

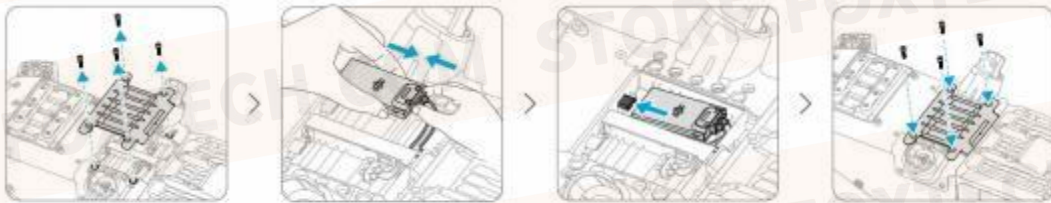
Quick Guide

1. Drone preparation

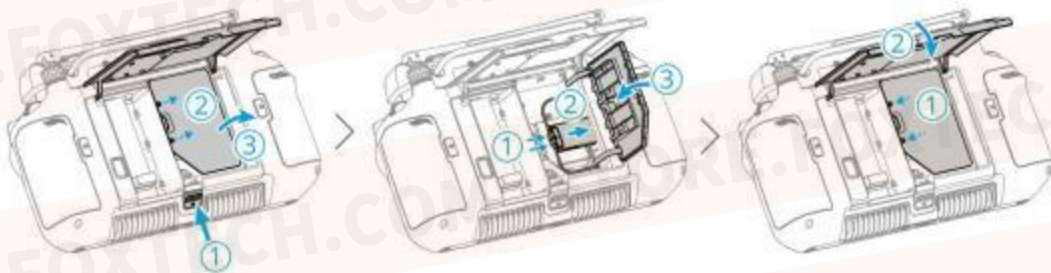
1.1. Install the drone's image transmission module. (See DJI's manual for details)

Installing the DJI Cellular Dongle 2

1. Install the DJI Cellular Dongle 2 on to the aircraft.

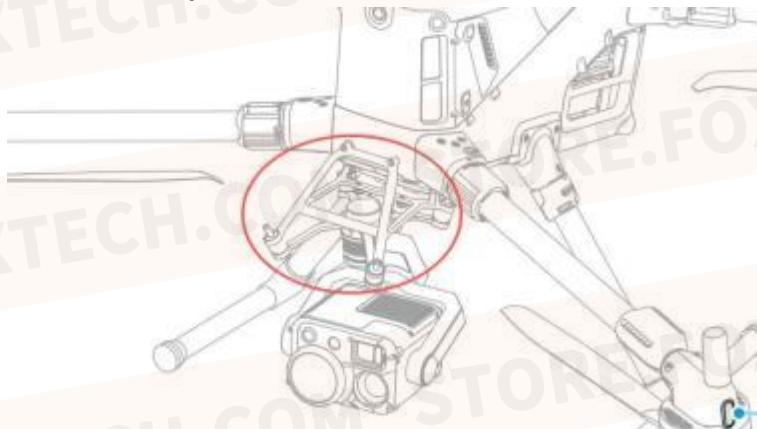


2. Install the DJI Cellular Dongle 2 to the remote controller.



3. Check the icon in the upper right corner of the system desktop. If the 4G logo appears, it means that the enhanced transmission is available.

1.2. Remove the tripod bracket.



1.3. Turn on the drone, activate devices like the drone and remote control, upgrade to the latest firmware, register the UAV, and complete real-name registration to ensure the drone operates normally.

