

TODO DRIVE USER MANUAL



Revision History

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1. Before Use

1.1. Todo Drive

Todo Drive is a power assist device that converts your manual wheelchair into a powered one. This medical device is designed to provide wheelchairs users with better maneuverability and mobility.

Please read the warnings, cautions, and instructions carefully before using the device. We are not liable for any injuries or mechanical damages that occur from the violation of such instructions or faulty usage.

1.2. Safety Cautions

The following cautions are used to protect users and prevent property damage. Please, read them fully and use the product properly.

1.2.1. Meanings of Pictographs

The following pictographs indicate the types of warnings, cautions or prohibitions. Please follow these instructions carefully.

Sign	Type	Reference	Meaning
	General Warning	ISO7010-W001	If neglected, it may cause injuries.
	Caution	ISO7000-0434A	If neglected, it may cause malfunctions or product damage.
	General Prohibition	ISO 7010-P001 and ISO 3864-1, Figure 1	Indicates an act which you must not do.
	General Mandatory Action	ISO 7010-M001	Indicates a mandatory instruction which you must follow.
	Operating Instructions	ISO 7000-1641	Indicates useful tips or specific information.

1.2.2. General Cautions

Todo Drive is the product intended not to alternate an electric wheelchair, but to assist the performance of a manual wheelchair. Accordingly, please follow the general instructions on specifications, features and uses when using Todo Drive attached to your wheelchair.

Failure to follow the instructions may result in product damage or personal injury.

1.2.3. Target Users and Usage Environment

1) Target users of Todo Drive

For safety reasons, Todo Drive can be only used by:

- Those who can move at least one hand or one arm without any discomfort.
- Those who can control Todo Drive joystick to secure the stability of wheelchair in all situation.
- Those who can stop the wheelchair by putting on the brake when it is not available to operate Todo Drive.
- Those who are trained to use Todo Drive by an instructor authorized by Todo Works.

2) Precautions for usage environment



- It is restricted to use on the escalator, moving walk, areas with strong electromagnetic fields, steep slopes, and narrow sidewalk, areas near cliff and precipice, roads covered with leaves, snow or ice, etc.



- (Warning for wheelchair fall) When operating on a curved road, ramp, or uneven road, or making a sudden turn, you may fall to one side as the wheelchair's center of gravity changes. Therefore, be very careful when driving in such conditions and be sure to slow down.
- (Warning for obstacles) When crossing a road or railroad, the wheels of the wheelchair may get stuck on a curb or rail. In particular, make sure to be very careful when crossing a railroad.
- (Warning for obstacles) When crossing a road or railroad, the wheels of the wheelchair may get stuck on a curb or rail. In particular, make sure to be very careful when crossing a railroad.
- Whether to drive in above-mentioned road condition need to be determined based on personal experience by Todo Drive users, and we are not liable for accidents.

1.2.4. Precautions for Use

1) Precautions before use



- Never use any products or parts that are not approved by Todo Works and do not make any technical modifications or changes to Todo Drive and its parts.
- Operating the wheelchair without an anti-tip stabilizer increases the risk of accidents and injuries. We are not liable for any accidents caused by any breach of this instruction.
- Make sure that junctions (a joystick clamp, a motor clamp, a battery clamp, etc.) of Todo Drive are mounted properly before use.
- The air pressure of wheels may affect the performance of driving and brake of the Todo Drive, so be sure to check the air pressure before use.
- Todo Drive is designed to improve the mobility of wheelchair users. Do not use it for any other purpose (ex. to load goods).

2) Precautions during use



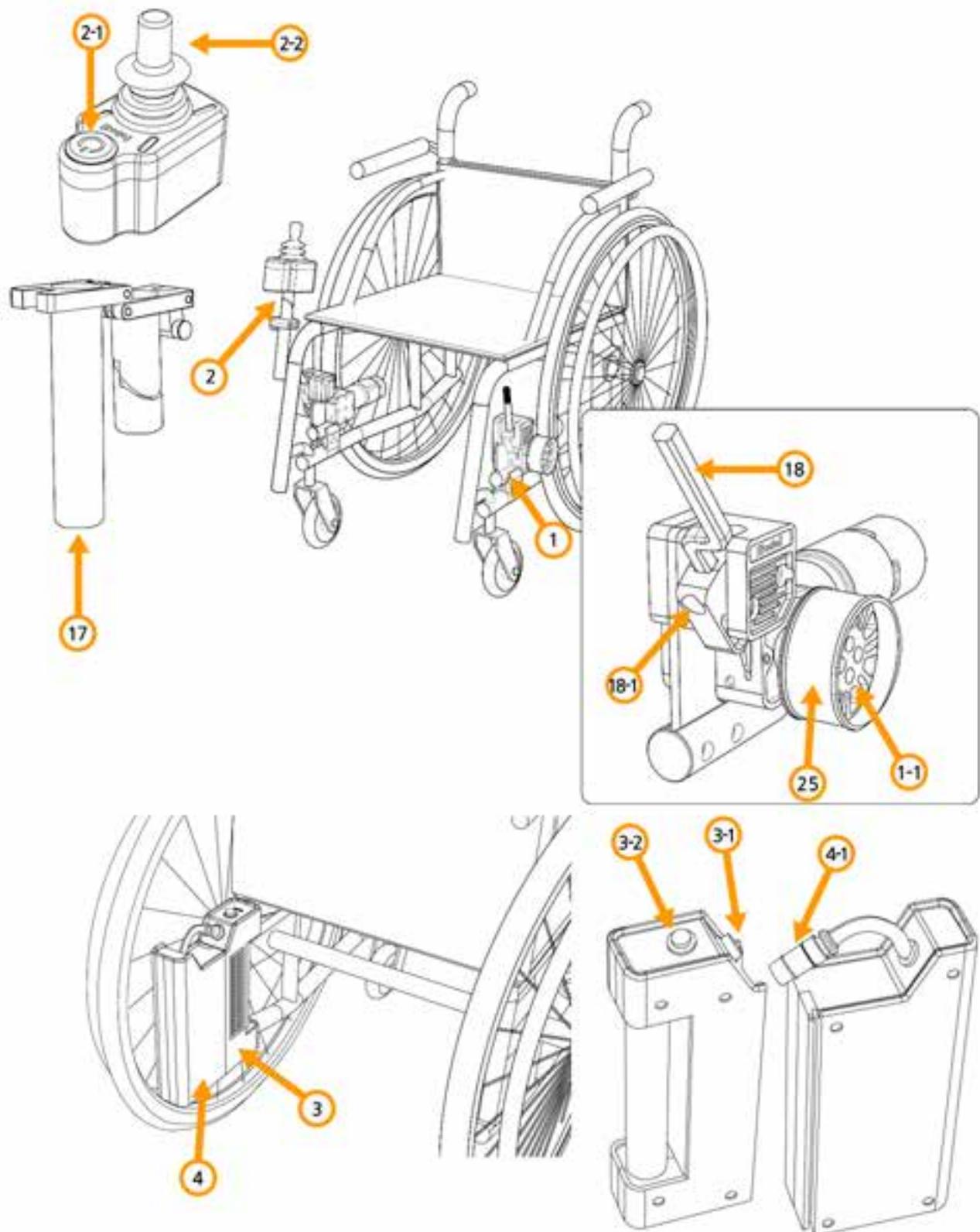
- Never move the joystick suddenly when you start the wheelchair. An accident may be caused due to a quick start of the wheelchair.
- When stopping the wheelchair, operate the joystick gently to make a smooth stop. A sudden stop may cause an accident.
- In order to prepare for meeting unexpected situations such as an obstacle, sudden stop, sharp turn, etc., the running speed must be adjusted to the external environment.
- In the case of making a sharp turn or changing direction while driving at full speed, the wheelchair may overturn.
- To turn left or right, reduce the speed in advance.
- Drive with care when going up or down a ramp.
- Do not run across a ramp. The wheelchair may overturn if the center of gravity changes suddenly.
- When stopping on an uphill or downhill road, stop the wheelchair at a right angle to the slope direction and make sure to use the manual brake of the wheelchair.
- Maintain a constant distance from curbs and road borders for safety during driving.
- Do not forcefully roll over obstacles such as curbs or road borders. The wheelchair may stop or overturn as wheels get stuck on an obstacle.
- Never drive the wheelchair by raising the front wheel off the ground without anti-tip stabilizers (so-called 'a wheelie') after removing anti-tip stabilizers. Todo Works is not liable for any accidents caused by this type of driving.
- Do not put your hand on wheels when you drive using Todo Drive.
- Do not put or throw your hand or objects into the wheelchair, especially the motor unit, which is equipped with Todo Drive. Pay attention that no clothes or earphones get stuck in the device.
- Do not operate Todo Drive when the manual brake is locked. It may have an impact on the motor and tires of the wheelchair.
- Try to pay attention to driving by avoiding distractions such as using a mobile phone while driving.
- Follow traffic rules while driving.
- Ask for help if you need assistance from others while driving.
- Make sure to contact us or your dealer if you have a problem with the device while driving.

