

PALMBIRD ELECTRIC WHEELCHAIR

INSTRUCTIONS FOR USE



Model: LW01301A07

Before using this product, read this manual carefully and save for future reference

Contents

1. INTRODUCTION	3
2. INTENDED USER GROUP	4
3. PRODUCT INFORMATION	4
3.1 Product Overview	4
3.2 Product Structure	4
3.3 Performance Parameters	5
4. SAFETY	7
4.1 Warnings & Cautions	7
4.2 Important Warnings	7
4.3 Pre-Use Preparation	7
4.4 In-Use Specifications	8
4.5 Guidelines for Caregivers	9
5. ASSEMBLY AND STORAGE	10
5.1 Accessories List	10
5.2 Assembly Steps	12
6. CHARGING	17
6.1 Charger Requirements	17
6.2 Charger Technical Data	17
6.3 Usage of Charger	17
7. OPERATION OF THE POWERCHAIR	19
7.1 Step1: Switch to Electric Mode	19
7.2 Step2: Sit on the Wheelchair	19
7.3 Step3: Turn On the Power and Check the Display	23
8. TRANSPORT & STORAGE	26
8.1 Environmental Conditions for Transport and Storage	26
8.2 Air Transportation of The Wheelchair	26
8.3 Transportation in Vehicles	27
9. MAINTENANCE	28
9.1 Clean and Battery Maintenance	28
9.2 Wheelchair Malfunction and Checking	28
9.3 Maintenance Checking	29
9.4 Fault Detection	29
10. WARRANTY	31
10.1 Warranty Coverage	31
10.2 What This Warranty Does Not Cover	31
10.3 Fees Not Covered Under the Warranty	32
11. OTHER	33
12. DECLARATION OF THE EUT	34

1. INTRODUCTION

Thank you for purchasing this product. These instructions for use should be read carefully and understood before operating the powerchair. Improper use or unfamiliarity with the powerchair may result in harm, injury or traffic accidents. A maintenance schedule has also included at the back. Keep this manual with the powerchair, or in a safe place. If you have any questions concerning the operation or maintenance of the powerchair, contact PALMBIRD.

Please read the user manual carefully before taking the product into use.

- This manual contains operations, assembly methods, and simple faults solutions.
- This manual applies to our models: LW01301A07.
- Please provide this manual for reference when other people are going to use this wheelchair.
- The annotations and illustrations in this manual might be slightly different with the real parts due to quality improvement or changing design. Please in kind prevail.
- Improper use of any vehicle may lead to injury. Unsafe driving could harm yourselves and others.
- This electric wheelchair is designed to transport 1 person only.

2. INTENDED USER GROUP

The LW01301A07 powerchair is intended for a single user of weight up to 250lb. The intended user group for this device is any mobility restricted individual that requires assistance with transport. The patient / occupant is the only intended operator. Users must be both mentally and physically capable of operating the device with minimal risk of injury to themselves and others. The powerchair is intended to support a single occupant. A risk assessment must always be performed on the suitability of the user to the powerchair.

3. PRODUCT INFORMATION

3.1 Product Overview

This electric wheelchair holds FDA Class II Medical Device Certification. The powerchair is very lightweight, weighing only 36lb/16.4kg (No batteries included) and has been designed to provide a comfortable and secure solution for users who have mobility restrictions.

3.2 Product Structure

This product consists of front wheel, rear wheel, anti-tip wheel, frame, seat cushion, backrest, footrest, leg belt, handle, armrest, battery, motor, controller, handbrake, seat belt, folding backrest, etc.



3.3 Performance Parameters

Model: LW01301A07

Frame material	Aluminum Alloy	Overall size	41.3x21.7x35.4 in
Maximum Load Capacity	250lb/114kg	Folded size	15.8×21.7×31.1 in
Battery Weight	3.97lb/1.8kg	Seat Width	17.7 in
Net Weight (No batteries included)	36lb/16.4kg	Seat Depth	17.3 in
Gross Weight (Including carton)	55lb/25kg	Seat Height	20.1 in
Maximum Speed	3.7mph	Front Wheel Size	7.9 in

Range	12-16 KM	Rear Wheel Size	9.8 in
Control System	Brushless Controller	Carton Dimensions	23.0×14.2×31.1in
Battery Specification	24V 12AH Lithium Battery	Footrest Length	10.2 in
Charger	24V 3A	Footrest Width	11.1 in
Drive Motor Specification	250W×2 (0.335 HP×2)	Max Obstacle Clearance	1.2 in
Braking System	Electromagnetic Brake	Minimum Turning Radius	47.2 in
Maximum Climb Angle	6°	Backrest Height	19.7 in
Static Stability	8°	Braking distance (horizontal surface)	≤ 50 in

Notice:

- The maximum range varies depending on road conditions, driving speed, driver's weight, and weather temperature. The maximum unfolded dimensions above do not include headrests
- The annotations and illustrations in this manual might be slightly different with the real parts due to quality improvement or changing design. Please in kind prevail.