1.4. After the firmware upgrade is complete, enter the flight

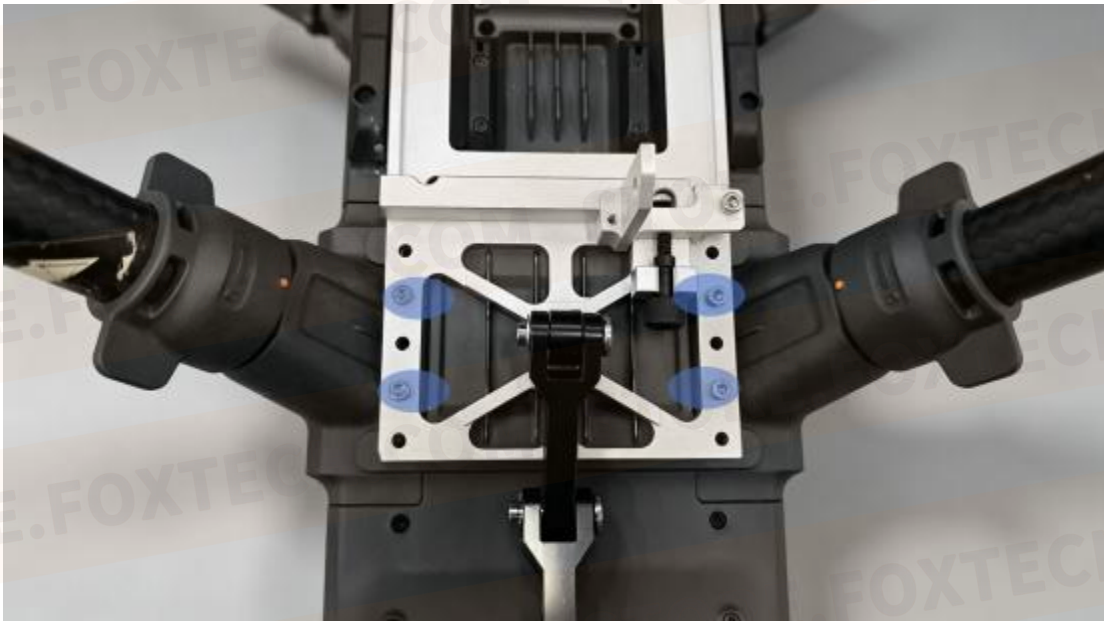
interface, enable the RTK function, access the RTK service center, and activate the network RTK service (included with the device).



2. Preparations for the water system

2.1. Install the spray gun mounting base and air power.

a. Fix the 2x plates first with 4x M3*20 screws. Then fix the plate onto the drone.



b. Install the auxiliary fixation brackets to both sides. A total of 4 screws, with a specification of M3*25.



c. Insert the air power from right side horizontally into the slot and secure it with the tightening screws.



d. Fix the front base with 4pcs screws. M3*8.





2.2. Insert the quick-release nozzle and confirm the lock.



2.3. Fix the spray gun as below.





3. Preparations for the tethered system

3.1 Connect the 220VAC/16A circuit breaker power supply. Be sure to use a cable reel rated for at least 16A.

Important: Do NOT turn on the main power yet. Only switch it on after all subsequent steps are completed. The water pump and ground station are connected to two separate power cable reels. The water pump is connected to a 10A socket, and the ground station is connected to a 16A socket. Both power cable reels should be plugged into different 16A electrical outlets to avoid overloading and tripping the circuit breaker.



3.2 Insert the quick-connect plug into the power input connector of the tethered base station to secure the connection.



3.3 First, open the 220V main power switch. Once the it is powered, open the air switch on the tethered base station and wait for the system to start self-check. (If it does not start, press the blue button on the left smart meter to power it on.)



3.4 Unplug the tether, connect the tether power source, and secure the blue power plug. Then connect the DJI M400 tether battery adapter.



3.1. Attach the tether to the drone's lower center hole and secure it with a fastener. Make sure the cable will not be touched by the propeller.



3.2. Connect to the ground high-pressure water pump and secure the high-pressure water pipe under the drone. **Note:** Ensure the water pipe is firmly connected to the fixed base.



