

Faults		
Left drive motor reset	Hall sensor fault for left drive motor	Right drive motor and controller mismatch
Overvoltage protection for right drive motor	Undervoltage protection for right drive motor	Right drive motor communication error
Locked-rotor protection for right drive motor	Abnormal right drive motor voltage	Overtemperature protection for right drive motor
Right drive motor reset	Hall sensor fault for right drive motor	Blade motor and controller mismatch
Overvoltage protection for blade motor	Undervoltage protection for blade motor	Blade motor communication error
Locked-rotor protection for blade motor	Abnormal blade motor voltage	Overtemperature protection for blade motor
Blade motor reset	Hall sensor fault for blade motor	VCU communication timeout
VCU cutting deck lifting/descending sensor fault	VCU cutting deck not calibrated	ECU communication timeout
VCU blade motor communication timeout	VCU left drive motor communication timeout	VCU right drive motor communication timeout
VCU drive motor stall protection	BMS communication timeout	VCU cutting deck lifting timeout
VCU cutting deck descending timeout		

Note:

VCU: Vehicle Control Unit

ECU: Electronic Control Unit

BMS: Battery Management System

11 Maintenance

11.1 Maintenance Schedule

Interval	Procedure
Daily or before each use	• Check the safe start interlock system. • Observe whether tires are flat. • Check the blade. • Check whether components like the discharge chute, screws, nuts, or bolts are damaged, missing, or loose. Ensure that all protective devices are in place and working.
After each use	Clean the blade.
Every 25 hours	Check the tire pressure.
Every 100 hours	Check the rear wheels to ensure that all nuts are tightened with the recommended torque.
Every 200 hours	Check the front wheels to ensure that they can move freely.
Before storing the mower	• Fully charge the batteries. • Perform the above maintenance steps and clean the mower completely. • Check whether components are damaged, missing, or loose. Replace or tighten components if required before storing the mower.
Annually	• Check the parking brake system.

11.2 Regular Maintenance

Regular maintenance is the best prevention. The following provides proper maintenance suggestions and schedules that the operators should follow. Remain alert to unusual noises, as they could be signaling a problem. Visually inspect the mower for any abnormal wear or damage. When performing scheduled maintenance, you can also detect potential problems. Inspect the mower blade daily for grass clippings, and wire and string tangles. Grass clippings and dirt may accumulate under the cutting deck, especially when the grass is wet or has high moisture content. The accumulated grass clippings and dirt will harden, restricting blade rotation, and will probably result in poorer cutting quality. Therefore, clean the mower regularly. Fully lift the cutting deck, support it with a jack stand or wedge, and then scrape any substance accumulated beneath the cutting deck.

11.3 Tires and Wheels

Tires

The tire pressure must comply with the requirements of this manual. High tire pressure could lead to a tire burst, resulting in injury or even death. Special skills and tools are required for tire repair. Contact the dealer for replacement or repair of the tires, inner tubes, and rims.



WARNING

Only use the specified tires.

1. Tire pressure

Although the tire pressure has been preset to the specified value, it gradually decreases with time. Check the tire pressure and inflate the tires as needed based on the tire appearance as follows.

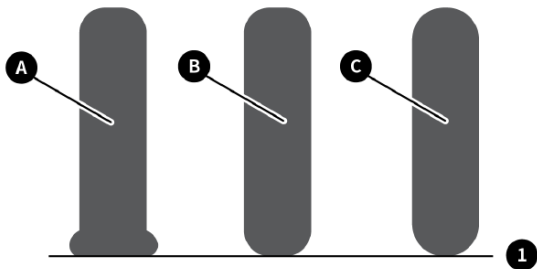


Figure75 Tires in different tire pressures

No.	Description
1	Ground
A	Low
B	Normal
C	High

2. Standard tire pressure

Tire	Specifications	Pressure
Front	--	Solid tire
Rear	13x6.50-6	MAX20 PSI



Note: Inspect the tires daily and replace the damaged tires immediately.



WARNING

Ensure that all bolts on the wheels and axles are tightened before using the mower.

Wheels

If wheels are replaced, tighten the bolts with a torque of $45 \pm 5 \text{ N} \cdot \text{m}$ ($33.2 \pm 3.7 \text{ lb-ft}$), drive the mower for around 200 m, and then check the torque.