4. SAFETY

4.1 Warnings & Cautions

If the following symbols appear in this manual, please read them carefully

	Warning	1. Improper use may result in personal injury or serious injury
	Caution	2. Improper use will result in damage to the vehicle
	Suggestion	3. Follow the instructions of this manual to keep the vehicle in good condition

4.2 Important Warnings

 Warning	1. The powerchair supports a maximum occupant mass of 250lb/114kg for one person only, with warranty voided if this limit is exceeded.
	2. Never use a damaged/severely worn wheelchair;
	3. Do not use it in rainy/snowy weather to prevent electric shock;
	4. PALMBIRD prohibits modifying the wheelchair or its components without permission; only use its approved specified accessories.
	5. Do not use it near flammable gases, heat sources, or open flames ; replace damaged/worn upholstery immediately;
	6. Users unable to operate without assistance/supervision must be supervised throughout use;
	7. Do not step on the footrests when getting on/off the wheelchair;
	8. If children, adults with learning difficulties, or pets may have access to the wheelchair, assess risks in advance;
	9. Never use manual mode on slopes, and do not leave the wheelchair unattended in manual mode.

4.3 Pre-Use Preparation

1. Abide by local traffic regulations and the requirements of this manual for standardized operation;
2. Check that all wheelchair components are in good condition: joystick and control system respond properly without unintended movement;
3. Ensure the battery has sufficient power and the pneumatic tire pressure is normal (abnormal tire pressure may cause unstable driving and excessive power consumption);
4. New users must practice in safe, open areas (e.g., parks) until proficient in operation;
5. The user must fasten the seat belt after sitting down.

4.4 In-Use Specifications

1. Never use the wheelchair inside a motor vehicle: Transfer to the motor vehicle's regular seat and secure the wheelchair firmly;
2. Keep away from strong magnetic fields/large inductive electrical equipment (e.g., radio stations, TV stations, mobile phone transmission towers) to prevent electromagnetic interference;
3. Road restrictions: Do not drive on steep slopes (slope $\geq 6^\circ$), ditches/ponds without guardrails, or travel sideways/diagonally on steep slopes;
4. Slope passage: Ensure there is 1-2 meters of flat road behind the slope before going uphill; use the lowest speed when going downhill, and never go downhill with your back to the slope;
5. Obstacle crossing: Only cross 30mm/1.2inch-high steps and 100mm/3.94inch-wide ditches, and cross at a 90° angle to the steps;
6. Environmental restrictions: Avoid harsh weather (rain, fog, strong wind, snow) and poor road conditions (muddy roads, sandy roads);
7. Do not stand or jump on the seat/cushion;
8. Unauthorized modification of the circuit is prohibited, and exposed contacts/connectors must not be touched;
9. Park in a safe place and turn off the power; do not operate under the influence of alcohol or when excessively tired, and do not use at night near roads without clear visibility.

4.5 Guidelines for Caregivers

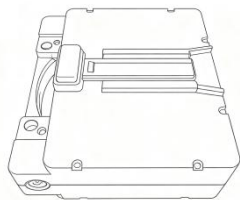
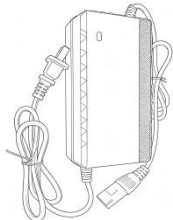
1. Ensure the user's feet are safely placed on the footrests, the seat belt is fastened, and clothing does not come into contact with the wheels;



2. If the caregiver needs to push the wheelchair, he/she needs to switch to manual mode (turn off the brake). For the switching method, refer to 7.1 Step 1: Switch to Electric Mode

5. ASSEMBLY AND STORAGE

5.1 Accessories List

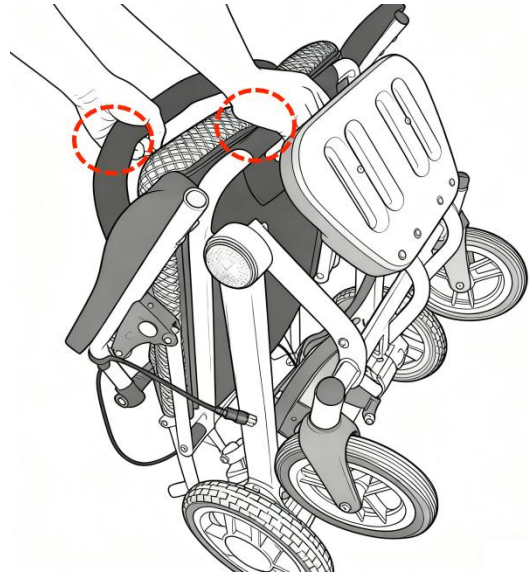
No.	Part Name	Quantity	Illustration
1	Electric Wheelchair Main Frame	1	
2	Battery Pack (24V / 12Ah)	1	
3	Joystick Controller	1	
4	Charger	1	
5	Storage Basket	1	

No.	Part Name	Quantity	Illustration
6	Anti-Tip Wheels	2	
7	Controller Screws	1	
8	Anti-tip Wheel Buckle	2	

