

**EV4**

**OWNERS**

**MANUAL**

**EV4 Mountain Board**

AERO-SERVICE Jacek Skopiński

Dereniowa 4/69

02-776 Warsaw

POLAND

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**Warning!** Please read this manual before first use and observe safety regulations first. To ensure proper operation of the vehicle for a long time, follow the maintenance instructions carefully.

If you are left with any questions after reading this manual, AERO-SERVICE will gladly answer them.

## 1. PRELIMINARY INFORMATION

### 1.1. Content and addressees of this manual



This technical publication is a manual for EV4 MOUNTAIN BOARD manufactured by AERO-SERVICE.

The manual refers to „main application of the device”, together with all the technical information about exploitation, assembly and maintenance of the device. This manual is addressed to all users of the EV4 MOUNTAIN BOARD.

In case of loss or a case where it will no longer be usable it is recommended to order a copy of the manual from the producer.



**The manufacturer reserves the right to these materials and intellectual property rights and prohibits, even in part, copying and/or disclosure of the content of the documentation without the manufacturer's permission.**

### 1.2. Symbols

To ensure safety of the users, and to avoid any interference in operation, safety instructions must be followed. These symbols will help you achieve that:

SYMBOL	MEANING	DESCRIPTION
	Danger	This symbol indicates situations of grave danger, neglect of which can seriously jeopardize the risk of loss of health and safety of persons.
	Danger	This symbol indicates serious electrical hazards which may negatively impact health or even cause death.
	Warning	This symbol indicates the need for warning or attention to key functions or important information.

### 1.3. Cooperation with the user of EV4

The manual reflects the equipment and the technical condition of the vehicle at the time of commissioning. Any change in this manual will result in the shipment of a copy of the manufacturer's new instruction to each customer and such documentation should be stored with this manual.

## 1.4. Compliance with safety requirements

AERO-SERVICE declares with all responsibility, that the product is compliant with following standards:

- PN-EN ISO - 12100:2012 Safety of vehicles -- General design principles -- Risk assessment and risk reduction.

**EV4 MOUNTAIN BOARD** meets the requirements of the following European Directives:

- The Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 concerning vehiclery and certain parts of vehiclery.
- Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

The devices have been CE marked and have been issued a declaration of conformity for them - due to the requirements set out in the above directives.

Nameplate attached to the device:



## 2. Vehicle description

### 2.1. Manufacturer contact details:

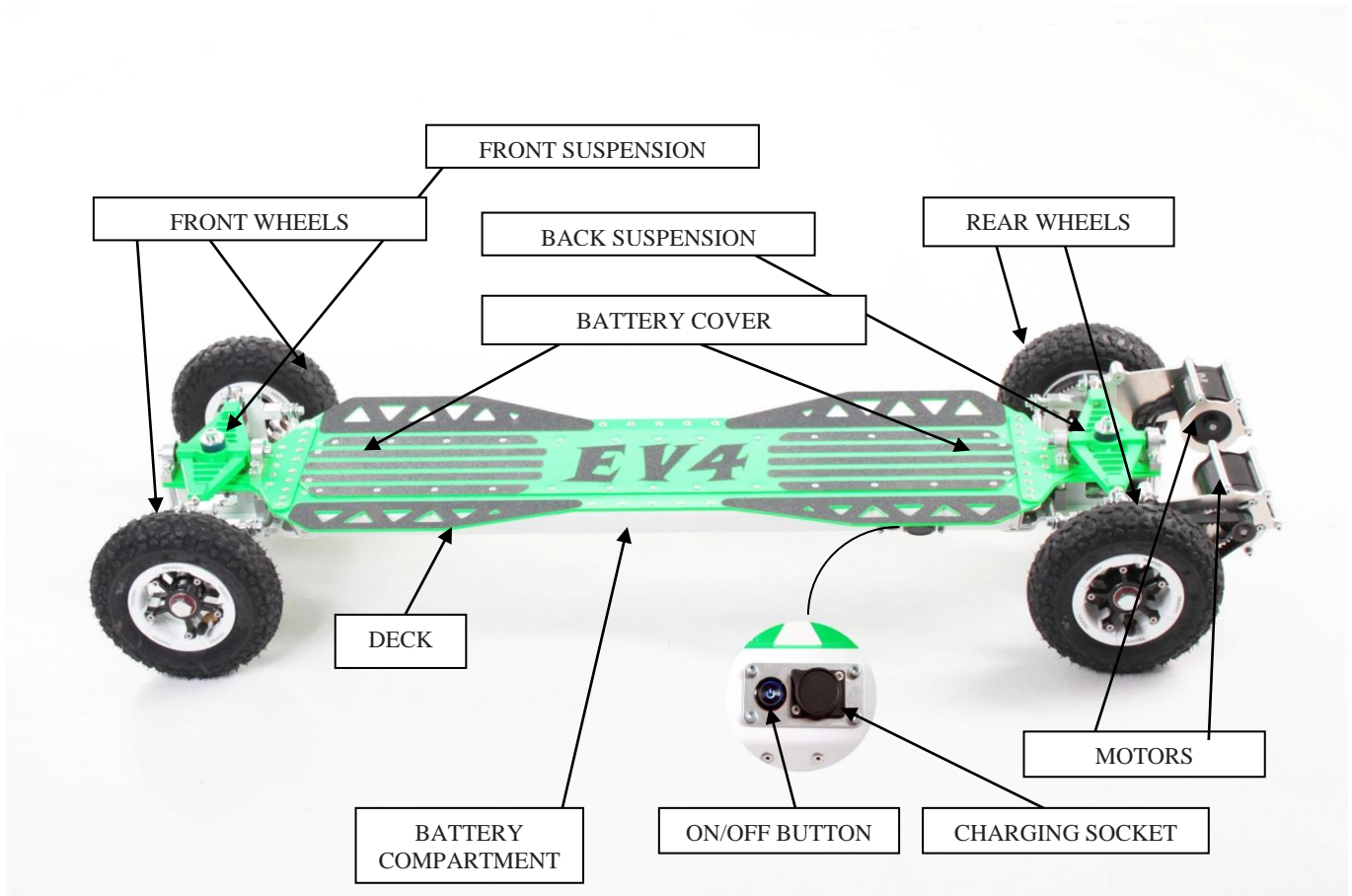
AERO-SERVICE Jacek Skopiński  
Dereniowa 4/69  
02-776 Warsaw, Poland  
Tel. +48 603 397 810  
e-mail. ev4@ev4.pl