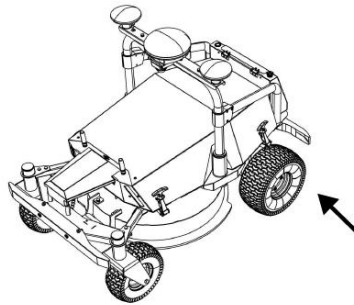


Figure76 Rear wheel bolts

1. Remove the front wheels

- Park the mower on level ground.
- Press down the emergency stop button to power off the mower.
- Lift the front of the mower in a professional and safe way.
- Remove the lock nut ①, and pull out the front wheel bolt ②.
- Take the front wheel off the front fork ③.

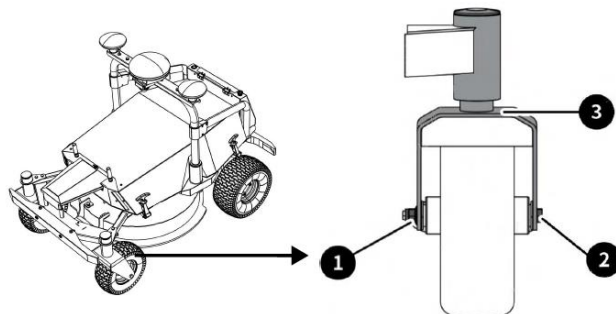


Figure77 Remove the front wheel

No.	Nameme
1	Lock nut
2	Front wheel bolt
3	Front fork

2. Install the front wheels

11.4 Blade Maintenance

Check the blade daily. The blade is the key to cutting efficiency and quality. Keep the blade sharp, as a dull blade will tear the roots apart instead of cutting and increase power consumption. Replace the bent, cracked, or damaged blade immediately.


WARNING

Do not heat up the bent blade to straighten it, or weld the cracked or broken blade.


WARNING

Press down the emergency stop button to turn off the blade motor. Always wear gloves when working on the blade. Check whether the blade is damaged whenever the mower hits rocks, twigs, or other objects.

1. Inspection

The blade must be sharp. In the case of ② shown in the figure below, sharpen the blade. In the case of ③, replace the blade. Check whether the blade bolt is loose and tighten it with the specified torque if necessary.

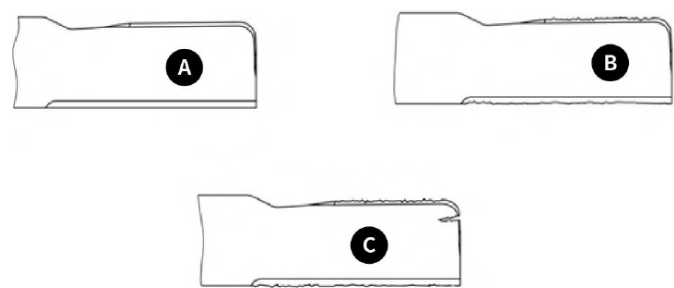


Figure78 Blade states

No.	Name
A	New
B	Worn
C	Cracked


WARNING

Always wear sturdy goggles when grinding and polishing the blade.

2. Replace the blade
- a. Press down the emergency stop button and the power indicator is off.
 - b. Dismount the cutting deck and turn it upside down.
 - c. Put on leather gloves and loosen the bolt ② that fixes the blade ① with a 15/16" socket wrench.
 - d. Turn the bolt counterclockwise to loosen it.

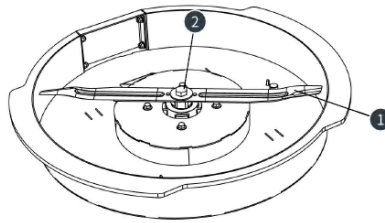


Figure79 Remove the blade

No.	Name
1	Blade
2	Bolt

e. Install the new blade. Ensure that the blade edge faces the ground after the cutting deck is mounted.

Place the blade holder (4) on the blade motor (5), and place the new blade (3) on the blade holder. Ensure that the holes are aligned. Place the disc spring (2) on the blade (3) and insert the bolt (1), as shown below. Then, tighten the bolt with a torque of 135–150 N • m (99.6–110.6 lb-ft).

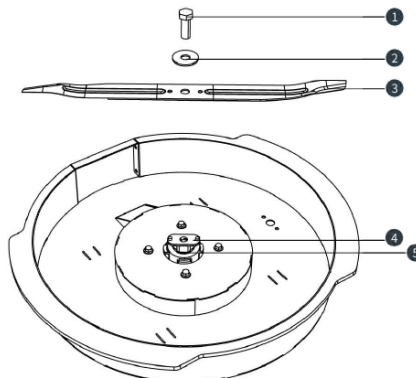


Figure80 Install the blade

No.	Name
1	Bolt
2	Disc spring
3	Blade
4	Blade holder
5	Blade motor

3. The torque values are as follows:



WARNING

Tighten the wheel bolts and blade bolt; otherwise, the wheels or blade may be lost, resulting in serious machine damage or personal injury.