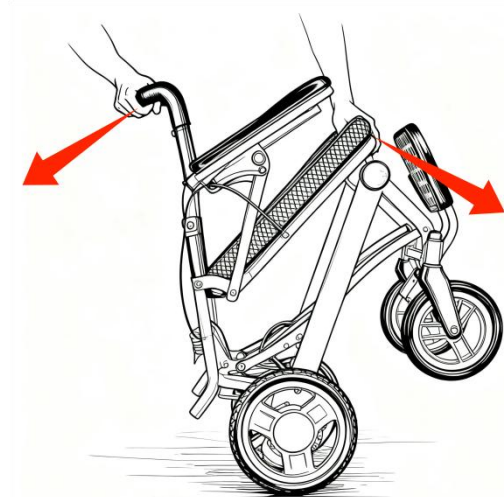
5.2 Assembly Steps

5.2.1 Step 1: Unfold the Wheelchair

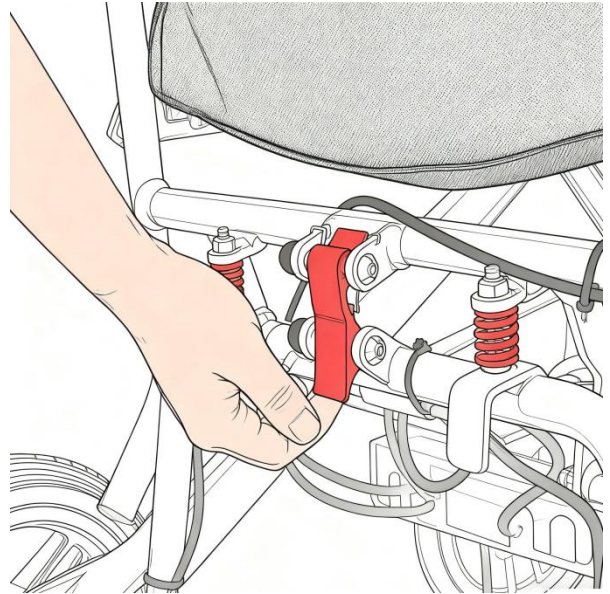
- Hold the top of the backrest with one hand and the seat cushion with the other hand.



- Pull them apart firmly to unfold the wheelchair until you hear a clicking sound, indicating that the frame is locked in position.



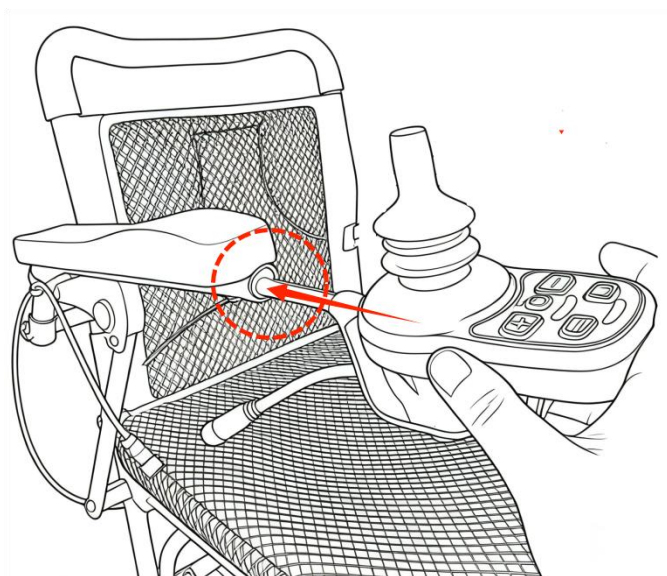
- After unfolding, make sure the backrest is securely locked before proceeding.



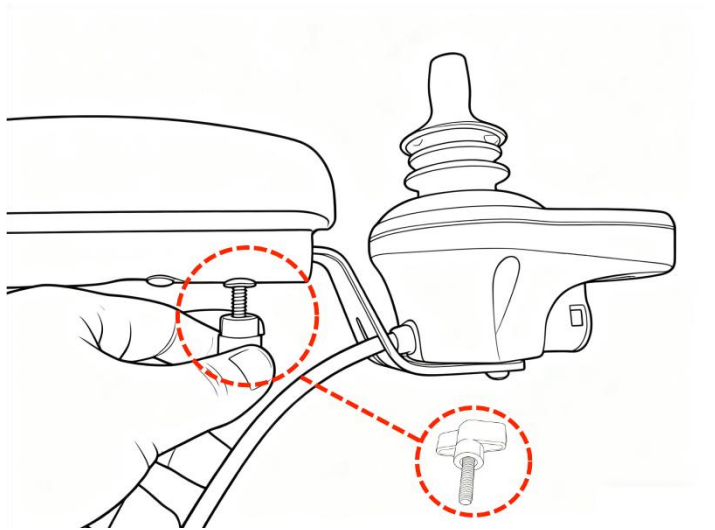
Tip: To fold the wheelchair, pull the red locking buckle outward and fold the frame in the reverse direction of unfolding.