### 2.2. General description

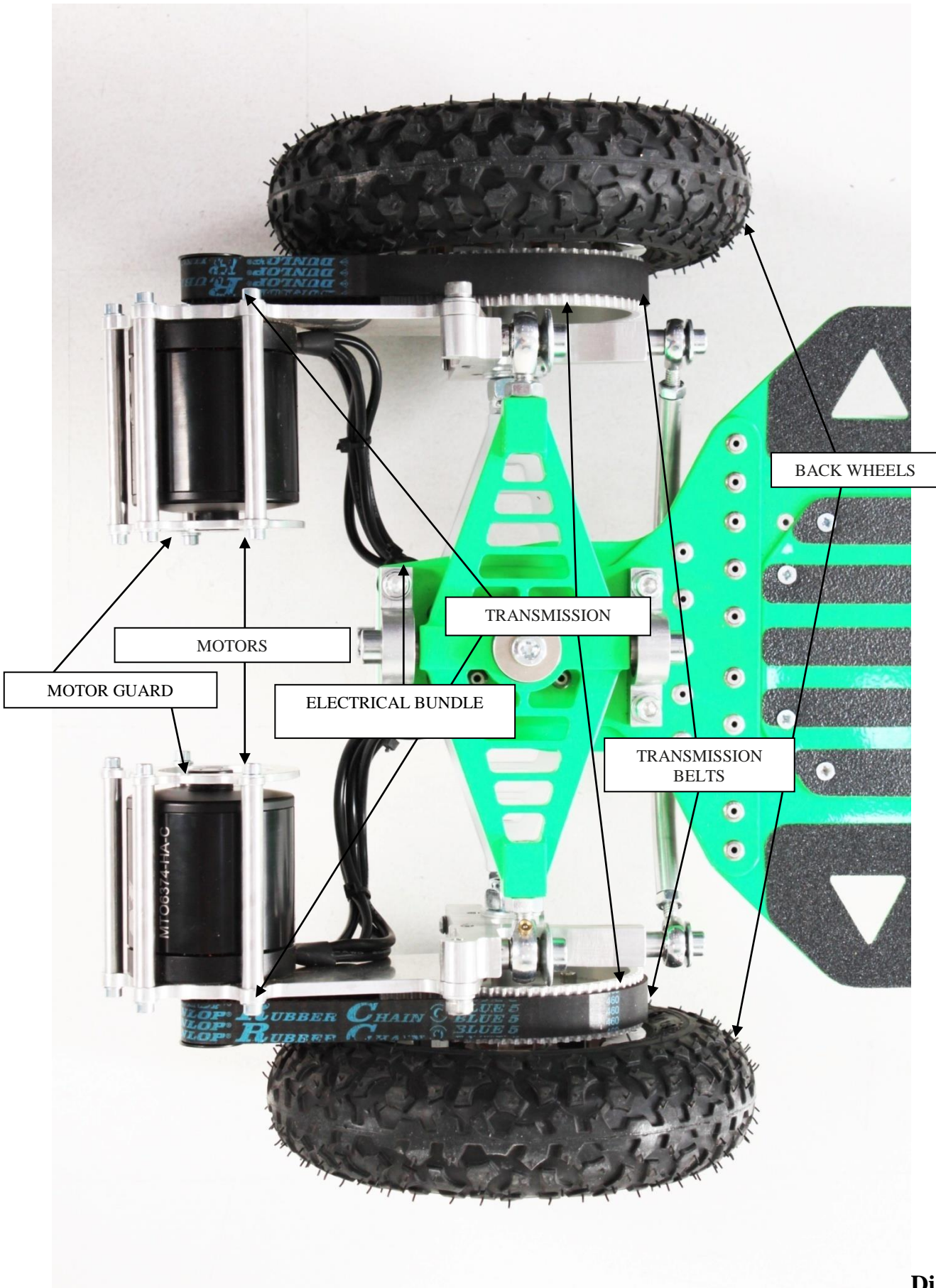
Electric four wheel vehicle designed to maximize availability for everyone, adjusted so it can be used also by disabled users in all terrain environment. The vehicle is used to transport people.



