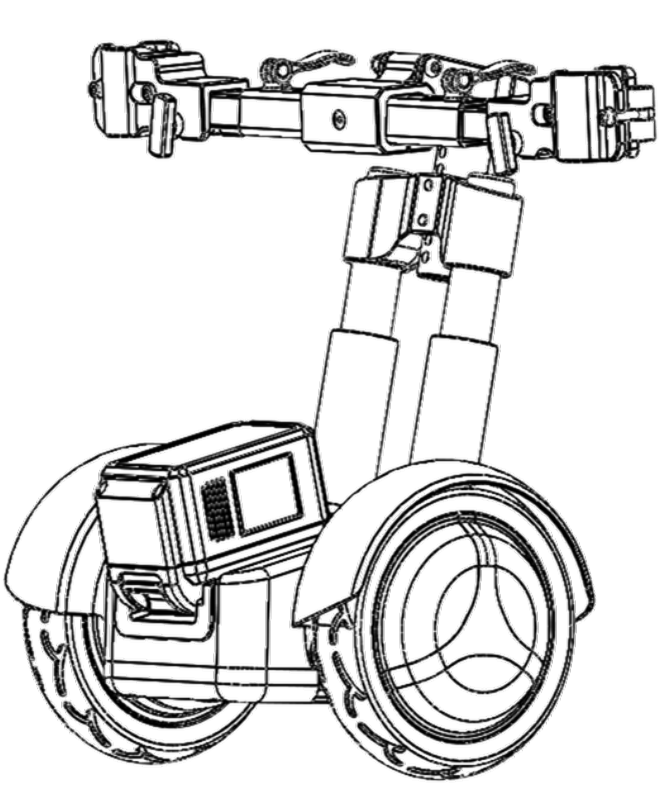
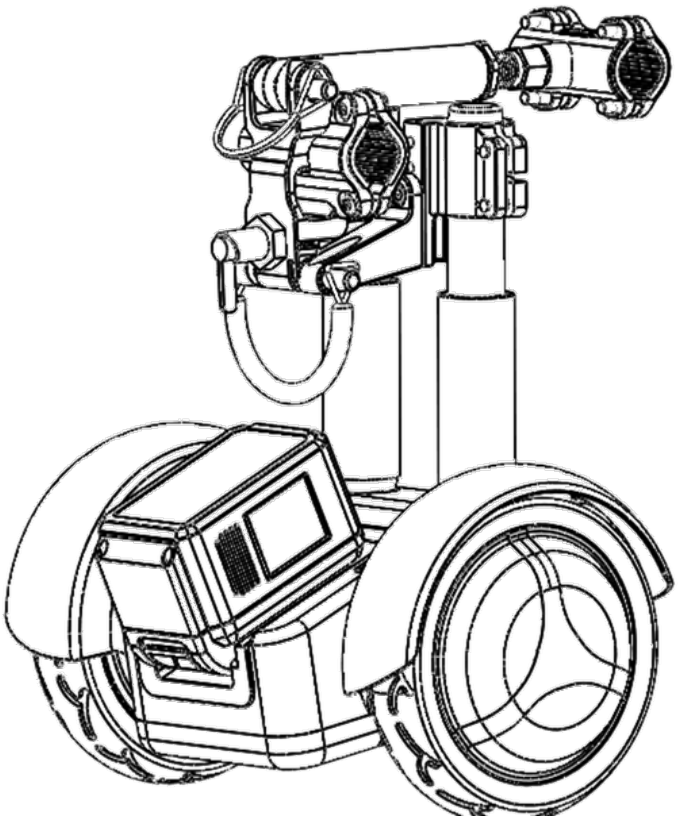
VOLT

User Manual
Model: VT-10





Model Reference: VT-10.1
Foldable Manual Wheelchair

Model Reference: VT-10.2
Rigid Manual Wheelchair

We sincerely thank you for choosing our product.
Prior to operation, please read this User Manual carefully
to ensure correct and safe usage.

Read This Section to Understand the Effects of Electromagnetic Interference on the Power Wheel Hub.

Electromagnetic Interference (EMI) from Radio Wave Sources

Power wheel hubs may be affected by Electromagnetic Interference (EMI), which refers to interfering electromagnetic energy (EM) emitted from sources such as radio and television broadcast stations, amateur (HAM) radio transmitters, two-way radios, and mobile telephones. Such interference may cause the power wheel hub to release its brakes, move unintentionally, or deviate from its intended direction. In severe cases, EMI may cause permanent damage to the power wheel hub's control system.

The intensity of interfering electromagnetic energy is measured in volts per meter (V/m). Each power wheel hub is designed to withstand a certain level of EMI, defined as its "immunity level." A higher immunity level indicates greater protection against interference.

Numerous sources of relatively strong electromagnetic fields exist in everyday environments. While some are readily identifiable and avoidable, others are less apparent and interference may be unavoidable. However, by adhering to the warnings set forth below, your risk of EMI-related incidents can be minimized.

Sources of radiated EMI may be broadly categorized as follows:

1) Hand-held portable transceivers (transmitter-receivers) with external antennas. Examples include Citizens Band (CB) radios, walkie-talkie, security, fire, and police transceivers, cellular telephones, Radio Frequency Identification (RFID) devices, and other personal communication equipment.

Note: Certain mobile phones and similar devices continue to transmit signals while powered on, even when not actively in use.

2) Medium-range mobile transceivers, such as those installed in police vehicles, fire trucks, ambulances, and taxis. These typically utilize antennas mounted externally on the vehicle.
3) Long-range transmitters and transceivers, including commercial broadcast transmitters (radio and television antenna towers) and amateur radio stations

Note: To the best of our knowledge, other handheld devices such as cordless telephones, laptop computers, AM/FM radios, televisions, CD players, and tape players, as well as small appliances like electric shavers and hair dryers, are unlikely to cause EMI issues with your power wheelchair.

Catalog

1. Introduction

1.1 Product Introduction and Intended Use

Volt is an add-on drive system designed for attachment to various types of manual wheelchairs, thereby converting them into electrically assisted wheelchairs. The system features a quick-release mounting mechanism that facilitates lightweight and convenient installation, significantly reducing the user's physical effort during mobility.

1.2 Important Safety Instructions – Please Read Carefully

- Have acquired comprehensive knowledge of proper handling and operating procedures by thoroughly reading and understanding the entire content of this User Manual.
- Possess the physical and cognitive capacity to operate the wheelchair and the device safely under all foreseeable conditions and circumstances.
- Have not undertaken any technical modifications to the device.
- Have dedicated sufficient time to familiarize themselves with the response characteristics and performance of Volt, and have practiced operation in a safe, hazard-free environment. It is strongly recommended that users refrain from using Volt outdoors until they are proficient in safe, obstacle-free indoor operation.

Please read this User Manual carefully after purchase.

In the event of any technical malfunction, please contact your authorized dealer or distributor.

When operating Volt, always observe the wheelchair manufacturer's specifications (e.g., maximum incline, tire pressure, etc.) and strictly adhere to the wheelchair's operating instructions. Under no circumstances shall any specified limit values be exceeded.

! Therefore, do not start using Volt until you have finished reading this operation manual.

