

# SERVICING & MAINTENANCE MANUAL

## LIGHT ASSIST 2.1

Read this manual BEFORE using this product  
and keep it for future reference



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STAMP AND SIGNATURE  
OF DEALER



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# GENERAL REMARKS

## INTENDED USE

The Light Assist 2.1 is an aid to pushing and braking the manual wheelchair that should only be used by the person accompanying the user. This lightweight power add-on transforms a manual wheelchair into an electric wheelchair.

For safety reasons, the Light Assist 2.1 should only be used by people who:

- have been told how to handle it,
- are mentally and physically able to use a control unit to operate the motorised wheelchair and its functions.

The user and their carer must follow general safety and use instructions. As a producer, Benoit Systemes reserves the right to change the product specifications without prior notice.

 **Please avoid using the Light Assist 2.1 before receiving instructions about the equipment from an approved dealer.**

For any question about the use, servicing or safety of your equipment, contact your dealer.

## INDICATIONS

The required conditions must take into account all the factors for which the Light Assist 2.1 device provides a relevant response. An MPR Doctor (Médecine Physique et de Réadaptation, Physical and Rehabilitation Medicine), assisted by an occupational therapist or physiotherapist, will assess the suitability of the adaptable comfort solution for the patient's condition and their capabilities, their environment and their physical and cognitive capacities.

## SERVICE LIFE

Benoit Systemes considers a service life of five years as long as the product is used for its intended purpose and obeying use, safety and maintenance instructions. However, this service life can be exceeded when the product is serviced and maintained carefully and used cautiously, appropriate to its technical specifications.

The service life may also be considerably shortened following extreme or inappropriate use. The service life set by our company does not constitute an additional guarantee.

## SYMBOLS USED IN THIS MANUAL


In this manual, hazard statements are indicated by symbols. These symbols are accompanied by a warning indicating the risk level.

### WARNING










Indicates a dangerous situation that, if not avoided, is likely to cause severe or even fatal injuries.

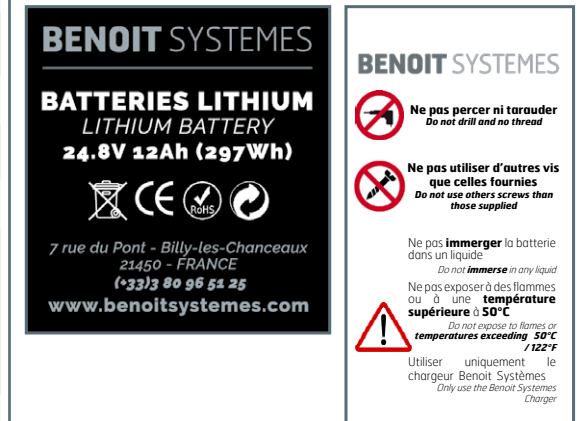
### CAUTION

Indicates a hazardous situation that, if not avoided, is likely to cause in minor or slight injuries.

 Gives advice, recommendations and useful information for efficient, problem-free use.

## MEANING OF SYMBOLS APPEARING ON THE LABELS

	Read the instructions for use carefully - indicates the need for the user to read the user instructions and safety guidance carefully
	Date of manufacture DD/MM/YYYY
<b>SN</b>	Serial number. The motor drive serial number is located under the motor drive, in the place where you slide the battery
	Battery life / Maximum range
	Maximum user weight
	Maximum speed
	Keep dry
	This product has been supplied by a manufacturer aware of environmental issues. This product may contain substances harmful to the environment if it is discarded in a place [of exchange] contravening current legislation. • The 'crossed-out wheelee bin' symbol is applied to this product to encourage recycling when possible. • Preserve the environment by having this product recycled at a recycling centre at the end of its life.
	The company manufacturing the packaging materials has paid a royalty to Eco-Emballage
	In compliance with the European RoHS Directive, for 'Restriction of the use of certain Hazardous Substances', intended to reduce the use of hazardous substances in the manufacture of electronic equipment.
<b>CE</b>	CE marking in compliance with Annex V of European Regulation 2017/745/EEC



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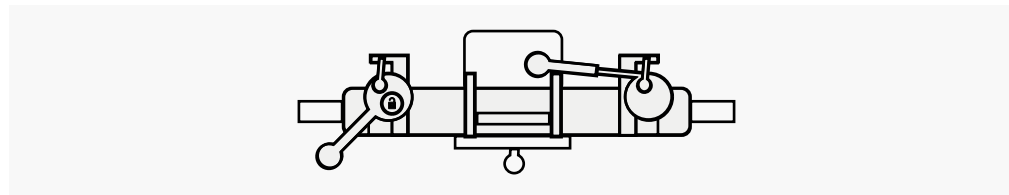
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# SPECIFICATIONS OF THE LIGHT ASSIST 2.1

### ⚠ WARNING

It is prohibited to modify this equipment without the producer's authorisation.