**Diag. 1 EV4 MOUNTAIN BOARD**



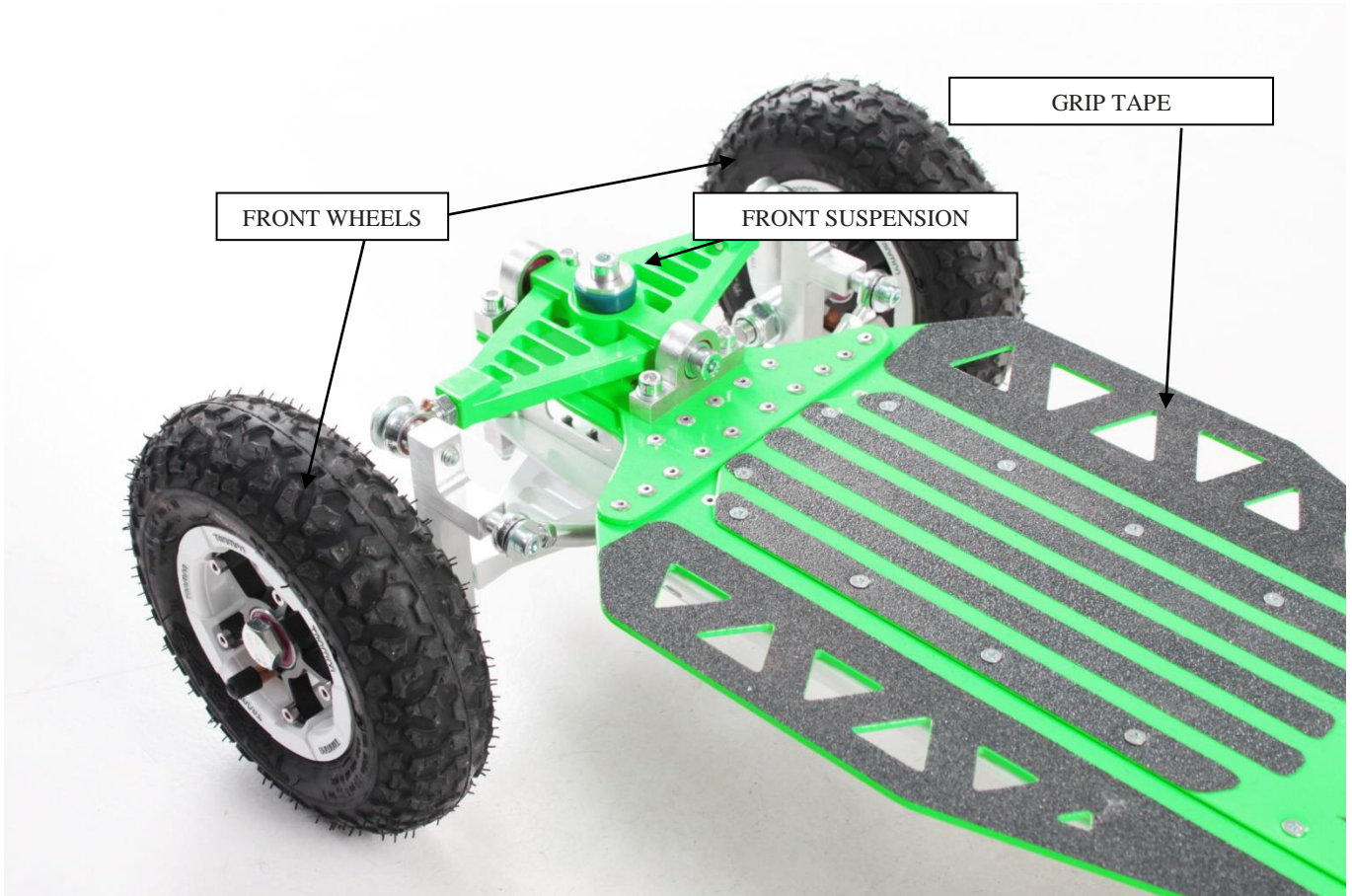
**Diag. 2 MAIN PARTS**



Diag. 3

MAIN PARTS





**Diag. 4 MAIN PARTS**



**Diag. 5 MAIN PARTS**



**Diag. 6 MAIN PARTS**

### 3. Proper use



The vehicle can only be used to transport people with appropriate sizes and age to operate electric vehicles. The weight of the person and the baggage must not exceed 130 kg. The front luggage compartment is designed to carry luggage of a maximum weight of 20 kg..



**WARNING! It is forbidden to use the vehicle contrary to its purpose.**

Use for other purposes is not allowed. Proper use also includes all activities related to the correct and safe operation and maintenance of the EV4. Accordingly, the user is obliged to:

- read the manual and adhere to its recommendations and warnings;
- understand how the vehicle operates and maintain safety;
- avoid accidents.

## 4. Warnings for unauthorised use



**WARNING! The manufacturer is not responsible for the consequences of improper use.**

- EV4 MOUNTAIN BOARD is a vehicle with power up to (2x2500W) 5000W and speeds up to 40 km/h. Customers need to check your local laws.
- Incorrect use of EV4 may cause personal injury. Use protective clothing such as suitable footwear, gloves, helmet, knee pads, elbow pads, safety goggles, etc.
- Be very cautious when using this product on: unhardened, wet, slippery and uneven surfaces.
- It is forbidden to drive under the influence of alcohol, intoxicants, narcotics, and drugs which don't allow driving vehicles.
- EV4 is an electric vehicle, so using it in rain or in humid conditions is not recommended. Driving into puddles should be avoided.
- It is prohibited to: pour water onto the EV4, store it in rain, wash it and clean it under running water. Removing dirt is possible using a damp cloth.
- The vehicle can only be used to transport people with appropriate sizes and age to operate electric vehicles.
- The vehicle owner is fully responsible for any damages resulting from the use of the EV4
- EV4 is not designed for extreme driving. It is forbidden to perform jumps and other dangerous evolutions. You cannot speed it up and stop too fast. Wheels should always have contact with road.
- Speed must be adapted to field conditions. Longer braking distances should be considered for slippery surfaces.
- During quick turns watch out for losing traction. Danger of accident.
- Overload: do not overload the vehicle's power package and overload the vehicle itself. The weight of the driver along with the luggage must not exceed 150 kg. Overload and excessive load can damage the vehicle and the power unit.
- Driving at the same time is only permitted by one person. Driving in two or more is prohibited.
- Before each use of the vehicle, the driver is obliged to inspect the technical condition of the vehicle. Make sure all components are in place, no screws and nuts missing. Check the front and rear brakes.

