SERVICING & MAINTENANCE MANUAL

LIGHT DRIVE 2.1 - LIGHT DRIVE MINI 2.1 - LIGHT DRIVE PLUS 2.1

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

BENOIT SYSTEMES

Autonomy is power

Light Drive 2.1 - Light Drive Mini 2.1 - Light Drive Plus 2.1

Edition - July 2020

STAMP AND SIGNATURE
OF DEALER

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GENERAL REMARKS

INTENDED USE

Combining precision, ease-of-use and safety, Light Drive 2.1 is a lightweight power add-on that transforms a manual wheelchair into an electric wheelchair, making it easier to move about in everyday life. It is designed for anyone whose ability to walk has been impaired, but who, having good eyesight and being physically and mentally sound, is able to drive a motorised vehicle. Designed to meet the practical needs of users seeking independence and mobility, it will be the ideal and reliable companion to take you everywhere, both indoors and outdoors, even on difficult ground. Nonetheless, it is not intended to convert the wheelchair into an all-terrain or sports wheelchair.

Users must follow general safety and use instructions. Benoit Systemes reserves the right to change the product specifications without prior notice.

Please avoid using the Light Drive 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

Light Drive 2.1 is compatible with most manual wheelchairs and suits people unable to walk or with restricted mobility, as a result of:

- Paralysis,
- Loss of a limb (amputation of the leg),
- A limb problem or deformity,
- Spasms / injuries to the joints,
- Strokes and brain injuries,
- Neurological disorders (multiple sclerosis, Parkinson's, etc.),
- Illness, such as heart and circulatory disease, balance disorder or cachexia, as well as elderly people with enough strength in the upper body,
- People mentally and physically capable of using a control unit to handle the motorised wheelchair and its features safely.

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.

REGULATIONS

This equipment has successfully undergone all the safety tests in accordance with European standards.

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.

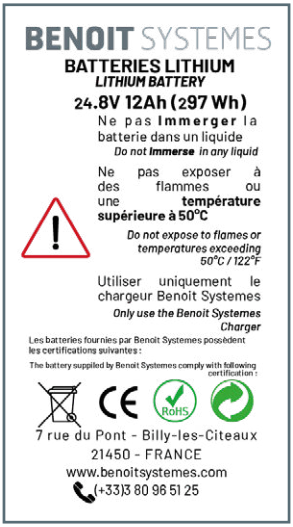
WARNING
Indicates a dangerous situation that, if not avoided, is likely to cause severe or even fatal injuries.

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
SN	**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
MAX	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 wheelie 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
RoHS	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
CE	CE marking in compliance with Annex XII of European Directive 93/42/EEC



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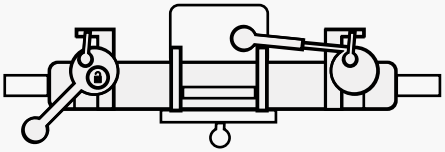
SPECIFICATIONS OF THE LIGHT DRIVE 2.1

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

GENERAL ASSEMBLY VIEW OF THE POWER UNIT



TECHNICAL SPECIFICATIONS

Weight of the power unit	8.8 kg
Minimum dimensions of the LIGHT DRIVE 2.1	510 x 300 x 275 mm (the height varies depending on the clutch handle)
Maximum weight of the user*	120 kg
Maximum permitted weight for the equipment (weight of wheelchair + weight of user, excluding weight of the equipment)	150 kg
Maximum speed	10 kph
Maximum safe slope	6° (11%)
Maximum crossable obstacle height	6 cm (with and without run-up)
Suitable wheelchairs	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.*

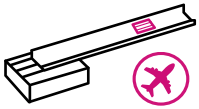
COMPONENTS

The LIGHT DRIVE 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 holder.

ELECTRICITY SUPPLY



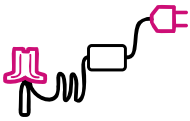
Comprising a 12 Ah LITHIUM BATTERY mounted on a support rack that enables installation and automatic connection to the motor tube.
The power add-on is supplied charged.