5.2.2 Step 2: Attach the Joystick Controller

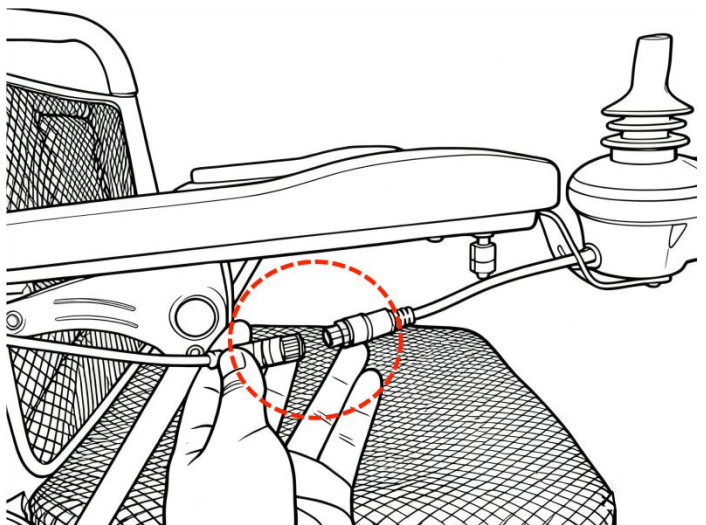
- Slide the joystick controller onto the armrest tube.



- Align it properly and tighten it with the provided controller screws(No.7) until it is firmly fixed.



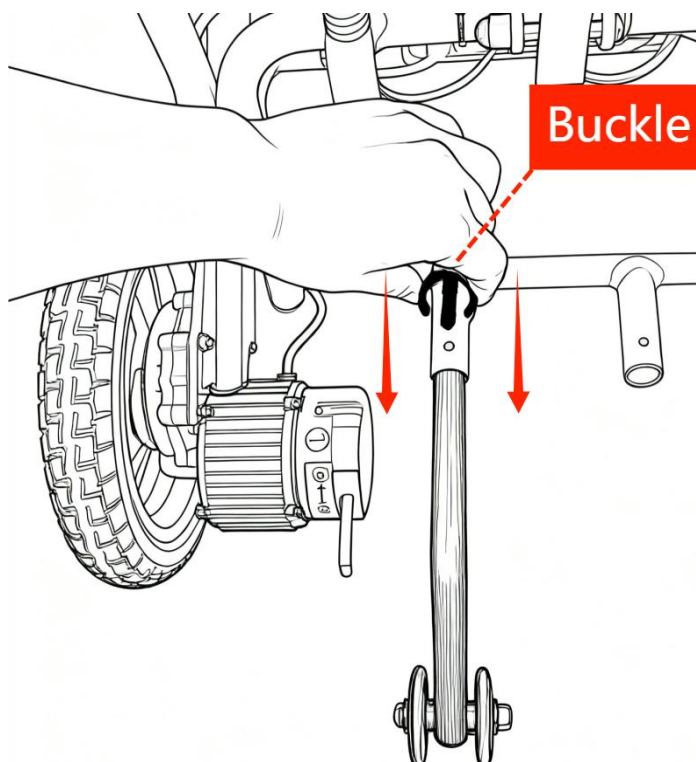
- Then, connect the controller cable to the motor connector located near the rear wheel.
- Ensure the plug is inserted firmly and in the correct direction before powering on.



Tip: You can install the controller on either the left or right armrest, depending on your dominant hand or personal preference.

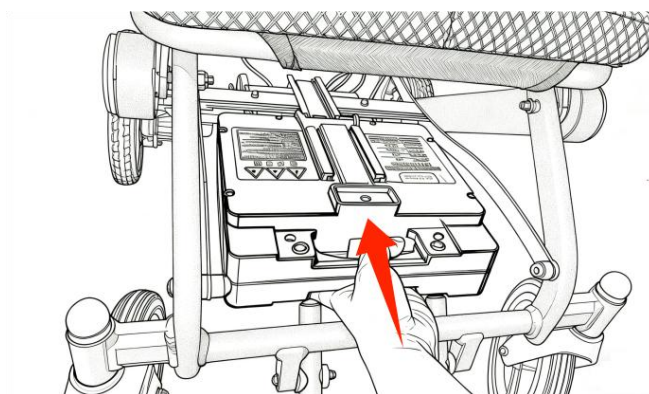
5.2.3 Step 3: Install the Anti-Tip Wheels

- Align each anti-tip wheel with the rear bracket. Insert the anti-tip wheel buckle(No.8) until the wheels are firmly fixed.

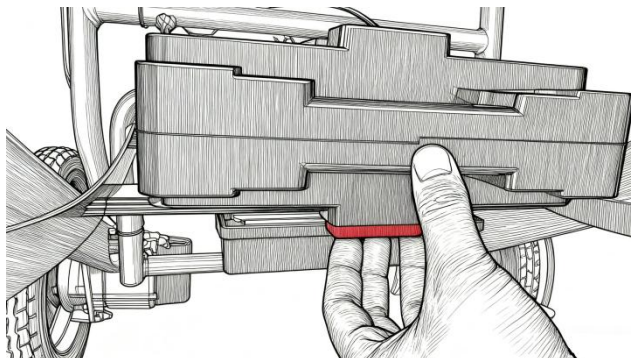


5.2.4 Step 4: Connect the Battery Pack

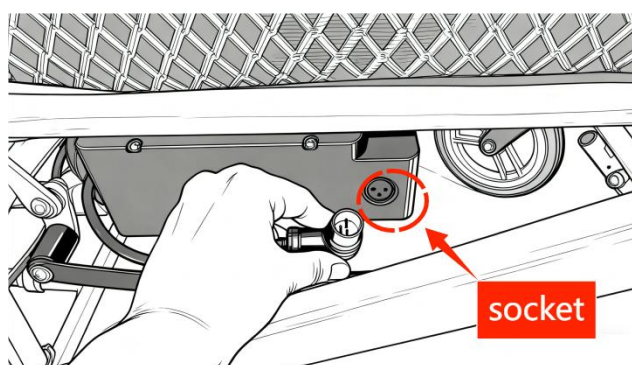
- Slide the battery pack into the slot under the seat.
- Make sure the red button faces downward.
- Push the battery firmly until you hear a clicking sound, indicating that it is securely installed.