## 5. Residual risk



Residual risk is risk that still remains after all precautions have been taken.

When observing such recommendations as:

- read the manual carefully;
- do not place hands in between moving parts ;
- do not make any modification or repairs to the electrical parts of the vehicle;
- do not operate the vehicle without reading the manual first,
- secure the EV4 from persons unauthorized to operate it,

Residual risk can be eliminated without endangering people and the environment. There is a residual risk in case of non-compliance with the specified recommendations and guidelines.

## 6. Technical information

Main technical information is shown in the table below.

TECHNICAL INFORMATION	
INPUT VOLTAGE	110-240 V
OUTPUT VOLTAGE	36V
FREQUENCY	50-60 Hz
MAXIMUM POWER OUTPUT	5000 W
WEIGHT	15 KG

## 7. Putting to use

### 7.1. Minimal requirements for vehicle operation



EV4 is an electric vehicle, so using it in rain or in humid conditions is not recommended. Driving into puddles should be avoided. It is prohibited to: pour water onto the EV4, store it in rain, wash it and clean it under running water . Air temperature when charging battery must be within 0-40 degrees Celsius and use and storage within the range of -20 to + 40 degrees Celsius.

### 7.2. Before use



Take special care when starting up the vehicle; check all safety and security functions. Remember to read this manual carefully and first observe safety regulations.

**Check before use:**

- ✓ Tire pressure,
- ✓ Battery charge.
- ✓ Check for suspension malfunctions.
- ✓ Check for steering control malfunctions.
- ✓ Check for brake system malfunctions.
- ✓ If remote is paired with board

## 8. Operator requirements

The person selected and authorized to operate and maintain EV4 must have the appropriate knowledge. Service work may only be performed by persons who have manual skills and are familiar with the operating instructions. To properly handle EV4 the user must:

- Know how to use and seek information in this document;
- Know how the EV4 functions;
- Have a medical condition consistent with the certificate given by a physician,
- The vehicle can only be used to transport people with appropriate sizes and age to operate electric vehicles
- The person selected and authorized to operate and maintain EV4 must have the appropriate knowledge.
- The weight of the driver with the luggage must not exceed 130 kg. Overloading can damage the vehicle and drive train.
- Recognize abnormalities in functioning and, if necessary, take necessary measures to remove them.
- Persons using the vehicle must good eyesight, reflexes, and can make quick decisions.

## 9. Use of Personal Protective Equipment

To avoid injury when using EV4, wear protective equipment. Equipment includes bicycle helmet, knee and elbow pads. Protective gloves are recommended during repairs and maintenance.

## **10. Use**

### **10.1. How to operate the EV4**

We start the ride by switching on the skateboard and remote control. If the LED lights signal the connection of the remote control with the vehicle and show that the batteries of the vehicle and remote are charged, the Mountain Board is ready for operation. You can start to move in two ways. Take a comfortable position on the skateboard, with the center of gravity placed low (never drive on the upraised legs) and legs spaced wider than the arms, gently push the remote's acceleration stick forward to move the vehicle. When starting to move at full speed, the center of gravity should also be transferred to the leading leg, otherwise rider may be thrown off the skateboard. The second way is to push off with one leg letting vehicle move and then use the remote add speed. Braking starts once the remote stick is pushed down in the opposite direction to accelerating. In case of sudden braking, the center of gravity should be transferred to the rear leg. Correct leg formation is also important when changing directions of riding. Turning should be carried by moving the center of gravity on toes or heels of both feet. Advanced riders can work their own style of riding.