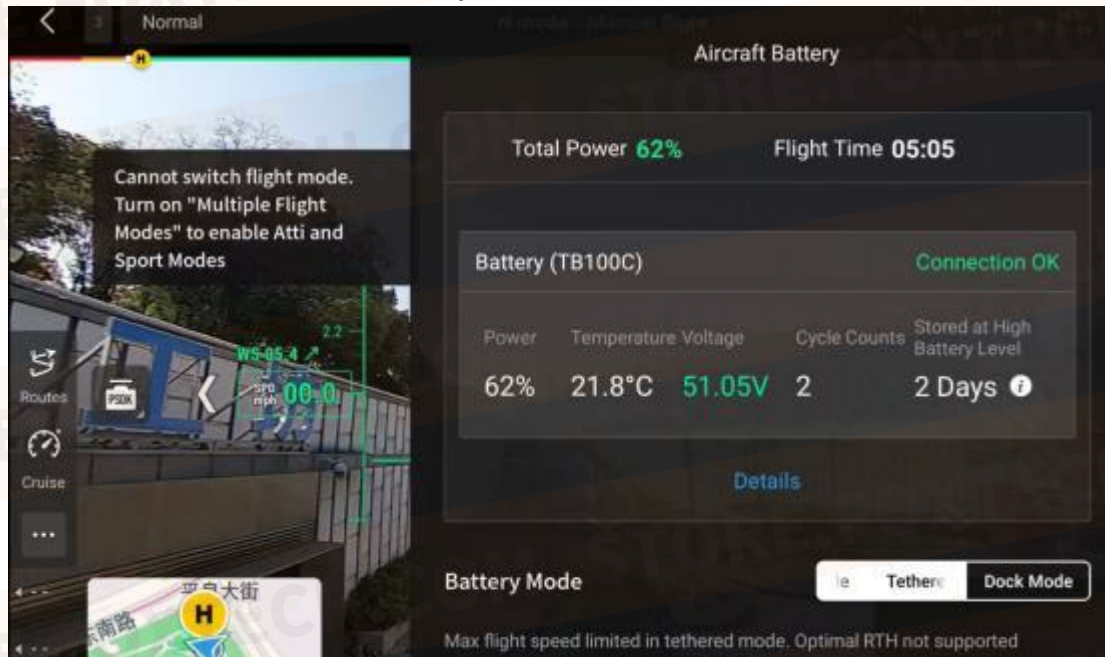
4. Pre-flight preparation

4.1. Activate the high-pressure water pump and conduct a ground water spray test to verify the water retention system's proper functioning before takeoff.

4.2. Turn on the remote control, activate the drone, and wait for the remote to connect to the drone.

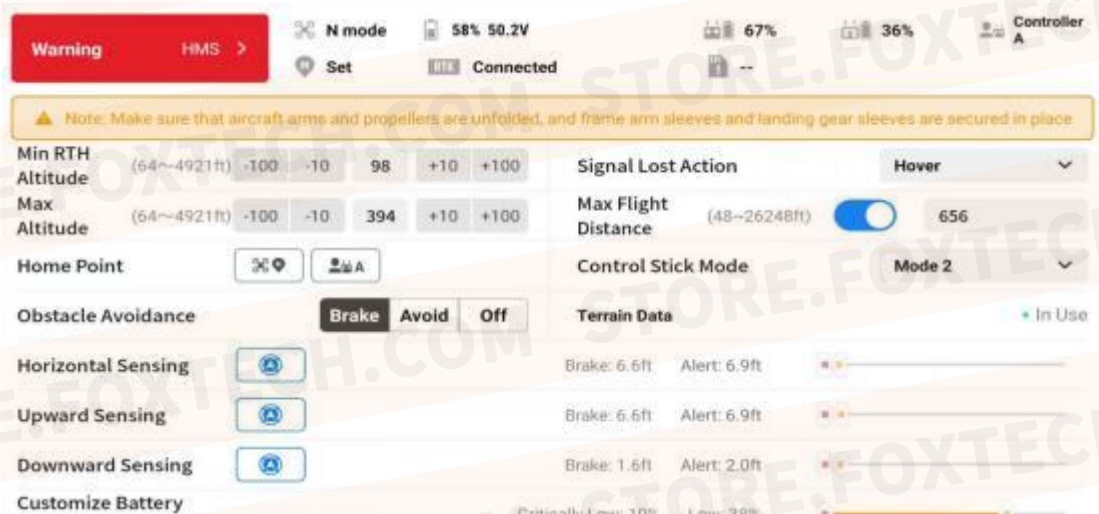
a, Check all obstacle avoidance features and ensure they are enabled

b, Ensure that the drone is powered in tethered mode

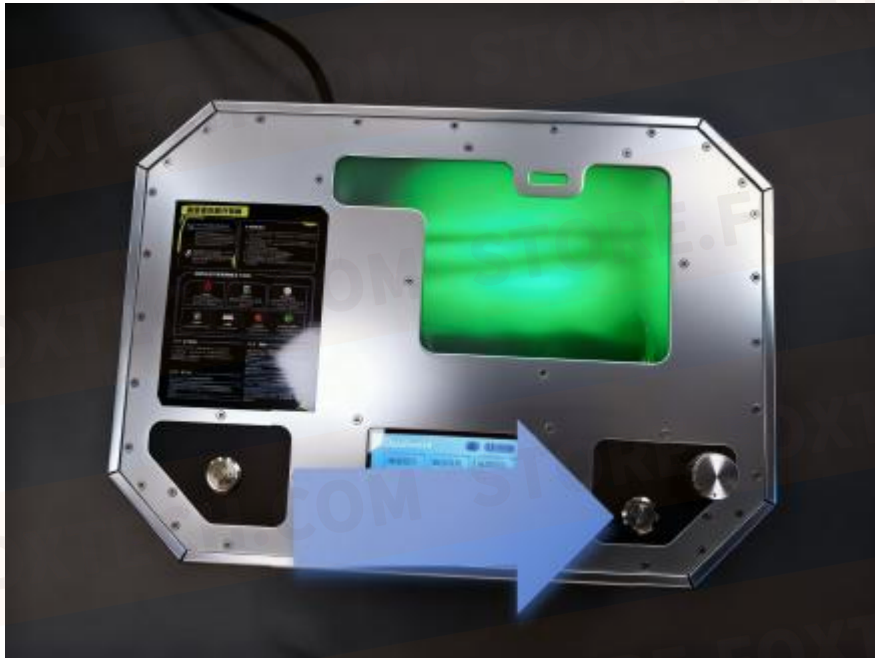


c. Set the downward obstacle-avoidance distance to 0.5 m, and the warning threshold to 0.6 m.