### GENERAL ASSEMBLY VIEW OF THE POWER ADD-ON



### TECHNICAL SPECIFICATIONS

<b>Weight of the power add-on</b>	8,8 kg
<b>Maximum weight of the user*</b>	120 kg
<b>Maximum permitted weight for the equipment</b> (weight of wheelchair + weight of user, excluding weight of the equipment)	150 kg
<b>Maximum speed</b>	10 kph, programmable
<b>Power of motors</b>	2 motors, 130 W with brakes
<b>Maximum safe slope</b>	5° (9%)
<b>Maximum crossable obstacle height</b>	2.5 cm (without run-up) – 7 cm (with run-up)
<b>Range**</b>	up to 15Km
<b>Suitable wheelchairs***</b>	Compatible with most manual wheelchairs

\* If you exceed this limit, you might damage the frame or fastenings of your equipment, which could cause serious injuries for you or someone else.

\*\* Battery life can vary depending on the temperature, the person's weight and the type of ground.

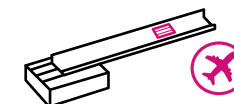
\*\*\* A compatibility guide is available to know the wheelchair models on which the Light Assist 2.1 can be installed, in compliance with the general safety and performance requirements set out in European Regulation 2017/745 on medical devices.

### COMPONENTS

The Light Assist 2.1 consists of several components:

#### THE MOTOR TUBE

Comprises two electric motors fitted with the transmission, mechanisms making the connection between the wheelchair interface and finally the battery slider.



#### ELECTRICITY SUPPLY

Comprising a 12 Ah LITHIUM BATTERY mounted on a support rack that enables installation and automatic connection to the motor subassembly.

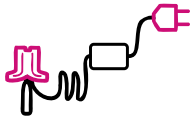
The power add-on is supplied charged. Unless the battery is transported by air, when it is supplied uncharged. In this case, before using your equipment for the first time, you have to charge the battery for 8 hours.

<b>Lithium battery</b>	12Ah 297Wh
<b>Weight</b>	3.85 kg
<b>Range*</b>	up to 15Km
<b>Charging time</b>	5-6h When the battery is empty
<b>Service life</b>	1000 cycles

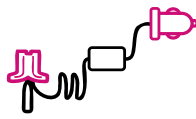
\* Battery life can vary depending on the temperature, the person's weight and the type of ground.

ⓘ Only use original batteries. We decline all liability for damage caused by using other batteries not supplied by us.

A 24 V MASCOT CHARGER is supplied with the battery



As an option: The 24 V MASCOT charger for Special Car Lithium Batteries (with cigarette lighter socket)



## CONTROL HANDLES

All the travel functions of the Light Assist 2.1 are operated by the control handles. Two handles are supplied with the power add-on:

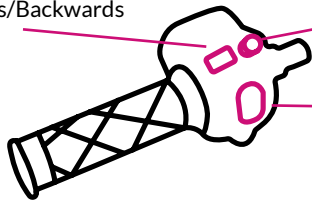
- one throttle handle
- one static handle

The handles (throttle and static) are positioned to right or left on the rear handles of the wheelchair and are locked in place.

### THROTTLE HANDLE



Forwards/Backwards

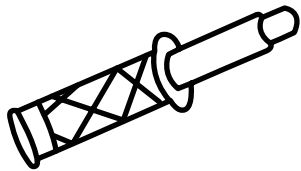


Speed limiter



Start/Stop button

### STATIC HANDLE



It balances the other person's arms. The fixed handle is placed at the rear of the wheelchair and is locked in place

## ANTI-TIP

The wheelchair fitted with a power add-on keeps its initial balance. But the power of the motors, if badly controlled on slopes, can make the wheelchair tip over. The anti-tip fulfils its role effectively while allowing obstacles to be crossed. It must always be fitted (small wheel downwards). This has been adjusted by your installer to guarantee safe driving.

⚠ Benoit Systemes waives all liability if an accident occurs while the anti-tip is not fitted.

# DRIVING PRACTICES

Before making your first journey, you should familiarise yourself with operation of the electric vehicle and all the accessories. Take your time to test all the functions and driving modes.

## PROPERLY SEATED = SAFE DRIVING

Before each journey, check that:

- The user is positioned safely in their wheelchair (wearing a seatbelt, if necessary).
- The battery sufficiently charged for the journey you're planning to make.
- The safety anti-tip is inserted into the rear handle. Check the mounting direction (small wheel downwards) and that the locking pin is securely fitted.

## OPERATE USING THESE CONTROL HANDLES

Press the 'Start/Stop' button to set the Light Assist 2.1 in motion.

Turn the handle to go forwards or backwards depending on the position of the Forwards/Backwards button. If you wish, adjust your speed using the speed limiter button by rotating it slowly until the desired speed is reached.

For a pleasant journey, adjust the speed to suit your own pace. Release the throttle handle to stop the Light Assist 2.1.

## RECOMMENDATIONS FOR USE

### Approaching a pavement:

Don't stop in front of the step and don't try to lift the wheelchair!

Approach the pavement slowly, tip the wheelchair (front wheels on the pavement) and continue moving forward.

### In confined spaces, there are 2 possibilities:

1. Disengage the power add-on and use the wheelchair in manual mode.
2. Use the speed limiter to lock the power add-on at a very slow speed and drive the wheelchair using the throttle handle.



Disengage the power unit in a single movement and so restore conventional use of the wheelchair



# SERVICING AND MAINTENANCE

**FOR OPTIMUM USE OF THE PRODUCT,**  
find our explanatory videos on **The Benoit Systemes YouTube channel**



## ⚠ CAUTION

It is important to follow the servicing and maintenance programme for the equipment to keep it in good condition.