3) Precautions after use

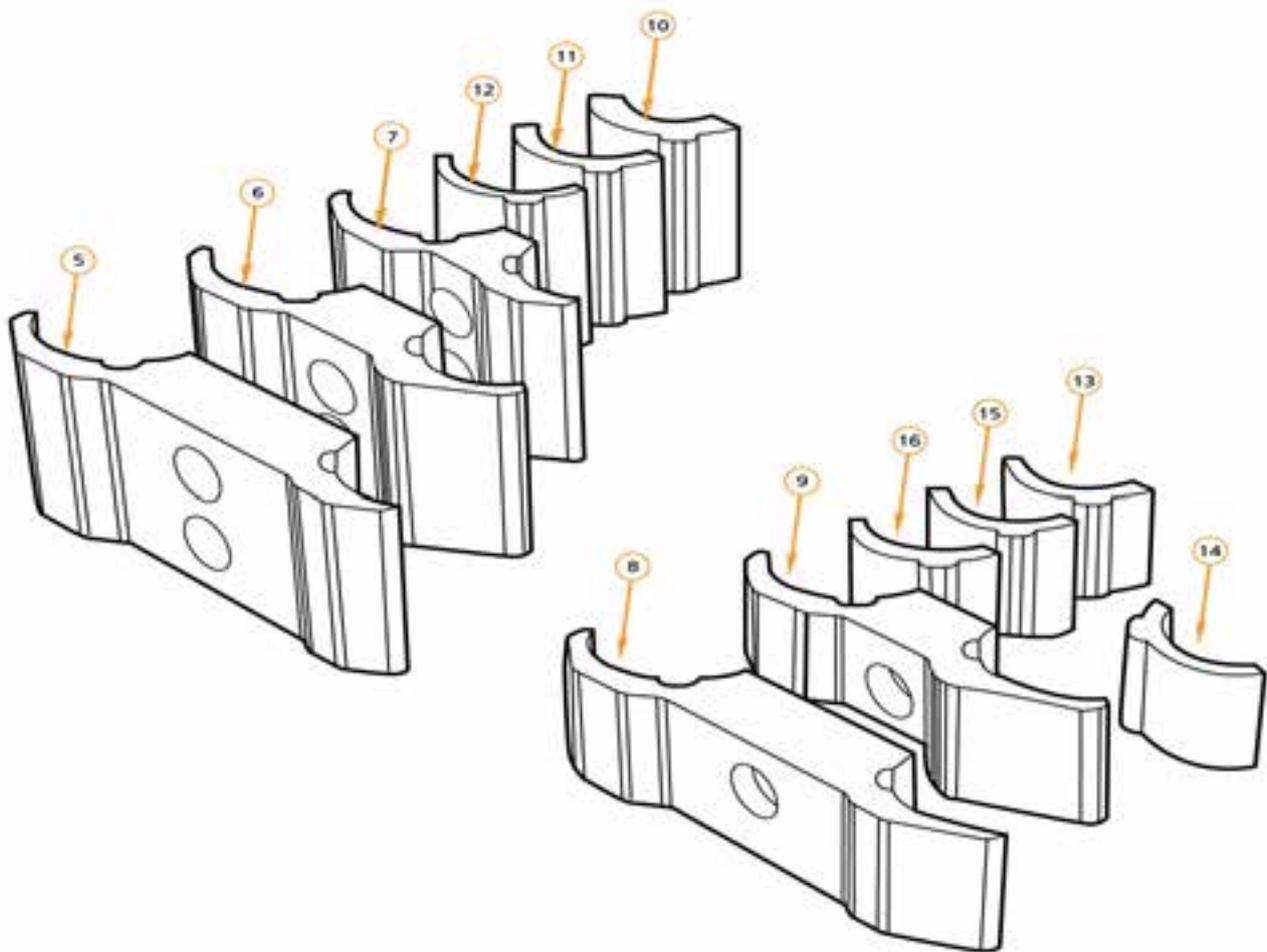
- Turn off the power of the main body when Todo Drive is not in use. This prevents accidental operation of the joystick, protecting the motor from running or the battery from discharging.
- Do not leave the device unattended by a user or caregiver of the wheelchair and Todo Drive, even if the power is off.

1.3. Product Components

1.3.1. Set of Components



1.3.2. Clamps and Inners



- Use W-Clamps and W-Inners when installing a motor.
- Use T-Clamps and T-Inners when installing a controller or a main body.
- Use T-Clamp S when attaching a joystick and T-Clamp L for a main body.
- A clamp has a wide diameter of 30 mm and a narrow diameter of 25mm.
- Fix a wheelchair frame on a wide surface and the Todo Drive device on a narrow surface.

1.4. Component Names

No.	Items	Quantity (per box)
1	Motor	2
2	Joystick	1
3	Main Body	1
4	Battery	1
5	W-Clamp L	2
6	W-Clamp M	2
7	W-Clamp S	2
8	T-Clamp L	1
9	T-Clamp S	1
10	W-Inner 17mm	4
11	W-Inner 22mm	4
12	W-Inner 25mm	4
13	T-Inner 17mm	4
14	T-Inner 20mm	4
15	T-Inner 22mm	4
16	T-Inner 25mm	4
17	FJ Support Fixture	1
18	S Lever 25mm	2
19	S Lever 35mm	2
20	Upper Body Bracket 100mm	2
21	Motor Electric Cable	1
22	Quick Start Guide	1
23	5mm Wrench	1
24	Anti-Slippery Tape	4

2. How to Install Todo Drive

Consisting of two motors, a joystick, a main body, and a battery. Todo Drive is attached to a manual wheelchair to turn it into a powered one. Your Todo Drive dealer will install it on your wheelchair. If requested, the installation may be made after remodeling a manual wheelchair to the extent that its stability and performance are not affected.

Your Todo Drive dealer will explain in detail how to use and maintain the device. You are also provided a quick start guide and this user manual that contain essential driving instructions, specifications, features and usages.

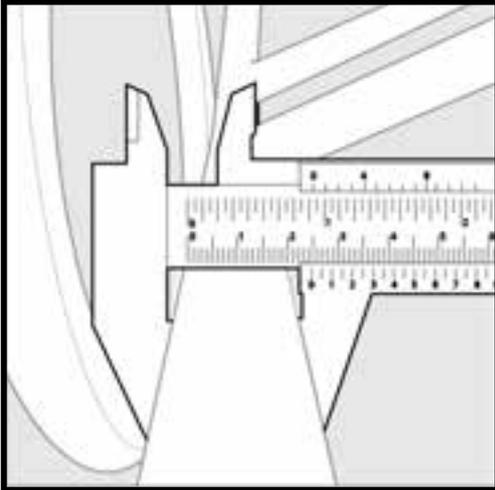


- **Clamps and brackets must be installed on a wheelchair by our engineer or authorized dealer.**
- **Make sure each week that clamps are tightly secured. In case bolts are loose, contact us to retighten them.**
- **Check the tire pressure of a wheelchair every other week. In case the pressure is too low, it may reduce driving performance by making the wheelchair tires incompatible with the motor's wheels.**

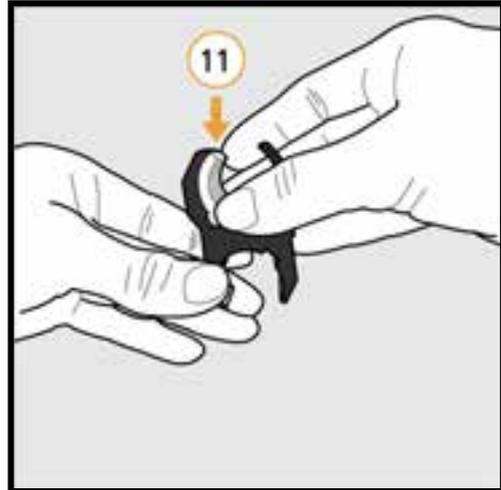


- **We provide a set of variations on clamps and brackets. Thus, the components presented on this user manual may be different from the ones attached to your wheelchair.**
- **This manual is written for folding wheelchairs. Accordingly, the installation methods described here may be more or less different from how to install them to your wheelchair.**

2.1. Motor Installation

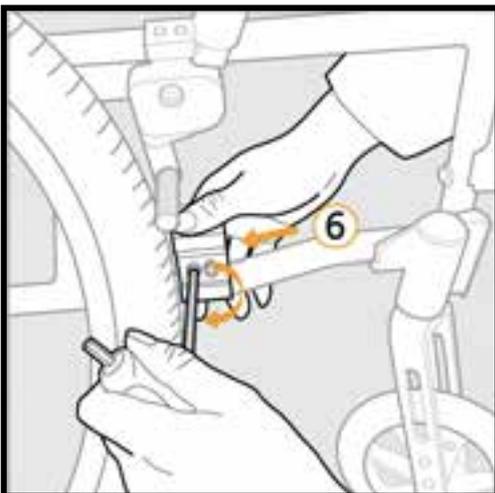


- 1) Measure the diameter of the wheelchair frame to **select a properly sized clamp from the range of No. 5 to 7.**

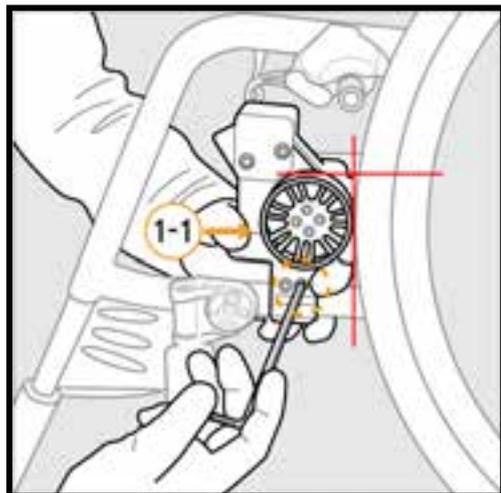


- 2) Attach the clamp inner that fits into the selected clamp to its inside surface.

For example, in case the frame is 22mm wide, the **W-inner 22mm** labeled with the number 11 needs to be attached to it.



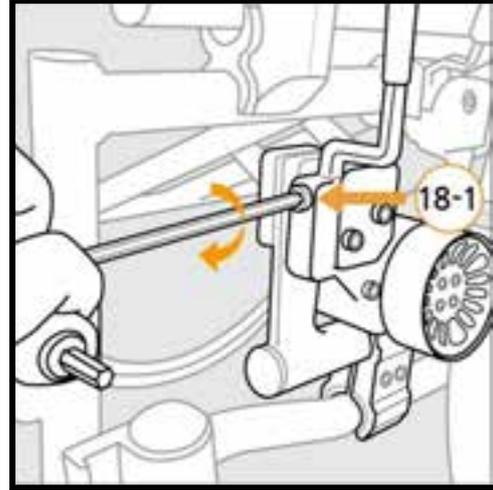
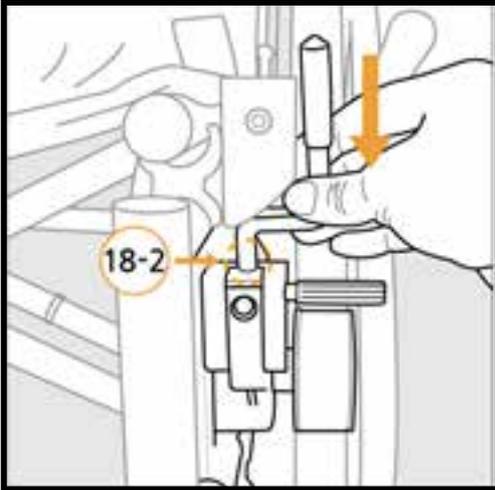
- 3) Hold the **clamp** loosely on the frame with the bolt head facing the front.



- 4) Place the **motor's wheel** and the wheelchair tire in straight alignment **[1-1]** and tighten the bolt loosely.



■ It is recommended to secure the clamp on horizontal frames of wheelchairs

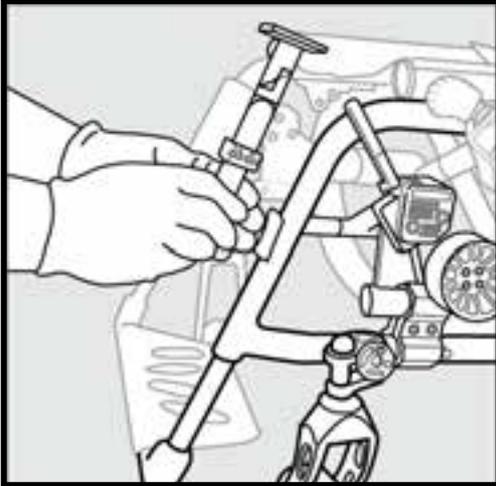


- 5) Insert the **lever [18]** into the hole **[18-2]** and tighten the **bolt 6*12 [18-1]**. Try pushing and pulling the **lever [18]** to ensure that there is no interference with other parts. (the same for the other side.)