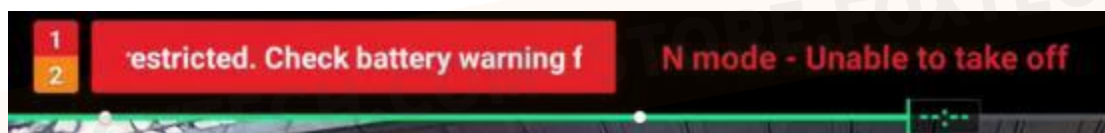
Ensure stable GPS and RTK signals. If needed, you can purchase a D-RTK ground station for RTK enhancement.



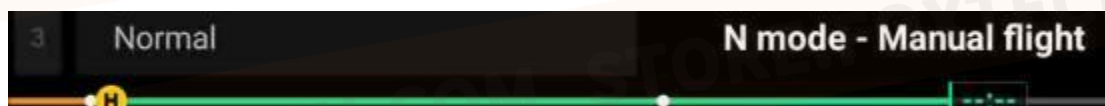
4.3 Press and hold the button below for 3 seconds to power on the drone. The tethered base station will display 'Confirm drone status.' Wait until the red indicator in the upper left corner of the remote control disappears and the 'N' position (Standby) appears before taking off. The tethered base station's prompt will automatically disappear.



Cannot take off.



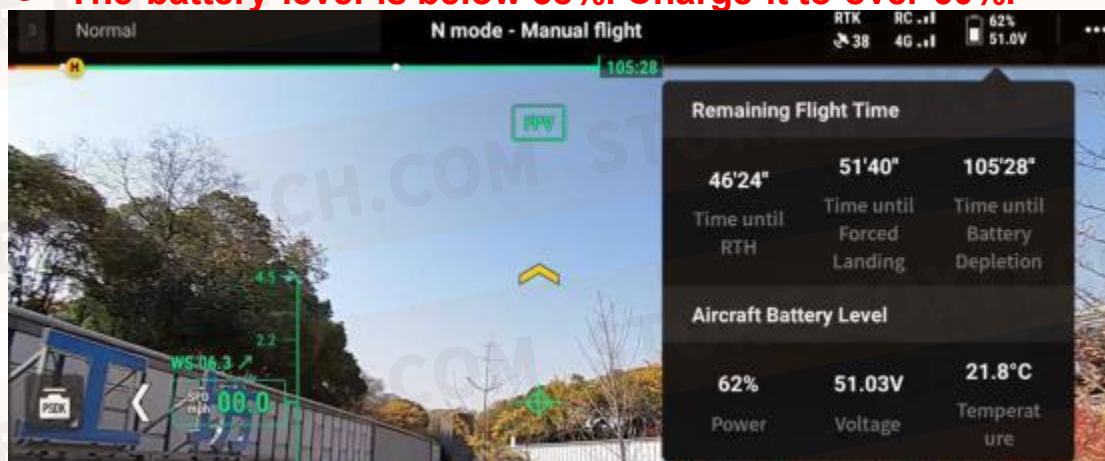
It can take off.



4.4. After takeoff, the battery level is expected to drop to around 65%, with the tethering system fully taking over power supply. At this point, the drone will display a flight duration of several hundred minutes. (Actual values may vary depending on specific conditions.)

Power and voltage requirements for M400 series towing:

- When the battery level exceeds 60%, the system will automatically switch to tethered power supply.
- 58% battery, 49.9V, manual switching required for takeoff (contact us for details)
- The battery level is below 58%. Charge it to over 60%.



4.5. You can now start the task. Adjust the knob arrow to the left.



Note: The tethered base station status is displayed using the following three-color lights.

Green-Working State of the Tethering System



Orange — Power on the drone. Do not touch the tether!



Red-Abnormal alarm. Check the display status.