1.3 Operating Instructions

Use of parts other than those specifically approved by LICHTMEGA for use with Volt is strictly prohibited. Likewise, no technical modifications may be made to Volt or its accessories. Volt shall be operated only under the following conditions:

- Full compliance with all information, instructions, and recommendations contained in this User Manual.
- Operation exclusively by individuals who have read and understood this User Manual.
- Absence of any technical modifications made to Volt by the user or any third party.
- Unauthorized use by any person unfamiliar with this product is strictly forbidden.

Volt shall not be used for any purpose inconsistent with its intended use. This prohibition applies specifically, but not exclusively, to the transport of goods (e.g., household items) or additional passengers.

Compliance with the safety inspection requirements set forth in this manual and adherence to all

applicable road traffic regulations are mandatory when using Volt.

LICHTMEGA considers the following actions, including but not limited to, as misuse of Volt:

- Operation of the device in violation of the instructions and recommendations provided in this User Manual.
- Exceeding the technical limitations specified in this User Manual.
- Unauthorized technical modifications to Volt.
- Use of parts and accessories not supplied or expressly approved by LICHTMEGA.

LICHTMEGA shall not be held liable for any damage resulting from:

- Improper use of the device.
- Operation by persons not fully familiar with the product.
- Use in contravention of the instructions and recommendations in this User Manual.
- Exceed of the technical limitations specified in this User Manual.

Prior to operating Volt, carefully review all safety warnings and hazard information presented in each section of this User Manual.

1.4 Permissible Conditions of Use / operating location

- Comply with the permissible operating conditions of the wheelchair to which Volt is attached (refer to the wheelchair manufacturer's manual).
- In addition to the information provided on Volt, the specifications provided by the wheelchair manufacturer (e.g., maximum climbing angle, maximum obstacle height, maximum user weight, maximum speed, etc.) must also be observed.
- Any operational restrictions applicable to the wheelchair (e.g., maximum climbing angle, maximum obstacle height, maximum user weight, etc.) shall likewise be observed.
- Do not expose Volt to any heat sources (e.g., direct, intense sunlight), as this may cause surface temperatures to rise significantly.
- Avoid operating the wheelchair on soft or unstable surfaces (e.g., loose gravel, sand, mud, snow, ice, or deep puddles).
- Pay particular attention to the operating instructions set forth in Section 1.3.

! ① When not in use, avoid prolonged exposure of Volt to direct sunlight. Extended exposure may cause the motor to overheat and, in extreme cases, result in reduced power output. Furthermore, plastic components are subject to accelerated aging under intense solar radiation.
② Do not operate the wheelchair without anti-tip devices installed. Anti-tip devices may only be removed temporarily when crossing major obstacles. If the risk of tipping increases, the user shall exercise independent judgment regarding the need to summon caregiver assistance.
③ Operation without anti-tip devices increases the risk of accidents and personal injury. LICHTMEGA disclaims all liability for accidents resulting from the failure to use anti-tip devices.
④ Removal of anti-tip devices and subsequent maneuvering with the front wheels elevated, relying solely on the rear wheels for movement, is strictly prohibited. LICHTMEGA disclaims all liability for accidents arising from such driving practices.

1.5 Package Contents

Upon receipt of the product, please verify that all components listed below are present and intact:

Component	Quantity
Volt	1
Joystick controller	1
Joystick controller bracket (Note: brackets vary by wheelchair model; please confirm compatibility with your supplier prior to purchase)	1
Battery pack	1
Rear controller	1
Battery charger	1
User manual	1
Velcro straps	2(for foldable wheelchairs)

Should any component be missing, please contact your professional supplier immediately.

We recommend exclusive use of original LICHTMEGA accessories.

Volt is engineered to deliver optimal performance when used with original LICHTMEGA accessories. LICHTMEGA assumes no liability for product damage or safety incidents (including fire) resulting from the use of non-original accessories or spare parts. The warranty shall not cover damage caused by non-original components. Consequently, LICHTMEGA reserves the right to charge for repairs arising from such use.

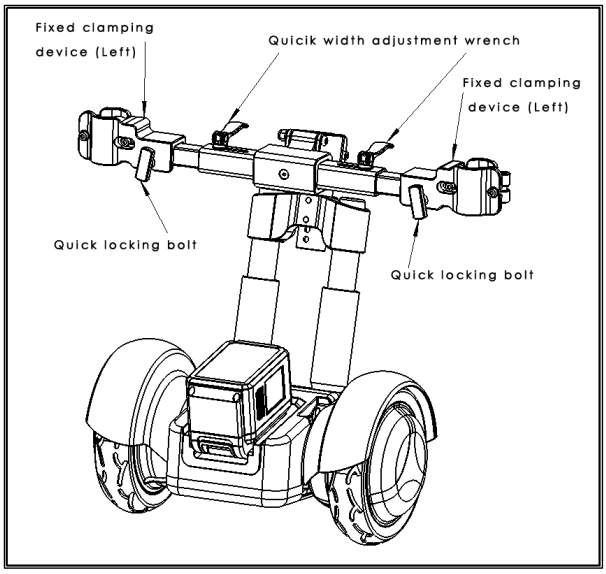
2. Installation

Throughout this User Manual, directional terms such as "front," "rear," "left," and "right" are defined from the perspective of the wheelchair user.

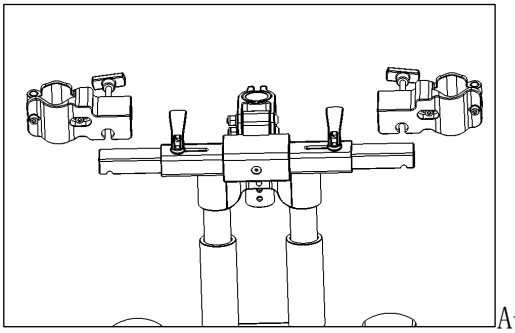
2.1Installation of Volt

2.1.1 Installation on a Foldable Wheelchair

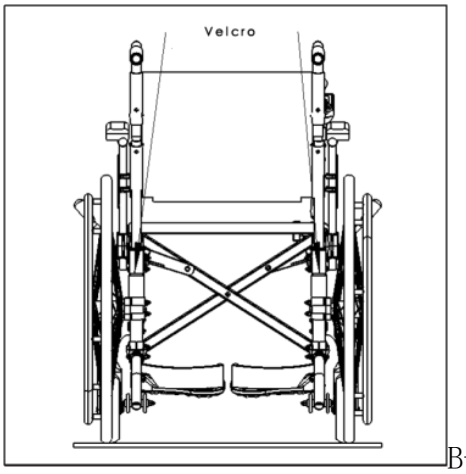
Loosen the quick-lock bolts to detach the left and right fixing clamps (see Figures A-1 and A-2).



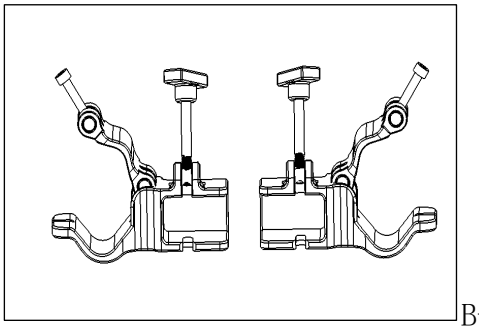
A-1


A-2

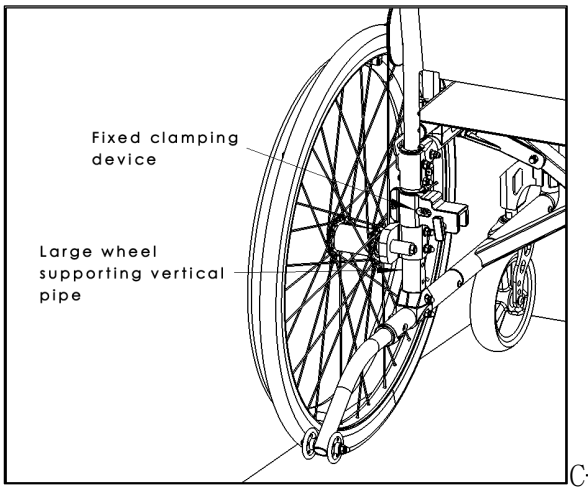
Apply the Velcro straps to the upper section of the vertical tubes supporting the large rear wheels. The Velcro serves to assist with positioning and to protect the tubes from clamping damage (see Figure B-1). Open the left and right fixing clamps (see Figure B-2).



