

# ***DRILL***

**USER MANUAL**



IT'S NOT A DRILL

# DRILL EVO

ONE

2022



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## Welcome

Thank you for purchasing Czech Electric Motorcycle Drill. We appreciate your trust in our product.

Adhering to the guidelines in this manual is important in order to enjoy your Drill experience. Read the manual carefully before the first use. Also refer to the manual if there occur any problems or uncertainties using Drill.

Drill is a powerful and entertaining machine with which you can enjoy every moment of your ride. However, ill-treatment can endanger your health or your life. Always drive carefully, wear the protection helmet, gloves, goggles and other proper clothing and safety equipment. Be aware that you will drive a fast and quiet machine. Be considerate to your surroundings and pay attention not only to your safety but to others too.

This manual shall advise you how to keep the motorcycle in perfect condition. We recommend that you purchase only original spare parts exclusively from your Drill dealer. **Pay special attention to the safety instructions.** If you are still unsure after reading this manual, do not hesitate to contact your Drill dealer.

The User's Manual contains important technical and safety information about the Drill. This machine is designed for private recreational use, it is not intended for professional sport.

All information in this manual is non-binding. Drill manufacturer reserves the right to make changes without prior notice and without giving reasons to make changes to the technical specifications, such as color, construction, equipment and use of materials. Furthermore, the company acquires the right to adapt motorcycles to local conditions, market requirements and possibly stop the production of certain models without prior review.

Drill manufacturer is not responsible for the availability of vehicles, the differences between pictures or machine descriptions, or for errors or omissions in this manual. The models shown include some special equipment, which is not included in the standard equipment.

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## 1.1. General information

Any changes made by the user to the machine may not only affect your safety, but also endanger the health of those around you. Changes made without the approval of the authorized dealer or the manufacturer may void your warranty.

Always use your Drill in accordance with local regulations and laws that restrict the use of electric vehicles. Drill is not intended for use on public roads.

If you have any questions, please contact your Drill dealer. Do not allow others to use your Drill until they have received all of the essential instructions for operating and using the Drill or have read this manual. The manufacturer is not responsible for incorrect operation and use of the Drill machine. Drill is not a racing machine and is not intended for such use. Racing use will void the machine's warranty. Regular inspections and maintenance at an authorized dealer along with responsible driving will help you to enjoy a safe and reliable ride. Remember that only authorized personnel authorized by the manufacturer may operate electrical parts. Always remember that in addition to voiding your warranty, you can also endanger yourself and your surroundings.

### Basic safety precautions

Always check all key machine components before driving. Whenever you do not use the machine or when pushing or moving it, switch off the engine as instructed! Electrical components are under voltage, which can reach up to 54 V. They can cause you serious injuries and even endanger your life.

They must be handled (except for battery charging) only through a Drill dealer. Any damage to the electrical components must be repaired by a Drill dealer before driving again. These components remain energized for some time after switching off. Never break any cables.

## 2.1. Location of basic components





## 2.2. Controls placed on handlebars and battery



Kill switch (tear o / tug).



Digital display of battery level, selected map, speed, distance travelled, engine speed and temperature.



Combined On/Off switch and switch of driving modes (maps).



Fully adjustable rear fork damping with adjustable repacking.



Tensioning of the chain by means of eccentrics on the swinging fork on the rear wheel axle.



Battery charging connector.



## 2.3. Vehicle identification numbers



*VIN on motorcycle frame.*



*VIN on motorcycle battery.*



*VIN on motorcycle charger.*

The identification numbers contain a lot of information related to the production of the motorcycle.

**Vehicle identification number VIN (Serial Number):** VIN is a 17-digit number that is affixed on the frame, battery, and charger of the motorcycle.