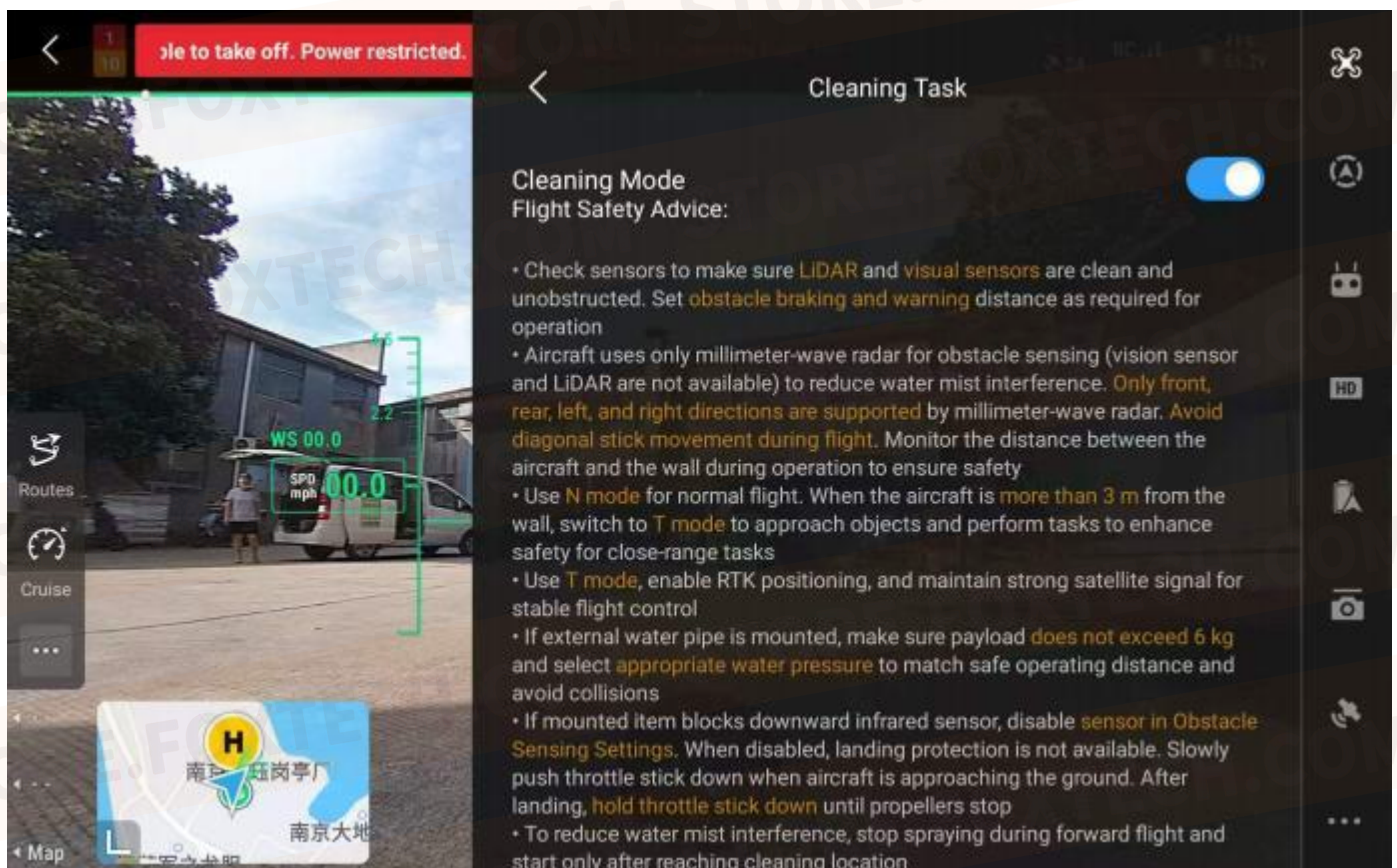


5. Start



● Manual flight:

To perform cleaning operations, disable the lower infrared obstacle avoidance. Before landing, re-enable it and fully extend the landing lever. The drone will then automatically descend to the ground and stop its propellers.



- **Multi-angle cleaning**

The multi-angle cleaning adapter enables cleaning at angles from -90° to 90°.



6. Operation Advice:

- When flying the drone, position the high-pressure tube perpendicular to the drone's underside and avoid horizontal pulling.
- The tether is lightweight and can be deployed diagonally to ensure the tethered base station faces the drone.
- For high-pressure pumps, if tap water (under pressure) is used as the inlet pipe, a longer inlet pipe can be selected.
- If water bags are used for water supply, it is recommended to shorten the inlet pipe to about 1 meter or replace it with a steel-wire inlet pipe. Otherwise, the inlet pipe may be sucked in, affecting the high-pressure pump's water output.
- If the drone cannot approach the wall due to obstacle avoidance, turn off the water spray and gently maneuver the drone toward the curtain wall. Once the target distance is reached, restart the water spray operation.
- When using it, do not operate at low altitudes for an extended period. The tether cable must not be coiled up inside for a long time, as this may cause overheating. The tether cable must be released to at least 50% of its total length.