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

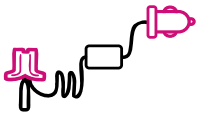
Lithium battery	12 Ah, 297 Wh
Weight	3.85 kg
Range*	15 to 18 km
Charging time	5-6h When the battery is empty
Service life	1000 cycles

ⓘ 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 24V Mascot Car Charger for Lithium batteries (with cigarette lighter socket)



CONTROL UNIT

SMALL JOYSTICK

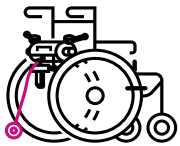
- Charge level indicator
- Start/stop button
- Audible warning
- Power level indicator 5 levels
- Increase power
- Reduce power
- Joystick

STORAGE BRACKET

A controller bracket is fitted to the side of the power unit, used to store the joystick when you take the Light Drive 2.1 off the wheelchair.

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.



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

MUDGUARDS (as an option)

The mudguards are fitted on the roller covers and become an essential accessory for outdoor trips in bad weather.

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:

- You are seated so as to have access to all the controls.
- The battery is 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.

How to move about?

Start moving by pressing the 'Start/Stop' button on the control unit once. This turns the power on. Pressing this button again turns off and deactivates the control unit. Any problem is signalled by flashing indicator lights on the control unit, preventing movement of the wheelchair.

The direction and speed are controlled by the joystick. Although the control system is relatively easy to use, a little practice will be needed to control the wheelchair properly at different speeds.

To move, just push the joystick in the direction you want to go. The joystick's distance from its neutral position determines the speed and radius of curvature of movement.

When the joystick is released it returns to the neutral position (central) automatically, the wheelchair's movement stops and the brakes are applied.

The speed the wheelchair can reach is set by the speed regulator. The user can select one of 5 possible speeds.
The speed is adjusted using the or buttons: 5 LEDs tell you the speed selected. When the 5 orange LEDs are lit, the available power is at maximum (10 kph).

How to tackle a short or long climb?

A short climb is often steeper than it seems. This is why short or long slopes must be tackled with enough speed. If you stop while climbing, you must restart gently to avoid tipping backwards. If necessary, lean forward to provide a counterweight and prevent the wheels slipping.

How to tackle ground sloping sideways?

When the ground slopes sideways, the wheelchair is drawn naturally towards the lower side. For this reason, you should correct the direction using the joystick, particularly anticipating it as much as possible on steep climbs.
In some difficult routes, another person's help may be useful.

How to brake?

To prevent any uncontrolled movement of the electric vehicle, the motors are fitted with automatic brakes that are applied under the following conditions:

- The start/stop switch is in the 'stop' position.
- The start/stop switch is in the 'start' position and the joystick is in the neutral position.

The brake is released automatically as soon as the vehicle starts moving, as the joystick is out of the neutral position. The safest and simplest way to stop your equipment is to release the joystick. This will bring the wheelchair to a controlled stop. In the event of a power supply fault, the brakes are operated automatically.

When you need to push the electric vehicle by hand, if it breaks down or in an emergency, the motors must be disengaged.

THE +

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

1. *Disengage the left handle and bring it slightly forward.*
2. *Disengage and bring the right handle against the seat back.*

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 unit with a damp (not wet) cloth.
- Clean the electrical components with clean, dry cloths that are neither wet nor damp.
- Clean the control unit 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.

- Turn on the controller – Do the indicator lights flash? If they do, this means there is a problem in the electronic system.
- Test the braking system on a flat surface with clear space of at least 1 m around the wheelchair: connect the control unit, check that the battery indicator remains lit or flashes slowly; after a second, push the joystick gently forward until you hear the parking brakes activate (it is possible that the vehicle will move forward), then immediately release the joystick.

- Repeat the test a further three times, pushing the joystick gently back, left and right.
- Activate all the electrical options, including the audible warning, to confirm they are working correctly.
- Use the vehicle in all driving modes to confirm that it operates as before.

⚠ 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
If necessary, check the battery charge indicator and the charger	●			
Check that the joystick on the control unit is neither distorted nor damaged	●			
Check that all the parts and devices are firmly attached	●			
Test the motor brake	●			
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*

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.