**Control unit identification number (controller):** this number is located on the top of the controller.

**IN CASE OF LOSS OR DAMAGE OF THE GUARANTEE SEAL, THE WARRANTY DISCLAIMS. DO NOT REMOVE THE SEAL FROM THE MOTORCYCLE AND PROTECT IT FROM DAMAGE!**



## 2.4. Technical Specifications

	<b>ENDURO</b>	<b>MARATHON</b>	<b>TRAIL 19</b>	<b>TRAIL 16</b>
FRONT RIM	21" x 1,65"	26" 559 x 33	19" x 1,85" nebo 19 x 2,15"	19" x 1,85" nebo 19 x 2,15"
FRONT TIRE	90/90-21" (Mitas) or 80/100-21" (Maxxis)	26" x 2,6" (downhill bike Duro)	70/100-19" (Maxxis)	70/100-19" (Maxxis)
REAR RIM	19" x 2,15"	19" x 2,15"	19" x 2,15"	16" x 2,15"
REAR TIRE	100/90-19" (Mitas) or 70/100-19" (Maxxis)	70/100-19" (Maxxis)	70/100-19" (Maxxis)	90/100-16"
SPEED	65 km/h	65 km/h	65 km/h	65 km/h
BATTERY CAPACITY	2,25 kWh (Li-Ion)	2,25 kWh (Li-Ion)	2,25 kWh (Li-Ion)	2,25 kWh (Li-Ion)
LENGHT	1.870 mm	1.840 mm	1.790 mm	1.760 mm
WIDHT (footrests / handlebars)	430 mm / 820 mm	430 mm / 820 mm	430 mm / 820 mm	430 mm / 820 mm
WHEELBASE	1.220 mm	1.220 mm	1.220 mm	1.220 mm
WEIGHT	53,5 Kg	52 Kg	52 Kg	52,5 kg
SEAT HEIGHT	920 mm	910 mm	895 mm	890 mm
HEADROOM	350 mm	340 mm	320 mm	320 mm
MAXIMUM LOAD	110 Kg	110 Kg	110 Kg	110 Kg
WEIGHT DISTRIBUTION	50:50	50:50	50:50	50:50
FRAME	AL	AL	AL	AL
FRONT FORK / LIFT	Manitou Dorado Comp 37 or Tech (Formula) Nero C	Manitou Dorado Comp 37 or Tech (Formula) Nero C	Manitou Dorado Comp 37 or Tech (Formula) Nero C	Manitou Dorado Comp 37 or Tech (Formula) Nero C
REAR SHOCK ABSORBER / LIFT	Elka / 180 mm	Elka / 180 mm	Elka / 180 mm	Elka / 180 mm
RECUPERATION	Yes	Yes	Yes	Yes
CHARGING TIME	3.5 hours / 2.5 hours with fast charger (extra price)	3.5 hours / 2.5 hours with fast charger (extra price)	3.5 hours / 2.5 hours with fast charger (extra price)	3.5 hours / 2.5 hours with fast charger (extra price)
HOMOLOGATION	No	No	No	No
DRIVING DISTANCE IN TERRAIN	Just a little less than the Marathon model	1 hour 15 min - 3 hours fitness rides in the terrain / 50 min to 1 hour 10 min in racing mode	Just a little less than the Enduro model	Just a little less than the Trail 19 model

## 3.1. Check or adjust before each ride

- 1/ All fastening components, make sure they are OK, fastened or tightened and show no signs of damage.
- 2/ Position and function of the brake levers. Make sure you know where and on which side the front and rear brakes are located.
- 3/ Tires pressure.
- 4/ With the engine off, if the gas returns to its starting position after adding gas.
- 5/ Condition of gears and chain lubrication, lubricating of the chain and tensioning the primary and secondary chain.
- 6/ All electrical components on the machine, all cables and components must be in perfect condition and in the correct position.
- 7/ Charging the battery.
- 8/ Pay particular attention to the correct tightening of the steering neck. If it is not properly adjusted and tightened, there is a risk of damage of the frame in the steering neck area and such a fault is not covered by the warranty.**
- 9/ Tightening the handlebars, front fork, wheels and swing arm axle.**

**After any fall it is always necessary to completely revise the condition of the vehicle. To be completely sure visit any Drill dealer.**

## 3.2. Battery and charger, electrical components

### 3.2.1. Basic instructions

The battery is provided with a safety seal, the battery can only be opened by a Drill dealer. If this seal is damaged, you will lose your warranty. Fully charge the battery before the first use. The battery is equipped with BMS, which constantly evaluates the current status of the battery and optimizes its performance. If the battery charge falls below 25% while driving, the control unit automatically reduces engine power. The system is deactivated before the battery is completely discharged. Battery life may vary depending on the conditions in which the machine drives and the riding style.

