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.

= CAUTION =

- 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.

Symbols

- Caution mark
- Grease
- See Handling Manual
- Danger mark
- Gasoline
- Hot surface
- Hand may be caught in belt
- Danger mark
- Foot cut
- Burn on hand
- Caution: Flammable
- Attention to exhaust gas
- Watch for flying objects

Warning Marks

<table>
<thead>
<tr>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANGER</td>
<td>Negligence of the warning will cause death or serious injury.</td>
</tr>
<tr>
<td>WARNING</td>
<td>Negligence of the warning may cause death or serious injury.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Negligence of the warning may cause injury.</td>
</tr>
</tbody>
</table>
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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.

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) Safety Check after Work

1. Do not put your hand or foot near the blade reel cylinders when they are rotating.
2. The blade reel cylinders and bottom blades are very sharp. Handle them carefully.
3. Fire is strictly prohibited during fuel supply. Supply fuel outdoors after the engine is stopped and cooled.
4. The engine is very hot during operation. Do not put your hand or combustibles near the muffler and engine.
5. 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.
6. Do not operate at a place in danger of falling or slipping.
7. When leaving the driver’s seat, park the machine at a flat place, stop the engine, and pull the side brake.
8. 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

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.

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.

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

Table 1
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.

<table>
<thead>
<tr>
<th>Size of tire</th>
<th>Pneumatic pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front wheel</td>
<td>4.00-5 2.0 kg/cm²</td>
</tr>
<tr>
<td>Rear wheel</td>
<td>18x8.50-8 0.8 kg/cm²</td>
</tr>
</tbody>
</table>

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.

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)

![Travelling clutch lever](image)

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)

![Brake pedal](image)

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.

![Clutch lever for right/left mowers](image)

4-6 **Operation of Clutch Lever for Rear Mower**

Pull this lever to rotate the rear mower.

![Clutch lever for rear mower](image)

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.

![Change lever](image)
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.

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.

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.

◆ 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.
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

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. 12)

5. Mowing Work

DANGER

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-sliping.
   - 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 RM20B
   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.

(Fig. 13)
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. Trially 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.

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.

<table>
<thead>
<tr>
<th>First time</th>
<th>Second time and later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil quantity</td>
<td>approx. 1.2 litres</td>
</tr>
<tr>
<td>SAE viscosity</td>
<td>SAE30 in summer, SAE20 in winter</td>
</tr>
</tbody>
</table>

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

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.

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

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/PSh (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
[Sound pressure level]

This machine was confirmed to have a continuous A-weighted sound pressure level of 93 dB (A) as the result of measuring identical machines based on the procedure specified in EN 836:1997 and its amendments.

[SOUND POWER LEVEL]

This machine was confirmed to have a sound power level of 105 dBA/pW as the result of measuring identical machines based on the procedure specified in directive 2000/14/EC.

[Vibration level]

-Hand-arm vibration-
This machine was confirmed to have a maximum vibration level on hands and arms of less than 3.3 m/s² as the result of measuring identical machines based on the procedure specified in ISO 5349:1986.

-Whole body vibration-
This machine was confirmed to have a maximum vibration level on whole body of less than 3.4 m/s² as the result of measuring identical machines based on the procedure specified in ISO 2631-1:1997.
Position: Quality Dept. Manager
Name: Masahisa Nakazawa
Signature: 
Date: January 12, 2010
Place: Japan

2000/14/EC, 2004/108/EC

References of other Community Directives applied:
ISO 5396: 1990
EN 836: 1997
ISO 12100-2: 2003
ISO 12100-1: 2003

The Machinery Directive and its amending directives

has been designed and manufactured using the following specifications:

in accordance with the following Directives:

The Machinery Directive and its amending directives

Hampshire RG2 4JG, The United Kingdom
Unit 5 March Industrial Park, Gewell Road, Basingstoke

Address: Kyoeisha U.K. Ltd.
Name: 

Compiler of the technical file

Serial No.: 1340
Model No.: LM 80BTL
BARONESS
Ride-on Lawnmower

Type: 
Make: 
Product: 

Certificate that

Manufacturer's Address: 1-26 Miyukicho, Toyoakewa, Aichi-pref: 442-8530 Japan
Manufacturer's Name: Kyoeisha Co., Ltd.

We

EC Declaration of Conformity
April 29, 2009

Kyeosinga Co., Ltd.

Quality Dept.

Manager

Manufacturers Name and Address

In. Nakazawa

Signature

References of other Community Directives applied

98/37/EC, 2004/108/EC


The product is in conformity with the Directive relating to the noise emission in the environment by

Means of conformity

L-1825 Luxembourg

2a, Kolosherschuck

TV Rheinland and Luxembourg GmbH

10180B-03

Apt. 92, 2009

Luxembourg

5230 Sandweiler

11, Route de Sandweiler

SNCH

Lawnmower

Test Laboratory:

Technochem Consultation File No.:

Date:

Address:

Involved Notified Body

Conformity Assessment Procedure:

Technical Documentation File:

Location of Test Laboratory:

Name:

Keepers Name:

Address:

Name:

Manufacturer:

Guaranteed Sound Power Level:

Measured Sound Power Level:

Serial No.:

Version(s):

Make:

Product:

Product Identification...
Aichi-Pref. 442-8530 Japan.

SPEC-UK LM180B10AN00

Head Office 1-26, Miyuki-cho, Toyokawa,
Turf Care Machinery

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Fax: (0533) 84-3623

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