## ⚠ WARNING

If you're not sure you can service your equipment yourself, contact your approved dealer.

## SERVICING THE EQUIPMENT

- Before undertaking any cleaning, ensure the equipment is turned off.
- Clean the rollers and their housing regularly with a screwdriver.
- Once a week, run a vacuum cleaner around the motor, to remove all accumulated dust.
- Clean the entire power add-on with a damp (not wet) cloth.
- Clean the electrical components with clean, dry cloths that are neither wet nor damp.
- Clean the control handles using a cloth moistened with dilute detergent.
- Never use abrasive or alcohol-based detergents.
- Remember to wipe the equipment if it is wet or damp, after having cleaned it or if it has picked up water or moisture while you were using it.

## ⚠ WARNING

Never wash your wheelchair using a hose or pressure washer. Only use common household cleaning and disinfection products.

## ⚠ WARNING

Inflate the tyres to between 6 and 8 bar

It is better to have a tyre inflated without knowing the exact pressure than to have a deflated tyre. Keep your wheelchair fitted with good quality tyres. Contact your dealer if you cannot find the same tyres as those we have fitted (Schwalbe tyres, Marathon Plus or PrimoSentinel).

Never replace the pneumatic tyres with solid tyres.

A video is available on the Benoit Systemes YouTube channel under the name "[Les pneus](#)".

## PERFORMANCE CHECKS

The user should regularly check the condition of the equipment to ensure it is used safely. After having cleaned or repaired the vehicle, you must always check it is working correctly before using it.

Visually inspect the vehicle to check that the footrests, seat, etc. are correctly positioned and firmly attached to the wheelchair and that all fastenings are tightened sufficiently.

## ⚠ CAUTION

If in doubt about the performance of your vehicle, contact your approved dealer.

It is recommended that the items shown in the table are inspected at the stated intervals.

Your approved dealer should repair or replace loose, worn, distorted or damaged parts before using your vehicle.

Servicing and inspection programme	Daily*	Monthly	Quarterly	Annually
Check that all the parts and devices are firmly attached	●			
Inspect the condition of the tyres and wheel fastenings	●			
Check that the cables and connectors are in good condition, are not tangled and are not in the way.	●			
Inspect the condition of the seat you use		●		
Inspect all the bolts, nuts and fastenings to confirm they are not damaged or loose. Contact your dealer.		●		
Check that the battery terminals are tightened			●	
Full inspection, safety check and service performed by a Benoit Systemes approved dealer				●

\* Every day, before each use

The Light Assist 2.1 is equipment requiring very little maintenance. However, your equipment should undergo a technical safety check at least every 2 years, performed by a specialist who will check if it is fully functional and safe. This check will detect any unseen damage caused by using the system, as well as wear and fatigue phenomena. To this end, please make direct contact with your Benoit Systemes approved dealer.

Correct servicing will improve your vehicle's performance and extend its service life, as well as reducing the risk of an accident.

## WASTE MANAGEMENT

- The equipment's packaging goes to recycled materials.
- The metal parts go to old metal recycling.
- The plastic parts go to plastic recycling.
- The electrical parts and printed circuits go to electronic waste.
- Worn out or damaged batteries are taken back by your medical equipment shop or by Benoit Systemes.
- Waste should be managed in accordance with the appropriate national legal requirements in force.
- Ask your local authority for information about suitable local firms.

The tyre treads wear rapidly.	
Possible causes	Solutions
Poor quality tyres	Fit good tyres
Tyres under-inflated	Inflate the tyres to between 5 and 8 bar
Insufficient pressure of the rollers on the tyres	Adjust the pressure
The tyre is worn on the inner wall	
Possible causes	Solutions
The roller cover is touching the tyre	Contact your dealer
The bracket for the wheelchair wheel is loose	Tighten this bracket correctly
The wheelchair goes in a circle	
Possible causes	Solutions
A brake of the wheelchair is on	Release it
A motor is faulty	Contact your dealer
The power add-on is making noise	
Possible causes	Solutions
Part of the wheelchair is touching a wheel	Visually check the condition of the wheelchair
A motor is faulty	Contact your dealer
A bearing is faulty	Contact your dealer
A roller cover is touching the tyre	Contact your dealer
A clutch handle is not staying engaged	
Possible causes	Solutions
Incorrect adjustment of the ball joints	Contact your dealer
Distortion (following an impact or other shock, etc.)	Contact your dealer
The battery rack is not supplying current	
Possible causes	Solutions
Battery discharged	Charge it
Charger faulty	Contact your dealer
A connection is faulty	Check the terminals and connections
Dilapidated battery	Contact your dealer and replace it

This diagnosis is only for guidance but in the event of a problem, contact your Benoit Systemes approved dealer.

## TRANSPORT

### By air

The 12 Ah Lithium battery meets the requirements of the current IATA regulations. If you have to travel by air, ensure you contact the airline. The battery certificate can be viewed on our website on the documentation page.

Recharging batteries in foreign countries:

- Item to consider: the type of plug.
- Ensure you have an adaptor to fit between the wall socket and the plug on your charger. Find out about the type you require.