7. Landing procedure

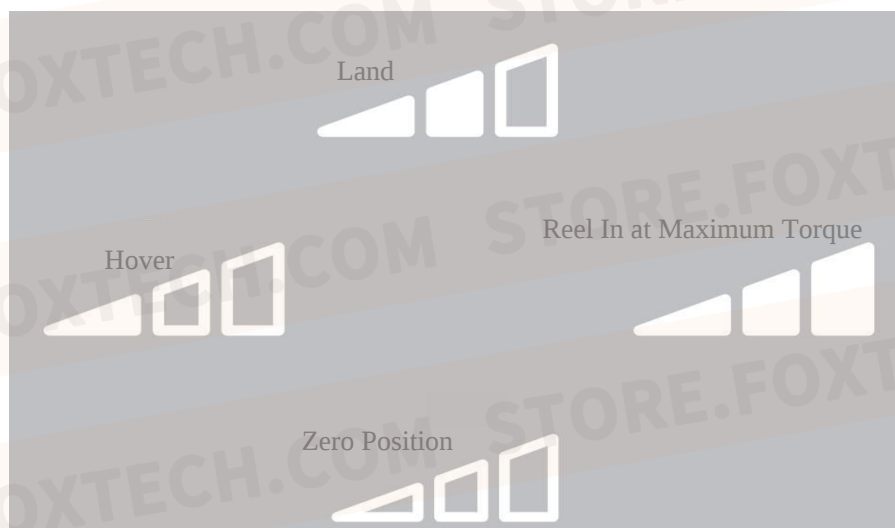
Enable the infrared obstacle avoidance mode, then pull the landing lever fully. The drone will automatically land and stop its propellers.

a, Set the winch to the highest gear to lower the drone simultaneously.

To wind the line faster, move to the right position.

b. When the drone is approximately 3 meters above the ground, lower the winch to its lowest position (0 position) and land the drone.

c. Release the tether line and adjust the winch to retract the remaining cable.



Important security notice!

The following important safety tips for 220V electrical use apply to commercial or high-voltage electrical applications. Please strictly follow them:

I. Basic Safety Principles

1. Certificate-based operations

-220V is high-voltage electricity , and only professional personnel with electrician certificates can install, repair or operate it. Non-professionals are prohibited from working without authorization.

2. Power outage operations

Before performing any equipment maintenance or repair, always disconnect the power supply completely and verify that the equipment is de-energized using a voltage tester or multimeter. If necessary, implement the LOTO procedure by locking and tagging the equipment.

3. Insulation Protection

-Wear insulated gloves and shoes, use insulated tools, and ensure the work area is dry. Avoid working with wet hands or in humid environments.

4. Standard wiring

-Ensure the neutral/ground wire is securely connected. Do not make unauthorized connections.

II. Emergency Response

1. First aid for electric shock

-If someone is electrocuted, immediately cut off the power (do not pull the victim directly with your hands), use an insulating object (such as a dry stick) to remove the wire, and call 120 for emergency help.

2. Electrical fires

-After a power outage, use dry powder or carbon dioxide fire extinguishers to put out the fire. Do not use water! If power cannot be cut off, use a dedicated insulated fire extinguishing device.

III. Warning Signs and Environment

1. Clear identification

-Install warning signs such as "High Voltage Danger" and "No Trespassing" in high-voltage areas, and keep distribution boxes closed to prevent unauthorized access.

2. Keep your distance

-Keep a safe distance of ≥ 0.7 meters between the human body and the electrified equipment

IV. Other Important Notes

-Avoid operating outdoor high-voltage equipment during thunderstorms.

-Before moving or modifying the circuit, power must be disconnected and residual charges must be confirmed to be absent.

Important maintenance notice!

The Mayowei cleaning drone system, a specialized device integrating flight control and high-pressure cleaning functions, requires maintenance that addresses both the core flight components and the cleaning system's specific needs. Proper maintenance significantly reduces failure risks, extends equipment lifespan, and ensures safety and efficiency in aerial cleaning operations.

Here are the maintenance guidelines by dimension:

I. Routine Maintenance of Core Flight Components

(1) The fuselage and structural system

Daily maintenance: After each operation, wipe the fuselage surface with a dry microfiber cloth to remove dust, water stains, and chemical residues. Inspect the fuselage frame and landing gear for cracks, deformation, or loose screws. Check carbon fiber components for delamination. Immediately discontinue and repair any damaged parts.

Regular deep maintenance: every 10 hours of flight or weekly, use compressed air tank to blow out dust in fuselage gaps, motor cooling holes and interfaces to avoid impurities accumulation affecting heat dissipation.

(2) Power and Propeller System

Propeller maintenance: Before each flight, inspect the blades for cracks, notches, or deformation. Ensure they are fully locked during installation to prevent detachment in flight. Replace the blades immediately after every 20 hours of flight or if edge wear is detected. After replacement, verify that the blade rotates in the same direction as the motor.