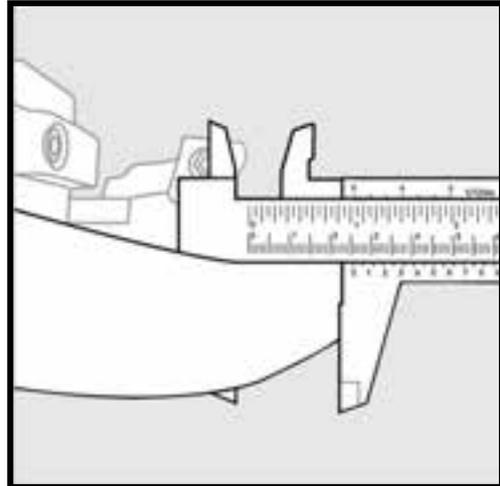


- It is easily adjustable if you hold one bolt tight and the other loose to install the motor's wheel in correct position.
- The distance between the motor's wheel and the tire of the wheelchair is appropriate if you can rotate the tire manually without any interference.
- Make sure that the frictional force between the motor's wheel and the tire is sufficient by rotating the tire in the powered mode (Lever-in).

2.2. Controller Installation



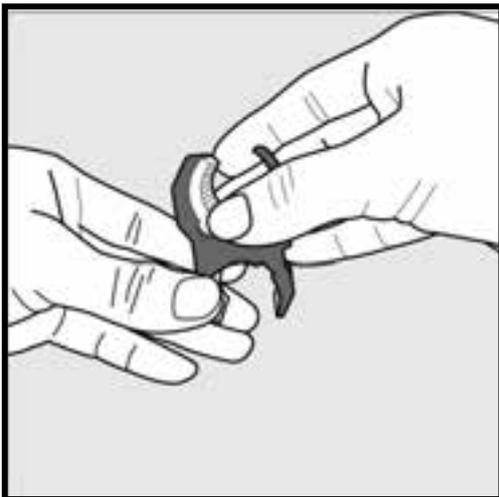
- 1) Select the mounting position of the **joystick [2]** in consideration of clients' convenience, requests and the position of the wheelchair frame.



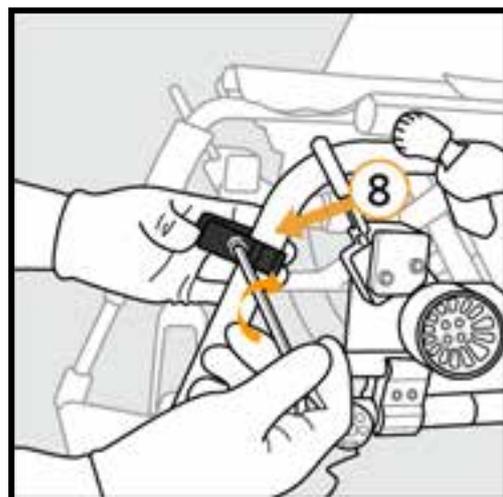
- 2) Measure the diameter of the frame to which the **joystick [2]** will be attached.



- Though it is recommendable to use the T-Clamp S [8] for the joystick, the L-sized one can also be used.



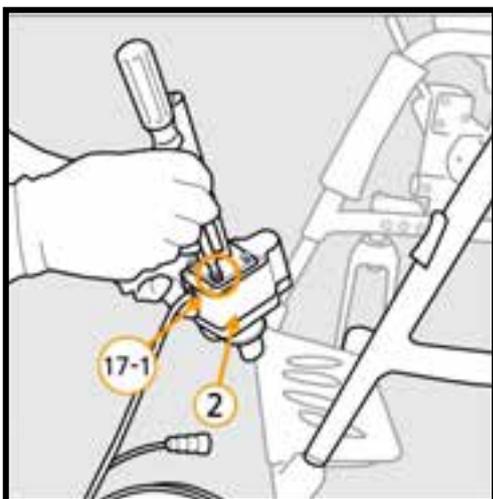
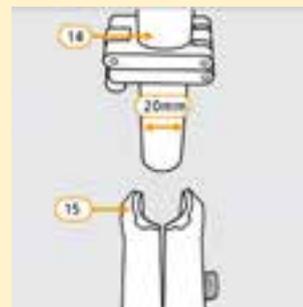
- 3) Attach the properly sized inner to the **clamp [8]**.



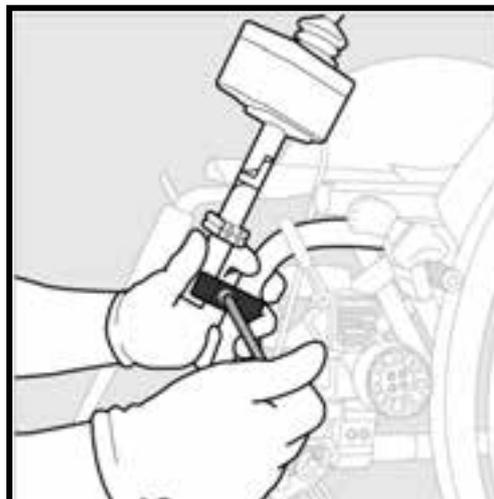
- 4) Hold the **clamp [8]** loosely on the frame to make it adjustable.



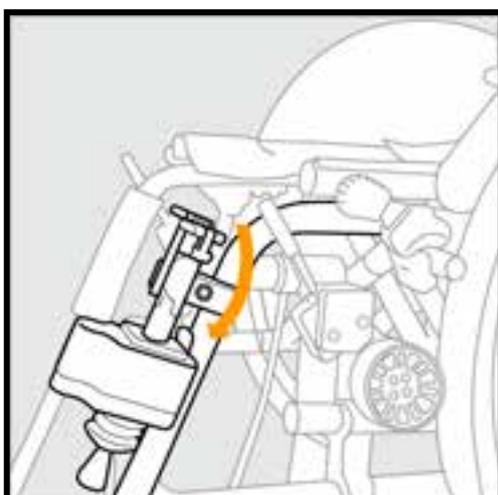
- The **T-Inner 20mm [15]** is necessarily required for the **Support Fixture [17]** of the Joystick that is 20mm thick.



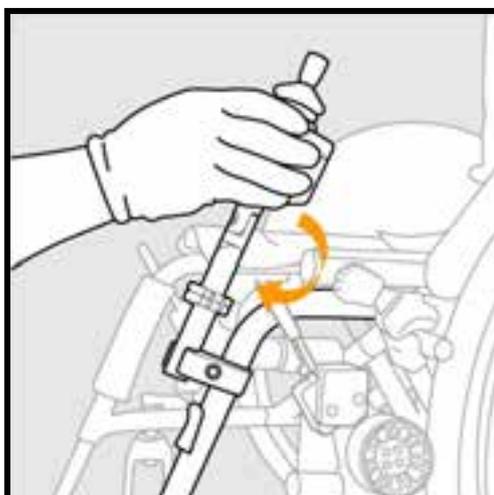
- 5) Considering the folding direction of the **FJ Support Fixture [17]**, make it aligned with the **joystick [2]** and screw the **bolts (4*10)** into the four sides of the fixture **[17-1]**.



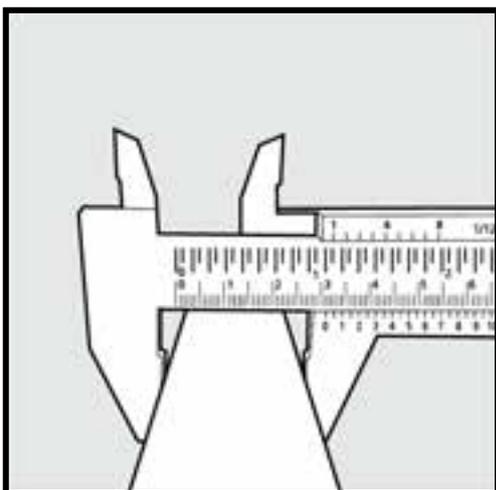
- 6) Tighten the clamp bolts to hold the **Support Fixture [17]** and the **clamp** in place **[8]**.



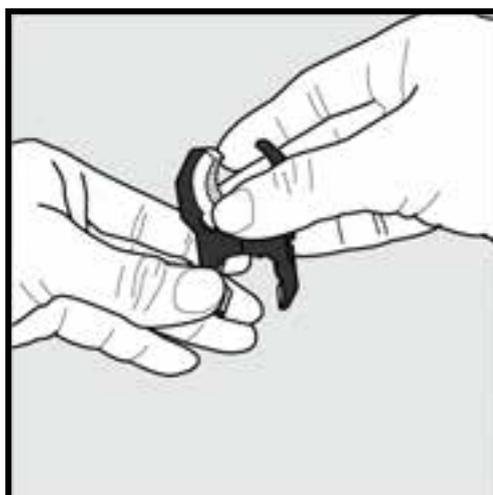
- 7) Make sure that there is no interference with the manual brake or the **lever [18]** when folding the **Support Fixture [17]**, and secure the clamp tightly.



2.3. Installation of Main body and Battery



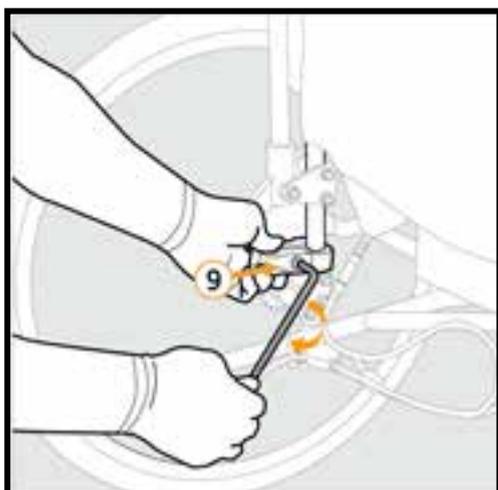
- 1) Decide where to mount the **main body [3]** on the frame, and the diameter of the frame.



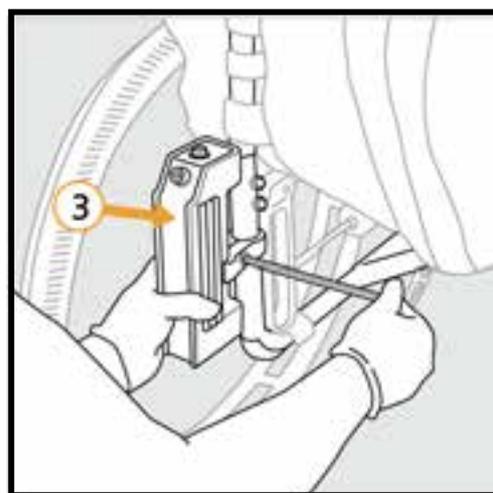
- 2) Attach the properly sized inner to the inside of the **clamp [9]**.