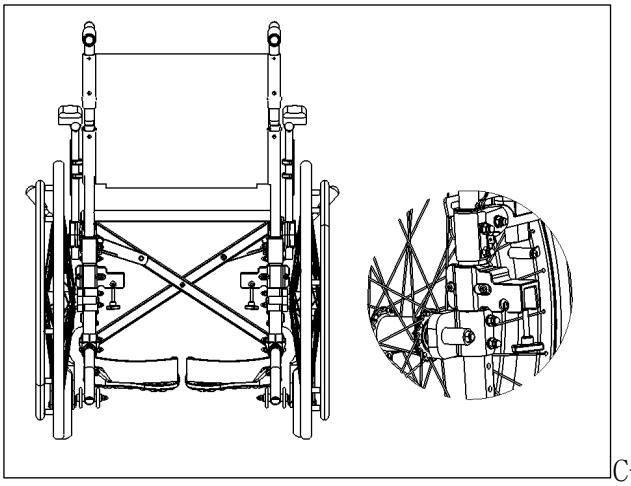
B-1


B-2

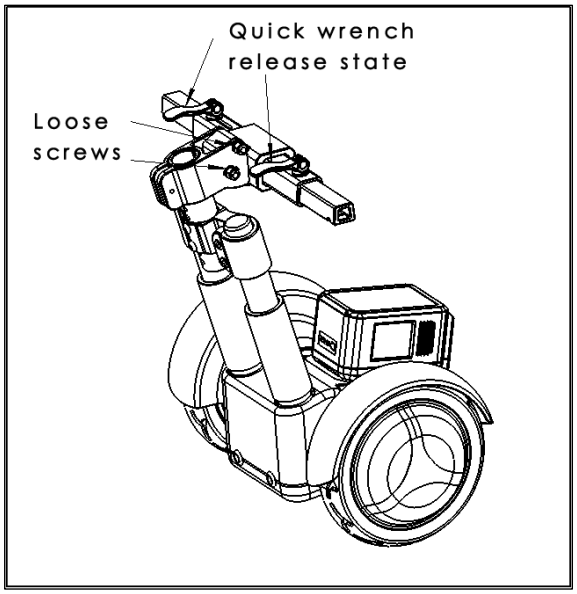
Release the limit screws on the fixing clamp assemblies and secure the assemblies onto the vertical tubes of the large rear wheels on both sides of the wheelchair at the positions marked by the Velcro straps. Ensure that the left and right clamps are installed at an equal height (see Figures C-1 and C-2).



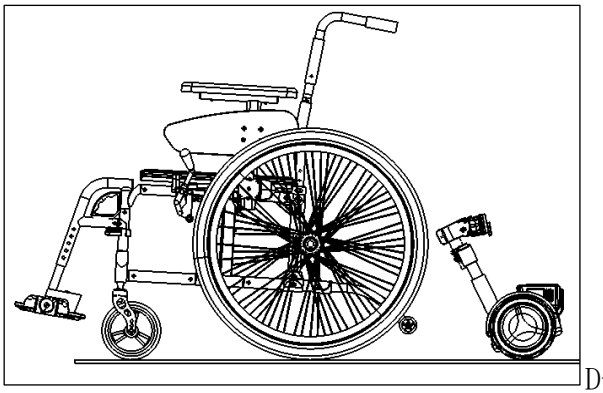
C-1

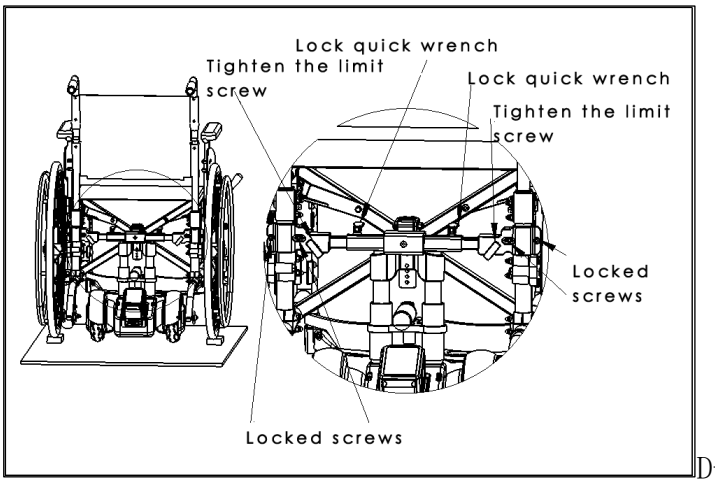

C-2

Loosen the two screws and set the quick-release lever to the released position. Position the Volt drive unit beneath the fixing clamp assemblies (see Figures D-1 and D-2). Align the telescopic tubes of the crossbar assembly with the corresponding slots on the fixing clamp assemblies and engage them. Tighten the limit bolts on the fixing clamp assemblies. Secure all screws on the fixing clamp assemblies. Adjust the quick-release lever to the locked position. Tighten the two screws on the angle-adjustment clamp (see Figure D-3). Upon completion of these steps, the large rear wheels of the wheelchair will be elevated off the ground (see Figure D-4).