Motor maintenance: Rotate the motor shaft weekly to check for smooth operation and unusual noises or jamming. Clean the motor's interior and terminal blocks monthly using alcohol swabs to remove oil and dust. Ensure complete drying before power-on. If abnormal overheating (exceeding 60°C) occurs during operation, immediately shut down the machine to inspect bearings and windings.

(3) Flight Control and Sensor System

Sensor Calibration: When relocating work areas, experiencing impacts, or performing monthly checks, calibrate the IMU (Inertial Measurement Unit), compass, and GPS module as specified in the manual. After cleaning operations, thoroughly wipe the lenses of visual positioning sensors using dedicated lens paper to prevent scratches and ensure they remain free of contaminants.

Firmware and software maintenance: Connect to the official client monthly to check if the flight controller firmware and remote control software are the latest version.

Ensure the battery level is $\geq 50\%$ before updating to avoid system damage caused by interrupted updates. Conduct ground test flights after updating to verify flight stability and control responsiveness.

For further details, please refer to the DJI M400 drone's instruction manual and maintenance guide.

II. Key Maintenance Points for the Dedicated Cleaning System

(1) High-pressure water system

Pipeline and joint maintenance: After each operation, immediately rinse the pipes with clean water to remove residual cleaning agents or dirt, preventing blockages or corrosion. Conduct weekly inspections of high-pressure water pipes for signs of aging or damage, and verify that the sealing rings at joints are properly sealed. Replace any leaking sealing rings or pipes immediately.

(2) Pump and Drive System

Pump maintenance: Before operation, check the oil level and replenish with specialized lubricant if low (contact Kärcher's official after-sales service).

Drive component inspection: Conduct monthly checks on the pump motor's wiring for secure connections and insulation integrity to prevent short-circuit risks. If abnormal

noises or sudden pressure drops are detected during operation, immediately shut down the system to investigate potential impeller jamming or pipeline blockages.

III. Periodic Maintenance Plan

Maintenance period	Inspection items for the key components of the flight system	Cleaning system inspection items
Before each flight	1. The screw installation's firmness and integrity; 2. Battery appearance and charge level; 3. Remote control signal and button sensitivity; 4. Sensor cleanliness and calibration status.	1. Check for any damage or leakage in the high-pressure pipeline; 2. Nozzle patency; 3. Cleanliness of the inlet filter screen; 4. Check if the pump starts with a normal sound.
After each flight	1. Dust removal from the fuselage and motor; 2. Check the battery's remaining charge and store it properly; 3. Propeller stain cleaning; 4. Wiping the surface of the sensor.	1. The pipes were rinsed with clean water; 2. Disassemble and clean the nozzle; 3. The equipment was dried as a whole; 4. Empty the remaining liquid in the storage tank.

IV. Special Environment and Storage Maintenance

Environmental Protocols: After operations in dusty, high-humidity, or corrosive gas environments, clean the device body with a neutral detergent and thoroughly dry the electronic component compartment to prevent chemical residue corrosion. For rain-related operations, immediately remove the battery and store the equipment in a drying chamber for at least 24 hours to ensure complete drying before reuse.

Long-term storage guidelines: When unused for over 1 month, follow these steps: ① Drain all liquid from the waterway system and rinse thoroughly; ② Charge the battery to 60% capacity and store it separately; ③ Remove the propeller and nozzle, then place the unit with the fuselage in a dedicated moisture-proof box; ④ Run the device for 10 minutes every 3 months to activate components and prevent aging.

V. Safety and Emergency Maintenance Tips

If you notice battery bulging or leakage, immediately move away from the fire source, place it in an explosion-proof box, and contact a professional for handling. Do not attempt to disassemble it yourself.

When the cleaning system experiences abnormal pressure or pipeline blockage, release the residual pressure in the pipeline first before disassembly and inspection to prevent high-pressure liquid spray injuries.

For complex malfunctions (e.g., flight control system errors or pump failure), contact the official after-sales service. Professional personnel only may disassemble critical components (e.g., flight control board or pump motor).

It is recommended to establish a maintenance logbook to meticulously document each maintenance session, including timing, items, and any anomalies, thereby providing a solid foundation for the equipment's full lifecycle management.

General Emergency Shutdown Principles

When any emergency occurs, personnel safety shall be the top priority before handling equipment. Do not touch faulty components without cutting off high-voltage power supply.

Emergency Procedures by Scenario

1. Base Station Malfunction (Smoke, Abnormal Noise, Severe Vibration, Sudden Voltage Fluctuation)

- ① The safety officer shall sound the alarm immediately, and the drone operator shall land the UAV slowly to a safe area.
- ② A high-voltage electrician shall turn off the 220 V main power circuit breaker to cut off all power supplies.
- ③ All personnel shall evacuate to a safe zone 5 meters away. Do not approach the equipment until it cools down for inspection.
- ④ If smoke appears, handle it as an electrical fire and contact the manufacturer at the same time.

