WORLDLAWN®
POWER EQUIPMENT

OPERATORS MANUAL

ELECTRIC DIAMONDBACK

WYDB52L16

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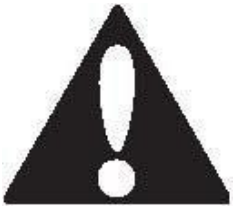
Contents

SAFETY

SAFETY ALERT SYMBOL

This symbol means: **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



The safety alert symbol appears above information that alerts you to unsafe actions or situations. It will be followed by one of these words: **DANGER, WARNING,** or **CAUTION.**

DANGER: White lettering on a red background.

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: Black letters on an orange background.

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Black letters on a yellow background.

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

TRAINING

- Carefully read the instructions and become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Ensure all operators are trained before operating this unit.
- Do not allow children or untrained individuals to operate the equipment without proper instruction.
- Keep everyone, especially children and pets, away from the operation area. The operator or user is responsible for accidents or hazards affecting other people or their property.

PREPARATION

- Assess the terrain to determine which accessories and attachments are needed for safe and proper performance of the job. Use only accessories and attachments approved by **WORLDLAWN.**
- Personal protective equipment (PPE) such as safety glasses, hearing protection, substantial footwear, and long trousers are highly recommended.

CAUTION

This machine produces sound levels in excess of 85 dBA at the operator's ears and can cause hearing loss through extended periods of exposure.

Wear hearing protection when operating this machine.

- Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wires, bones, and other foreign objects that may damage the equipment or cause personal injury to the operator or bystanders.
- Check that the operator's presence controls, safety switches, and shields are attached and functioning properly. Do not operate unless they function correctly.

SAFETY PRECAUTIONS

WARNING

Hands, feet, hair, clothing, or accessories can become entangled in rotating parts. Contact with rotating parts can cause traumatic amputation or severe lacerations.

Operating Safely

- **Guards and Shields:** Always operate the machine with all guards, shields, and safety devices in place and functioning properly.
- **Keep Clear:** Keep hands, feet, hair, jewelry, or clothing away from rotating parts. Ensure hands and feet stay away from under the deck when the PTO is engaged.
- **Area Safety:** Never operate the mower when people, especially children, or pets are nearby. Never carry passengers.
- **Transporting:** Stop the blades, slow down, and exercise caution when transporting the mower to and from the mowing area or crossing surfaces other than grass.
- **Substance Use:** Do not operate the mower under the influence of alcohol or drugs.
- **Turning and Reversing:** Be alert, slow down, and use caution when making turns. Look behind and to the side before changing direction.
- **Loading and Unloading:** Use extreme care when loading and unloading the machine into a trailer or truck.
- **Discharge Path:** Be aware of the mower discharge path and direct discharge away from others.
- **Blind Corners:** Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- **Eye Protection:** Always wear eye protection when operating the machine.

SLOPE OPERATION

WARNING

Use extreme caution when mowing and/or turning on slopes as loss of traction and/or tip-over could occur. The operator is responsible for the safe operation on slopes.

Mowing on slopes

- **Wet Grass and Steep Slopes:** Mowing on wet grass or steep slopes can cause sliding and loss of control**.**
- Keep ROPS in the raised & locked position and use the seat belt.
- Mow across slopes, never up and down.
- Do not mow slopes when grass is wet.
- Do not mow near drop-offs or near water.
- Do not mow slopes greater than 15 degrees.
- Reduce speed and use extreme caution on slopes.
- Avoid sudden turns or rapid speed changes.
- Remove or mark obstacles such as rocks, tree limbs, etc. Tall grass can hide obstacles.
- Be aware that operating on wet grass, across steep slopes, or downhill may cause the mower to lose traction. Loss of traction to the drive wheels may result in sliding and a loss of braking and steering.
- Watch for ditches, holes, rocks, dips, and rises that change the operating angle, as rough terrain could overturn the machine.
- Always avoid sudden starting or stopping on a slope. If tires lose traction, disengage the blades and proceed slowly off the slope.
- Use extreme care with grass catchers or attachments. These can change the stability of the machine and cause loss of control.

USING THE ROLLOVER PROTECTION STRUCTURE

DANGER: There is no rollover protection when the roll bar is down. Wheels dropping over edges, ditches, steep banks, or water can cause rollovers, resulting in serious injury, death or drowning.

- **Roll Bar Position:** Keep the roll bar in the raised and locked position and use the seat belt**.**

Roll Bar Guidelines

- **Only lower the roll bar when absolutely necessary.**
- **Do not wear a seat belt if the roll bar is down.**
- **Drive slowly and carefully with the roll bar lowered.**
- **Raise the roll bar as soon as there is enough clearance.**
- **Always check for overhead clearances (e.g., branches, doorways, electrical wires) before driving under objects and avoid contact.**
- **If a rollover occurs, have the ROPS inspected by an authorized service dealer.**

MAINTENANCE AND STORAGE

Battery Pack Storage:

Refer to section 5.1 for battery pack storage guidelines.

Extended Inactivity:

If the machine will not be used for more than 30 days, refer to section 7 for electrical system maintenance and storage.

Battery Charging:

- Do not charge the battery in a closed or unventilated area.
- Avoid smoking, striking matches, or causing sparks near the battery during charging.
- Keep all guards, shields, and safety devices in place and in safe working condition.
- Do not charge the battery in the rain or in wet locations.

Note:1. Do Not charge a battery that is BELOW 40°F (5°C) or ABOVE 100°F (38°C)

2. Allow the Battery to reach room temperature before charging.

Double insulation:

- Use only identical replacement parts and wear insulating gloves when servicing.
- This machine requires a Worldlawn Commercial 76.8V battery (5238047). Refer to the parts manual.
- Electrical maintenance should only be performed by trained professionals.
- Proper maintenance and operation ensure peak performance.
- Regularly check and tighten all bolts.
- Ensure all shields, guards, and safety devices are properly installed and used under normal operating conditions.
- Frequently inspect wearing parts to identify potential hazards.
- Replacement parts should match the original machine parts.

SAFETY AND INSTRUCTIONAL DECALS

Maintain Safety Signs:

- Keep all safety decals legible. Remove grease, dirt, and debris from safety decals and instructional labels.
- Replace all worn, damaged, or missing safety decals.
- Ensure current safety decals are affixed to replacement components.
- If an attachment or accessory is installed, make sure safety signs are visible.

- Obtain new safety decals from an authorized Worldlawn equipment dealer.
- To affix safety signs, peel off the backing to expose the adhesive surface and apply it to a clean, dry surface, smoothing out any air bubbles.

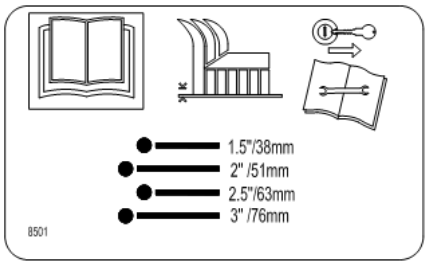
WARNING

Removing standard, original equipment parts and accessories may alter the warranty, traction, and safety of the machine.