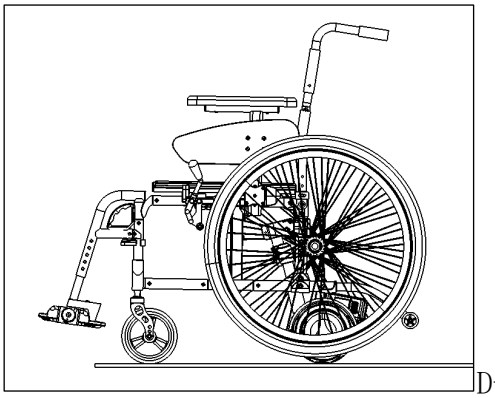


D-1

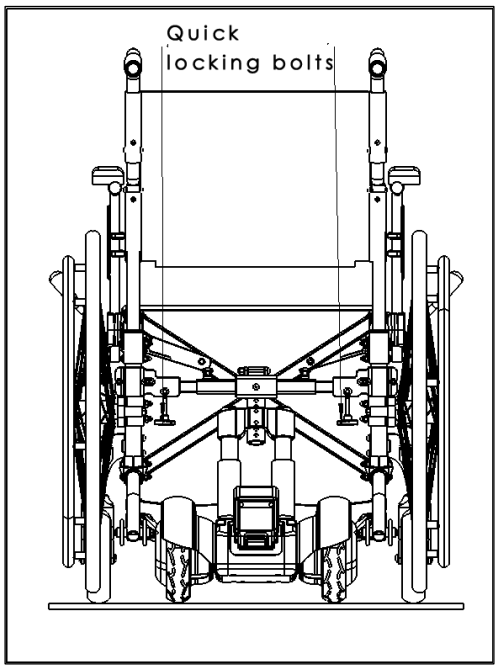

D-2



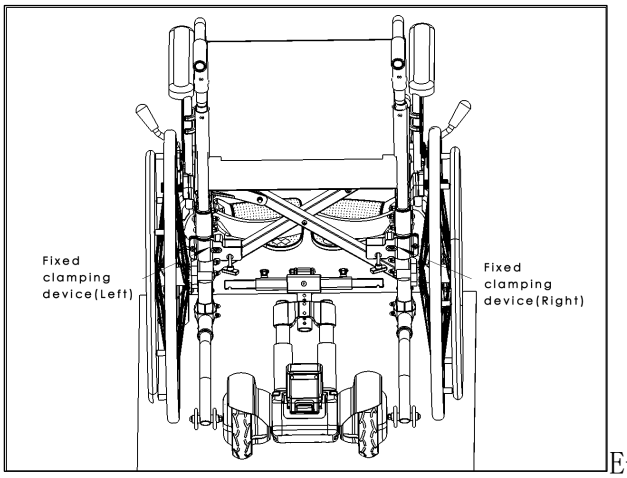
D-3


D-4

Procedure for Removing Volt: Sequentially loosen the quick-lock bolts on the fixing clamps (see Figure E-1). Lift the wheelchair upward to disengage the Volt main unit from the wheelchair, thereby completing the removal. **Note:** The fixing clamps remain installed at the rear of the wheelchair and do not interfere with normal wheelchair operation; they need not be removed, thereby facilitating future reinstallation of Volt (see Figure E-2).



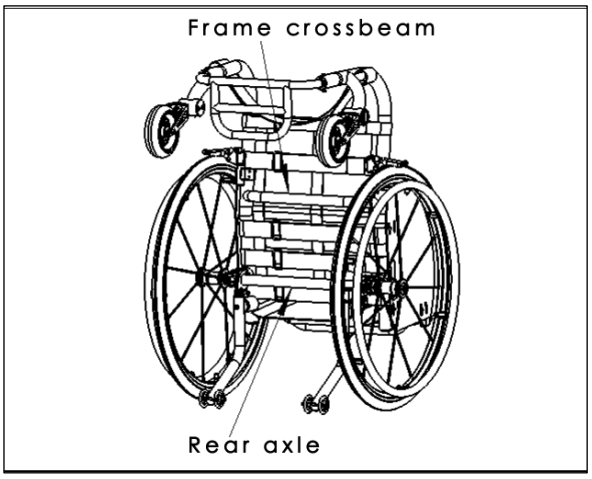
E-1



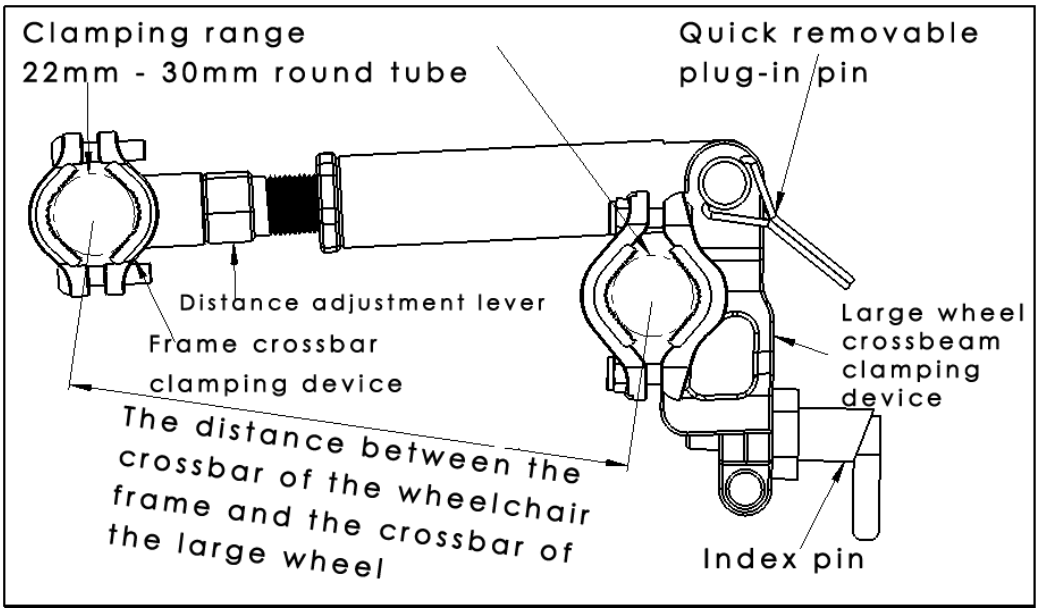
E-2

2.1.2 Installation on a Rigid Wheelchair

Lift the wheelchair to provide access for mounting the fixing bracket (see Figure F-1). The fixing bracket must be secured to the crossbar located beneath the wheelchair (see Figure F-2).

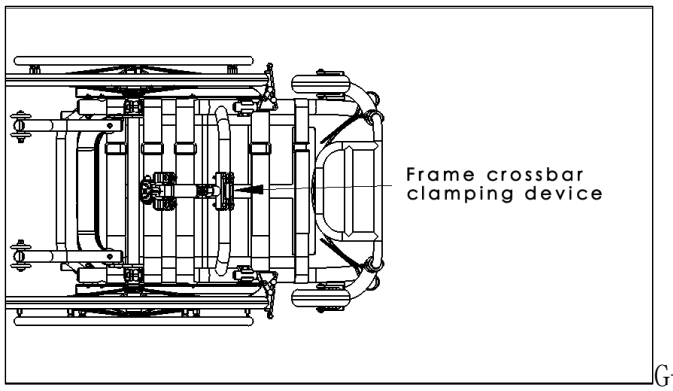


F-1

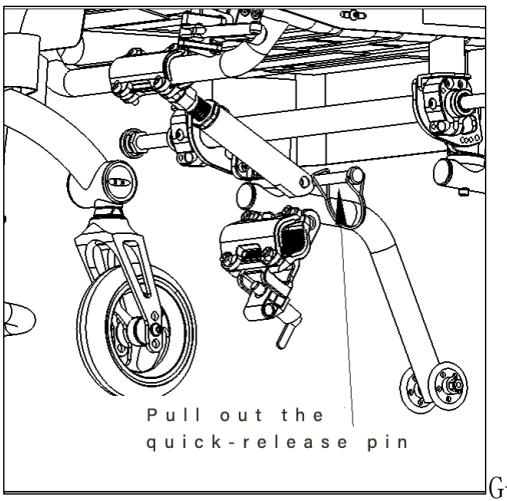


F-2

Secure the frame crossbar clamp to the midpoint of the frame crossbar using screws. Do not fully tighten the screws at this stage (see Figure G-1). Remove the quick-release pin (see Figure G-2).