- It is not necessary to attach an inner to the pipe of main body which is 25mm thick. In case an inner is not required, install a clamp alone.



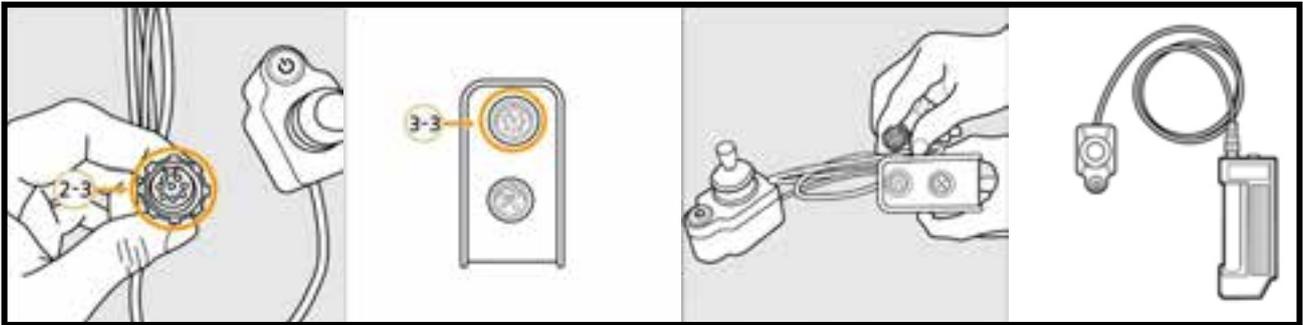
- 3) Hold the **clamp [9]** loosely on the frame.



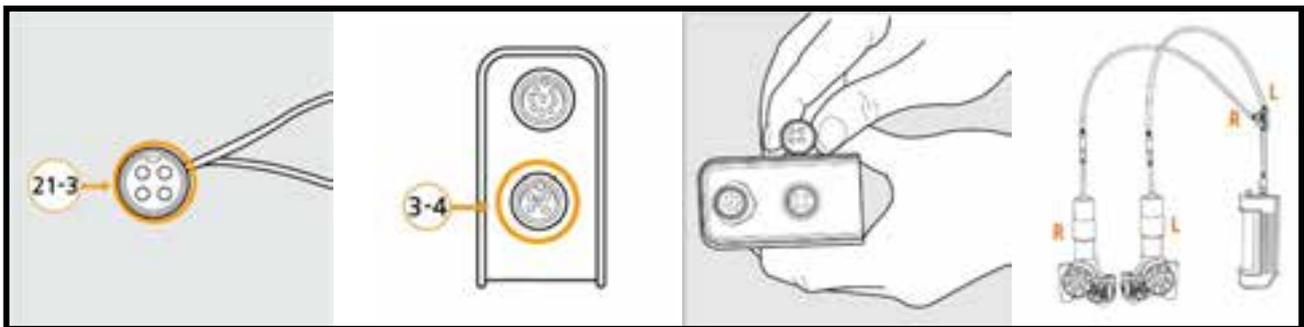
- 4) Screw the clamp bolts while holding the **main body [3]** and the **clamp [9]** by hand.



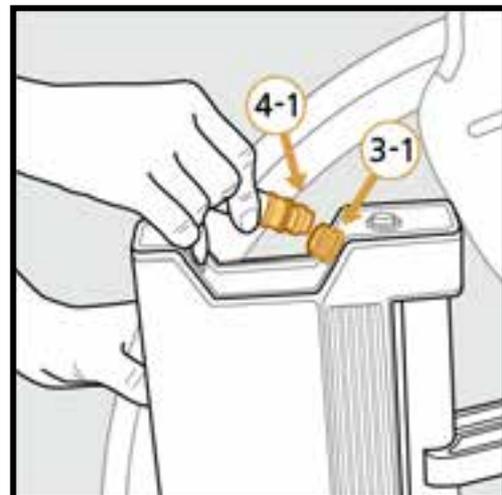
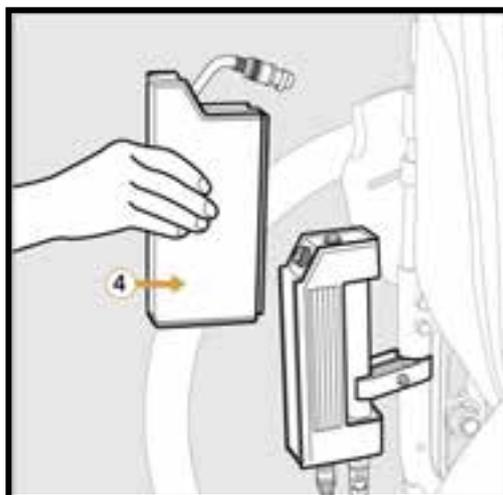
- For a folding wheelchair, install the main body [3] where there is no interference to the folding function.



5) **Connect the J-8P Circular [2-3] to the C-8p Circular [3-3].**



6) **Connect the M-4P Circular [21-3] to the C-4P Circular [3-4].** Then, connect the motor cable L to the L point of the motor and the motor cable R to the R point.



7) **Slide in the battery [4] into the main body [3], and connect the B-2P Input Circular [4-1] to the C-2P Circular [3-1].**

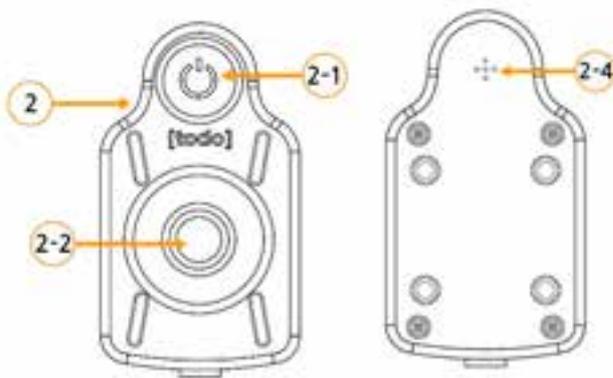
2.4. Tips for How to Organize Cables



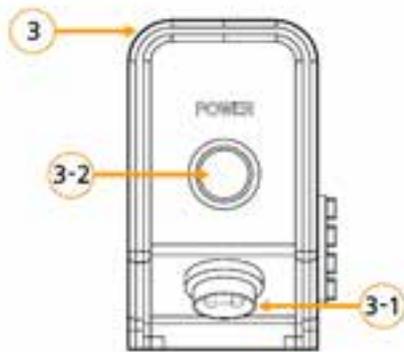
- In case of a wheelchair with armrests, organize the joystick cables to avoid interference when raising the armrests.
- Organize the cables to avoid interference when folding the FJ Support Fixture [17].
- In consideration of the changing position of the joystick, organize cables with a Velcro tie and fasten them securely.
- Secure the cable tie on the frame near the wheelchair wheel after pulling the lever [18].
- Fasten the cables along the lower X bar with a cable tie to avoid inference when folding the X bar.
- Hold the cables together with a cable tie to avoid interference when folding a wheelchair.

3. How to Operate Todo Drive

3.1. Control Unit



- 2 : Controller
- 2-1 : Push Switch
- 2-2 : Joystick
- 2-4 : Buzzer



- 3 : Main body
- 3-1 : 2P Circular
- 3-2 : Push-Rock Switch

The control unit of Todo Drive consists of a controller and a main body sections.

You may enable or disable various functions with the **push switch [2-1]** on the **joystick [2-2]**, a control input unit and the joystick. In addition, if you press the built-in **buzzer [2-4]**, a speaking system starts to work.

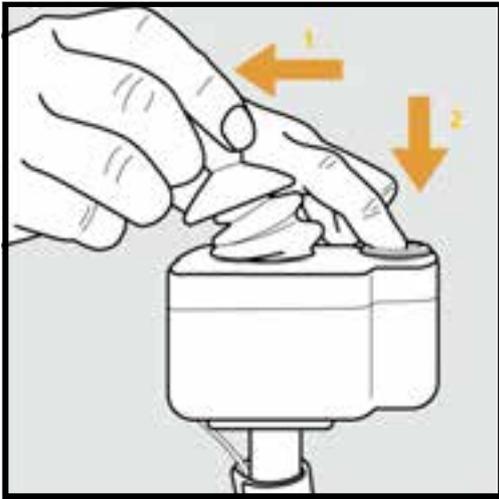
An LED display built in the **push switch [2-1]** displays the outputs of functions.

The **joystick [2-2]** controls the driving direction and speed of the wheelchair. If you move the joystick in neutral to the desired direction, the wheelchair begins to move slowly. The more you move the joystick, the faster it drives. Pushing the joystick all the way down will accelerate to a pre-set full speed (See the Chapter 5.2.1.). If you move the joystick to the opposite direction, the wheelchair will automatically decelerate to half speed for your safety.

3.2. Setting Functions with a Control Input Unit

3.2.1. Changing Speed Levels with Joystick

① Get started with the Speed Setting Mode.

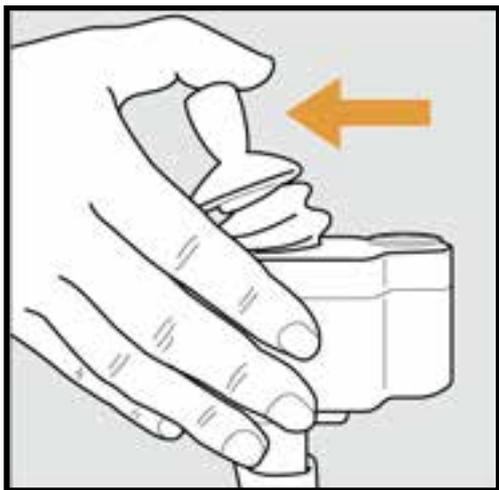


- 1) While pulling the joystick backward, press the power button once.
(with the power of the main body on)



- 2) After the buzzer rings three times, release the joystick.

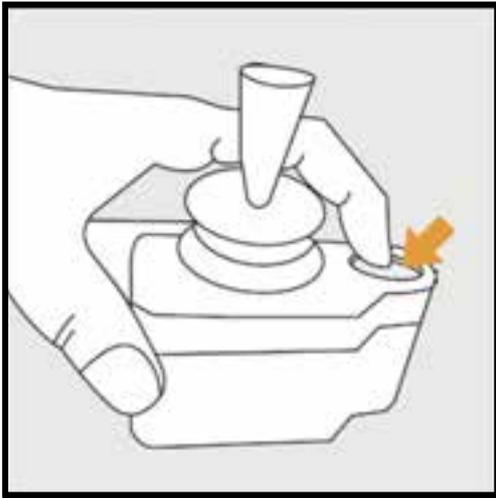
② Select a speed level.