### ⚠ CAUTION

Before making your journey, contact the carrier. The organiser will provide information about any specific conditions/instructions.

Check that the removable parts of the equipment are securely attached or separately packed and labelled to avoid them being mislaid during loading and unloading.

Take this manual with you.

### By car

The Light Assist 2.1 can remain fitted to the wheelchair during transport, but the battery rack should be removed and stored safely.

The control unit and battery rack should not be connected during transport.

If the Light Assist 2.1 is taken off the wheelchair, ensure that it is secured in the vehicle to avoid any danger for the vehicle's occupants when braking. The different components of the equipment must be stowed safely.

Ensure that all the components are kept during transport or storage at a safe and especially a clean place.

Under no circumstances should metal particles or other small items get into the electrical connections. The electrical connections must be cleaned using compressed air before being assembled, to prevent any contaminants causing a short-circuit.

### ⚠ CAUTION

If accidents and/or damage on the wheelchair or the Light Assist 2.1, arising from failure to follow these instructions, and/or current requirements in your country, or that are attributed to the use of an unauthorised or unsuitable safety system,

Benoit Systemes and its representatives refuses to accept any liability.

## STORAGE

If the motorised vehicle is not used for a prolonged period (more than a week), you should prepare it for storage in order to extend its service life and the battery lifetime.

Follow these instructions:

- We recommend storing the motorised vehicle at a temperature of 15°C and avoid extreme temperatures in order to extend the service life of the vehicle and batteries.
- The components are tested and approved for greater temperature ranges, described below:
  - \* The range of temperatures permitted for storing the motorised vehicle is between -40°C and +50°C.
  - \* The range of temperatures permitted for storing the batteries is between -25°C and +50°C.
- The batteries must always be fully charged before being put into storage.
- For prolonged storage, the battery rack must be connected to the charger supplied every 3 months and fully recharged, to guarantee the operating capacity of the equipment.
- Store them in a dry, well-ventilated environment protected from outside influences.
- The battery used is lithium-ion type that, if handled correctly, does not leak and is maintenance-free.

### ⚠ WARNING

Never store your equipment:

- Outdoors.
- In direct light (the plastic components can discolour).
- Close to a source of direct heat.
- In a damp environment.
- In a cold environment.
- With the batteries/battery units connected (even if the control unit is turned off).

# SAFETY AND HAZARD INSTRUCTIONS

## ⚠ CAUTION

After an extended storage period at low temperature ( $-25^{\circ}\text{C}$ ), it is possible for the motor to turn itself off after being turned on; this situation may persist for about 2 minutes, after which the product functions normally.

By following the instructions above, you will avoid complete discharge cycles of the batteries and will extend the operating life of the batteries when the equipment is returned to service.

## GENERAL SAFETY INSTRUCTIONS

### ⚠ WARNING

Risk of damage to the equipment or serious, even fatal, injury if the control unit is used incorrectly.

- Undertake a test session with a healthcare professional before using a joystick.
- If you are not used to control by using a joystick, travel slowly and first familiarise yourself with the driving and directional characteristics of the wheelchair on a flat, unobstructed route.

### DANGER

Risk of damage to the equipment or serious, even fatal, injury.

- Dropping lighted cigarettes onto a padded seating system can start a fire likely to cause damage to the equipment or serious, even fatal, injuries.
- The occupants of a motorised vehicle are more particularly exposed to a risk of serious or even fatal injury associated with such fires and the resulting smoke, as they are not always able to get away from the electric vehicle – Do not smoke when using this motorised vehicle.

### ⚠ WARNING

Risk of damage to the equipment or serious, even fatal, injury.

- Inappropriate supervision or servicing are likely to result in damage to the equipment or serious, even fatal, injuries, following breathlessness or ingestion of parts or materials.
- It is essential for children, pets or people with physical/learning disabilities to be supervised closely.
- Don't allow children or anyone else to use your equipment.

### ⚠ WARNING

Risk of injury if the equipment is used for a purpose other than that described in this manual

- The motorised vehicle must be used in accordance with the manufacturer's instructions. It must not be used for a purpose other than that for which it is designed. Pay special attention to the safety instructions.

### ⚠ WARNING

Risk of damage or injury if the electric vehicle is started unintentionally.

- Do NOT sit on the electric vehicle during the adjustment phase.
- Disconnect the power supply to the electric vehicle before getting onto it, getting off it or handling objects.
- The brake disengagement mechanism must only be used in an emergency situation and if the power supply is lost.
- Do not push the vehicle by hand when the brakes are applied and when the power supply is disconnected.
- Don't forget to reapply the brakes before putting the vehicle back into use.

### ⚠ WARNING

Risk of falling from the electric vehicle

- Do not move forward on the seat, do not lean forward and do not stretch backwards beyond the top of the seat-back, such as to reach an object.

### ⚠ WARNING

Risk of injury if driving under the influence of drugs or alcohol

- Never drive if you are under the influence of drugs or alcohol. If necessary, ask for help from someone else with appropriate physical and mental abilities.

### ⚠ WARNING

Risk of injury if the contact is broken while the electric vehicle is moving, such as after operating the start/stop button or disconnecting a cable, leading to the vehicle stopping suddenly and violently

- Never operate the stop button nor disconnect a cable while the vehicle is moving, except in an emergency, because it stops suddenly.
- If you have to brake in an emergency, simply let go of the joystick to stop the vehicle.