- To remove the battery, press the red button and pull the battery outward carefully.



- Connect the power cable securely to the main connector.



5.2.5 Step 5: Attach the Storage Basket

- Hook the storage basket onto the designated bracket at the back or bottom of the wheelchair. Make sure it is stable and level.
- When you need to fold the wheelchair, remove the storage basket first.



6. CHARGING

6.1 Charger Requirements



Warning

1. During electric wheelchair is charging, do not use it.
2. Use the charger provided with the powerchair; do not use other chargers.

6.2 Charger Technical Data

- Input voltage: AC 220V (110V) $\pm 10\%$
- Output voltage: 24V/DC
- Output current: 3A
- Ingress Protection Level: IPX3

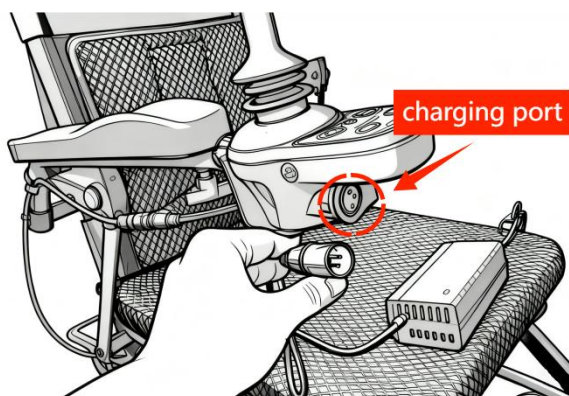
6.3 Usage of Charger

6.3.1 When do you need to charge?

1. When the battery indicator on the controller is orange(2 bars of power).
2. If the battery is not used for a long time, charge it every 15 days to ensure that the battery is fully charged.
3. When the remaining battery power cannot reach the estimated travel distance.

6.3.2 Charging steps

- Plug the charger's main plug into power and the orange light turns on;
- A full charge takes 4-7 hours, and the indicator turns green when done.



Note:

Fully charge the new battery before initial use, fully charge it after each use (until the charger's green LED lights up) for over 90% performance, and after 4-5 cycles, its utilization rate will be nearly 100% to extend lifespan.

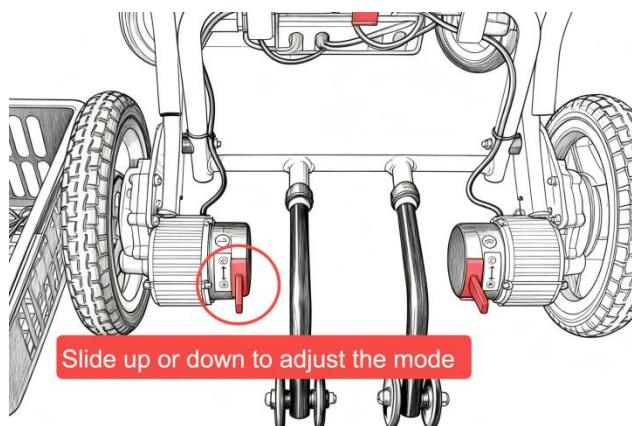
 Caution	1. The maximum charging time should not exceed 12 hours, as there is a risk of overcharging.
	2. If the battery is not used for a long time, charge it once a month to ensure it is fully charged.
	3. The charging time is related to the external temperature, and it is longer in winter.
	1. Maintain good ventilation in the charging area. During charging, do not expose the charger or battery to direct sunlight or humid environments.
	2. This charger does not have a waterproof function. Do not cover the charger with waterproof cloth or other items while charging.

Warning 	3. The charger heats up during charging, which is normal (part of its heat dissipation process); use it with confidence.
	4. Do not place the charger above flammable materials (e.g., fuel) for charging.
	5. Please keep the charger/battery away from high temperatures and open flames when charging, as these can cause the battery to catch fire or explode.
	6. Do not place the charger indoors for charging. Place the wheelchair in an open area, ensuring no flammable materials are nearby to guarantee fire safety.

7. OPERATION OF THE POWERCHAIR

7.1 Step1: Switch to Electric Mode

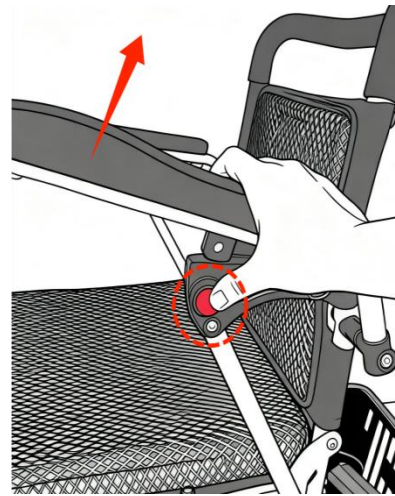
- Remove the storage basket and set it aside.
- Set both red motor lock levers to the Electric position to engage the motors.
- Reattach the storage basket.