- 1) Each time you pull the joystick backward, the speed increases by one level. The current speed level is indicated by the blinking LED **[2-1]** of **the push switch** and the number of buzzer rings.

Level	Top Speed	Buzzer Rings/LED
1	0.9Km/h	once
2	1.8Km/h	twice
3	3Km/h	three times
4	4.5Km/h	four times
5	6Km/h	five times

③ Set the speed level.



- 1) When you hear the buzzer ringing at a desired speed level, press the power button for 3 seconds and confirm the beeping start-up sound and the lit LED.



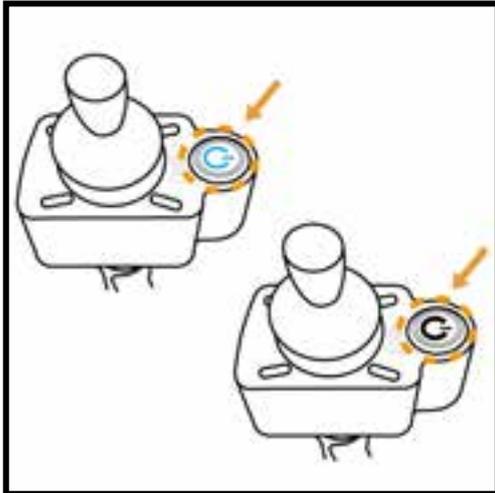
- Change the speed level after stopping at a place without any obstacle and the chances of accidents.



- Even when you turn the switch off and then on after the speed setting, the device remembers the last set speed.

3.2.2. Checking a Battery Level with Joystick

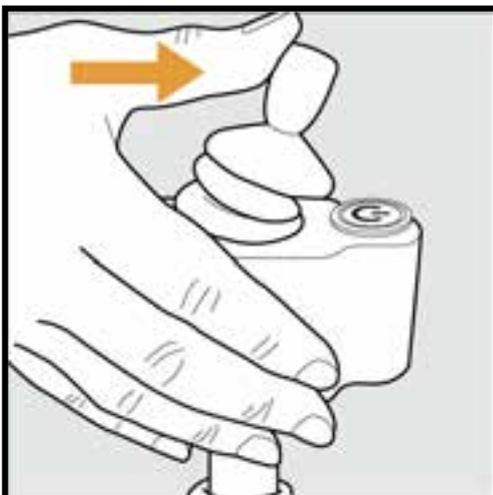
① Get started with the Battery Level Check Mode.



- 1) Press the push switch to turn on the power.
- 2) Press the switch once again to turn off the power.

Battery Level	Buzzer Rings/LED
100~90%	6 times
90~30%	10 times
Less than 30%	30 times

② Check the battery level with buzzer sound and LED.



- 1) Keeping the power off, push the joystick forward for 2 seconds, and the buzzer will ring with the LED blinking.



- Check the battery level with the power off.



- Check the battery level after stopping at a place without any obstacle and the chances of accidents.

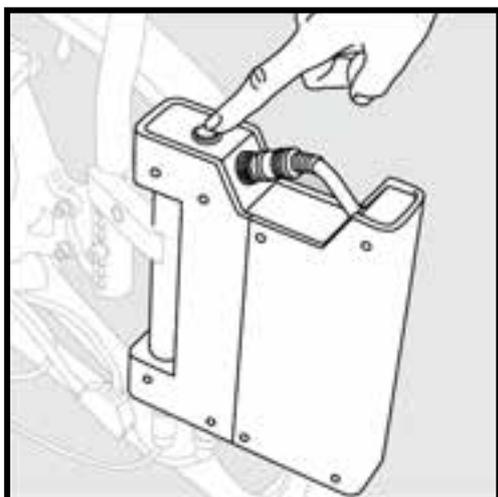
3.3. Operating the Device

3.3.1. Preparation before use

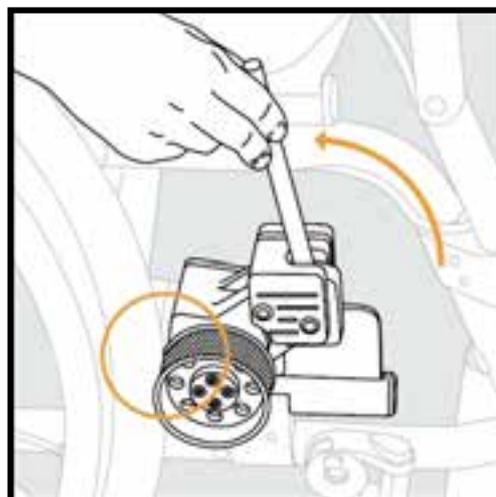
- 1) Read the user manual carefully before use to learn how to operate the product.
- 2) Installation of the device.
 - Adjust the controller according to the user's body type.
 - For information on how to attach Todo Drive to a wheelchair, see the Chapters 2.1 to 2.4.
- 3) Inspection of the device.
 - Make sure that the connections such as the body and the terminal are firmly connected.
 - Check the charge status of the battery pack (See the Chapter 5.2.2.).
 - Check the tire pressure of the wheelchair.

3.3.2. Operation Procedures

① Start the electric operation.



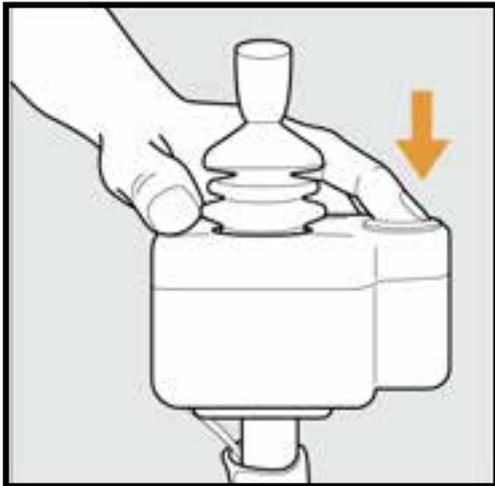
- 1) Switch on the main power.



- 2) Pull the levers next to both wheels to place the motor wheels in close contact with the wheelchair tires.



- Depending on your wheelchair options, you may push the levers for the above step.



3) Press the push switch on the joystick for 3 seconds and confirm the beeping start-up sound and the lit LED.

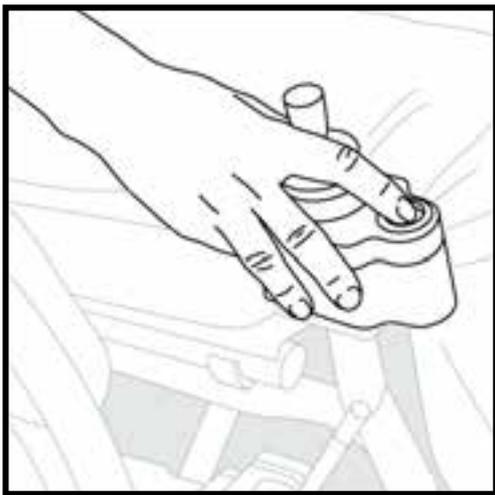


4) Push the joystick forward slowly.

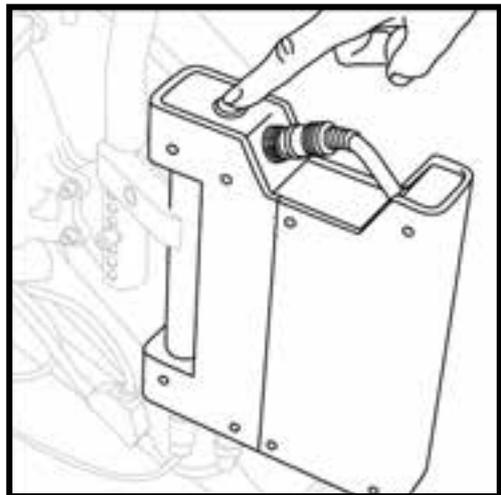


■ Be sure to handle the joystick gently and slowly. If not, it may increase the chances of accidents and tire wear.

② Finish the electric operation.

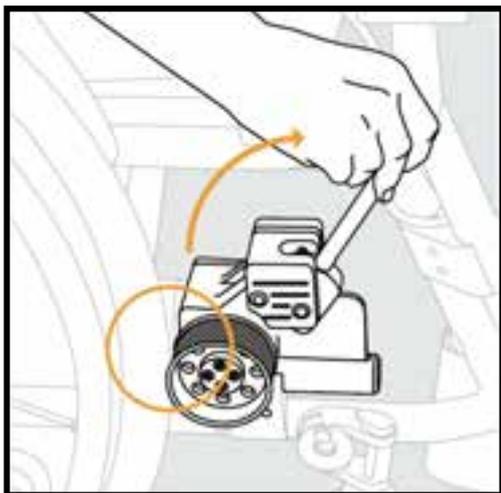


1) Turn off the push switch on the controller.



2) Shut off the power completely by switching off the main power.

③ Convert it to manual operation.



- 1) Release the motor's wheel from the wheelchair tire by pushing the levers next to both wheels.



- Depending on your wheelchair options, you may remove the motor's wheels by pulling the levers.

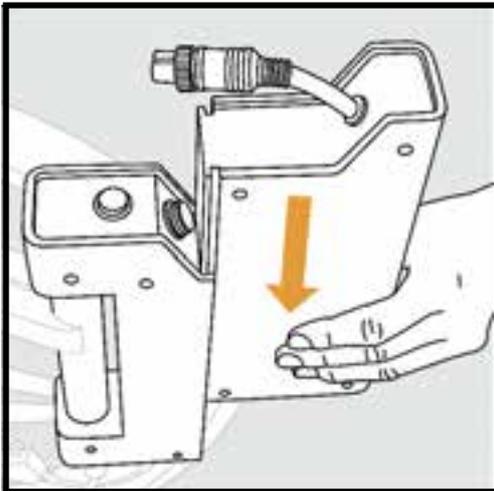


- Todo Drive has a limited level of a temporary braking function when the motor's wheels are in close contact with the wheelchair wheels even with the power off. Please note, however, that it cannot completely replace the brakes on a manual wheelchair.