SAFETY SIGNS AND INSTRUCTIONAL LABELS

Ensure you are familiar with the following safety decals and instructional labels. They are critical for the safe operation of your machine:

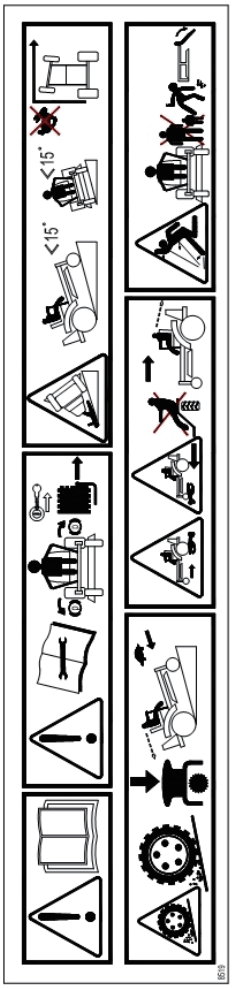
- **Warning Labels:** Indicate potential hazards and safety precautions.
- **Caution Labels:** Provide alerts about necessary precautions to prevent machine damage or accidents.
- **Instructional Labels:** Offer guidelines and instructions for proper machine operation and maintenance.



Label 1: affixed to the right side of the deck

Label 3: affixed to the front face of the frame

Label 2: affixed to under bumper



Label 4: affixed to the bottom frame of the seat

Label 5: affixed to the left side of the deck

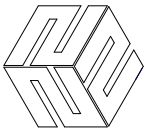
Label 6: affixed to the upper right of the cutting table panel

Label 7: affixed to battery pack cover

Label 8: affixed to battery pack cover

Label 9: affixed to the bottom frame of the seat

Label 10: affixed to the side of the control panel trim



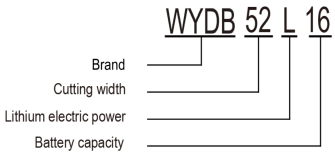
Label 11: affixed to battery pack cover tail plate

Label 12: affixed to surface around the charge port

Label 13: affixed to the top surface on left side behind the seat

SPECIFICATIONS

2.1 MACHINE MODEL



2.2 ELECTRICAL SYSTEM

Refer to section 7 for detailed information.

2.3 SEAT

2.3.1 Standard seat:

- High back
- Full suspension
- Armrest
- Adjustable forward and backward positions

2.3.2 Armrest:

- Foam-filled
- Adjustable up and down positions

2.3.3 Seat safety switch:

- Linked with the safety interlock device.
- Seat delay switch allows for moderately rough terrain.

2.4 TIRES

Tire	Dimensions (in.)	Quantity	Tread	Number of layers	Inflation pressure
Drive wheel tire	24X9.5-12	2	Turf	4	18psi （124kPa）
Universal front wheel tire	13X5-6	2	Smooth	4	25psi （173kPa）

2.5 CUTTING DECK

2.5.1 Width of deck:

Width of deck: 53 inches (1,342 mm)

2.5.2 Grass discharge form: side discharge

2.5.3 Blade size:

Blade: 18 inches (457 mm); 3 blades.

2.5.4 Deck transmission: blade motor

2.5.5 Deck

- The deck is suspended from the frame and equipped with 3 anti-scalp rollers.
- Grass mulching and side discharge available.

2.5.6 Height Adjustment of the Deck

- Raise the deck using the foot pedal until it locks into Transport mode.
- Move the cut height pin to the desired cut height hole based on the decal.
- Apply foot pressure on the foot pedal and release the pedal lock.
- Allow the pedal to come back until the system stops against the pin.

2.5.7 Grass Mulching:

optional

2.6 DIMENSION PARAMETERS

	WYDB52L16
Total width (without deck)	50” (1,260 mm)
Total width (discharge outlet up)	53” (1,342 mm)
Total width (discharge outlet down)	63” (1,652 mm)
Overall length (ROPS up)	80” (2,020mm)
Overall length (ROPS down)	86” (2,184 mm)
Overall height (ROPS up)	77” (1,960 mm)
Overall height (ROPS down)	58” (1,473 mm)
Front wheel track	39.5” (1,000 mm)
Rear wheel track	40” (1,020 mm)
Wheelbase	52” (1,306 mm)
Total weight	1,411Lbs (640Kg)

2.7 TORQUE REQUIREMENTS

Bolt location	Torque
Blade bolt:	115-120(lb·ft) 156-163(N·m)
Anti-scalp roller:	40-45(lb·ft) 54-61(N·m)
ROPS:	55 (lb·ft) 75 (N·m)
Drive wheel lug nut:	125(lb·ft) 170(N·m)

SET UP

3.1 OPEN THE CRATE OF THE LAWN MOWER

Remove the loose items (ROPS, seat, charger, lap bars).

3.2 INSTALL THE ROPS

3.2.1 Unscrew the mounting bolts, disc springs, lock bolts and lock nuts from the frame, as shown in Fig. 2

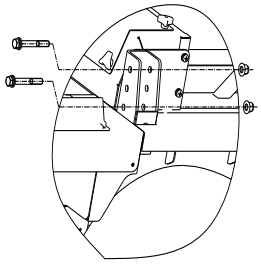


Fig. 2

3.2.2 Install two posts.

a) Place the posts in the installation positions.
b) Install the posts as shown in Fig. 3;
c) The lock bolts and lock nuts of the posts shall not be tightened firmly.

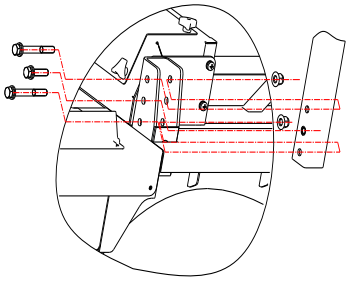


Fig. 3 Installation of Posts

3.2.3 Install the U-tube at the upper end of the ROPS (as shown in Fig. 4)

a) Insert the pin (the pin is connected to the pivot bolt with a steel lanyard).
b) Place the U-tube in the installation position, connect the posts with the bolts and nuts and tighten these fasteners to 55 lb.ft (75 N·m) of torque.
c) Tighten the lock bolts and lock nuts of the posts.

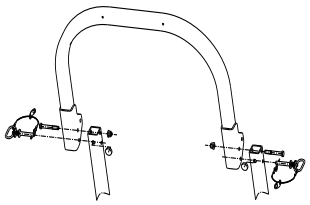


Fig. 4 U-tube Installation

3.3 INSTALL THE SEAT

a) Unscrew four M8 nuts from the bottom of the seat for use.
b) Thread the 4 bottom bolts of the seat through the seat and frame connecting pipe to fix the seat, and then fasten them with 4 M8 nuts.

3.4 INSTALL THE LAP BARS

a) In order to facilitate transportation, the left and right lap bars are removed, and 2 bolts and 2 disc washers on the left/right side are screwed onto the control arm. Unscrew the two bolts and disc washers on each side.
b) Place the lap bars on the outside of the control arm, align it with the connecting hole, and thread the bolt with the disc washer and tighten it. Install the lap bars on the other side in the same way. See Fig. 5

Note: The lap bars have two optional heights: the two upper holes (1 and 3), and two lower holes (2 and 4).

c) If the two lap bars are not aligned, loosen the bolts, adjust them back and forth until they are aligned, and then tighten the bolts.

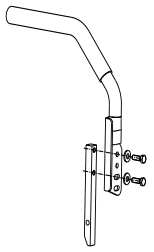


Fig. 5 Installation of lap bars

d) If the two handle ends conflict, sit on the seat, move the handle to the neutral position, gently push the lap bars outward, then pull them back to the driving position, and check them.

3.5 POSITION OF THE DISCHARGE CHUTE.

Install the chute in place as shown in Fig. 6.