### **WARNING**

Risk of damage to the equipment or serious injury

- LStoring or using the vehicle close to a naked flame or flammable products can result in damage to the equipment or serious injuries.
- To ensure the equipment is reliable, avoid exposing it to extreme conditions, heat or humidity.
- Never store your electric vehicle outdoors.

### **CAUTION**

Risk of injury if the maximum permitted load is exceeded

- Do not exceed the maximum permitted load (refer to the Technical Specifications section).
- The electric vehicle is only designed to accommodate a single occupant with a maximum weight not exceeding the maximum permitted load for this equipment. Never use the vehicle to transport several people.

### **CAUTION**

Risk of injury in the event of inappropriate handling or fall of heavy parts

- during servicing and maintenance operations or when you are lifting certain parts of the equipment, consider the weight of each component, particularly the batteries. Ensure you always adopt the correct posture and don't hesitate to ask for help.

### **CAUTION**

Risk of injury caused by moving parts

- Ensure that the moving parts of the motorised vehicle, such as the wheels or joystick, do not cause injuries, particularly when children are present.

### **CAUTION**

Risk of fire or fault when connecting electrical equipment

- Do not connect your motorised vehicle to any equipment that has not been explicitly permitted by Benoit Systemes. Rely on your Benoit Systemes approved dealer for all electrical installations.

## **SAFETY INFORMATION ABOUT THE ELECTRICAL SYSTEM**

### **WARNING**

Risk of damage to the equipment or serious, even fatal, injury Inappropriate use of the motorised

vehicle can result in the emission of smoke or sparks, and heat may be given off.

A fire is likely to cause damage to the equipment or serious, even fatal, injuries.

- The motorised vehicle must NOT be used for a purpose other than that for which it is designed.
- If the vehicle begins to emit smoke, sparks or heat, stop using it and have it checked IMMEDIATELY.

### **WARNING**

Risk of injury or damage associated with short-circuits.

The pins of the connectors fitted to the cables connected to the power module can remain live even when the system is stopped.

- Cables fitted with active pins must be connected, retained or covered (using non-conductive materials) so as not to be exposed to human contact nor to materials likely to cause short-circuits.
- When cables fitted with active pins have to be disconnected (e.g. to disconnect the bus cable from the control unit for safety reasons), ensure the pins are retained or covered (using non-conductive materials).

### **WARNING**

Risk of damage to the equipment or serious, even fatal, injury Corrosion of electrical components due to exposure to water or liquids can result in damage to the equipment or serious, even fatal, injuries.

- Reduce the exposure of electrical components to water and/or liquids.
- Electrical components damaged by corrosion MUST be replaced immediately.
- Motorised vehicles frequently exposed to water/liquids can require electrical components to be replaced more frequently.

### **WARNING**

Risk of serious, even fatal, injury Failure to take note of these warnings can cause an electrical discharge resulting in serious or fatal injuries, or damage to the electrical system.

- The POSITIVE (+) RED cable from the battery MUST be connected to the POSITIVE (+) terminals/poles of the battery.
- The NEGATIVE (-) BLACK cable from the battery MUST be connected to the NEGATIVE (-) terminals/poles of the battery.
- Ensure that tools and/or cables are NEVER

in contact with BOTH poles of the battery at the same time. This could cause an electrical discharge and damage to the equipment or serious, even fatal, injuries.

- Immediately replace a cable(s) where the insulating cover is damaged, the cable(s) frayed or the lead(s) cut.
- Do NOT remove the fuse nor the fastenings for the red POSITIVE (+) cable from the battery and the fitting screw.

### **CAUTION**

Risk of damage to the motorised vehicle A fault in the electrical system can cause unusual behaviour.

- In the event of a fault, turn the control unit off and back on again.
- If the problem persists, disconnect or remove the battery unit.
- If in doubt or for any question, don't hesitate to contact your dealer.

## **SAFETY RECOMMENDATIONS ABOUT ELECTROMAGNETIC COMPATIBILITY**

Electromagnetic fields, such as radio and television transmitters, radio devices and mobile telephones produce them, and may have an influence on the operation of the vehicle. The electronic device used in this device can also cause weak electromagnetic disturbances, however these are below the legal limit. Therefore please consider the following comments:

### **WARNING**

Risk of incorrect operation following electromagnetic emissions

- Do not use a portable transmitter nor communication devices (radio devices or mobile telephones) or, as applicable, to not use them while the electric vehicle is in use.
- Avoid going near powerful radio or television transmitters.
- If your vehicle should start moving by itself, or if the brakes happen to be released, turn the equipment off.
- Adding electrical or other accessories or modifying the equipment risks making it subject to electromagnetic emissions/faults. Taken into account the fact that there is no really safe method to determine the effect of such modifications on the resistance to interference.

- Report to the producer all undesirable movements of the vehicle that occur, even the electric brakes being released.

## **SAFETY INFORMATION ABOUT INSTALLATION**

### **WARNING**

Risk of damage to the equipment or serious, even fatal, injury

Prolonged use of an electric vehicle with settings not complying with the specifications risk causing the vehicle to become unstable and causing damage to the equipment or serious, even fatal, injuries.