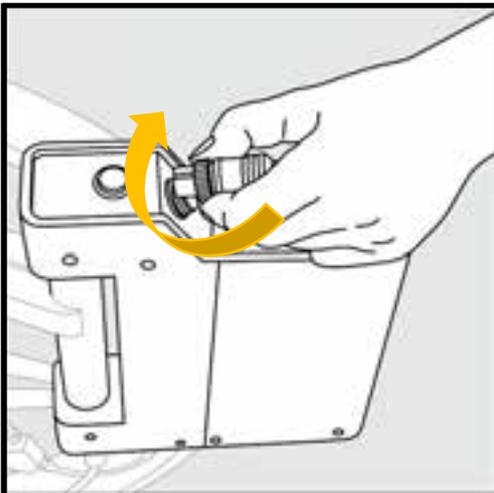
3.4. A Battery Pack

Please follow the general information, safety instructions and precautions as presented in the Chapters 3.4.1 to 3.4.2 before operating Todo Drive and charging the battery pack. Your failure to observe safety precautions and instructions may result in product damage, an electric shock, a fire or a serious injury. In particular, a lithium-ion battery pack contains chemicals that can cause a hazardous reaction in the event of violation of safety instructions. We are not liable for any damage arising from your failure to comply with the safety instructions.

3.4.1. Installing a Battery Pack



- 1) Slide the battery pack into the groove on the main body as shown in the illustration. When properly assembled, the battery pack will not fall out of the body.
- 2) Push the pack all the way down to make two bottom surfaces parallel to each other.

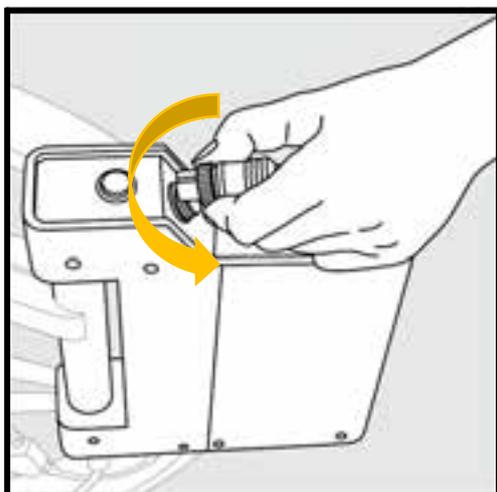


- 1) Connect the plug of the battery pack to the socket of the control unit.
- 2) Turn the metal ring on the plug to the right to secure the cable tightly.



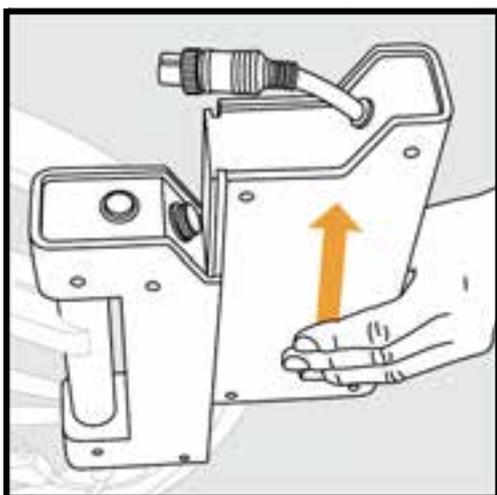
- Turn on the main power to check its connection status after installing the battery pack.

3.4.2. Removing a Battery Pack



Follow the steps below to remove the battery pack.

- 1) Power off the controller. (See the Chapter 3.1.1)
- 2) Power off the main body.
- 3) Unscrew the metal ring on the plug to the left to unplug it.

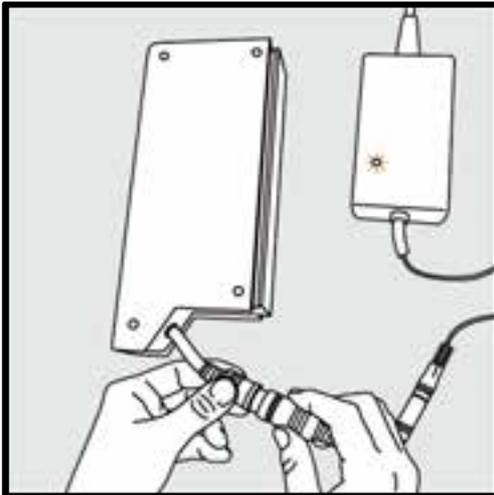


- 1) Pull out the battery pack by turning it counterclockwise.
- 2) Handle the used battery pack in accordance with the safety instructions and regulations on storage and shipping as presented in the Chapters 3.4.4 and 3.4.8.



- Be sure to turn off the power before installing or removing the battery pack. If not, there are chances of accidents.

3.4.3. Charging a Battery Pack



- 1) Connect the plug of the battery pack to the socket of the charger.
- 2) The red light on the LED display comes on.
- 3) When charging is complete, the light on the LED display turns green.



- It may take up to 6-8 hours to charge a battery pack fully though the time depends on the battery level.

3.4.4. General Information on Battery Charging



- Do not charge the battery pack near flammable liquids or gases.
- It is unlikely to occur. However, do not allow the battery to come into contact with water or other liquids when the battery pack is overcharged or in the event of a fire. Sand is the extinguishing media recommended by the battery manufacturer.
- An explosive gas may be generated while charging it. Do not place the battery pack and charger near sources of ignition such as flames and sparks.
- Charging should be carried out at a temperature between 0 °C and 50 °C.

3.4.5. Safety Instructions for a Battery Charger and Charging



- Only use a charger approved by the manufacturer when charging the battery pack. Failure to do so may damage the battery pack.
- Do not use the charger for Todo Drive to charge other battery products.
- Remove the battery pack from the device when not in use for more than 1 day.

- Do not expose the charger to moisture such as water, rain or snow while charging the battery pack.
- Make sure that condensation is not formed on the charger. When you move the charger from a cold place to a warm place, condensation may occur on the outside and inside of the device. In this case, do not operate the charger until condensation disappears. Dry the moisture of the device before use.
- Do not forcibly the power cable when disconnecting the charger from the socket.
- When the plug attached to a power cable, charging cable, or cable is damaged, immediately stop using the charger and replace the damaged parts through Todo works or an authorized professional dealer.
- Do not give a shock to the charger, use a damaged charger, or disassemble the charger in any manner. The damaged charger needs to be replaced or exchanged by Todo works or an authorized professional dealer.
- Do not allow children to use the charger.
- This charger is designed to operate only on 110 to 220 V.
- Make sure that the plug is properly inserted in the socket before charging.
- Do not touch the main plug or the charging cable plug with wet hands.
- If the charger plug or main plug is wet or dirty, wipe it with a dry cloth before use.

3.4.6. Safety Instructions for a Battery Pack



- When using Todo Drive for the first time, charge the battery pack fully in advance.
- Do not charge the battery pack at low temperatures below 0°C or at high temperatures above 50°C.
- Protect the battery pack from heat. For instance, do not expose the battery to strong sunlight for a long period of time or keep the battery in a hot car in the sun.
- Be careful to avoid a short (short-circuit) of a battery. It is not likely to occur, but if the battery pack is on fire, be sure that the battery should not contact water or other liquids. The only extinguishing agent recommended by the cell manufacturer is sand.
- Todo Drive uses power in all modes. Therefore, make sure to charge the battery pack fully after use.
- Based on the safety and CE approval, no modifications are allowed to the battery pack. Do not open the battery pack. Improper open or intentional destruction can result in serious injuries, and in this case, you cannot claim for free repair service of the battery.
- Protect the battery pack socket from contacting metal materials. Do not keep the battery pack around any metal surface or metal objects (for example, screws, paper clips).
- Never put the battery pack in water.
- If the battery pack is damaged or defective, it should be checked. And in this case, do not use Todo Drive. For return and repair procedures, please contact your dealer (See the Chapter 3.9).
- Always keep the battery pack clean and dry.

3.4.7. Battery Storage



- The service life of a battery pack may vary depending on the storage location. Therefore, do not leave the battery pack or Todo Drive in a hot place for a long time. In particular, it must not be stored in the trunk of a vehicle parked in the sunshine except for transportation purposes.
- Do not expose the battery pack to any moisture including water, rain or snow.
- Be sure to charge the battery pack before storing it, and check its charging status every day. In particular, in case the remaining battery percentage is less than 50%, please charge the pack immediately.

3.4.8. Safety Guidelines and Precautions on Battery Transportation and Shipping

Toro Drive operates on a lithium ion battery. Therefore, when you transport or ship the battery pack, you must comply with all applicable laws and regulations. For example, a battery pack not in compliance with the shipping regulations is not allowed for carry-on luggage or checked luggage on a plane. In addition, transportation regulations are subject to change at all times, and thus we recommend that you consult with your travel agent, airline, or shipping company before shipping.



- **Please contact your Todo Drive dealer for the relevant procedures and regulations before shipping a battery pack.**



- **When transporting a battery pack, you must comply with packing standards.**

3.5. How to Use an App

3.5.1. Installing an App

Toro Drive offers a smartphone application that allows you to easily set speed and joystick sensitivity and remotely control the wheelchair. First, download the Todo Drive application on your smartphone.

- 1) Search '**Todo-Care Lite**' on Google Play or App Store.
- 2) Download the Todo Drive application.
- 3) The Todo Drive app is compatible with the Android 4.1.2 and later versions as well as the iPhone IOS 8. 0 and later versions.



■ The contents and graphics of the application are subject to change without notice.