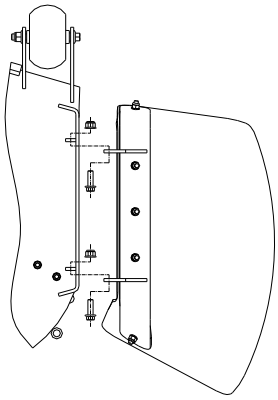


Fig. 6 Installation of the Chute

Note: For the convenience of transportation, disassemble the chute and pack it.

3.6 Authorized service technician ONLY!

The battery power must be connected to the mower drive system.

Operation

Operator lap bars: installed on both sides of the console.

- The left lap bar controls the speed of the left drive motor.
- The right lap bar controls the speed of the right drive motor

Notes:

- Before the machine moves (whether forward or backward), the operator must sit on the seat. The lap bars must be pulled and in the neutral position.
- When driving the lawn mower, if the left and right lap bars are out of the electromagnetic brake position, the time difference shall not exceed 3 seconds
- When the lap bars are in the middle of the T-slot, it is in the neutral position (electronic brake); if the lap bars move outward, it is in the neutral lock position (electromagnetic brake); see Fig. 7.

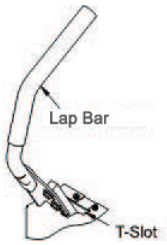


Fig. 7 Neutral Lock Position

Control panel: installed on the right side of the console.

- On the left side of the panel is an LCD display panel, which can display the working status, power supply (SOC), alarm or protection information of each component of the machine.
- In the middle of the panel, the key switch and the PTO switch are respectively above and below, and on the right side of the panel, the high and low ground speed switch (turtle rabbit screen printing) and the blade high and low speed switch (blade screen printing) are respectively above and below

Notes:

At the top of the LCD display screen (see Fig 15 pg. 26), there are first-level safety indicators. Graphics-3,4,5,6,7,8, and 9 related to the safe operating status.

- Indicators 3,4,5,6, and 8 indicators will be green and “SYSTEM IS NORMAL” will display at the bottom of the screen when the mower is ready to operate.
- If either of the lap bars are moved to the operating position without someone in the seat, a RED "DRIVING SYSTEM FAULT" will appear in place of the GREEN "SYSTEM IS NORMAL" at the bottom of the screen. The mower will remain in a non-operable state until the lap bar is returned to neutral lock and someone is in the seat.
- If the PTO switch is engaged without an operator in the seat, the PTO graphic (7) turns to RED and will not reset until the PTO switch is turned off and someone is in the seat.
- If "SYSTEM IS ABNORMAL" is displayed, a fault code will appear on the screen, and an indicator light will glow showing the general function responsible.

4.1 OPERATION PROCEDURES

Operate the machine according to the following procedures for normal use.

4.1.1 Power on the control system and self-check

- Sit on the seat (ensure the seat switch is closed).

- Ensure the PTO switch is in the off position (DOWN) and the lap bars are in the neutral lock position (lap bars OUT).
- Turn the key switch to "START" position, then release it to return to "ON".
- Power on the machine and complete the self-test. If the system is normal, "The system is normal" will be displayed at the bottom of the screen.

4.1.2 Drive control

- After the power-on self-test, pull the left and right lap bars inward out of the lock position.
- If the lap bars are not moved forward or backward within 3 seconds, all illegal contral failure will display.
- Move the lap bars forward or backward to control the speed and direction of the corresponding wheels.
- Control the machine's direction by changing the position of the lap bars relative to each other.
- The drive system is locked when the lap bars are in neutral position and pushed outward into the neutral slot (neutral lock position).

  a) Move the left lap bar forward to rotate the left drive wheel forward; move the right lap bar forward to rotate the right drive wheel forward.

  b) Pull the lap bars back to the neutral position to stop the machine, engaging electronic braking

  c) Move both lap bars forward from the neutral position to move forward.

  d) Move one lap bar forward and the other backward to turn at zero degrees).

⚠ CAUTION

[Potential dangers]
- A significant movement of one lap bar relative to another can cause high-speed rotation.

[Possible dangers]
- Loss of control may result in machine damage or personal injury.

[How to avoid dangers]
- Exercise extreme care when turning.
- Slow down for sharp turns.

4.1.3 Mowing control:

- Pull the PTO switch up to engage the blades.
- Push the PTO switch down to stop the blades.

4.1.4 Parking:

Set the lap bars in the neutral position and push outward into the slot (neutral lock position) to engage the parking brake.

4.1.5 Cut height adjustment:

From the transport position, adjust the cut height pin to the desired location. Apply foot pressure on the deck lift pedal, unlock the lift lock with your hands, and release the foot pedal until it rests on the height pin.

4.1.6 Tracking adjusting bolts: Located on the front side of the console. See Fig. 8

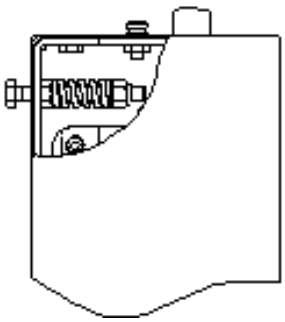


Fig. 8

Use a socket or wrench to adjust the bolt until the machine can travel in a straight line when the lap bars are in the forward position. Stop the machine until all moving parts are stationary. Separate the left and right lap bars and manually adjust the bolt. Rotate the bolt counterclockwise to drive the machine to the right. Rotate the bolt clockwise to drive the machine to the left. Adjust by 1/4 turn each time until the machine travels in a straight line.
Note: *Do not adjust the bolt excessively, otherwise the driving speed of the machine will be limited***.**

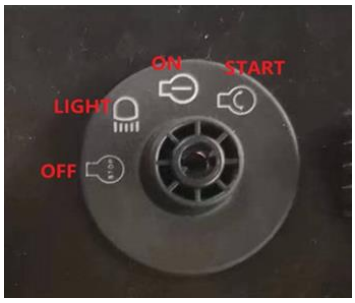
4.1.7 PTO switch: Located on the switch panel of the right fender.

- Pull up on the switch to the "rotating" position, and the blade runs.
- Press down on the switch to the "stop" position, and the blade will stop running.

4.1.8 Moving high and low speed switch:
Located on the right switch panel
The high and low ground speed switch is a switch that manually selects the maximum ground speed.

4.1.9 Cutter high and low speed switch:
Located on the right switch panel.
The high and low blade speed switch is the switch that manually selects the maximum speed of blades.

4.1.10 Ignition start switch: located on the right push control panel
The start switch is used to control system power-on and headlight status. The switch has four ICONS in positions "OFF", "LIGHT", "ON" and "START". Insert the key, then turn clockwise to the "START" position to power ON the battery. Release the key, and it will automatically reset to the "ON" position. After powering on, the electrical system pre-charge and start self-test. When the startup self-test is completed, the system will start the power loop, or the panel will display fault information.