### 3.2.2. Battery charging

- 1/ Connect the charger to a 220V power supply.
- 2/ LED No. 1 on the charger lights up red to indicate that it is energized.
- 3/ LED No. 2 lights up green until the motorcycle charging connector is connected.
- 4/ Remove the protection cap on the motorcycle charging connector.
- 5/ Switch the main battery switch on the handlebars of the motorcycle to the ON position and disconnect the tug.
- 6/ Connect the charging connectors between the charger and the motorcycle.
- 7/ LED No. 2 on the charger turns red and the charger activates and starts charging the battery.
- 8/ The charger fan is active during charging and cools the charger.
- 9/ As soon as the battery is charged, the charger automatically switches off the cooling and LED No. 2 lights up. The LED is green when the battery is charged.
- 10/ Turn the main battery switch to OFF.
- 11/ Disconnect the connectors between the motorcycle and the charger and attach the protective cap to the charging connector on the motorcycle.
- 12/ Charging a fully discharged battery takes about 4 hours.
- 13/ Start the motorcycle according to the chapter "Starting the motorcycle and changing the driving mode".
- 14 / Never charge the battery completely unattended (eg overnight) !!!**

### 3.2.3. Battery capacity indicator

The motorcycle is equipped with a central display, which shows the current state of charge of the battery in volts and at the same time via the graphic symbol of the battery with 4 cells. To determine the battery capacity more accurately, it is better to monitor the voltage in volts. When the battery is fully charged, the display shows 53,7 V. If the voltage drops below 42 V, the motorcycle's control system begins to reduce power. When the 39 V voltage is reached, the control system switches off the entire motorcycle to protect the battery. Further start-up of the motorcycle after full discharge is only possible after recharging.

### 3.3. Starting and changing the driving mode

- 1/ Turn the main battery switch to ON.
- 2/ Attach the "tug" (put magnetic protection switch on wrist). The driving mode control indicator illuminates white and the motorcycle acoustically signals readiness to drive.
- 3/ Carefully turn the gas handle. The motorcycle does not start and does not react to the gas.
- 4/ Press the drive mode switch. After the first press, the weakest economy mode is activated. The motorcycle works at 50% of its own maximum power. The LED indicates the ECO mode in green. After the second press, the LED lights up blue and signals the middle performance level. In this SPORT mode, the motor power is set to 75% of the maximum power. The third press activates the motor at its maximum RACING power and the LED is red. When pressed again, the motorcycle switches back to the "green" economy mode.

In case of a fall and pulling out of the "tug", check all elements of the motorcycle. Connect the tug magnets. The performance map status LED lights up white. The motorcycle acoustically announces readiness to ride. Switch on the selected driving mode and continue driving.

### 3.4. Stopping the motorcycle

- 1/ Disconnect the "tug" when you stop driving. The map indicator LED goes out.
- 2/ Then disconnect the battery with the main switch by turning it to the OFF position. The battery indicator turns off when the battery is turned off.

### 3.5. Motorcycle range

The range is influenced by many factors, especially by terrain, rider's weight, gear selection, outside temperature and riding style. Off-road travel is 60 km depending on speed and selected mode / 2,5 hours in terrain / 1 hour in Racing mode.