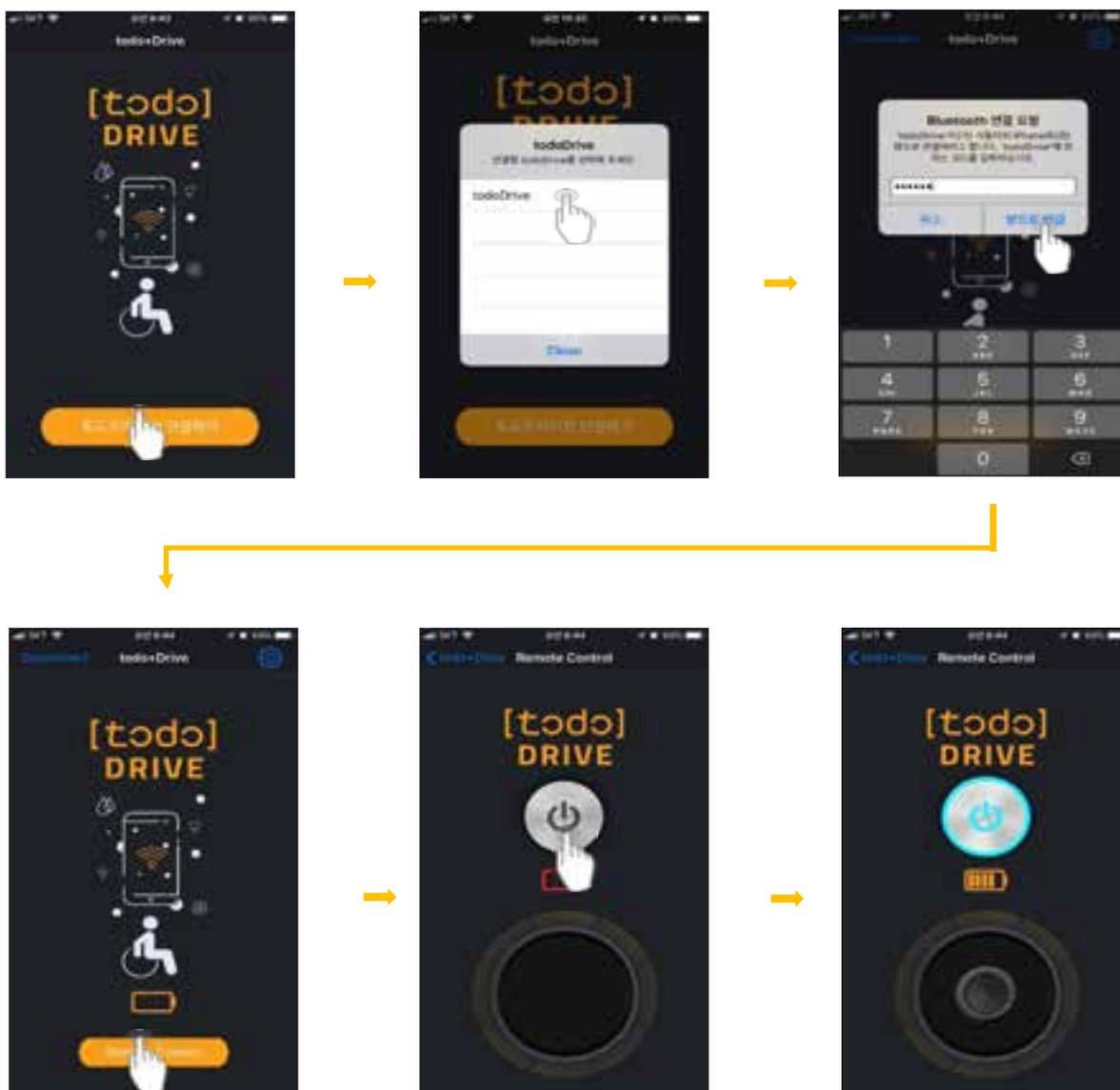


■ Data charges may apply if you download it in data connection settings.

3.5.2. Connecting an App to Your Device

Activate the Bluetooth function of your smartphone in advance to connect the Todo Drive application to your device.

- 1) After running the application, click the 'Connect Todo Drive' message.
- 2) It will automatically search for Bluetooth LE devices.
- 3) Find your device name and select it.
- 4) If the connection is successful, your PIN number will be requested. Enter your PIN number and press the 'Pairing' button (The default PIN number for Todo Drive is '123456'). **Be sure to change your password later.**
- 5) Confirm the screen change as shown in the 4th figure and click 'Remote Control' at the bottom.
- 6) When the battery power status, power switch, joystick display (round circle at the bottom) appears on the screen, you are now ready to remotely control the device.



3.5.3. Browsing an App

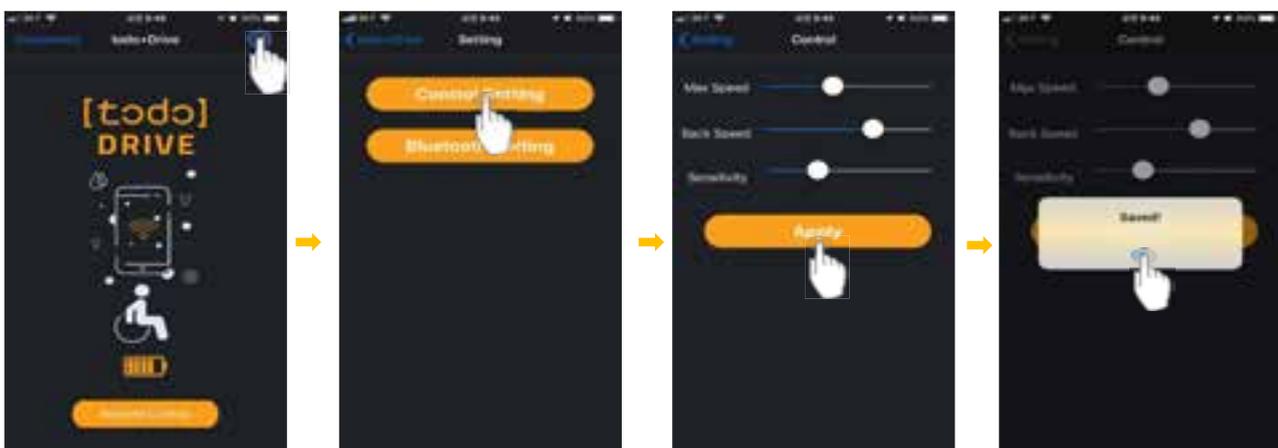
1) Remote-controlling your wheelchair

- ① Turn on the power.
- ② If you touch a small circle inside the joystick (a large circle at the bottom) and drag it in the direction you want to move, you can control the wheelchair remotely.



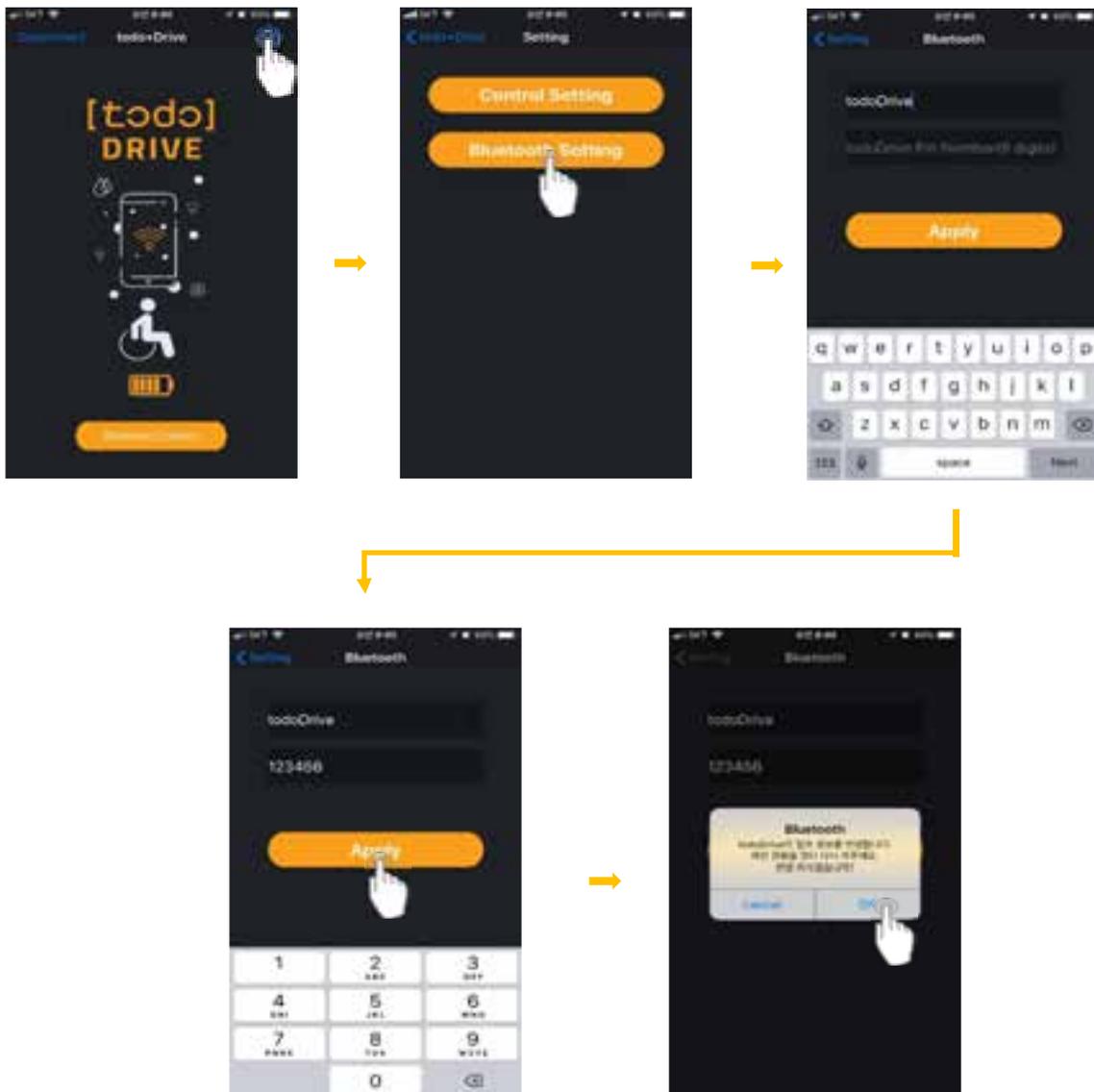
2) Setting speed and joystick sensibility

- ① Click the Settings icon in the top right corner.
- ② Click the Control setting button.
- ③ As shown in the third figure, the 'Max speed', 'Reverse speed', and 'Sensitivity' setting bars are displayed.
- ④ Set the desired conditions, click 'Apply', and then click 'OK'.



3) Setting up Bluetooth

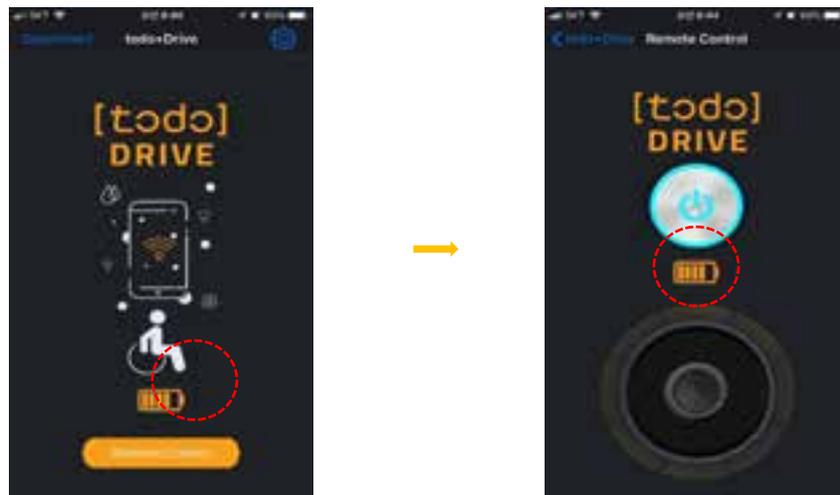
- ① Click the Settings icon in the top right corner.
- ② Click the Bluetooth Setting button.
- ③ After entering the name that you wish to change and the PIN number, click the Apply button.
- ④ Click 'OK' when you have changed the setting successfully.



- After completing the Bluetooth setting, be sure to turn the main power off and back on to apply the setting values to the device successfully.