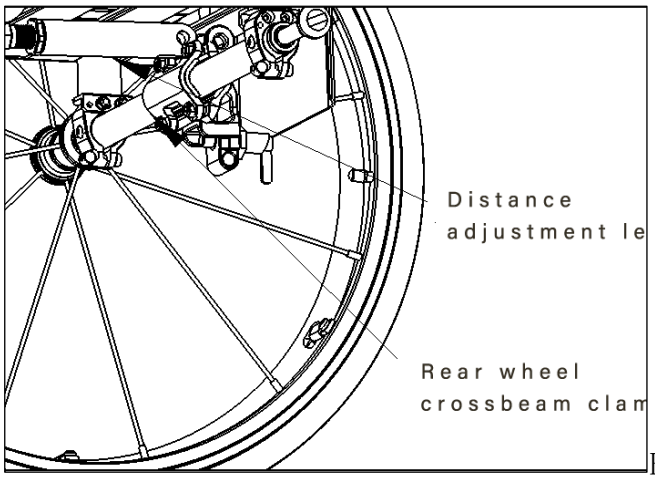


G-1

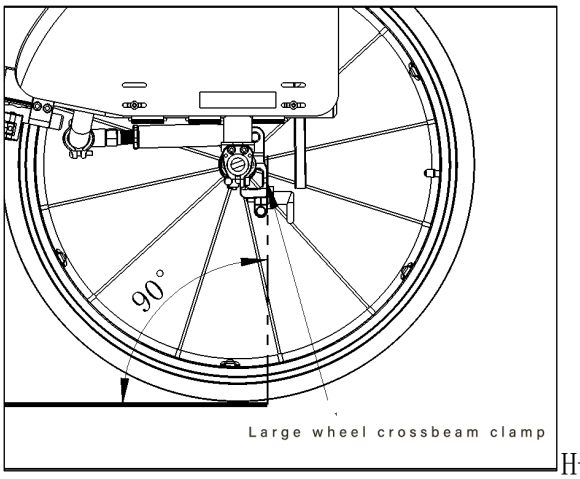


G-2

Rotate the distance adjustment rod so that it is positioned above the large-wheel crossbar. Secure the rear-wheel crossbar clamp to the midpoint of the large-wheel crossbar. Do not fully tighten the screws (see Figure H-1). Rotate the large-wheel crossbar clamp to a vertical orientation relative to the ground (see Figure H-2).

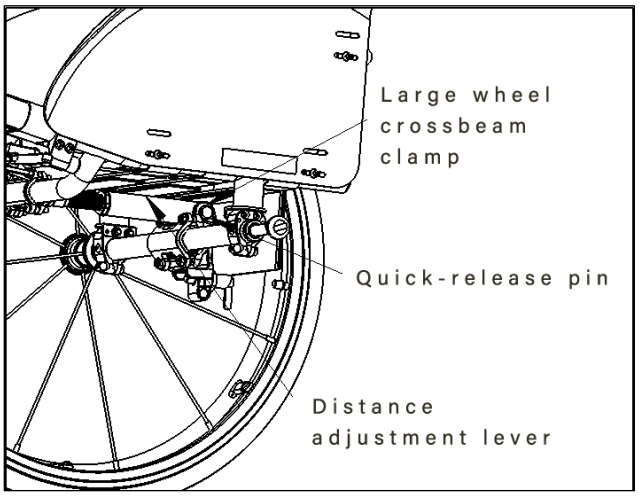


H-1



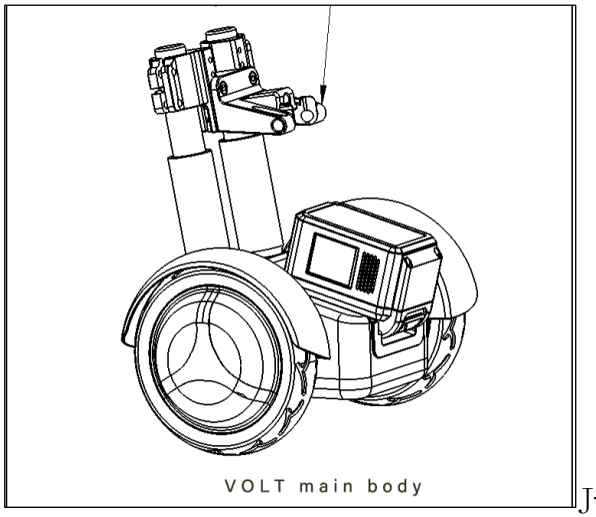
H-2

Align the distance adjustment rod with the mounting hole on the large-wheel crossbar clamp and insert the quick-release pin (see Figure I-1). Finally, tighten all screws securely.

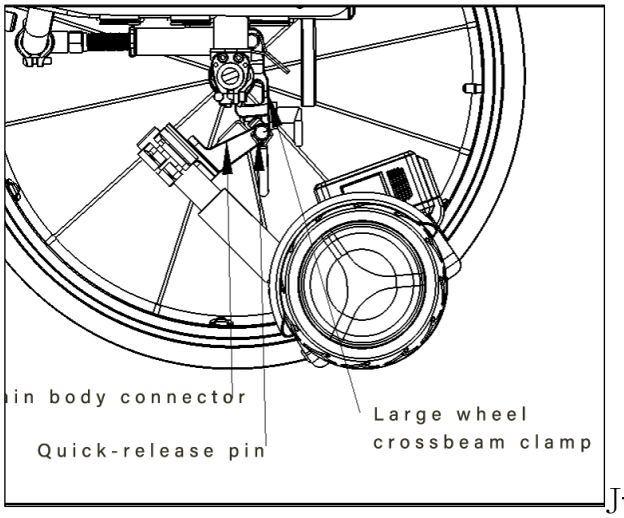


I-1

Position the Volt main unit centrally beneath the wheelchair, ensuring that the main unit connector aligns concentrically with the mounting hole on the large-wheel crossbar clamp. Insert the quick-release pin (see Figure J-2).