- Performance adjustments must only be made by people trained and authorised by Benoit Systemes, who fully understand this process and the user's capabilities.
- After adjusting the electric vehicle, ensure that it operates according to the parameters defined during the installation procedure. If the electric vehicle does not operate according to the parameters, turn it off IMMEDIATELY and re-enter the installation parameters. If the electric vehicle continues not operating correctly, contact Benoit Systemes.

### **WARNING**

Risk of damage to the equipment or serious, even fatal, injury. Inadequately tightened or missing fastenings can cause the vehicle to become unstable, resulting in damage to the equipment or serious, even fatal, injuries.

- After ANY adjustment, repair or servicing and before use, ensure that all the fastenings are fitted and suitably tightened.

### **CAUTION**

Risk of damage to the equipment or serious injury

- When adjusting the position of the control unit, always ensure to tighten all the screws correctly
- In the event of a problem adjusting the control unit, immediately turn off the electric vehicle's electronic system at the control unit.

### **CAUTION**

Pinch points can arise when making adjustments Be careful of your fingers.

### **CAUTION**

Check all the cables! Damage caused to the cables of the wheelchair



can cause safety problems and must be reported immediately to an approved service technician.

## SAFETY INFORMATION ABOUT DRIVING

### DANGER

Risk of damage to the equipment or serious, even fatal, injury.

- Before taking your seat in the wheelchair or getting out if it, ensure that the brakes are applied and that the equipment is turned off to prevent any unintentional movement.
- Adapt your speed to the environment in which you are travelling. To control handling of the equipment, it is better to start on flat ground.
- Turn the control handle until the desired speed is reached. When starting off, use the slowest speed and increase the speed slowly to reach your walking pace. The speed should not be faster than the walking speed of the person pushing the wheelchair.
- Always ensure you can be seen from afar, especially if you use your motorised wheelchair at night.
- Pay close attention to traffic on the road.
- Don't forget that car or lorry drivers do not expect to see a manual wheelchair running at a speed greater than that achieved by manual propulsion. If there is the least danger, don't take the risk of crossing the road.
- Remember that the motorised vehicle can stop operating suddenly if you completely discharge the battery:
- we recommend using a lap seat belt when you use the power add-on.
- we recommend using a lap seat belt when you use the power add-on.
- Never approach steps or ditches at maximum speed.
- Turn the Light Assist 2.1 off when you stop or are waiting in front of potential sources of danger and take your hands off the control handle

Any malfunction of the control unit is liable to result in unexpected/erratic movements leading to damage to the equipment or serious, even fatal, injuries.

- If an unexpected/erratic movement occurs, stop using the motorised vehicle immediately and contact a qualified technician.
- It is important that the joystick is replaced if it is damaged or weakened, as this could damage

the control unit.

### WARNING

Risk of injury if the motorised vehicle tips over.

- Refer to the technical specifications (maximum safe slope)
- As far as possible, avoid driving on slippery, icy or oily surfaces when there is a risk of losing control of the vehicle. If you cannot avoid travelling over such surfaces, drive slowly and with the greatest care.
- Keep away from the kerb when travelling on pavements.
- Ensure that there are no objects in your path likely to damage the mechanism of your vehicle.
- Cross the kerbs of pavements going forwards or backwards. When you cross obstacles, always stay within the maximum obstacle height (refer to the Technical Specifications section).
- Never try to go down a series of steps with your motorised vehicle.
- Avoid making sudden movements of the control unit or sudden changes of direction while the motorised vehicle is moving.
- Never use the motorised vehicle to transport several people.
- Do not exceed the maximum total permitted load (refer to the Technical Specifications section).
- Remember that the motorised vehicle brakes or accelerates when you change the speed of travel while the vehicle is moving.
- The anti-tipper device must be used.
- Turn the Light Assist 2.1 off immediately when you no longer need it to avoid unintentionally initiating a driving force by touching the control handle.

### DANGERS AND DANGEROUS SITUATIONS

- When taking corners or turning round while going up or down, only perform these manoeuvres carefully and slowly.
- When you are crossing main roads, crossroads and level crossings, take the greatest care. Never cross parallel to the rails on the road and level crossings as the wheels could get trapped.
- Be very careful when going on ramps and vehicle lifting devices. The Light Assist 2.1 must be turned off during the lifting or lowering process of a ramp or a lifting device. The control handle must not be operated. In addition, the wheelchair's handbrake must be

applied to avoid any unintentional movement.

### WARNING

Risk of injury if you collide with an obstacle while passing through narrow passageways such as doors and entrances.

- Pass through narrow passageways at the slowest speed of travel and with the greatest care.

## SAFETY INFORMATION ABOUT SERVICING AND MAINTENANCE

### DANGER

Risk of damage to the equipment or serious, even fatal, injury.

Incorrect repair and/or maintenance of this motorised vehicle by users/carers or by unqualified technicians are liable to result in damage to the equipment or serious, even fatal, injuries.

- Do NOT undertake ANY maintenance task other than those described in this user manual. These repairs and/or servicing MUST be carried out by a qualified technician. Contact a Benoit Systemes dealer or technician.

### CAUTION

Risk of accident and loss of guarantee if incorrect maintenance performed

- For safety reasons and to avoid accidents related to unnoticed past wear, it is vital that this motorised vehicle should be checked once a year under normal use conditions.