TROUBLESHOOTING

The joystick dashboard is not lit or flashes	
Possible causes	**Solutions**
Battery incorrectly locked in place	Remove the battery slightly and re-engage it
Joystick wire poorly connected	Check the connection
Problem with the red connectors	Check the connectors are in good condition and the contacts are in the correct position
Battery fault	Contact the dealer
Fault in a component of the power add-on	Count the number of LEDs flashing and contact your dealer
Power add-on was turned on when the joystick was not in the neutral position	Switch off and turn on again
The dashboard lights up normally but the power add-on doesn't work	
Possible causes	**Solutions**
The power add-on is in the disengaged position	Engage the two handles
The power setting is too low	Increase the power
Rapid wear of the tyre treads	
Possible causes	**Solutions**
Poor quality tyres	Fit good tyres
Tyres under-inflated	Inflate the tyres to between 6 and 8 bar
Insufficient pressure of the rollers on the tyres	Adjust the pressure
Tyre 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

JOYSTICK FAULT CODE INDICATOR

SMALL JOYSTICK FAULT CODE

to diagnose the fault,
look HERE

2 times	Left motor faulty
3 times	Problem in left motor wiring
4 times	Right motor faulty
5 times	Problem in right motor wiring
7 times	Possible joystick problem
8 times	Possible problem in control system
9 times	Possible brake problem

This diagnosis is only for guidance but once the fault code is seen, please contact your Benoit Systemes approved dealer.

TRANSPORT AND STORAGE

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

For safety reasons, the power add-on will be put in the boot of the car. Benoit Systemes supplies a car charger as an option.

⚠ CAUTION

In case of accidents and/or damage on the wheelchair 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.

Nonetheless, to guarantee long battery life, we recommend storing them at a temperature of 15°C

- The batteries must always be fully charged before being put into storage.
- For prolonged storage, the battery rack must be connected to the supplied charger every 3 months and must be 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).

⚠ CAUTION

After an extended storage period at low temperature (–25°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.

SAFETY AND HAZARD INSTRUCTIONS

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 from 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 reengage 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

- Storing 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, 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. Take 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 manufacturer 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 healthcare professionals or people 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.

- 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.
- 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.
- Never approach steps or ditches at maximum speed.

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.
- Ensure that there are no objects in your path likely to damage the mechanism of your vehicle.
- Do not cross an obstacle while moving forward.
- Avoid passing over thresholds more than 10 cm high while moving forward so as not to threaten your stability, and remember to arrange for a slope, if necessary.
- 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-tip must be used.

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 Benoit 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.
- Disconnect the charger once the battery is fully charged.

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 power add-on 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 when the battery charge indicator shows a low charge level. The discharge rate of the batteries depends on many factors such as ambient temperature, ground condition, the user's weight and driving style.
- Always try to charge the batteries before the red section of the indicator lights is reached.
- Using the electric vehicle with the red indicator lights flashing places an extreme load on the battery and should be avoided under normal circumstances.
- To avoid damaging the batteries, ensure they are never completely discharged.
- Never charge the battery rack at temperatures below 0°C or above 40°C.
- Do not immerse the battery rack in water.
- The more a battery operates under difficult conditions, the shorter its life expectancy.
- 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.

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 Directive 93/42/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.

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.**

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 or 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 DRIVE 2.1				
SERIAL NUMBER	**1**	**2**	**3**	**4**	**5**
Year					
Date					
Wheelchair ATTACHMENT					
Joystick controller bracket					
General installation check on the wheel-chair					
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					
Comment: use only Benoit Systemes spare parts for servicing and repairs					

NOTES

NOTES

SERVICING & MAINTENANCE MANUAL

VERSION 1 - 01/01/2021

BENOIT SYSTEMES

PRE-DELIVERY CHECK	1ST ANNUAL INSPECTION
Approved supplier's stamp / Date / Signature	*Approved supplier's stamp / Date / Signature*

2ND ANNUAL INSPECTION	3RD ANNUAL INSPECTION
Approved supplier's stamp / Date / Signature	*Approved supplier's stamp / Date / Signature*

4TH ANNUAL INSPECTION	5TH ANNUAL INSPECTION
Approved supplier's stamp / Date / Signature	*Approved supplier's stamp / Date / Signature*

CE

The Light Drive 2.1 complies with European Directive 93/42/EEC on medical devices

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