4.1.11 Front lights on:

Turn the key switch to the "LIGHT" position

4.1.12 Manual release of the electromagnetic park brake: Located at the rear end cover of each wheel motor.
It is only needed when the battery system is completely dead, and there is no place nearby to charge, and the machine needs to be pushed to the destination for charging.
1.To unlock the brakes: Use an Allen wrench to tighten the two release bolts at the rear end covers of the left and right wheel motors to unlock and release them. As shown in Figure 9

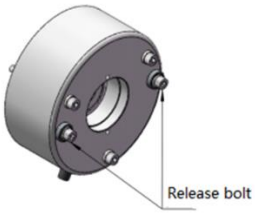


Fig. 9

2.To return the park brake to normal, ensure the release bolts have been tightened. Use a hex wrench to loosen the release bolt 1.5 turns, allowing the brake to function normally, as shown in Fig 10

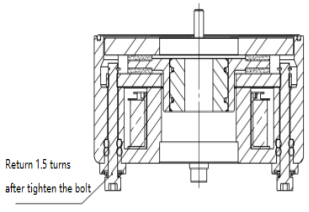


Fig. 10

4.2 PRECAUTIOSN BEFORE STARTING

4.2.1 Check the Battery Level and Remove the Charging Connector: Ensure the battery is fully charged and the charging connector is removed.

4.2.2 Familiarize with Controls and Safety Requirements: Understand the position, function, and safety requirements of each component and the emergency shutdown procedure.

4.2.3 Maintenance Check: Refer to Part 5 for maintenance and make necessary checks.

4.2.4 Check Driving Tire Pressure: Ensure the driving tire pressure is 18 psi (124.2 kPa).

4.2.5 Check Front Caster Wheel Pressure: Ensure the tire pressure is 25 psi (172.5 kPa).

4.3 MOWING

4.3.1 ROPS and Seat Belt:

- Raise and lock the ROPS (Roll Over Protection Structure) and fasten the seat belt
- Do not fasten the seat belt if the ROPS is lowered, as it will not provide safety protection.

4.3.2 Power on

- Ensure the PTO switch is disengaged, and the lap bars are moved outward (neutral lock position.
- The operator does not need to sit on the seat.
- Turn the starting switch to the "START" position and release it after the battery is powered on.
- Ensure the vehicle driver speed is in low gear by pressing the speed switch to low gear and confirming through the instrument icon.
- At night, turn the starting switch to the "LIGHT" position.

4.3.3 PTO switch engaged

The PTO switch controls the ON and OFF of the blades. Ensure all personnel are familiar with the deck and the grass discharge area before engaging the PTO switch.

DANGER

[Potential dangers]
- The running blade under the deck is dangerous.

[Possible dangers]
- Personal injury or death caused by contact with the running blade.

[How to avoid dangers]
- Do not put your hands or feet under the deck when the blade is running;

DANGER

[Potential dangers]
- An uncovered discharge opening will cause some objects to fly out of the discharge outlet, injuring the operator or others nearby, and personal injury can also be caused by contact with the blade.

[Possible dangers]
- Flying objects or contact with the blade can cause personal injury or even death.

[How to avoid dangers]
- Unless there is a grass collection device or grass collection bag, do not raise, move, or replace the discharge chute during machine operation;

Note: The operator must be in the seat before the PTO switch is engaged.
Pull the PTO switch to the “ROTATE” (UP) position to start mowing.

4.3.4 Stop the PTO switch:
Press the PTO switch to the "STOP" position to turn off the PTO switch.

4.3.5 Shut down:

a) Stop the machine: Turn off the PTO switch and move the lap bars outward to the neutral lock position.
Turn the key switch to the “STOP” position, powering off the battery, and remove the key to prevent children or other unauthorized persons from starting the lawn mower.

b) When the machine is not operated for 15 minutes in Standby Mode, the battery automatically powers down.
When the machine is not used for a long time, consigned or parked indoors, disconnect the main power line plug, which is located on the front of the battery compartment.

4.4 TRANSPORTING

4.4.1 Using a trailer: Use a heavy trailer or truck

Use a heavy trailer or truck. Lock the brake and block the wheels with wheel chocks to prevent rolling. Secure the machine to the trailer or truck with straps, chains, and ropes. The trailer and truck must be equipped with lighting equipment and markings as required by law.

⚠ CAUTION

[Potential dangers]
- The machine has no turn signal, rearview mirror, or slow travel sign; if it travels on the road, these conditions shall be followed.

[Possible dangers]
- It is very dangerous to drive the machine without the above equipment on the road, which can easily cause personal injury.
- Driving the machine without the above equipment on the road may violate national laws, and the operator may be subject to public security penalties.

[How to avoid dangers]
- This lawnmower is NOT "street legal";

4.4.2 Transportation:

- Be careful when transporting a machine with a trailer or truck. The width of the ramps must exceed the width of the rear tires of the machine.
- Do not use "makeshift" ramps for loading or unloading the machine. Proper strength, length and stability is necessary to prevent personal injury. Do not exceed a 15 degree ramp angle.
- Do not turn on a slope because the machine can easily run out of control and roll over. It is dangerous to accelerate and decelerate suddenly when the machine goes downhill, to avoid a rollover.

⚠ WARNING

[Potential dangers]
- There is the possibility of rollover when loading and unloading the machine with a trailer and truck.

[Possible dangers]
- Rollovers can cause personal injury.

[How to avoid dangers]
- Be careful when driving on steep slopes.
- Only drive on ramps with sufficient width; do not use ramps separately on both sides of the machine.
- If a ramp must be used, the ramp shall be sufficiently wide.
- The inclination angle between the ramp and the ground, between the ramp and the trailer or truck shall not exceed 15°.
- When driving on a ramp, do not accelerate (decelerate) suddenly to avoid the machine from tipping over;

MAINTENANCE AND ADJUSTMENT

⚠ WARNING

[Potential dangers]
- Someone turns on the power during maintenance or adjustment.

[Possible dangers]
- Suddenly turning on the power can cause serious personal injury.

[How to avoid dangers]
- Before any maintenance, please pull out the key from the starting switch and unplug the main power line plug.

⚠ WARNING

[Potential dangers]
- The motor temperature is too high.

[Possible dangers]
- Contact with a motor with high temperature will cause burns.

[How to avoid dangers]
- Maintenance and repair shall be carried out after the motor is completely cooled;

5.1 SCHEDULED MAINTENANCE

5.1.1 Battery Pack Maintenance:
Maintenance cycle: Complete charge and discharge cycle at least once every quarter. Whenever the battery pack is fully discharged, it needs to be charged as soon as possible. Excessive discharge of the battery may shorten the battery life. And or cause permanent damage. Even a small amount of charge time is beneficial to recovery.

⚠ WARNING Otherwise, the battery will lose power

- Do not charge and discharge at the same time; otherwise, the battery and charger may be damaged, or an accident may occur.
- The battery pack can only be charged using the special charger provided by WORLDLAWN.
- If the battery pack is not in use for a long period of time (days or weeks), disconnect the connector between the battery pack and the charger or load.
- For long-term storage, keep the battery SOC (state of charge) at or near 50%. To achieve this, you can discharge the battery pack completely, and then use half the charging time to charge the battery pack.
- For long-term storage, perform a charge/discharge cycle every six months, discharging the battery pack completely and then using half the charging time to recharge the battery pack.
- For long-term storage, safe for one month at temperatures of -4°F to 113°F and one year at temperatures of 32°F to 95°F.
- The best operating environment for battery modules is 5°F to 113°F. The battery module can be discharged at -4°F to 131°F and charged at 32°F to 107°F.
- Avoid severe vibration, collision, and extrusion of the battery pack; Do not throw or drop the battery pack; Keep the battery pack away from dangerous goods such as fire, volatile combustible chemicals, and explosives.
- Regularly clean the accumulated material such as grass clippings and dust from the battery compartment.
- Charge the battery in a well-ventilated, dry room away from sparks and flames. Never expose the charger to rain, steam, or liquids.
- The lithium battery can only charge using the special charger provided.
- Do not touch the live terminal of the charger or the uninsulated part of the output connector, as well as the charging plug and AC power cord plug.