## SAFETY INFORMATION ABOUT MODIFICATIONS MADE TO THE EQUIPMENT

### WARNING

Risk of damage to the equipment or serious injury Using or replacing (maintenance) unsuitable parts is liable to result in injuries or damage to the equipment.

- Spare parts used MUST be Benoit Systemes original parts.
- Ensure you always quote the serial number of the equipment when you order spare parts.

### CAUTION

Using unapproved components or accessories is liable to result in injuries or to damage the motorised vehicle.

Using accessories and parts not approved by Be-

noit Systemes may alter the stability of the electric vehicle to tipping and increase the risk of it tipping over.

- Use only accessories and parts approved by Benoit Systemes for this equipment.
- Electrical and electronic components not approved by Benoit Systemes for this electric vehicle are liable to cause fires and electromagnetic damage.
- Use only electrical and electronic components approved by Benoit Systemes for this equipment.

Batteries not approved by Benoit Systemes for this motorised vehicle are liable to cause chemical burns.

- Use only batteries approved by Benoit Systemes for this equipment.

### Free wheel mode

- The free wheel mode is designed to manoeuvre the electric vehicle over short distances and on flat ground only. The brakes must be disengaged by another person and not by the user. This ensures that the brakes are only disengaged when another person is present to make the electric vehicle safe and to avoid it moving accidentally.

## SAFETY INFORMATION ABOUT USING THE BATTERY AND CHARGER

Only use original batteries. We decline all liability for damage caused by using other batteries not supplied by Benoit Systemes.

### WARNING

Risk of explosion and destruction of batteries if the wrong charger is used.

- Only use the charger supplied by Benoit Systemes.

### WARNING

Risk of injury by electrocution and destruction of the charger if it is wet.

- The charger is designed for indoor use only and must be protected against moisture.
- Always charge in a dry environment. Do not expose the equipment with the battery rack fitted to moisture (water, rain, snow) during charging. Never charge the battery in rooms exposed to moisture.

- To avoid overheating, the charger should be placed in a well-ventilated place where air can circulate and should not be covered.
- If condensation occurs, you should wait for the condensation to evaporate to use the charger.
- Do not use the charger plug and/or mains plug when they are wet or dirty. Clean the plugs with a dry cloth before plugging them in.

#### WARNING

Risk of injury by short-circuit and electrocution if the charger is damaged.

- Do not use the charger if it has suffered an impact or if it is damaged. Contact your Benoit Systemes approved dealer.
- Do not dismantle and do not modify the charger.
- The charger must not be used by young children.
- Place the charger safely in a stable position on a flat surface.
- Protect the mains cable and charging cable to prevent someone treading on or tripping over them.
- When charging is finished, first ensure the charger plug is removed from the socket and then remove the charging plug from the battery rack.

#### WARNING

Risk of damage to the charger

- Never carry the charger by its mains cable or its charging cable
- Never pull on the mains cable to unplug the charger.
- Unplug the charger when charging is completed.

#### WARNING

Risk of electrical discharge and damage to the batteries.

- NEVER recharge the batteries by connecting the cables directly to the battery terminals.

#### WARNING

Risk of fire and injury by electrocution if used incorrectly

- Only use an extension lead if it is absolutely essential. If so, first ensure that it is on perfect condition.
- Never charge the battery rack alongside or near flammable liquids or gases.
- Keep the battery rack away from fire.

#### WARNING

Risk of injury if the wheelchair is used while charging batteries

- Do NOT try to recharge the batteries and use the wheelchair at the same time.
- Do NOT remain seated in the wheelchair while charging the batteries.

#### CAUTION

Risk of damage to the batteries

- Check the battery charge indicator. Put the batteries on charge after each use. The discharge rate of the batteries depends on many factors such as ambient temperature, ground condition, the user's weight and driving style.
- Using the electric vehicle with the red indicator lights flashing places an extreme load on the battery and should be avoided under normal circumstances.
- The more a battery operates under difficult conditions, the shorter its life expectancy.
- Never charge the battery rack at temperatures below 0°C or above 40°C.
- Do not immerse the battery rack in water.
- Store the battery rack in a cool dry place, away from moisture and dust. Avoid storing the battery rack in the boot of cars parked in the sun.

#### CAUTION

- **Under weather conditions at -25°C, the battery indicator light can fluctuate in value but stabilises after 2 to 3 minutes.**
- **Never charge the battery at temperatures below zero: wait for it to get warmer after returning from a winter stroll.**

#### WARNING

Risk of injury when handling batteries.

- Do not puncture or drill into the battery. Only a qualified technician can carry out this work safely.
- Never place the battery rack on your thighs. If they are damp, current can pass and could cause burns.

#### CAUTION

Risk of corrosion and burns from a leak of acid if the batteries are damaged.

- Immediately take off any clothing soiled by the acid.
- In the event of contact with the skin, immediately wash the affected area thoroughly with

water

- In the event of contact with the eyes, immediately rinse the eyes under running water for several minutes and see a doctor.