Tip: To switch to manual mode, push the levers to the freewheel (manual) position.

7.2 Step2: Sit on the Wheelchair

- Press and hold the red button on the outer side of the armrest, then lift the armrest upward to create an open space for sitting.



- Sit on the wheelchair from the side.
- Rotate your body to face forward on the seat.
- Then, lower the armrest back into position until you hear a clicking sound, indicating that the armrest is securely locked.



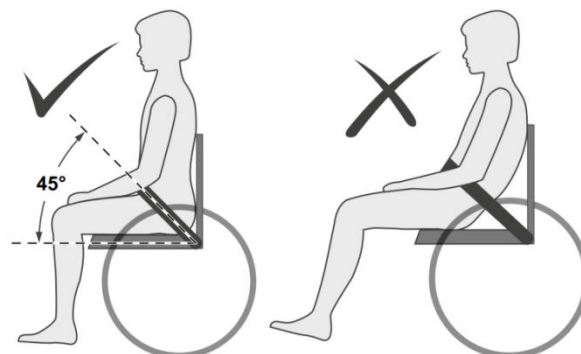
- After sitting down, place both feet on the footrests.



- Avoid placing your feet too low, as they may touch or interfere with the front wheels during movement.



- Keep your back close to the backrest and form about a 45° angle between your thighs and the backrest.
- Do not lean backward excessively, as it may cause instability or discomfort during driving.



Tip:

Make sure the footrests are unfolded and stable before sitting down. Keep the wheelchair brakes engaged while getting on or off.

7.3 Step3: Turn On the Power and Check the Display

- First set both motor lock levers to the electric mode
- Then press and hold the power button for 4–5 seconds until the display lights up.



- Battery Level: Make sure the battery icon shows enough charge for use.
- Speed Level: Confirm that the speed setting is appropriate for your environment (e.g., start with level 1 for indoor use).



TIP:

1. When the power is on, there is e-brake function with the vehicle. Release the joystick, wheelchair is in self-braking status.
2. In some emergency, you can directly turn off power by press power button.

7.4 Step4: Quick Function Test

Start With Speed Level 1

- Gently push the joystick forward — the wheelchair should move slightly.
- Pull the joystick back — it should move backward.
- Release the joystick — the wheelchair should stop immediately.



TIP:

1. After each startup, wait 2 seconds before operating the joystick, as the controller has a 2-second self-check function after activation.
2. The wheelchair moving direction is controlled by joystick. The moving extent of joystick also controls the moving speed.

 Warning	1. Please turn on or turn off the power when the joystick is in the centre position.
	2. If the wheelchair moves unexpectedly: First release the joystick; If this is ineffective, cut off the power and contact with your dealer for maintenance.



Suggestion

Use it indoors in the lowest gear for better steering and collision avoidance

7.5 Step5: Check the Battery Power

■ Low Battery Warning:

1. When the indicator shows only 2 bars, avoid outdoor trips and charge soon to prevent power loss during use.
2. When only the red LED light is on (1 bar), power is nearly exhausted — the wheelchair may stop automatically. Charge immediately.

- If the battery level is low, please follow the detailed charging instructions provided in Section 6: Battery Charging Method.

TIP:

If the joystick has no operation more than 20 minutes, the power turns off automatically, and the system in the sleep mode, system will be woken up from sleep mode by press power button.

8. TRANSPORT & STORAGE

8.1 Environmental Conditions for Transport and Storage

- Ambient temperature: 0°C to 50°C;
- Humidity: <80% RH
- Air Pressure 86kPa~106kPa

Follow these conditions when transporting or storing the powerchair:

1. Store the powerchair fully folded on a flat, level floor (see Section 6.5).
2. Always fully charge the battery first, then remove it prior to long-term storage.
3. The powerchair should be stored in clean, dry conditions. Cover it to protect against fluid ingress, dirt, dust, etc.
4. Powerchairs should not be stored on their sides, on their backs, or stacked.
5. When transporting powerchairs by vehicle, they should be securely stowed in the back of a van, truck, or the boot of a car. Adjustable parts should be removed or properly secured during transportation.
6. Keep the user instructions with the powerchair or in a safe place.

Note:

This powerchair is suitable for land transport, but contact your carrier in advance to determine their specific requirements. The lithium battery pack may require special packaging and storage arrangements in line with IATA or UN guidelines. To remove the battery, press the release button and then pull forward on the handle.

8.2 Air Transportation of The Wheelchair

The wheelchair and the single 24v Li-Ion(12Ah) battery has air transport certification to the International Air Transport Association (IATA) regulations.

Individual airlines have differing requirements relative to transport of products with Li-Ion batteries. Prior to arranging any air travel with the wheelchair, please confirm with your airline or carrier that they accept battery-powered vehicles under UN classification: UN3171.