5.1.2 Keep the mower deck free of debris:
Maintenance frequency: daily
a) Turn off the power supply, wait for all moving parts to be stationary, and then pull out the key.
b) Lift the deck to the highest lock position (transport position) and lift the front end of the machine by jack or other auxiliary equipment.
c) Remove the debris from under the mower deck.
d) Remove the debris on top of the mower deck.

⚠ CAUTION

[Potential dangers]
- It is a potential safety hazard to only use a jack to lift the lawn mower for maintenance.

[Possible dangers]
- In case the jack cannot completely bear the weight of the machine, or the machine suddenly falls, personal injury will be caused.

[How to avoid dangers]
- Use the auxiliary equipment instead of relying on the jack alone for support;

5.1.3 Checking the Blade:
Maintenance cycle: each machine working day
a) Turn off the power and pull out the key when all moving parts are still.
b) Raise the deck according to step 5.1.2.
c) Check the blade and sharpen the blade or replace it with a new blade as needed.
d) To install the blade (if the blade needs to be removed), put a piece of wood in the front or rear baffle, and then tighten the bolt with a torque of 115-120 lb·ft (156-163N • m); Make sure the cup of the disc washer is pointing towards the blade; See Figure 11

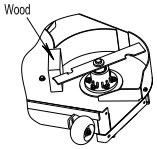


Fig. 11 Diagram of Installing the Blade

⚠ CAUTION

[Potential dangers]
- It is dangerous to mow the grass when the blade is not properly torqued.

[Possible dangers]
- If the blade is not properly torqued, the high-speed rotating blade will fly out from the deck, causing serious personal injury accidents and huge losses.

[How to avoid dangers]
- It is not advised to lubricate bolts and blade shafts before assembly.
- The tightening torque of the blade bolts is 115-120 lb·ft 1(56-163N·m);

5.1.4 Safety interlock:
Maintenance frequency: check daily
a) Cycle each safety function to be sure of proper working order:
- Seat switch – CLOSED.
- RH Lap Bar – OUT
- LH Lap Bar – OUT.
- PTO Switch – ON

Note: The LCD display will illuminate the corresponding symbol. Page 29 shows what each symbol represents.
Contact your dealer if any of these DO NOT illuminate with the proper check.
b) Normal “Kill Circuit” function: NOT IN SEAT
Mower will NOT move.
Blade will NOT turn.
Both conditions must exist to ensure the safety system is normal.
It must be noted that it is NOT advised to operate the machine if the machine fails to pass these tests. Please contact the dealer.
It must be ensured that the safety mechanism is firmly connected and operated in a suitable working environment.

5.1.5 Check the roll over protection system (ROPS):
Maintenance frequency: daily
Ensure that the latch pins are properly installed and secure.

5.1.6 Check for loose parts:
Maintenance frequency: daily

5.1.7 Check the tire pressure:
Maintenance frequency: every 40 hours
1. Cut off the main power supply and wait for all moving parts to come to a complete stop, then remove the key.
2. Check the drive wheel tire pressure:
The tire pressure is 18psi (124.2kpa). Inflate the drive wheel tires to the appropriate air pressure.
3 Check the front tire pressure: The appropriate air pressure should be 25psi (172.5kPa). Inflate the front tires to the appropriate air pressure

5.1.8 Add grease with a grease gun:

Grease Table

Part	pumps	locations	Maintenance frequency
Caster Pivot	1	2	Annually
Caster wheel axle	1	2	Every 40 hours
Height-adjusting shaft bearing	1	5	Every 40 hours
Rear connecting rod of the cutting deck	1	2	Every 40 hours

5.1.9 Lubricate the seat tracks.
Maintenance frequency: every 160 hours
a) Cut off the main power supply and wait for all moving parts to be stationary, and then pull out the key.
b) Unlock the seat lock and lift the seat.
c) Turn off the main power supply and wait for all moving parts to be stationary, and then pull out
d) Spray the track with low viscosity lubricant.

5.1.10 Front fork assembly and front wheel
a) For tightening the nuts on the front fork assembly: With the tightening torque of the nut being about 55 lb·ft (75N·m), turn the front fork assembly with force to make the inertia rotation of the front fork assembly less than 1 turn, with the sealing cover not rotating.
b) For tightening the nuts on the front wheels: Tighten the nuts and rotate the front wheels with force to make the inertia rotation of the front wheels less than 1 turn.

5.2 ADJUSTMENT

Note: Before maintenance, disengage the PTO switch, cut off the main power supply, wait for all moving parts to be stationary, pull out the key, and clean or adjust the machine.

5.2.1 Adjustment of cutting height:
a) Stop the engine and wait for all moving parts to be stationary, and then pull out the key.
b) Disengage the PTO switch.
c) Step on the height-adjusting pedal to raise the deck to the transportation position (the highest lock position).

Note: When changing the cutting height, the machine shall be completely stopped, and the PTO switch shall be disengaged.

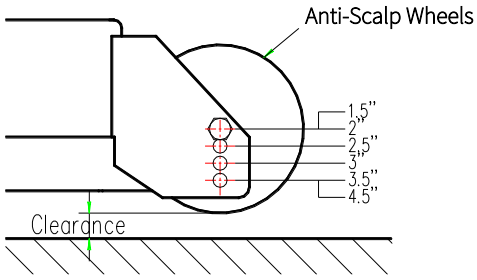


Fig. 12 Anti-Scalp Wheels

d) According to the label on the height adjustment plate, insert the height adjustment pin into the hole at the desired cutting height position.
e) Then step on the height-adjusting pedal, manually move the height lock lever, slowly release the pedal and make it contact with the height adjustment pin, which is the desired height position.
f) For transportation, step on the height-adjusting pedal to the transport position (the highest lock position).

g) Adjust the anti-scalp wheels on the deck according to the cutting height under normal operating conditions, as shown in Fig. 12. Stop the engine and wait for all moving parts to be stationary. In general, the clearance between the anti-scalp wheels and the ground shall be higher than 3/4” (19 mm) to prevent the anti-scalp wheels from wear and damage. To maximize the lifting of the deck, the anti-scalp wheels can be placed at a lower position, but the clearance between the anti-scalp wheels and the ground shall be at least 1/4” (6.4 mm). It is not recommended to support the deck with anti-scalp wheels, and it shall be ensured that the bolts are tightened, otherwise the anti-scalp wheels may be damaged.

5.2.2 Adjustment of the deck:

a) Place the lawn mower on a flat surface.

b) Cut off the main power supply and open the lap bars outward in the neutral lock position.

c) Check the pressure of drive tires: The appropriate pressure is 18psi (124.2kpa).

d) Check the pressure of front tires: The appropriate pressure is 25psi (172.5kPa).

e) Adjust the deck as needed, place the five anti-scalp wheels of the deck to the highest hole position, or remove them.

f) Raise the deck to the highest lock position, and raise the deck by loosening the bolts behind the springs on each side, with as little stress on the springs as possible; see Fig. 13

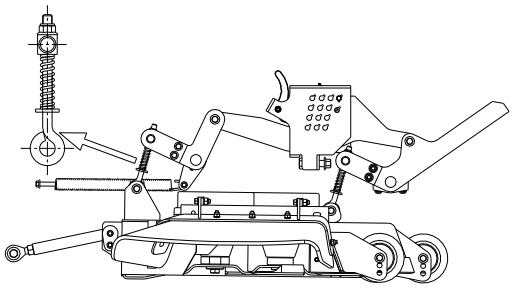


Fig. 13 Diagram of Deck Adjustment

g) Use a wrench to adjust the nut on the upper side of the lifting ring so that the distance between the front blade tip and the ground is 1.5±1/6" (38±2 mm), and the rear blade tip is 1/4~3/8" (6~8mm) higher than the front blade tip.

h) Raise the deck to the highest lock position and adjust each spring by rotating the bolt behind the spring until the spring is adjusted to the appropriate size (the deck can be lowered to the lowest height smoothly, and when it is raised, the operator can lift the deck more easily by the pedal).

i) Reinstall the five anti-scalp wheels of the deck firmly.