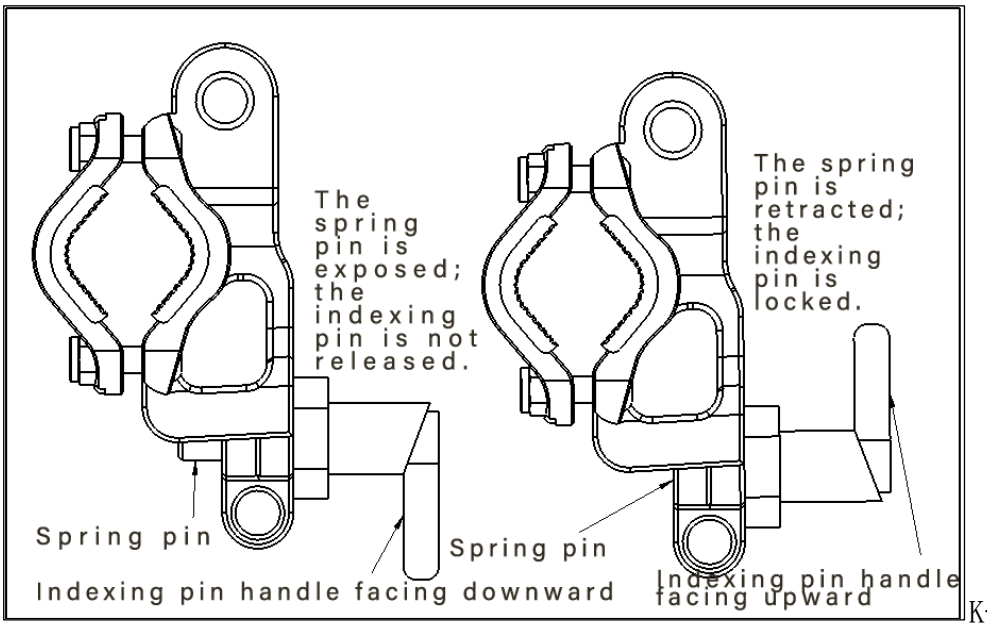


J-1



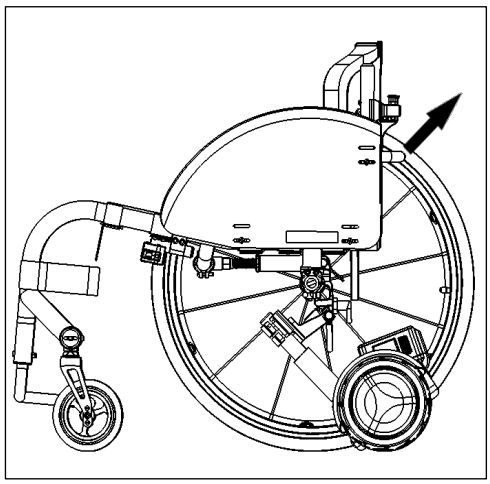
J-2

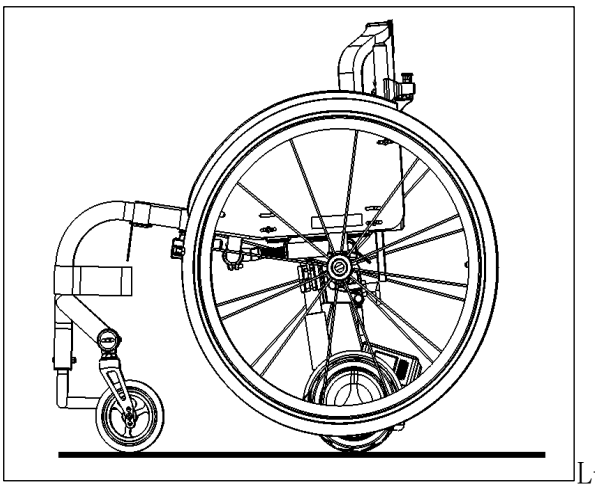
Adjust the state of the indexing pin by turning the indexing pin handle. Set the indexing pin on the large-wheel crossbar clamp to the released position (see Figure K-1).



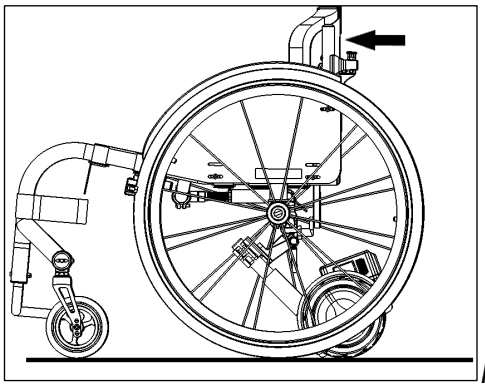
K-1

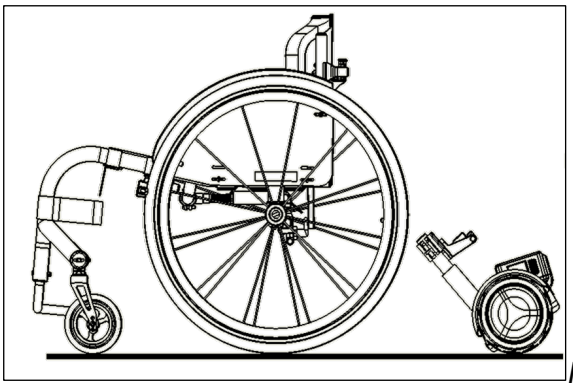
Grasp the backrest crossbar and pull the wheelchair in the direction indicated by the arrow (see Figure L-1). The indexing pin on the large-wheel crossbar clamp will automatically engage into the corresponding hole on the main unit connector. Upon completion of these steps, the large rear wheels will be automatically elevated off the ground (see Figure L-2).


L-1


L-2

Procedure for Removing Volt: Set the indexing pin on the large-wheel crossbar clamp to the locked position. Grasp the backrest and push the wheelchair in the direction indicated by the arrow to lower the large wheels to the ground (see Figure M-1). Remove the quick-release pin connecting the Volt main unit to the large-wheel crossbar clamp to complete the removal (see Figure M-2). **Note:** The fixing bracket remains installed beneath the wheelchair and does not interfere with normal operation; it need not be removed, thus simplifying future reinstallation of Volt.

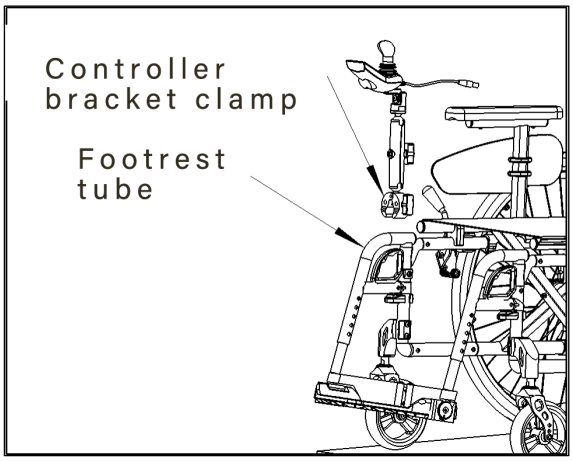

M-1


M-2

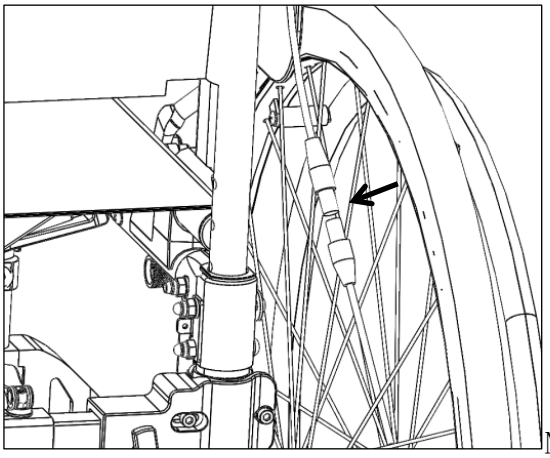
2.2Installation of Joystick Controller

2.2.1 Installation on a Foldable Wheelchair

Mount the controller bracket (compatible with your specific wheelchair model) onto the footrest tube. Attach the joystick controller to the bracket (see Figure N-1). Insert the joystick controller cable into the Volt interface connector and tighten the anti-loosening cap securely (see Figure N-2).