Note: The pilot of the aircraft has the ultimate decision to allow or deny travel of any device onboard the plane.

If your airline accepts the UN3171 classification, the following steps will be necessary to prepare your wheelchair for air travel.

- The battery must have a maximum charge of 30%.
- Ensure the battery is correctly clipped into place, and the latch is in place.

Important Notes:

- Prior to travel, always confirm the latest transport policies with your airline, as airline policies may vary.
- Keep a copy of the wheelchair's product specifications (including battery details) handy for airline staff verification if requested.
- For additional safety, disconnect the battery's power connector (if applicable) after securing

8.3 Transportation in Vehicles

- This wheelchair is not suitable to use as a seat in a vehicle.
- **Not crash tested**

9. MAINTENANCE

Maintenance of wheelchair includes clean wheelchair, check the wheels and the battery, and charge battery. For further maintenance please contact with your dealer. Our suggestion is checking the wheelchair every half year, annually overhaul.

9.1 Clean and Battery Maintenance

Clean Wheelchair

Clean the parts which are frequently touched with user's body (such as seat cushion, armrest, controller) by a clean and slight wet cloth. Do not use organic solvents to clean. If it is a patient user, the wheelchair should be cleaned once per week. If the wheelchair is used by an infectious victim, it should be cleaned and disinfected by disinfectants.

Wheels

Check the tires' air pressure and their wear condition regularly. When the tire tread pattern depth reduces to 1mm, please replace the tire with a new one.

Battery

To make sure that the battery is fully charged frequently. In order to prolong battery life, we strongly recommend users do not charge until the battery runs out of power completely.

9.2 Wheelchair Malfunction and Checking

When malfunctions happen during the wheelchair is working, please turn off the power before check.

Symptom: completely lose power, and all the LED lights on the controller panel are off.

Check Step:

Step 1: Check if the controller's plug is loose.

Step 2: Check if the connection between the controller's plug and the battery box is loose. Please reinsert the plug (hold the plug when pulling it out; do not pull the wires to avoid unnecessary damage to them). After the above checks, if the wheelchair still fails to power on, or if you have any questions about the above checks, please contact your dealer.

9.3 Maintenance Checking

The following is a checklist; the electric wheelchair should be checked in sequence as recommended. When you get on or off the wheelchair, the wheelchair performs some automatic self-checks. To draw your extra attention, we have specifically listed these self-check items in Section A.

Section A: Pre-Use Checks	1. Backrest 2. Armrest 3. Controller position 4. Footrest 5. Battery power 6. Clutch/adjusting lever (for switching between manual and electric modes)
Section B: Monthly Checks	1. Screws 2. Brakes 3. Clutch/adjusting lever (for switching between manual and electric modes) 4. Front and rear wheels (including tread depth) 5. Connectors of the controller and charger

9.4 Fault Detection

Fault Indication	Fault	Troubleshooting
Power light flashes 1 time	Joystick not returned to neutral	Do not operate the joystick during startup; wait 1 second after startup before use!
Power light flashes 2 times	Poor left motor connection	Check left motor and controller connections!

Fault Indication	Fault	Troubleshooting
Power light flashes 3 times	Poor left brake connection	Check left motor brake wire and controller connection!
Power light flashes 4 times	Poor right motor connection	Check right motor and controller connections!
Power light flashes 5 times	Poor right brake connection	Check right motor brake wire and controller connection!
Power light flashes 6 times	Current overload or stall protection	Reduce load; check for overload or stall issues
Power light flashes 7 times	Joystick malfunction	Check if joystick is stuck or not returning to neutral during startup!
Power light + speed light flash 3 times	Brake malfunction	Check if motor brake clutch is correctly positioned or brake parameters are set properly!
(No light code)	MOS tube short circuit	Return controller to factory for service!
Power light (red) flashes	Low battery	Check battery voltage for undervoltage or overvoltage!
Leftmost speed light flashes 2 times	Left motor short circuit	Check left motor wires for damage, short circuit, or overload!
Rightmost speed light flashes 4 times	Right motor short circuit	Check right motor wires for damage, short circuit, or overload!
Power light flashes 1 time	Motor locked-rotor	Check if motor is stuck by foreign objects or in a pit!
Middle speed light flashes 1 time	Manual/electric switch error	Set switch to position 1 for electric mode

10. WARRANTY

To better protect your usage rights and interests, PALMBIRD is committed to providing the following warranty services for this product under normal operating conditions, starting from the date of purchase (when bought from PALMBIRD or its authorized dealers):

- ★ Body frame: We provide a 3-year warranty for you;
- ★ Electronic control system: We provide a 1-year warranty for you;
- ★ Battery: We cover a 6-month warranty for you.

10.1 Warranty Coverage

We have always crafted this wheelchair with care for your needs. If the product has defects in materials or workmanship, we will sincerely provide you with free repair services and maintenance support in accordance with the terms specified in the warranty.