**Scrapping worn out or damaged batteries: First contact your approved retailer or Benoit Systemes directly, as sending lithium batteries by post is strictly regulated.**

#### CE marking

- Conformity was assessed and CE marking applied in compliance with European Regulation 2017/745/EEC and only applies to the complete product.
- CE marking is invalidated if components or accessories are replaced or added without having been approved by Benoit Systemes for this product.

#### IMPORTANT INFORMATION ABOUT THE MAINTENANCE TOOLS

- Certain maintenance tasks described in the servicing logbook that can be performed by the user without problems require the use of appropriate tools. If you don't have these tools, we advise you not to perform these maintenance tasks. If necessary, we recommend contacting an approved specialist repair company immediately.

#### IMPORTANT LEGAL NOTICE FOR THE USER OF THIS PRODUCT

- Incidents due to device malfunctions and resulting in serious physical injuries must be reported to the producer and to the competent authority of the Member State where the user is located.

#### IN FRANCE

- Producer: Benoit Systèmes, 7 rue du Pont 21450 BILLY LES CHANCEAUX
- Competent authority : ANSM, 143 Boulevard Anatole France 93 200 SAINT DENIS

#### IN THE MEMBER STATES OF THE EUROPEAN UNION, PLEASE INFORM :

- Your distributor
- National authorities responsible for incidents with medical devices

You will find an overview of the responsible authorities by following the link: <http://ec.europa.eu/growth/sectors/medical-devices/contacts/>

# GUARANTEE

The guarantee period for the power add-on, battery and charger is **24 months from the invoice date**. To claim against the guarantee, just make a note of the serial number of your equipment shown on the first page of this manual and **contact your approved dealer or Benoit Systemes**.  
**You can also find the serial number right under the power add-on, in the place where you slide the battery.**

## TERMS & CONDITIONS

The guarantee is only valid if the product is used under the specified conditions and for the use for which it is designed.

The guarantee may not be applied if the product requires repair or replacement for one of the following reasons:

- a) The power add-on, or one of its parts, has not been maintained according to the manufacturer's recommendations, as stated in the User Manual, or parts other than those specified for this equipment are used.
- b) The power add-on, or one of its parts, was damaged as a result of negligence, an accident or inappropriate use.
- c) The power add-on, or one of its parts, has been converted or a repair made before having notified the after-sales service department.

This guarantee is limited to the free-of-charge repair or replacement of parts recognised as faulty in the manufacturer's workshops or those of its representative (including labour and carriage). This repair may be performed using new parts of standard exchange parts, depending on the assessment made by the manufacturer or its representative.

Work carried out under the guarantee does not extend the guarantee.

## LIMITS OF LIABILITY

BENOIT SYSTEMES DECLINES ALL LIABILITY FOR DAMAGED RELATED TO:

- Failure to comply with the user manual
- Incorrect or improper use of the equipment
- Normal wear and tear
- Inappropriate storage of the equipment
- Incorrect assembly or dismantling by the purchaser or other parties
- Technical modifications on and in the equipment
- Unauthorised modifications and/or use of spare parts not manufactured or recommended by Benoit Systemes.

## CHECKS PERFORMED

The purpose of this section is to help you maintain a log of servicing and repairs performed on your equipment.

In particular, this information can be used by your after-sales service agent; this manual should therefore be handed to the agent with the equipment at each service or repair.

The technician who performs the work will complete this section and return the manual to you. Our equipment undergoes the most rigorous testing to guarantee that it meets our requirements for comfort, safety and durability.

MODEL	LIGHT ASSIST 2.1				
SERIAL NUMBER	1	2	3	4	5
Year					
Date					
Wheelchair ATTACHMENT					
Joystick controller bracket					
General installation check on the wheelchair					
Tyres					
Tyre condition					
Pressure check (between 6 and 8 bar)					
Control unit (joystick/dual attendant control)					
Check correct operation of each button					
Check of cable					
Battery					
Overall condition					
Condition of the connectors					
Running test					
Forwards					
Backwards					
Turn left					
Turn right					
Climb/descend					
Crossing an obstacle					
<b>Comment: use only Benoit Systemes spare parts for servicing and repairs</b>					

NOTES

Lined area for notes on page 22.

NOTES

Lined area for notes on page 23.

# SERVICING & MAINTENANCE MANUAL

VERSION 1 - 01/01/2021

## BENOIT SYSTEMES

<b>PRE-DELIVERY CHECK</b>	<b>1<sup>ST</sup> ANNUAL INSPECTION</b>
<i>Approved supplier's stamp / Date / Signature</i>	<i>Approved supplier's stamp / Date / Signature</i>
<b>2<sup>ND</sup> ANNUAL INSPECTION</b>	<b>3<sup>RD</sup> ANNUAL INSPECTION</b>
<i>Approved supplier's stamp / Date / Signature</i>	<i>Approved supplier's stamp / Date / Signature</i>
<b>4<sup>TH</sup> ANNUAL INSPECTION</b>	<b>5<sup>TH</sup> ANNUAL INSPECTION</b>
<i>Approved supplier's stamp / Date / Signature</i>	<i>Approved supplier's stamp / Date / Signature</i>



LIGHT ASSIST 2.1 is compliant with EU Regulation 2017/745 on medical devices.  
This product is a Class I medical device.



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[WWW.BENOITSYSTEMES.COM](http://WWW.BENOITSYSTEMES.COM)