Part	lb-ft	N • m
Wheel bolt	33.2±3.7	45±5
Blade bolt	99.6~110.6	135~150

It is recommended to check the wheel bolts upon the first 2 hours of operation and then every 100 hours, and repair or replace them when necessary.



Check the blade balance with a commercial balancing tool, which is available at most hardware stores, or by placing the blade on an inverted line punch or a 1/2" bolt. The blade should not lean or tilt. Spin the blade slowly, and the blade should not wobble. If the blade is out of balance, true it up before reinstalling it. Place the blade on a flat surface to check whether it is distorted, and replace it when necessary.



WARNING

To ensure proper cutting, the curved part of the blade must point upward towards the inner side of the cutting deck.



WARNING

Install the blade to ensure that the edge of the rotating blade does not touch the underside of the cutting deck.



WARNING

If you fail to torque the bolt correctly, the blade may be lost, resulting in serious injury.

11.5 Cleaning the Mower

Clean the vehicle body

Wipe the vehicle body with a cloth. Cleaning the mower with water may cause the following damage:

1. Damage or disconnection of electrical wiring, which may cause fires.
2. Damage of tires, oil seals, and other rubber and resin parts.
3. Peeling of the coating surface.
4. Battery damage.



Do not clean electrical equipment and devices with water, and prevent water entering the mower.

Clean the cutting deck

Clean the cutting deck (especially the underside) carefully after each use, as grass clippings, leaves, dirt, and other debris can accumulate at the underside of the cutting deck, causing rust and corrosion. Power off the mower before cleaning the cutting deck. Keep the mower away from water sources when cleaning the grass clippings and leaves accumulated on or around the motor cover. Wipe it clean with a dry cloth. If debris accumulates on the underside of the cutting deck during mowing, turn off the blade, power off the mower, and scrape the cutting deck clean with a proper tool.

If the mower is used in harsh environments, such as wet grass and low mowing height, it is recommended to remove and clean the cutting deck, and check the blade and bolts when necessary.

11.6 Storing the Mower

If the mower is not to be used for a long time, perform the following to prepare the mower for storage.

Clean the mower as described in the previous section.

Check the blade, and replace or grind it when necessary (refer to the section "Blade Maintenance").

Store the mower in a dry, clean, well-ventilated place, out of the reach of children. Keep it away from fertilizers, rock salts, and other corrosive materials.

Do not cover the mower with a plastic sheet, as it traps moisture around the mower, causing rust and corrosion.

Check the mower thoroughly for any worn or damaged parts and order the replacement parts from the dealer.

Check the tire pressure monthly to prevent flat tires.

For details about battery maintenance, refer to the section "Battery Maintenance" .

11.7 Before Using a Mower from Storage

Follow the procedure below before using a mower from storage:

Clean trash and dirt off the mower.

Tighten all loose bolts, and keep all pins in place.

Mount all safety shields and covers, and check whether the safety precautions in this manual are followed.

Fully charge the batteries according to the section "Electrical System Safety" .

11.8 Battery Maintenance



Replace with batteries designated by FJD. Using any other parts may cause hazards or product damage.



Do not smoke while maintaining the batteries.



Wear protective eyewear and clothing, and use insulated tools when maintaining the batteries.



It is not recommended to clean the charging pile/charger with compressed dry air. When there is no other choice, always wear safety goggles, as well as masks in a dusty environment.

Your mower is powered by batteries. If maintained properly, the batteries can last for years. Maintain the batteries as instructed below:

When the mower is not in use, power off the mower to reduce power consumption.



Only use the charging pile/charger provided by FJD. Improper charging will void your warranty, and may cause equipment damage, serious injury, or death.

- During battery maintenance, check whether the battery cables are securely fixed.
- Prevent grass, dirt, and debris from accumulating near battery terminals.
- To avoid battery damage, stop discharging the batteries after undervoltage protection is triggered.
- Charge the batteries in a well-ventilated and dry place away from sparks or airflow. Keep the charging pile/charger away from rain, vapor, or other liquids.
- Do not use the charging pile/charger provided to charge other products.
- Do not touch the charging pile electrodes or any uninsulated part of the output connector.

To prolong the service life of the batteries and keep them in good condition, maintain the batteries as instructed below.

- Over-discharge may shorten the battery life and result in permanent battery damage.
- When the batteries are fully discharged and the mower is powered off, charge the mower within 24 hours even for 5 to 10 minutes.