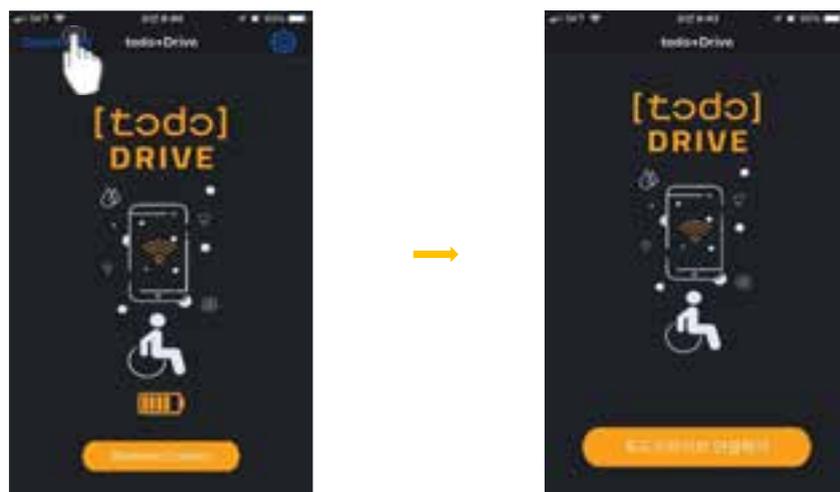
4) Checking a battery status

You can check the remaining battery power on the Todo Drive application as shown below.



5) Disconnecting an app from the device

- ① Click 'Disconnect' in the top left corner.
- ② You will return to the 'Connect Todo Drive' screen.



4. Warning Messages

4.1. OCP (Over Current Protection) Alarm

1) Pattern

- The controller keeps beeping for over 10 seconds.
- Though the joystick is operated at maximum capacity, the forward/backward and left /right controls are applied very slowly.

2) Cause

- In case excessive current flows in the circuit connected to the left or right motor for more than 2 seconds.

3) Solution

- Move to a safe location and turn the system off and back on.
- Reduce the speed and avoid running uphill as much as possible.
- In case it continues to occur, turn off the system power, switch to the manual mode and contact us or your dealer.

4.2. OHP (Over Heat Protection) Alarm

1) Pattern

- The joystick keeps beeping at 1 second intervals.
- The wheelchair cannot move forward, but only turn left right or left.

2) Cause

- In case the circuit temperature inside the computing unit is too high.

3) Measure

- Cool down the actuator.
- Reduce the speed and avoid running uphill as much as possible.
- In case it continues to occur, turn off the system power, switch to the manual mode and contact us or your dealer.

4.3. LVP (Low Voltage Protection) Alarm

1) Pattern

- The joystick keeps beeping and the LED blinks for 5 seconds. After the blinking stops, the same alarm pattern repeats after about 30 seconds.

2) Cause

- In case the remaining battery voltage drops below 30% with the vehicle running or the system on.

3) Measure

- Check the battery pack connection.
- It is required to charge the battery pack immediately if the connection is correct.
- If you have a spare battery pack, install it in a secured place.



- **If the above solutions do not work, contact us or your dealer. In some cases, you may need to send some parts for repair.**

5. Storage, Management and Disposal

5.1. Storage

If your wheelchair and Todo Drive are not in use for a long time, please store them in accordance to the following.



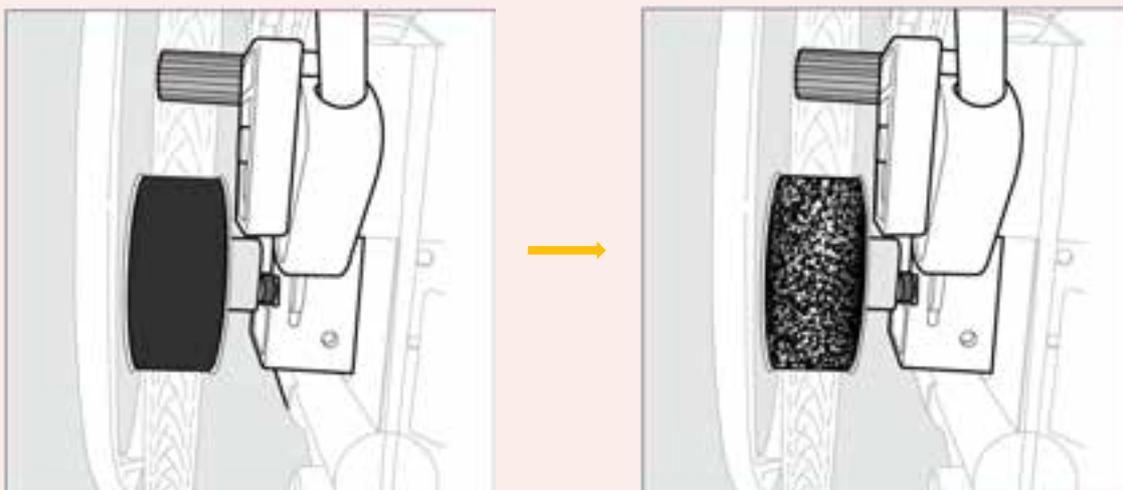
- **The wheelchair must be stored in accordance to the instructions provided by the manufacturer.**
- **Keep your wheelchair and Todo Drive components in a dry place.**
- **Ensure that the wheelchair and Todo Drive are not exposed to the sunlight.**
- **Keep them away from unauthorized persons, especially children.**
- **Store a battery pack in compliance with the instructions specified in the Chapter 3.4.7.**
- **When using Todo Drive after long-term storage, inspect and clean the product. In particular, make sure that there are no foreign matter on the plugs of a charger and a controller, or in the battery pack socket.**
- **If necessary, perform a safety inspection before using the product.**

5.2. Management

Todo Drive users must comply with the following management guidelines.



- Never clean the components of Todo Drive with a high pressure washer, running water, cleaning agents or chemicals.
- The product does not qualify for free repair service in the event of malfunction due to a customer's fault or negligence: when the product is soaked with water or immersed in liquid, etc.
- Check the tire pressure at least once every 2 weeks.
- See the Chapter 3.4 for a batter status.
- The motor section of the Toro Drive is often dusty or dirty. Thus, remove dirt and foreign matter from it with a dry cloth or a brush to keep it clean. Also, be sure to always check the cable connections of the motor unit and the main body.
- Regularly maintain the controller in the same way.
- The main body requires regular maintenance. Also, always make sure that the cables of the controller and the motor are properly connected to the connector at the bottom of the main body.
- Check the wheel strips to prevent their wear.



An anti-slippery tape is put on the motor's wheels. This special tape shows a different abrasion degree according to a user's habit. Thus, it must be visually checked all the time. If the tape surface is worn out and the silver part of the inside is exposed, replace it with a new tape.

5.3. Disposal

5.3.1. Household Waste Disposal

If you wish to dispose of the product as household waste, contact the local residents' center.

5.3.2. Battery Disposal

	<ul style="list-style-type: none">■ The pictograph indicates that this product contains an internal battery which cannot be disposed of as household waste.■ Do not throw away used batteries.■ Battery disposal methods may vary by country and region. Please comply with your local regulations.
	<ul style="list-style-type: none">■ Do not incinerate or dispose of batteries in fire.

6. Warranty and Legal Liabilities

6.1. Policy

The terms of free warranty for manufacturing defects is 1 year from the date of customer purchase in Republic of Korea. (However, the battery is warranted for six months from the date of customer purchase.) The warranty term may be varied depending on each territory. Therefore, contact Todo Works Co., Ltd to ensure it. The manufacture's obligation is limited to repairing or replacing defective components.

The warranty period for repaired parts will not be extended if repaired during the warranty period. The warranty period for a product or part replaced during the period also ends on the same day as the original warranty of the product itself. The warranties described in this section are the only remedies for the buyer related to the product and are only obligated to the seller. . The policy regarding the product out of warranty will be at the discretion of the seller. The terms and conditions of the warranty may be different in some countries. However, the Company alone is entitled to modify the warranty policy.

6.2. Exceptional Cases

Any defective parts will be repaired, replaced, or refunded by the manufacturer's own authority during the warranty period. In this case, **the shipping cost for returning the parts will be borne by the manufacturer.**

Repair or replacement costs will be incurred for the following occasions even during the warranty period. Also, **shipping and handling expenses for return will be borne by the person responsible for the failures.**

- When the product was not used, installed, or maintained in accordance with the manufacturer's instructions.
- When damage or loss due to natural forces beyond the control of the manufacturer occurred.
- When any repair or alteration was carried out without approval from the manufacturer.
- When the product serial number was changed, damaged, or removed.
- When the product failed due to the improper use of a manual wheelchair.
- When the manufacturer's staff judged the product to be faulty due to the improper use of the customer.

7. Technical specification – Todo Drive

Model	TDV-V2.1
Distance on Full Battery (*)	7Km/4.38mi (±5%)
Incline Capability (*)	up to 6°
Speed (*)	0.9~6Km/h
Max Capacity	90Kg/198lbs
Usage Environment (**)	Temperature: -10°C~60°C, Humidity: Less than 85%RH
IPX Rating	IPx0
Normal Motor Power	2 x 138W
Estimated Product Life	3 years
Battery Type	Li-ion Rechargeable Battery
Battery Voltage	14.4V (Cell:3.6 x 4)
Charging Temperature	0°C~50°C
Storage Humidity	20~70%RH
Battery Capacity	10000mAh (Cell:2500x4), Min 9800mAh
Energy Capacity	144Wh
Battery Weight	0.99Kg
Main body Weight	0.42Kg
Motor Weight	2 x 1.4Kg
Total Weight(***)	4.5Kg
Communication Environment	Bluetooth 4.0(rated frequency: 2.4GHz)
Transmission Power	approximately 1mW



Depending on occupant weight, usage patterns, road surface conditions, operating temperature, etc., the above may vary.

Low temperatures may lead to reduced battery life and degraded performance.

The above specifications may differ depending on the options selected at the time of purchase.

8. Labels

The Todo Drive components are labeled in order to display their detailed information.

1) Label on a Computing Unit	2) Label on a Battery Pack	3) Warranty Void Label
		
<p>A model name, a serial number, and simple specification information are displayed.</p>	<p>The nominal voltage, rated capacity, and energy capacity of the battery pack are displayed.</p>	<p>3cm x 1.5cm white/silver residual type Void Label</p>



- Do not alternate or disassemble the product discretionally. The manufacturer is not legally responsible for any accident arising from alternation and disassembly.

9. Contact Information

This manual can be downloaded from the Todo Works website. If you have a problem with the Todo Drive components, please contact your local dealer or the Todo Works headquarters listed below.

Todo Works Co. Ltd.

Address: 42 Engye-Jungang-ro 306-gil, Siheung, Gyeonggi-do, Korea, 14923

Website: www.todo-works.com

Email: todo@todo-works.com

Phone: 080-420-7272