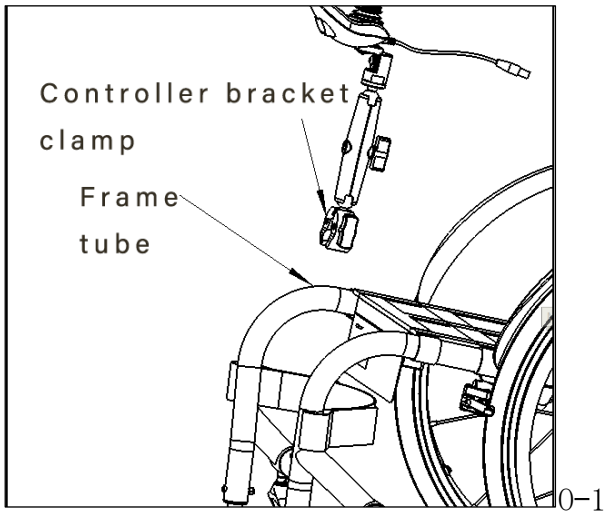


N-1

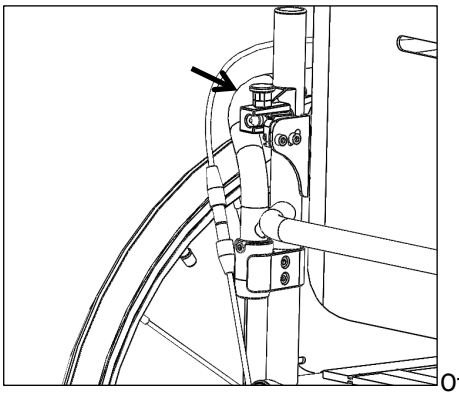

N-2

2.2.2 Installation on a Rigid Wheelchair

Mount the controller bracket (compatible with your specific wheelchair model) onto the wheelchair frame tube. Attach the joystick controller to the bracket (see Figure O-1). Insert the joystick controller cable into the Volt interface connector and tighten the anti-loosening cap securely (see Figure O-2).



O-1



O-2

3. Operation

3.1 Joystick Controller – Buttons and Functions

Refer to Figure P for the layout of the joystick controller buttons:

A. Power Button: Turns Volt ON and OFF.

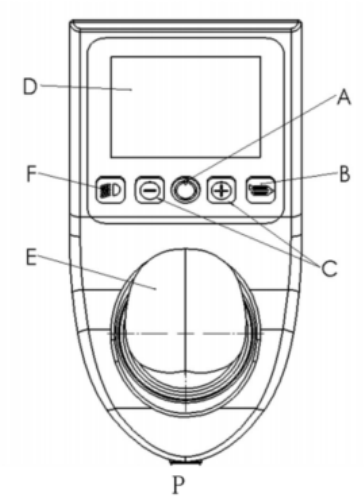
B. Horn Button: Activates the built-in buzzer to alert nearby pedestrians.

C. Speed Adjustment Buttons: "+" increases the speed level; "–" decreases the speed level.

D. Display Panel: Indicates battery charge level, real-time speed, and fault codes.

E. Joystick: Controls forward and backward movement.

F. Headlight Button: Press once to turn the LED headlight on; press again to turn it off.



P

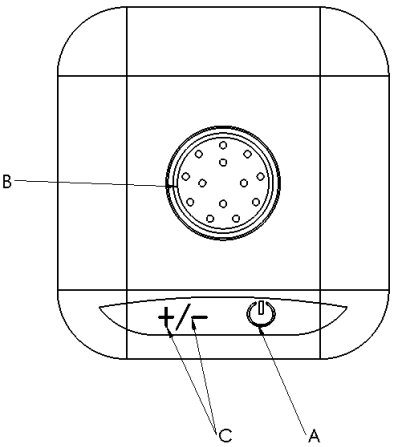
3.2 Rear Controller – Buttons and Functions

Refer to Figure Q for the layout of the rear controller buttons:

A. Power Button: Turns the rear controller ON and OFF.

B. Joystick: Controls travel direction and speed.

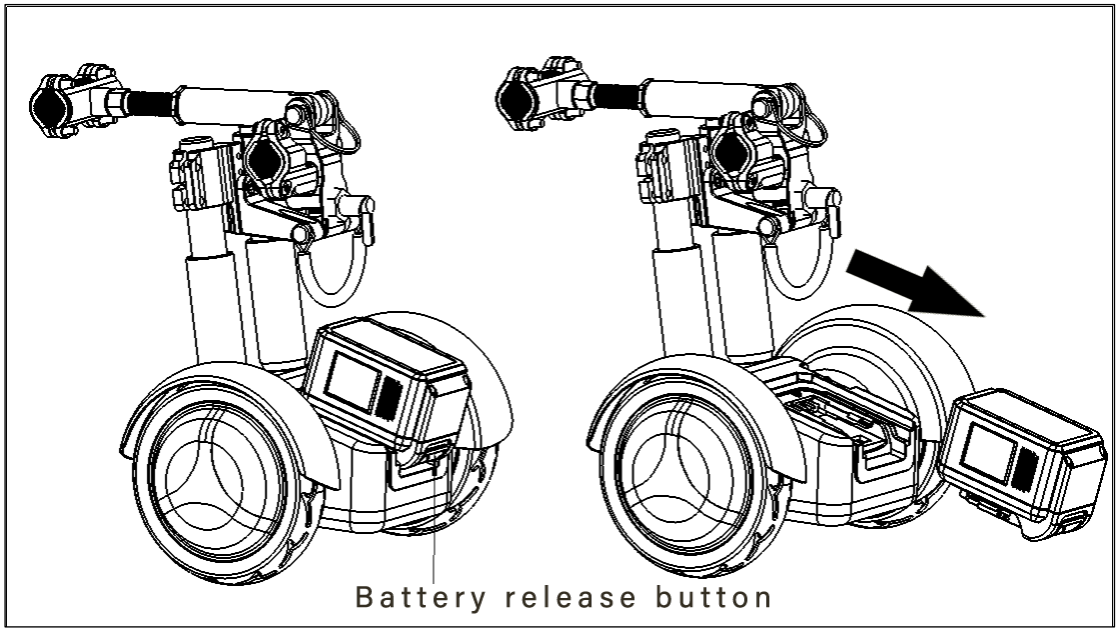
C. Speed Adjustment Buttons: "+/–" cyclically adjust speed levels. The rear controller supports a maximum of 3 speed levels, cycling as follows: 0/1/2/3/2/1/0.



Q

3.3 Battery Removal and Installation

To quickly remove the lithium battery, press and hold the button located at the rear of the battery and slide it in the direction indicated by the arrow (see Figure S).



S

3.4 Charging

Prior to use, power on the device and check the battery level displayed on the screen. If the charge is insufficient, recharge the battery before operation. Volt is supplied with a dedicated charger. The battery may be removed and connected to the charger for recharging.

- When charging is complete, the indicator light on the charger will change from red to green.
- Do not charge the battery pack in or near areas where flammable liquids or gases are present.
- In the event that the battery pack overheats or ignites, ensure that the battery does not come into contact with water or other liquids.
- Do not charge in a room where moisture may affect the battery pack.
- The wheelchair shall be charged in a space with a volume at least twice that of the wheelchair itself, with adequate ventilation to prevent the accumulation of potentially flammable gases.
- During charging, keep the wheelchair and charger away from sources of ignition, including open flames and sparks.
- Never charge the battery pack at ambient temperatures below 0°C or above 40°C. LICHTMEGA assumes no liability for damage resulting from charging outside this temperature range.
- Upon completion of charging, disconnect the charger from the mains supply immediately.