**10.2. Remote scheme**



### 10.3. Charging

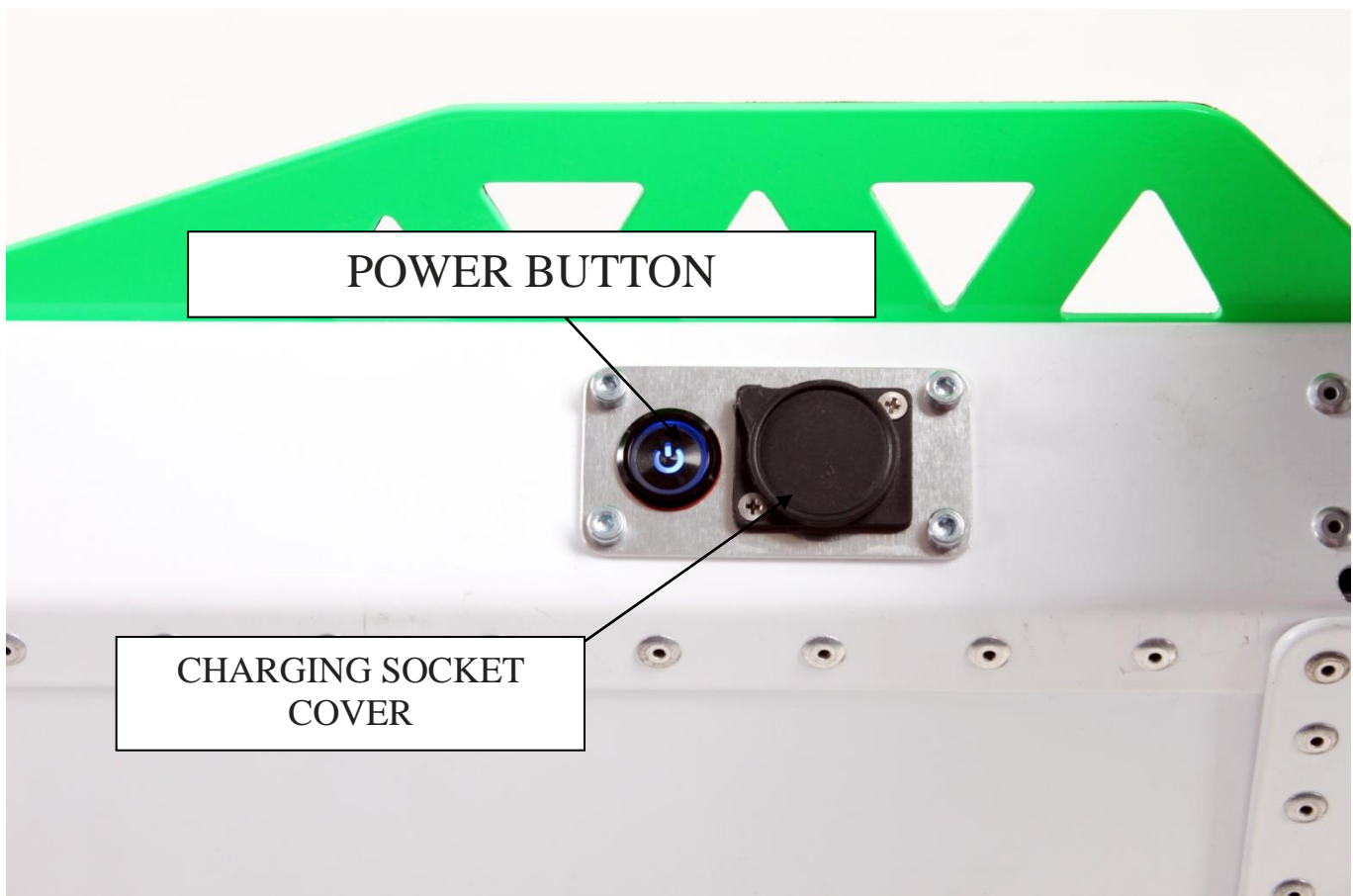
EV4 MOUNTAIN BOARD is supplied with a Li-Ion 36V, 13Ah battery. In order to properly charge the batteries, use the charger supplied with the vehicle. You will need a special 36 V charger for Li-ion batteries. It is forbidden to use a charger other than the original charger. Using a charger other than the original charger may result in electrical damage, short circuit, fire and personal injury. It may also cause permanent damage to the battery and the vehicle's electrical system.

The charger must first be connected to the vehicle then to the network. Charging socket is located on the battery pack under handle. Pull the battery handle and then plug in the charger plug.