2. UAV Malfunction (Loss of Control, Side Tilt, Tether Cable Breakage)

- ① The operator shall attempt to control the UAV immediately, and long-press the UAV power supply switch on the base station for 3 seconds to cut off power supply.
- ② The safety officer shall clear the UAV landing area to prevent casualties from crash landing.
- ③ If the tether cable breaks, the electrician shall cut off the main power supply. Do not touch the broken cable; even if power is disconnected, residual charges must be confirmed to be eliminated.

3. On-site Emergencies (Thunderstorm, Strong Wind, Personnel Entering Warning Zone)

- ① Thunderstorm / Strong Wind (Wind Speed $\geq$ Level 6): The operator shall land the UAV immediately, and the electrician shall cut off power and retract the tether cable.
- ② Unauthorized personnel entering the warning zone: The safety officer shall stop them at once. The operator shall suspend UAV operation until all personnel leave the zone. Shut down power supply if necessary.

Troubleshooting

No.	Common Fault	Possible Causes	Solutions
1	No display on screen after base station startup	1. Main power disconnected or circuit breaker not closed 2. System self-test incomplete 3. Loose screen connecting cable	1. Check power wiring and circuit breaker to ensure normal power supply and closed breaker 2. Wait 30 seconds for system self-test completion; do not toggle switches frequently 3. Contact manufacturer's technician to inspect internal screen cables; disallow unauthorized disassembly
2	Green indicator fails to light up after long-pressing UAV power switch	1. Cable retraction control not set to "0" 2. Poor connection between airborne power supply and UAV 3. Safety switch not activated	1. Turn cable retraction control to "0" to clear system alarm 2. Inspect connections between airborne power unit, UAV and tether cable; fully insert and lock all plugs 3. Confirm base station safety switch is turned on for power standby status
3	Stuck tether cable retraction & release after UAV takeoff	1. Foreign matter or knots on cable surface 2. Improper winch tension gear setting 3. Jamming at cable fixing point on UAV	1. Land UAV, cut off power, inspect cable, remove foreign objects and untie knots; straighten cable before reuse 2. Adjust winch tension gear according to flight altitude to avoid excessive or insufficient tension 3. Check cable buckle fixing on UAV and adjust position to eliminate jamming
4	No current, voltage or cable length data shown on screen	1. Poor sensor contact 2. Loose data interface 3. Unfinished power initialization	1. Wait 1–2 minutes for power initialization and check if data resumes 2. Contact manufacturer's technician to inspect internal sensors and data interfaces for professional troubleshooting 3. Restart base station and repeat power connection procedure

5	Base station fan stops rotating with no air outflow from vent	1. Vent blocked by foreign objects 2. Ambient temperature below fan activation threshold 3. Fan power supply failure	1. Cut off power immediately and clear vent blockages to guarantee unobstructed ventilation 2. Fan inactivity is normal when ambient temperature is low; it will start automatically when temperature rises 3. Stop equipment operation and contact manufacturer to inspect fan power supply and motor failure
6	Base station shows output voltage but zero output power	1. UAV battery charge over 80%, system not switched to tether power mode automatically 2. Damaged airborne power supply	1. Wait until battery level drops to about 70% and check if power output appears 2. Check whether airborne power fan rotates; measure output voltage with multimeter for 51V
7	Tether cable cannot be fully retracted into base station after recovery	1. Cable twisted and misaligned during retraction 2. Low winch tension gear leading to insufficient retraction force 3. Internal winch mechanical jamming	1. Straighten cable manually, adjust winch gear and retract slowly at low speed 2. Increase winch retraction tension gear appropriately for stronger pulling force 3. Cut off power, open observation window to check internal winch; contact manufacturer for mechanical troubleshooting if no foreign obstruction found
8	Abnormal continuous beep from base station after startup (not fault alarm)	1. Cable retraction control not reset to zero 2. Loose aviation / industrial plugs 3. Temporary system self-test anomaly	1. Turn cable retraction control to "0", inspect and tighten all plugs 2. Restart base station and verify if beep disappears after self-test 3. If beeping persists, record beep frequency and contact manufacturer for inspection
9	Flashing green UAV power indicator instead of steady light	1. Unstable main input voltage 2. Poor contact of airborne power supply 3. System low-current	1. Inspect main power source; stabilize voltage for generator power supply or replace compliant power supply 2. Land UAV and re-connect airborne power unit with

		early warning	tether cable and UAV to ensure full contact 3. Monitor current readings on screen; if low-current warning triggers, troubleshoot connection faults in power circuit
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