Note: When the above adjustment process is completed, the front end of the deck will be slightly lower than the rear end by about 1/4" (6mm).

5.2.3 Adjustment of the front wheel bearing:

Remove the dust cover from the front tube, tighten the nut with the tightening torque of about 55 lb·ft (75N·m), and turn the front fork assembly with force to make the rotation of the front fork assembly less than 1 turn. If you need to reinstall the disc spring, see Fig 14

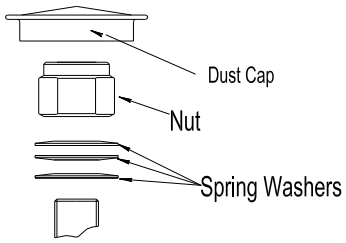


Fig.14 Diagram of Installing the Disc Spring

TROUBLESHOOTING

6.1 THE MACHINE DOES NOT TRAVEL STRAIGHT

a) Make adjustment in accordance with 4.1.3.
b) Check the tire pressure of the drive wheel: The tire pressure shall be 18psi (124.2kpa).
c)Check the pressure of front tires: It shall be 25psi (172.5kPa)

6.2 UNEVEN MOWING

a) Check the tire pressure of the drive wheel: The tire pressure shall be 18psi (124.2kpa).
b) Check the pressure of front tires: It shall be 25psi (172.5kPa)
c)Check the deck lift eye bolts.
d)Check whether the deck is horizontal (refer to Section 5.2.2)

Note: The front end of the deck is about 1/4" (6mm) lower than the rear end, which means it should be slightly inclined**.**

e) Check whether the blade tips are in the same plane.

6.3 THE MAIN POWER SUPPLY IS DICONNECTED

a) Confirm the battery pack power.
Confirm that the brake handle is connected and the lap bars are opened outward (in the neutral lock position).
b) Check that the PTO switch is disengaged.
c)Check all wire connectors for corrosion, as even a small corrosion may lead to incorrect wiring. Thoroughly clean the connectors with the cleaning agent and apply the insulating anti-corrosion oil.

Note: If the main power supply still cannot be connected after the above steps, please contact your dealer.

Note: A proper working environment and correct use of the safety mechanism are necessary for operators before mowing.
Never take any problem that occurs lightly.

ELECTRICAL SYSTEM

7.1 SAFETY PRECAUTIONS

- **Read the User Manual**: Before adjusting or repairing the equipment, remove the key and disconnect the charge and discharge connector in the battery compartment.
- **Transport Safety**: Ensure to disconnect the charge and discharge connector in the battery compartment when the vehicle is transported.
- **Cleaning**: Keep the device free of grass clippings, leaves, and other debris. Do not use water to clean the device. Only use compressed air. Always wear adequate eye and hearing protection when cleaning.
- **Battery Safety**: Always wear safety glasses and protective clothing when near batteries. Use insulated tools.
- **Debris Removal**: Remove all dirt and debris from the battery bin, drive motor bin, lawn mower deck, seats, etc. Avoid using solvents, hard cleaners, or abrasives.
- **Operational Safety**: If the key is in the ON position, stay clear of the mower deck and or the discharge area before operating the PTO.
- **Fire Safety**: No flames, fireworks, or smoking should be near the battery.
- **Child Safety**: Keep batteries out of reach of children.
- **Guard Safety**: Always install the guard, cover plate, and guard securely. If damaged, repair or replace it immediately. Do not alter or remove safety devices.

7.2 SYSTEM OPERATING STATUS

The machine working system is divided into four working modes:

- **Standby State**: After the power-on self-test, the machine enters Standby mode.
- **Drive Mode**: When the seat switch is closed, and the lap bars leave the parking position, the machine enters Drive mode.
- **Work Mode**: In Drive mode, if the PTO switch is pulled up and the blades turn, the machine enters Work mode.
- **Charge Mode**: When powered off or in any of the above modes, inserting the charging connector will switch the machine to Charge mode. Charging mode overrides all others.

7.3 ELECTRICAL SYSTEM COMPOSITION AND PERFORMANCE PARAMETERS.

7.3.1. Battery pack

76.8V/210Ah/16.1kWh Lithium Iron Phosphate (LiFePO4)

7.3.2. Charging

- **120Vac Input**: 50/60Hz, output: 87V/15A. Charge time: About 13 hours.

Note: Adapter harness provided to plug the charger into 120VAC charger. Charger auto adjusts voltage.

- **220~240Vac Input**: 50/60Hz, output: 87V/35A. Charging time: About 5.5 hours.

Charger indicator status:

- **Charging**: Red light on
- **Standby**: Green light blinks
- **Full**: Green light on
- **Fault**: Red light blinks
- **Battery High/Low Temperature**: Steady red and green (orange)

7.3.3. Electric motors

72V high torque permanent magnet brushless motor

7.3.4. Drive controller

60~90V high efficiency drive controller

7.3.5. LCD display panel

4.3-inch high light full color LCD screen

⚠ WARNING

Only the Worldlawn supplied charger can be used.
This charger can be connected to a 120V 1 PHASE or 240V 1 PHASE supply
Failure to use a proper power supply could result in serious injury

7.4 PRECAUTIONS FOR USE OF ELECTRICAL APPLIANCES

7.4.1 Battery Charging Port

Located on the right side of the machine housing, open the charging port protective cover to charge.

7.4.2 Charging Suggestions

⚠ WARNING

Do not smoke near the battery and keep the battery away from any source of fire while the battery is being serviced and charged.

⚠ WARNING

When the battery is low (10%SOC), the cutting motor automatically stops working, and the remaining power is available for the normal operation of the drive motors and system, so that the operator can continue to drive the device out of the field or return to the charging site to charge.

⚠ WARNING

For the various electrical components on the WORLDLAWN mower, maintenance can only be performed by qualified technicians trained by WORLDLAWN.

⚠ WARNING

Never attempt to cross a road or railway when the battery is low.

⚠ WARNING

More details on the charger, please refer to the charger manual. Read and understand all safety warnings and instructions. Failure to comply with these regulations may result in electric shock, fire and/or serious injury.

⚠ WARNING

Wear safety glasses and protective clothing and use insulated tools when maintaining batteries.

Because the lithium battery has the characteristics of self-discharge, it is recommended to replenish the battery in time when it is not working or stored for a long time, and it is recommended to recharge the battery every 3 months to 40~50%SOC to maintain the battery life.
When charging, ensure that the charger cooling fan inlet and outlet are not blocked.