The charger must be disconnected from the vehicle when the vehicle is fully charged (charge will not occur after 100%). It is indicated with a green lamp on the charger. Secure the vehicle's charging socket when charging is complete. After the charge is complete, one can start the vehicle with the key. Disconnect the charger before starting the vehicle. Do not connect any equipment or short connectors to the charger socket. The charger for the EV4 does not charge other batteries.



**It is forbidden to use a fuse of other parameters. This may cause damage to the electrical system and fire.**



**Diag. 10 Power button and charging socket**



## 11. Setup

### 11.1. Suspenssion

Users that weigh more will have less resistance from the board when turning.

Too regulate hardness suspension you can change rubber bushings located in the front and rear suspension.

### 11.2. Electrical speed control

Controlling speed is made by remote controler.

## 12. Maintenance



Please observe the following maintenance recommendations:

- The maintenance and servicing times given in this manual must be strictly observed.
- Any changes have to be approved by the manufacturer.
- To prevent premature wear of EV4, diligently clean and maintain them at regular intervals.
- Correct maintenance ensures that the service life is extended and the level of security remains unchanged.
- Carry out maintenance procedures using personal protective equipment (protective gloves).
- Do not throw waste into the environment as a result of maintenance. Dispose of them in accordance with applicable regulations.
- Some maintenance and repairs require the use of specialized tools and knowledge of how to perform such repairs. Therefore, repairs must be carried out only by the manufacturer or in the place indicated by the manufacturer.
- Most of the parts used to make EV4 are aviation grade. Fabrication of components from other materials will not provide adequate strength and consequently will not ensure proper operation of the vehicle.
- The frame and other parts of the vehicle are riveted with aviation grade rivets. Repairing the vehicle with other rivets than recommended by the manufacturer can reduce the strength of the individual components or damage the vehicle.

### 12.1. Wheels

EV4 Mountain Board is equipped in four eight inch TRAMPA wheels with aluminium hub elements . Too low or too high pressure in the tires can cause damage to: tires, wheel rims, suspension and cause excessive electricity consumption. It is very important that the tread of the tire is correct and not worn out. Too much tread wear can cause tire breakage, poor vehicle grip and poor tread. Uneven tread wear may indicate wheel distortion, suspension failure, incorrect tire pressure, improper tire

operation, improper tire assembly, etc. When the tire is punctured or has low pressure it needs to be replaced immediately. Always remove air from the wheel before replacing the tire. The front tires and inner tube can be replaced without removing the wheels. The rear wheel must be removed before the tire can be taken off. Be careful when disassembling the wheel. The cable leading to the motor can easily be damaged during unsuitable dismantling and assembly .

## 12.2. Bolts and glued parts

All screws used in EV4 are screws with a higher strength class. Replacing them can only take place with screws of adequate strength. The minimum strength class of screws is 8.8. Some screws such as the rocket axles have a strength class of 12.9. Almost all used nuts are self-locking nuts and are one time use only. After unscrewing, replace them with new ones. Some nuts, for example when attaching the rocker arms for safety reasons, are blinded. In screw connections where self-locking nuts are not used for safety, a self-locking safety thread is used: Loctite 243. Loctite 603 is used in some places, such as bearing housings, wheel alignment, and engine rack mounting. Removal and reassembly of these components requires the use of specialized tools, preheating when disassembling and reuse of glue during assembly.

## 12.3. Vehicle transmission

The vehicle transmission consists of two pulleys and a toothed belt on one side and the other. For correct operation of the gear unit, the correct drive belt tension is required. The strap must be strapped properly so that it does not jerk and can't be stretched too much. Too weak tension of the belt can cause it to jump and consequently lower the power transmitted to the wheels, damage the belt, and damage the gears. Too strong strapping may damage the strap, damage the motor, damage the bearings, cause more power consumption. The belt drive should work dry without lubrication.

The state of the gears (especially the small wheel on the engine) is very important. Too much wear on the gears may indicate that the vehicle was not properly operated, was used in too much dustiness, sand, the belt was incorrectly tightened, or the wrong belt lubricant was used. Too much wear on the gears can cause the belt to jump and consequently reduce the power transmitted to the wheels and damage the belt. If the gears are worn out, replace them with new ones.