- If the mower is not to be used for a long time (for days or weeks), power off the mower to reduce the standby power consumption and prolong the storage time.
- Ensure that the battery level is around 50% before long-term storage and recharge the mower to above 50% every three months during storage to maintain battery health.
- The recommended storage temperature of the batteries is 25°C (77°F). Store the batteries for no more than one month at -20°C to 45°C (-4°F to 113°F), and no more than six months at 0°C to 35°C (32°F to 95°F).
- The optimum charging temperature of the batteries is 0°C to 40°C (32°F to 104°F), and the optimum discharging temperature is -15°C to 50°C (5°F to 122°F).
- Avoid violent vibration during the use and storage of the batteries.

11.9 Maintenance Precautions

Park the mower on level ground, turn off the blade switch, raise the cutting deck, and then press down the emergency stop button.

NOTICE

Wait for all moving parts to stop before adjusting, cleaning, or servicing the mower. Repairing or maintenance requiring electrical power should be performed by trained maintenance personnel only. Read and follow the safety precautions in this manual.

- Any maintenance requiring the removal of safety shields must be performed by trained mechanics.
- Before inspecting the underside of the cutting deck, power off the mower so that the indicator is off and the blade switch cannot be accidentally turned on.
- Clean the underside of the cutting deck with a stick or similar tool, and keep all body parts away from the cutting deck.
- Keep the battery compartment and cutting deck clean of trash, grass clippings, and other debris.
- Keep the battery compartment, power unit, and cutting deck clean of dirt and debris. Do not use water, solvents, hard cleaners, or abrasives.
- Always wear protective eyewear when maintaining batteries, grinding the blade, and cleaning off accumulated debris. When the mower is running, do not adjust or service the cutting deck, blade, or any attachment of the mower.
- Do not work under the mower or its attachment unless it is safely supported with jack stands. Ensure that the mower is secure when it is raised and placed on the jack stands.
- Do not touch the hot parts of the mower.
- Tighten the nuts and bolts, especially the blade bolt. Keep the mower in good condition.
- Do not damage the safety devices. Check whether they are functioning normally on a regular basis.
- Do not clean the cutting deck while the mower is running. Power off the mower and ensure that the blade has stopped before cleaning the cutting deck. Clean the discharge area with a stick if it is blocked. Never use your hands.
- Take care when working under the cutting deck as the blade is extremely sharp. Wear gloves and take extra care during servicing.
- Use only genuine FJD mower parts.
- Always disconnect the battery cables when transporting the mower. Keep the mower free of grass clippings, leaves, and other debris.

As the batteries of this mower contain lithium-ion, a toxic and corrosive material, observe the following safety instructions.



All toxic materials must be disposed of in a specified manner to prevent environmental contamination. Before disposing of a damaged or worn-out lithium-ion battery, contact the local waste disposal facility or environmental protection agency for information and specific instructions. Deliver the battery to a local recycling or disposal center certified for lithium-ion disposal.



If any battery breaks, with or without leaks, do not recharge or use it. Replace the broken battery with a new one. Do not attempt to repair it. To avoid injury, explosion, electric shock, and environmental contamination, cover the battery terminals with insulating tape.

- Do not attempt to dismantle or destroy any battery.
- Do not attempt to open the batteries.
- The electrolyte released through battery leakage is corrosive and toxic. Do not discharge the solution into the river. Avoid skin contact, and do not swallow it.
- Do not dispose of the batteries in household trash.
- Do not incinerate the batteries.
- Do not discard the batteries in any place that will become a landfill.

12 Troubleshooting

12.1 Cutting Deck

Contact your local dealer if you have any doubts.

Problem	Cause	Solution
The mower cannot discharge clippings properly.	The grass is wet.	Mow the grass when it is dry.
	The cutting height is low.	Increase the cutting height.
	The driving speed is high.	Reduce the driving speed.
Some areas are uncut or still need cutting after mowing.	The driving speed is high.	Reduce the driving speed.
	The blade is worn or damaged.	Replace the blade.
	Grass clippings build up inside the cutting deck.	Clean the inside of the cutting deck.
The mower cuts unevenly.	The driving speed is high.	Reduce the driving speed.
	The blade is dull.	Sharpen the blade.
	The blade is worn.	Replace the blade.
	The cutting deck is not leveled.	Level the cutting deck as instructed in the section "Adjusting the Levelness and Height of the Cutting Deck".
	The blade is worn.	Replace the blade.
	The anti-scalp wheel is set improperly.	Adjust the anti-scalp wheel height.
	The tire pressure is low.	Inflate the tires to the normal pressure.