7.4.3 Charging Procedure

Note: Do not charge the battery if temperature is below 32°F (0°C) or above 100°F (38°C)

- Make sure the machine stops completely.
- Open the dust cover of the battery charging port on the lawn mower.
- Insert the charger connector into the charging port and start charging.
- To stop charging, unplug the AC power cable and then disconnect the charging connector on the mower.
- If the charging connector is suddenly disconnected during the charging process, it may lead to product failure. When the charger is not in use, cover the dust-proof with the cap on the charging gun to prevent water and dust from entering.

- If the charger appears red light (alarm) during the charging process, it is necessary to stop charging, remove the AC line, and then power the charger after the indicator is off. If the work is not normal, contact the after-sales personnel to deal with it.
- If there is smoke, fire, odor and other anomalies during the charging process, unplug the AC power cord immediately, then unplug the charging connector, and contact the after-sales personnel for handling.

7.4.4 Charging Safety Precautions

- Avoid contact with the charger and the fan during charging cycle.
- Keep charging fan clear of foreign objects. Keep children away from the charging process.
- Please use WORLDLAWN special charger, other chargers may cause safety accidents

⚠ WARNING

Disconnect the charger cord from the wall outlet before disconnecting the charger from the mower.

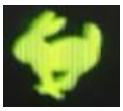
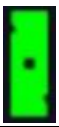
⚠ WARNING

After removing the charging connector, cover the battery charging port with a dust-proof cap.

7.5 INSTRUMENT DISPLAY

The digital display is located on the control panel and is used to provide the operators with electrical system information. It provides detailed information in the form of patterns, codes, and numbers.

Fig 15

S/N	Icon	Function
1		Low travel speed
		High travel speed
2		Seat switch
3		Green: high blade speed Gray: low blade speed
4		Left lap bar
5		Right lap bar
6		Power on the whole machine
7		PTO switch
8		Vehicle working state
9		Blade operation
10		Head lights

11	Cycle time	Battery cycle working time
12	Remaining time	Remaining working time of battery
13	LD	Left lap bar fault code
	RD	Right lap bar fault code
	LB	Left blade controller fault code
	MB	Middle blade controller fault code
	RB	Right blade controller fault code
	BMS	Battery fault code
	CHG	Charger fault code

b) Instrument function keys

Press the function key F1 for 1 second on the main interface to enter the blade motor system parameter display interface as below:

Press the function key F1 for 3 seconds on the main interface to enter the electrical system working state display interface, as shown below (to be modified):

Press the function key F2 for 1 second on the main interface to enter the travel motor system parameter display interface, as shown below:

Press the function key F3 for 1 second on the main interface to enter the battery system parameter display interface as below:

Press the function key F4 for 1 second on the non-main interface to return to the main interface from the current interface

The following table lists some common faults and meanings displayed by the instrument.

LD	left lap bar
RD	right lap bar
LB	left blade controller
MB	middle blade controller
RB	right blade controller
BMS	battery manage system
CHG	charger

FAULT CODES OF THE TRAVEL CONTROLLER

System	Fault code	Fault description	Troubleshooting
LD/RD	01	Overvoltage fault	Check whether the battery connection lines and connection terminals are fastened Check whether the main contactor connection lines are firm Restart the machine
LD/RD	02	Undervoltage fault	Check whether the battery connection lines and connection terminals are fastened Check whether the main contactor connection lines are firm Wait for charging
LD/RD	03	Motor overcurrent	Check whether the machine is operating under a heavy duty by lowering the load and traveling at a low speed
LD/RD	04	Stall fault	The machine crosses the pit and ridge at a low speed
LD/RD	05	Motor encoder fault	Damage of the motor encoder Poor contact of the encoder connection wires and terminals
LD/RD	06	Drive self-test fault	Check whether the controller connection lines and terminals are in poor contact, and whether the voltage of each switch and throttle is in the initial position
LD/RD	07	Controller overheating Level 1 fault	Stop the machine for cooling. In a very hot working environment, wait until the temperature drops before working again.
LD/RD	08	Motor overheating Level 1 fault	Stop the machine for cooling. In a very hot working environment, wait until the temperature drops before working again.
LD/RD	09	Abnormal motor temperature sensor	Check the temperature sensor connection lines and terminals for poor contact Check the temperature sensor for damage
LD/RD	10	Motor phase loss	Check the motor phase line for damage
LD/RD	11	Overspeed fault	Check whether the accelerator is installed loosely, and whether the connection lines and terminals are in poor contact
LD/RD	12	Solenoid valve fault	Check whether the voltage of each switch and throttle is in the initial position, otherwise the solenoid valve is damaged

System	Fault code	Fault description	Troubleshooting
LD/RD	13	Main contactor contact failure	Main contactor damaged
LD/RD	14	Main contact coil fault	Main contactor damaged
LD/RD	15	Main contactor drive fault	Main contactor damaged
LD/RD	16	Controller overheating Level 2 fault	Stop the mower. Let it cool down for 1 hour.
LD/RD	17	Motor overheating Level 2 fault	Stop the mower. Let it cool down for 1 hour.
LD/RD	18	Operation sequence fault	Check whether the voltage of each switch and throttle is in the initial position when the machine is started
LD/RD	19	5V fault	External load impedance too low
LD/RD	20	12V fault	External load impedance too low
LD/RD	21	BMS communication fault	Poor contact of BMS connection lines
LD/RD	22	Communication fault of left/right drive controller	Poor contact of communication connection lines
LD/RD	23	Communication fault of the left blade controller	Poor contact of communication connection lines
LD/RD	24	Communication fault of the middle blade controller	Poor contact of communication connection lines
LD/RD	25	Communication fault of the right blade controller	Poor contact of communication connection lines
LD/RD	26	Instrument communication fault	Poor contact of communication connection lines
LD/RD	27	Controller hardware overcurrent protection	Restart the machine and contact after-sales service
LD/RD	28	Controller software overcurrent protection	Restart the machine and contact after-sales service
LD/RD	29	temperature abnormal of controller	Restart the machine and contact after-sales service
LD/RD	30	Controller low temperature	Restart the machine and contact after-sales service

FAULT CODES OF THE BLADE CONTROLLER

System	Fault code	Fault description	Troubleshooting
LB/MB/ RB	01	Overvoltage fault	Check for loose battery. Check connections and secure. Check for loose main power connections and secure.
LB/MB/ RB	02	Undervoltage fault	Check for loose battery. Check connections and secure. Check for loose main power connections and secure.
LB/MB/ RB	03	Motor overcurrent	Reduce the travel speed under heavy blades load cutting
LB/MB/ RB	04	Stall fault	Reduce the travel speed under heavy blades load cutting
LB/MB/ RB	05	Encoder fault	Damage of the motor encoder Poor contact of the encoder connection wires and terminals
LB/MB/ RB	06	Drive self-test fault	Damage of the motor encoder Poor contact of the encoder connection wires and terminals
LB/MB/ RB	07	Controller overheating	Stop the mower. Let it cool down for 1 hour.
LB/MB/ RB	08	Motor overheating	Stop the mower. Let it cool down for 1 hour.
LB/MB/ RB	09	Abnormal motor temperature sensor	Check the temperature sensor connection lines and terminals for poor contact Check the temperature sensor for damage