10.2 What This Warranty Does Not Cover

Warm Reminder: The following situations are not covered under this warranty. Please take note:

1. Issues based solely on subjective perception without actual functional faults;
2. Wear and tear arising from normal use (such as fading of resin components, etc.);
3. Failure to conduct regular checks as per our guidelines;
4. Improper or incorrect maintenance operations performed on the product;
5. Operation that deviates from the user manual (including overloading);
6. Unauthorized modifications made to the product;
7. Product damage caused by external factors (e.g., chemicals, bird droppings, acid rain, etc.);
8. Product damage caused by natural disasters (e.g., typhoons, floods, fires, earthquakes, etc.).

10.3 Fees Not Covered Under the Warranty

1. Please also note that the following fees are not covered under the warranty:
2. Consumable replacement fees (e.g., tires, fuses, plastic parts, glass parts, etc.);
3. Fees incurred for services such as inspection, adjustment, oil refilling, and cleaning;
4. Costs related to unauthorized modifications;
5. Maintenance costs from non-authorized service centers.

If you have any questions about the warranty, please feel free to contact PALMBIRD or your authorized dealer at any time—we will be happy to assist you!

11. OTHER

11.1 Main Security Features

1. Classified according to the type of protection electric shock: Internal power.
2. Classified according to the type of protection against electric shock: Type B application.
3. Classified according to the degree of inlet liquid protection: IPX3.
4. Classified according to the safety of use in a flammable anesthetic mixture with air or gas mixed with oxygen or nitrous oxide flammable anesthetic gases occurs: Non AP/APG type.
5. Classified according to operation mode: Continuous operation.
6. Rating voltage: DC.24V.
7. This powerchair has no protective effect against defibrillator discharge.
8. No signal output or input part.
9. Non-permanently installed equipment.

11.2 Hazardous substances list

Component	A toxic substance or element					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Printed circuit board component	×	○	×	○	×	○
Plastic	○	○	○	○	○	○
Metal shell	○	○	○	○	○	○
Cloth cover	○	○	○	○	○	○
Battery	○	○	○	○	○	○
Note: ○ Means that the content of the toxic substance in all the homogeneous materials of the parts is below the limit requirements stipulated in the SJ/T11363-2006 standard × Means that the concentration of the toxic substance in at least one homogeneous material of the part exceeds the limit required by the SJ/T11363-2006 standard						

12. DECLARATION OF THE EUT

1	Guidance and manufacturer's declaration – electromagnetic emission		
2	The ELECTRIC WHEELCHAIR is intended for use in the electromagnetic environment specified below. The customer or the user of ELECTRIC WHEELCHAIR should assure that it is used in such an environment.		
3	Emissions test	Compliance	Electromagnetic environment - guidance
4	RF emissions CISPR 11	Group 1	The ELECTRIC WHEELCHAIR uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment. The ELECTRIC WHEELCHAIR suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
5	RF emissions CISPR 11	Class B	
6	Harmonic emissions IEC 61000-3-2	Class A	
7	Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Recommended separation distances between portable and mobile RF communications equipment and the ELECTRIC WHEELCHAIR

The ELECTRIC WHEELCHAIR is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the ELECTRIC WHEELCHAIR can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the ELECTRIC WHEELCHAIR as recommended below, according to the maximum output power of the communications equipment

Rated maximum output of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = [\frac{3.5}{V_1}] \sqrt{P}$	26 MHz to 800 MHz $d = [\frac{3.5}{E_1}] \sqrt{P}$	800 MHz to 2.5 GHz $d = [\frac{7}{E_1}] \sqrt{P}$
0.01	0.12	0.018	0.0345
0.1	0.38	0.057	0.1095
1	1.2	0.18	0.345
10	3.8	0.57	1.095

100	12	1.8	3.45
For transmitters rated at a maximum output power not listed above the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Guidance and manufacturer's declaration – electromagnetic immunity			
The ELECTRIC WHEELCHAIR is intended for use in the electromagnetic environment specified below. The customer or the user of the ELECTRIC WHEELCHAIR should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment -guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	±6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrostatic transient / burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	±2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5 % UT (>95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles < 5 % UT (>95 % dip in UT) for 5 sec	< 5 % UT (>95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles < 5 % UT (>95 % dip in UT) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the ELECTRIC WHEELCHAIR requires continued operation during power mains interruptions, it is recommended that the ELECTRIC WHEELCHAIR be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz)	30A/m	30A/m	

magnetic field IEC 61000-4-8			
NOTE: UT is the a. c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity

The ELECTRIC WHEELCHAIR is intended for use in the electromagnetic environment specified below. The customer or the user of the ELECTRIC WHEELCHAIR should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3V 20V/m	Portable and mobile RF communications equipment should be used no closer to any part of the ELECTRIC WHEELCHAIR, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = \left[\frac{3.5}{V_1} \right] \sqrt{P}$ $d = \left[\frac{3.5}{E_1} \right] \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = \left[\frac{7}{E_1} \right] \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ where p is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). ^b Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, ^a should be less than the compliance level in each frequency range. ^b Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	20 V/m 26 MHz to 2.5 GHz		

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic is affected by absorption and reflection from structures, objects and people.

^a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be

considered. If the measured field strength in the location in which the ELECTRIC WHEELCHAIR is used exceeds the applicable RF compliance level above, the ELECTRIC WHEELCHAIR should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the ELECTRIC WHEELCHAIR.

^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.