Problem	Cause	Solution
The lawn is scalped, and the soil is exposed.	The cutting height is low.	Increase the cutting height.
	The ground is bumpy.	Change the mowing method, such as the mowing direction.
	The blade is bent.	Replace the blade.
	The tire pressure is low.	Inflate the tires to the normal pressure.
The mower vibrates violently.	Grass clippings build up inside the cutting deck.	Clean the cutting deck.
	The blade is bent or out of balance.	Replace or balance the blade.
	The blade bolt is loose.	Tighten the bolt.
The cutting deck is overloaded.	The driving speed is high.	Reduce the driving speed.
The blade appears zig-zag and taupe.	The blade is dull.	Sharpen the blade.
	The cutting deck is not leveled.	Level the cutting deck.
Fault prompts are displayed on the mower screen.	Refer to section 10.3.	Refer to section 10.3.
The mower cannot be started.	The power indicator is off.	Press the power button.
	The circuit breaker trips.	Check whether the circuit breaker trips.

12.2 Batteries

Follow the battery maintenance precautions when handling the batteries.

Problem	Cause	Solution
The mower cannot be started.	The batteries are dead.	Fully charge the batteries.
	The batteries reach the end of their life.	Replace the batteries.
	The wiring harnesses and switches are faulty.	Contact your local dealer for repair.
The mower is not charging.	The batteries reach the end of their life.	Replace the batteries.
The terminals are severely corroded and overheated.	The terminals are not fastened.	Clean the terminals, and tighten the bolts and nuts.
The battery electrolyte suddenly decreases.	There are cracks and holes in the batteries.	Replace the batteries.
	The charging voltage is high.	Check the charging pile/charger.

12.3 Blade Motor and Blade Motor Controller



WARNING

Before performing the following steps, ensure that your digital multimeter is capable of measuring the resistance of up to 1.2 million ohms (Ω).

Disconnect all battery cables before any repair or maintenance. Then, wait for five minutes, and perform the following steps.

1. Remove debris from all components of the cutting deck.
2. Check whether all the electrical connections of the blade motor and the blade motor controller are fastened properly. If the lock screws on the blade motor controller are loose, tighten them with a torque of 8–10 N · m (5.9–7.4 lb-ft), and ensure that the cutting deck works properly. If loose connections are not found, perform the following steps.
3. Label the contacts of the blade motor controller to ensure correct connections.
4. Label all wires corresponding to the labels in step 3 to ensure correct connections.
5. Disconnect all cables from the blade motor controller.
6. Measure the resistance (Ω) of the blade motor controller:
 - a. Set the multimeter to the continuity mode.
 - b. Place the positive (+) probe of the multimeter on the positive (+) terminal of the blade motor controller, and place the negative (-) probe on the negative (-) terminal of the controller.
 - c. If the multimeter beeps, the controller is damaged and needs to be replaced.

7. If no issues are found, connect the blade motor controller to the blade motor.
8. Measure the resistance (Ω) of the blade motor:
 - a. Set the multimeter to the resistance mode.
 - b. Place the positive (+) probe of the multimeter on the motor terminal U, place the negative (-) probe of the multimeter on the motor terminal V, and check the reading.
 - c. Place the positive (+) probe of the multimeter on the motor terminal U, place the negative (-) probe of the multimeter on the motor terminal W, and check the reading.
 - d. Place the positive (+) probe of the multimeter on the motor terminal V, place the negative (-) probe of the multimeter on the motor terminal W, and check the reading.
 - e. If the above three readings are greater than 5 Ω , replace the blade motor.
9. Measure the resistance in the six-pin motor connector by placing the negative (-) probe of the multimeter on pin 2 and the positive (+) probe of the multimeter on pin 3. Resistance should read between 800k and 1.2m ohms (Ω). Resistance between pin 2 and pins 1, 4, 5, and 6 should be 0 ohm. If resistances are above or below these ranges, replace the blade motor.
10. If the above steps are completed and the issues persist, refer to the following troubleshooting processes for wiring harnesses.

12.4 Wiring Harnesses

Problem	Cause	Solution
The mower cannot be started.	Connections to the wiring harness terminals below the power button are poor.	If the connectors are loose, reconnect them. If the pins of the wiring harness are loose, contact your dealer for repair.
	The connections between wiring harnesses and batteries are loose.	Check and reconnect the connectors.
The motors do not work.	Power harnesses or communication harnesses to the motors are faulty.	Check for loose connectors or discontinuity of the power harnesses and communication harnesses, and contact your dealer for repair if necessary.
The switches do not work.	The connections between wiring harnesses and batteries are loose.	Locate the faulty switch according to on-screen instructions, check for abnormality in its connectors, and contact your dealer for repair if necessary.