## 12.4. Lubrication

Important components requiring lubrication are ball joints in the suspension system and in the steering. The M8, M6 ball joints are in suspension. The right lubricant for these is engine or gear oil used in automotive industry.. They should be lubricated every 100-400 km. The period in which the articulations must be lubricated depends on the style of riding, the type of terrain, the mass of the user, the dirt and sanding. If the vehicle is standing unused for more than 2 months then the joints should also be lubricated before using the vehicle after such a break. If the joints become too loose, replace them with new ones, keeping the same length of the elements when replacing them.

## 13. Fixing

EV4 repair may only be carried out by specially trained AERO-SERVICE personnel. EV4 repairers must adhere to the factory guidelines. Failure to comply with the recommendations may result in loss of health.



**WARNING! Performing such operations requires appropriate technical competence or specific skills so that they can only be performed by qualified personnel with experience gained and recognized in the performance of their activities.**

## **14. Part specification**

If you need to replace vehicle parts, you must contact AERO-SERVICE (tel. +48 603 397 810, e-mail: ev4@ev4.pl) before replacement. AERO-SERVICE will present a suitable replacement model. Using a component that is not approved by AERO-SERVICE may result in an accident. When replacing some spare parts, you must follow the original parts manual. The life span of the entire vehicle provided by the manufacturer is 15 years.

## **15. Noise**

The vehicle in terms of noise emission complies with European standards and directives. The average noise level during operation of the operator at a distance of 1m is  $< LpA=70$  dB.

## **16. Radiation**

Components of the vehicle are built in accordance with the requirements of the EMC Directive 2014/30/EU, so that the vehicle does not emit harmful electromagnetic interference and is itself resistant to such interference.

## **17. Troubleshooting**

If the vehicle is not working or does not work properly, do not troubleshoot or repair the vehicle by yourself, return it to the manufacturer or to the person indicated by the manufacturer.

Procedure:

In the event of a breakdown, please contact us by phone +48 603 397 810 or the person / company indicated by the manufacturer. Many simple failures can be repaired by giving instructions over the phone. In the event of a major breakdown that cannot be remotely repaired, the vehicle must be delivered to the place of purchase after prior contact with the manufacturer.

## **18. Declaration of conformity**

EV4

## DEKLARACJA ZGODNOŚCI UE

Declaration of conformity

Nr

2017/DC\_16393/01

**PRODUCENT:**  
*Manufacturer:* AERO-SERVICE Jacek Skopiński  
Ul. Dereniowa 4/69  
02-776 Warszawa  
Poland

**Deklarujemy z pełną odpowiedzialnością, że nasz produkt:**  
*We declare with full responsibility, that our product:*

**NAZWA:**  
*Name:* EV 4

**MODEL:**  
*Model:* BIKE, QUAD, CITY QUAD, GREMLIN, SEMI RECUMBENT  
MOUNTAIN-CART, MOUNTAIN-BOARD

**NUMERY SERYJNE:**  
*Serial numbers:* 001-999

**ZASTOSOWANIE:**  
*Application:* EV4 służy do transportu osób.

**Jest zgodny z następującymi dokumentami odniesienia:**  
*Compliance the following documents of reference:*

**DYREKTYWY:**  
*Directives:* 2006/42/WE  
2014/30/UE

**NORMY:**  
*Harmonized standards:* PN-EN ISO 12100:2012


**Dokumentacja została stworzona przez:**  
*Documentation was created by:* AERO-SERVICE Jacek Skopiński  
Ul. Dereniowa 4/69, 02-776 Warszawa

**Miejsce przechowywania dokumentacji:**  
*Stocking location of documentation:* AERO-SERVICE Jacek Skopiński  
Ul. Dereniowa 4/69, 02-776 Warszawa

Niniejsza deklaracja zgodności wydana zostaje na wyłączną odpowiedzialność producenta.

Warszawa, 25.02.2019

**Miejsce, data:**  
*Place, date:*

  
AERO-SERVICE  
JACEK SKOPIŃSKI  
ul. Dereniowa 4/69, 02-776 Warszawa  
NIP: 521-271-55-66  
Jacek Skopiński, Właściciel  
**Stanowisko i Podpis osoby upoważnionej:**  
*Signature of authorized person:*

## NOTES

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