4. Safety Instructions and Precautions

4.1 Safety Instructions

For first-time users, please read and observe the following instructions carefully:

- The safety and well-being of the user are of paramount importance. Therefore, prior to operation, you must acquire a thorough understanding of Volt.
- For initial use, ensure that a caregiver is present to provide assistance.
- Do not operate the wheelchair on public roads until you have fully mastered its safe operation, as failure to do so may result in injury to yourself or others.
- When not in use, turn off the power and engage the wheelchair's manual brakes to prevent unintentional rolling.
- The controller must be turned off before installing Volt onto the wheelchair or removing it.
- Volt may only be installed on manual wheelchair models approved by LICHTMEGA for compatibility with this device.
- When using Volt, adhere to all safety instructions provided by the wheelchair manufacturer.
- For initial use, practice on level ground.
- Conduct training exercises in areas free of obstacles.
- Always adjust your speed according to prevailing conditions (e.g., to avoid unexpected obstacles or to stop the wheelchair safely).
- When starting, do not push the joystick to its maximum deflection immediately, as this may result in uncontrolled movement (risk of accident).
- Upon releasing the joystick, the wheelchair will apply gentle braking. For emergency braking (immediate stop), briefly push the joystick in the direction opposite to travel, then release.
- Never place hands or fingers near the wheels while Volt is powered on.
- Before negotiating slopes, practice operating the device on level ground.
- When ascending a slope, verify that the battery has sufficient charge to complete the climb. Do not attempt to ascend if the charge is inadequate, as sudden power loss may cause the wheelchair to roll backward.
- Exercise extreme caution on all slopes. Reduce speed when ascending; do not ascend at high speed, as this may cause the wheelchair to tip backward.
- Do not exceed the maximum slope angle specified by the wheelchair manufacturer.
- Reduce speed when descending to avoid collisions with unexpected obstacles or sudden stops that could propel the user forward.
- Note that braking distances on descents may be significantly longer than on level ground, depending on speed and gradient. Adjust speed accordingly.
- When parking on a slope, always engage the manual brakes.
- Do not apply the manual brakes abruptly while the wheelchair is in motion.

- Do not traverse steep slopes or rough terrain, as uneven surfaces may cause the wheelchair to tip sideways.
- Do not make sudden directional changes at maximum speed, as this may cause lateral instability.
- Regularly inspect all clamps to ensure they are securely locked, preventing sudden detachment during use that could result in tipping.
- Regularly check rear tire pressure.
- Before each use, inspect the Volt tires. If tires show signs of excessive wear, Volt must not be used.
- Tire grip may be reduced on wet surfaces, creating a risk of skidding. Adjust driving behavior accordingly, and never operate with worn tires.
- Do not operate without anti-tip devices. Anti-tip devices may only be removed when crossing major obstacles. If the risk of tipping increases, the user shall exercise independent judgment regarding the need to summon caregiver assistance.
- Avoid using the wheelchair on soft or unstable surfaces (e.g., loose gravel, sand, mud, snow, ice, or deep puddles).
- When using on public roads, comply with all applicable traffic regulations.
- Volt is intended solely for the mobility of persons with reduced physical capacity. It must not be misused (e.g., as a toy for children or for transporting cargo).
- Avoid operating Volt in close proximity to strong magnetic fields.
- Avoid using Volt under adverse weather conditions (e.g., storms, hail, etc.).
- Never wash components under running water (e.g., with a hose or pressure washer), as this may cause water ingress and irreparable damage to electronic systems.
- LICHTMEGA assumes no liability for damage caused by water ingress. Such damage is expressly excluded from warranty coverage.
- Do not hang any objects (e.g., keys) on the joystick, as this may prevent it from returning to the neutral position, resulting in failure to stop.
- When operating, avoid wearing loose-fitting tops, trousers, or skirts that could become entangled in the wheels and cause injury.
- Do not use the device under poor lighting conditions, as reduced visibility may prevent motorists from seeing you, increasing the risk of accident.

4.2 Battery Charging Safety Instructions

Prior to charging the battery, please read and observe the following safety precautions:

Failure to comply with these safety precautions may result in product damage, electric shock, fire, and/or serious injury. The battery pack contains chemical substances that may cause hazardous reactions if the following safety instructions are disregarded. LICHTMEGA assumes no liability for damage resulting from non-compliance with these instructions.

5. Storage, Cleaning, Recycling, and Disposal

5.1 Cleaning

When cleaning Volt, ensure that no liquid or moisture comes into contact with the device.

Observe the following instructions:

- Clean wheel surfaces with a dry or slightly damp cloth.
- Do not use scouring pads, abrasive cleaning agents, or corrosive chemicals on any components.
- Never wash components under running water (e.g., with a hose or pressure washer), as this may cause water ingress and irreparable damage to electronic systems.
- LICHTMEGA assumes no liability for damage caused by water ingress. Such damage is expressly excluded from warranty coverage.

5.2 Recycling

This product is suitable for recycling, similar to the secondary market for automobiles, thereby promoting resource efficiency. However, users are reminded that this product is only compatible with wheelchair models approved by LICHTMEGA for this purpose. To ensure the safety of subsequent users, no modifications to the wheelchair's accessories or functions are permitted.

5.3 Disposal

When disposing of this device, please note that the battery contains substances that may be harmful to the environment. Do not discard this device in ordinary household waste. Please familiarize yourself with local regulations and arrange for proper recycling of the device in accordance with applicable laws.

6. Technical Specifications

Volt	
Rated Power	2x200W
Operating voltage	20V DC
Speed range	0.5-4.5KM/H
Maximum climbing angle	Load capacity:100kg, Climbing angle:6°
Driving range	Load capacity:100KG, Range:15KM
Operating temperature range	-20°C - +50°C
Maximum user weight capacity	100KG
Battery	
Battery type	Lithium-ion battery
Nominal capacity	6Ah
Nominal voltage	20V
Water resistance rating	IPx4
Weight	0.95kg
Charging temperature range	0℃-40℃

7. Maintenance and Warranty

7.1 Maintenance

Based on our market observations, under normal operating conditions, the product should undergo servicing and inspection every two years. This two-year interval may vary depending on actual usage intensity and operating conditions; users shall adjust the maintenance schedule according to their specific use patterns.

7.2 Warranty

LICHTMEGA provides a 24-month durability warranty for your Volt. The warranty does not cover:

- Devices with serial numbers that have been tampered with or removed.
- Wear-and-tear parts, including but not limited to tires.
- Damage resulting from normal wear and tear, improper operation (including failure to follow the instructions in this User Manual), accidents, intentional damage, fire, water damage, force majeure, or other uncontrollable events.
- Devices returned for service in which no malfunction or defect is found.

The warranty period commences on the date of purchase.

Note: The battery is covered by a 12-month warranty, provided that all safety and storage instructions in this manual have been followed.

To obtain after-sales warranty service, the user must present both the warranty card and the original proof of purchase.

Repairs required due to expiration of the warranty period or resulting from improper operation shall be subject to charges for parts and labor.

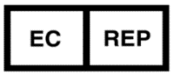
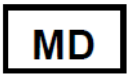
Warranty Card

User Information	Name		Phone	
	Address			
Product Information	Product Model		Serial Number	
	Date of Purchase		Invoice No.	
Dealer Information	Dealer Information		Dealer Stamp	
	Dealer Phone			

Repair Records

Date of Repair	Technician	Description of Repair

【Labels · Packaging · Identification Design】

Symbol	Description	Symbol	Description
	EU Conformity Marking		Authorized Representative in the European Community
	Manufacturer's name and address		Date of Manufacture
	Batch Code		Store in a clean, dry location, protected from rain, snow, ice, salt, and water.
	Warning / Caution		Not sterile
	Medical Device		Expiration Date
	Keep Dry		Keep away from direct sunshine
	Consult Instructions for Use		Unique Device Identifier
	Country of Manufacture		Product Model Number
	Importer		Distributor