System	Fault code	Fault description	Troubleshooting
LB/MB/ RB	10	Motor phase loss	Check the motor phase line for damage
LB/MB/ RB	11	Controller overcurrent protection	Reduce the travel speed under heavy blades load cutting
LB/MB/ RB	12	Hardware protection	Reduce the travel speed under heavy blades load cutting
LB/MB/ RB	13	Software overcurrent	Reduce the travel speed under heavy blades load cutting
LB/MB/ RB	14	EEPROM storage	Download the driver again and set the working parameters
LB/MB/ RB	15	Startup failure	Check whether the controller connection lines and terminals are in poor contact, and whether each switch is in the initial position
LB/MB/ RB	16	Drive self-test and pre-charge fault	Check the controller connection lines and terminals for poor contact
LB/MB/ RB	17	VCU communication interruption	Poor contact of communication connection lines
LB/MB/ RB	18	MOS fault	Replace the controller
LB/MB/ RB	19	Temperature sensor fault	Replace the controller
LB/MB/ RB	20	SPI communication fault	Replace the controller
LB/MB/ RB	21	Controller low temperature fault	Re start when the temperature is up to -30℃

FAULT CODES OF THE BMS

System	Fault code	Fault description	Troubleshooting
BMS	01	Discharging high temperature Level 1 fault	Stop the mower. Let it cool down for 1 hour.
BMS	02	Discharging low temperature Level 1 fault	Run the mower at low power until battery warms up.
BMS	03	Temperature difference Level 1 fault	Stop the mower. Let it cool down for 1 hour.
BMS	04	Cell voltage too high Level 1 fault	Avoid long downhill runs that create a regenerative state.
BMS	05	Cell voltage too low Level 1 fault	Machine running at reduced power, battery ready for charging
BMS	06	Battery insulation Level 1 fault	Check the machine for electric leakage
BMS	07	Discharging overcurrent Level 1 fault	Machine running at reduced power
BMS	08	Abnormal current sensor	
BMS	09	Discharging high temperature Level 2 fault	Stop the mower. Let it cool down for 1 hour.
BMS	10	Discharging low temperature Level 2 fault	The battery heats up at low temperatures
BMS	11	Temperature difference Level 2 fault	Stop the machine for cooling. In a very hot working environment, wait until the temperature drops before working again.
BMS	12	Cell voltage too high Level 2 fault	Avoid long downhill runs that create a regenerative state.

System	Fault code	Fault description	Troubleshooting
BMS	13	Cell voltage too low Level 2 fault	The battery waits for charging
BMS	14	Battery insulation Level 2 fault	Check the machine for electric leakage
BMS	15	Discharging overcurrent Level 2 fault	Reduce the machine working load
BMS	16	BMS self-test fault	1.Check the BMS connection lines and terminals for looseness 2. Send the BMS to the dealers for repair
BMS	17	Total voltage too high Level 1 fault	Avoid long downhill runs that create a regenerative state.
BMS	18	Total voltage too high Level 2 fault	Avoid long downhill runs that create a regenerative state.
BMS	19	Total voltage too low Level 1 fault	Machine running at reduced power, battery ready for charging
BMS	20	Total voltage too low Level 2 fault	The battery waits for charging
BMS	21	SOC too low Level 1 fault	Machine running at reduced power, battery ready for charging
BMS	22	SOC too low Level 2 fault	The battery waits for charging and contact dealers for repair
BMS	23	Feedback current too high Level 1 fault	Avoid sudden braking when the machine goes down steep slopes
BMS	24	Feedback current too high Level 2 fault	Avoid sudden braking when the machine goes down steep slopes
BMS	25	Cell voltage difference Level 1 fault	Repair the battery and replace the faulty battery cell modules
BMS	26	Cell voltage difference Level 2 fault	Repair the battery and replace the faulty battery cell modules

System	Fault code	Fault description	Troubleshooting
BMS	27	Charger fault	Repair the charger
BMS	28	Charger overtemperature	1.Wait for the charger to cool down and resume charging 2. Contact dealers for repair
BMS	29	Charging relay adhesion	Repair the battery and replace the relay
BMS	30	Discharge relay adhesion	Repair the battery and replace the faulty battery cell modules
BMS	31	Heating relay adhesion	Repair the battery and replace the faulty battery cell modules
BMS	32	Main negative relay adhesion	Repair the battery and replace the faulty battery cell modules
BMS	33	Charging high temperature Level 1 fault	Wait for the charger to cool down and resume charging
BMS	34	Charging high temperature Level 2 fault	Wait for the charger to cool down and resume charging
BMS	35	Voltage acquisition line fault	Check whether the cell voltage acquisition line is loose or falling off
BMS	36	NTC fault	Check whether the cell temperature acquisition line is loose or falling off
BMS	37	Low temperature charging	The battery heats up at low temperatures
BMS	38	Charging current too high Level 1 fault	Repair the charger
BMS	39	Charging current too high Level 2 fault	Repair the charger

LIMITED WARRANTY

WORLDLAWN POWER EQUIPMENT, INC
52 MOWER

Worldlawn Power Equipment, Inc, (“Worldlawn”) warrants that the Worldlawn 52 Mower (“Mower”) will be free from defects in material and workmanship for a period of five years or 2000 hours whichever comes first from the original date of purchase. During the warranty period, Worldlawn will repair or replace, at its option, any Mower or part thereof which is found to be defective in material or workmanship. This warranty specifically excludes wear items, including but not limited to belts, blades and tires. This warranty also specifically excludes parts covered by another manufacturer’s warranty, which parts are covered only by that manufacturer’s warranty.

This limited warranty extends only to the original retail purchaser (“Owner”) of a Mower. It is not transferable. This warranty extends only to those Mowers purchased for private residential or commercial use. A Mower purchased for any other reason, for example as a rental unit, shall have a ninety (90) day warranty under the same terms and conditions as set forth herein.

Proof of purchase will be required to substantiate all warranty claims. All warranty work must be performed by an authorized Worldlawn Dealer. Any work done on or to the Mower by anyone other than an authorized Worldlawn Dealer, including the original purchaser, voids all provisions of this warranty except those provisions which limit Worldlawn’s liability (as set forth below).

Any Mower or part thereof which, in Worldlawn’s sole discretion, is deemed defective shall be repaired or replaced, at Worldlawn’s option, without charge for parts or labor. To take advantage of this warranty, the Mower must be returned to an authorized Worldlawn Dealer within the warranty period. The cost of delivering the Mower to the authorized Dealer and return delivery shall be the responsibility of the Owner.

Worldlawn’s sole responsibility with any claim made under this warranty is limited only to repairing or replacing the mower or a defective part thereof, and no claim of breach of warranty shall be cause for rescission, cancellation, or voiding the contract of sale of the Mower.

This warranty does not extend to any Mower or part thereof which has been misused, neglected, damaged, abused, not properly installed or maintained, altered or which has been operated in any way contrary to the operating instructions as specified in the Owner/Operator Manual. This warranty does not extend to any repair or replacement made necessary by normal use.

THE WARRANTY EXPRESSED HEREIN IS IN LIEU OF OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR MERCHANTIBILITY OR FITNESS FOR A PARTICULAR USE, AND IS IN LIEU OF ANY AND ALL OTHER OBLIGATIONS OR LIABILITY ON WORLDLAWN’S PART.

UNDER ANY AND ALL CIRCUMSTANCES, WORLDLAWN’S TOTAL LIABILITY TO OWNER FOR ANY AND ALL CLAIMS, LOSSES OR DAMAGES, INCLUDING LOSS OF PROFITS, ARISING OUT OF ANY CAUSE WHATSOEVER, WHETHER BASED IN CONTRACT, NEGLIGENCE OR OTHER TORT, STRICTLIABILITY, BREACH OF WARRANTY OR OTHERWISE, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE MOWER. IN NO EVENT SHALL WORLDLAWN BE RESPONSIBLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES.