Ltd. of 1-26 Miyuki-cho, Toyokawa, Aichi-pref. 442-8530 Japan declare that :

Equipment	Ride-on lawnmower
Model name / number	BARONESS / LM180BT

in accordance with the following Directives :

98/37/EC The Machinery Directive and its amending directives

has been designed and manufactured using the following specifications :

EN 292-1 Safety of machinery – Basic concepts, general principles for design –
Part 1 : Basic terminology, methodology

EN 292-2 Safety of machinery – Basic concepts, general principles for design –
Part 2 : Technical principles and specifications

EN 836 Garden equipment – Powered lawnmowers – Safety

Signed : Katsuaki Makino

Name : Katsuaki Makino

Position : Development Dept. Manager

Date : January 23, 2006

Manufacturer's Declaration of Conformity for

Product Identification

Product :
Make :
Type :
Version(s) :
Starting Serial No. :
Measured Sound Power Level :
Guaranteed Sound Power Level :
Manufacturer
Name :
Address :

Ride-on lawnmower
BARONESS
LM180BT
Not Applicable
13315
LWA 103.53 dB
LWA 105 dB

Kyoeisha Co., Ltd.
1-26 Miyuki-cho, Toyokawa, Aichi-pref.,
Japan

Technical Documentation

Keeper's Name :
Keeper's Address :

Kyoeisha Co., Ltd.
1-26 Miyuki-cho, Toyokawa, Aichi-pref.,
Japan

Conformity Assessment Procedure :

Internal Control of Production with Assessment of
Technical Documentation and Periodical Checking
(Annex VI) of 2000/14/EC-2005/88/EC

Involved Notified Body

Name :
Address :

SNCH
11, Route de Sandweiler
5230 Sandweiler
Luxembourg

Technical Construction File

Date :
Technical Construction File No. :
Test Laboratory

April 29, 2009
TC180BT-03
TUV Rheinland Luxembourg GmbH
2a, Kalchesbruck
L-1852 Luxembourg

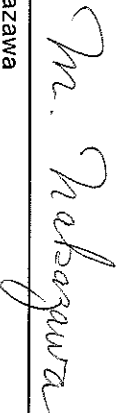
Means of conformity

The product is in conformity with the Directive relating to the noise emission in the environment by equipment for use outdoors 2000/14/EC-2005/88/EC, in accordance with Article 12 of the Directive.

References of other Community Directives applied

98/37/EC , 2004/108/EC

Signature :



Masahisa Nakazawa

Manager
Quality Dept.
Kyoeisha Co., Ltd.

Date :

April 29, 2009



KYOISHA CO., LTD.

Turf Care Machinery
Tel: (0533) 84-1390
Fax: (0533) 89-3623

Head Office
1-26, Miyuki-cho, Toyokawa,
Aichi-Pref. 442-8530 Japan.