## 3.6. Driving instructions

- 1/ Avoid incorrect and dangerous driving style. Always operate the machine with sufficient respect.
- 2/ Never drive while under the influence of alcohol, drugs or other addictive substances.
- 3/ Always use the right equipment including helmet, shoes, gloves, etc.
- 4/ Do not hang any objects on the handlebars or other parts of the motorcycle while driving.
- 5/ Don't bring anyone else with you. Drill is designed for one rider only.
- 6/ Please respect the laws and the natural environment.
- 7/ The motorcycle may overheat if the maps are selected incorrectly or if the driving direction is unsuitable. To prevent damage to the motor, it is equipped with a temperature sensor directly inside the motor. When the temperature inside the engine reaches **100°C**, the engine control unit will limit its performance. Full engine power will not return to its original level until the engine temperature drops below that level. If you park the motorcycle in hot weather at the moment when the temperature inside the engine reaches **100°C**, the engine temperature can rise further, because the engine stops being cooled by the air supply. If the temperature rises above **110°C** in this situation, the motorcycle will be switched off completely. It starts to react only when the temperature drops below **100°C**. If the engine shuts down due to overheating, take off the tug, turn the switch to the OFF position, and start the motorcycle as usual after cooling down.
- 8/ Use all performance maps while riding the motorcycle. Use the green map to drive slowly and save energy. Use blue map when driving off-road and especially on long rides. When driving at full speed, do not drive on the blue map for more than 60 seconds. The red map is intended primarily for the purpose of fast acceleration, short steep rides, overcoming obstacles, where you need to have maximum power and engine torque. The red map is not suitable for continuous driving, especially at full throttle. If you use the red map, do not drive at full throttle for more than 20 seconds.



## 3.7. Instructions for parking the vehicle

Drill is built to work in all nature conditions, but hot or extreme cold can affect it when standing or driving. Drill operating temperature is between  $-5^{\circ}\text{C}$  and  $35^{\circ}\text{C}$ . When batteries are exposed to low temperatures, performance and range may be reduced. Do not leave the vehicle parked outdoors for long periods of time when the outside temperature is below  $0^{\circ}\text{C}$ . Do not charge the battery if it is super-cooled or at temperatures above  $40^{\circ}\text{C}$  (for example, in direct summer sunlight). You can damage the battery and reduce its battery life. If you are not using the Drill in winter, it is recommended that you fully charge the Drill at least once within 30 days.

## 3.8. Motorcycle suspension

Suspension ensures comfort, safety and handling when driving. Always have the suspension serviced or repaired by an authorized service center. Do not remove the shock absorber or the fork yourself. Damage caused by improper handling will void your warranty. Never use pressurized water to clean components.

## 3.9. Rear shock-absorber functions and settings

At the rear of the machine you find a central suspension and damping unit, in short and commonly used silencer. The shock absorber is compressed under load and extended again after release.

The squeezing of the spring is called compression. Compression can be set. It is thus possible to set the force by which the spring must be compressed. This force can be increased or decreased. After compression (compression of the spring), the compressed spring begins to return to its original position. This is called rebound.

By adjusting the bounce it is possible to change the time how long it will take for the spring to return to its original position after compression.

Depending on the weight of the driver, it is also possible to adjust the spring preload and thus affect the so-called rear shock absorber, or the length by which the rear shock absorber drops below the rider's weight. Each driver must adjust the sag in relation to his weight by changing the preload settings. It is recommended to set the sag to 10 - 20 mm depending on the driving style. Longer sags are more comfortable, while smaller sags allow for more aggressive driving. Correct sag, preload, compression and rebound settings are essential for this machine to function properly.

### **3.10. Fork functions and settings**

The fork is compressed under the load and lengthened again when released. The front fork behaves in the same way as the above-described shock absorber. The squeezing is called compression. Fork compression can be adjusted according to the rider's style and weight by adjusting the spring preload. After compression, the compressed fork begins to return to its original position. This is called rebound.

By adjusting the bounce it is possible to change the time how long it will take for the fork to return to its original position after compression. The fork is also equipped with so-called air chamber and control valve. Do not handle the valve. The new fork needs approximately 20 hours of use to function properly. Regular maintenance, cleaning and adjustments are required for the fork to function properly.

### **3.11. Brakes**

Check the condition and functioning of the brakes before each use. Always have the brakes serviced or repaired by an authorized service center. Always test the brakes visually and functionally before driving, also again on a flat and non-slippery surface several times. Brand new brakes need to be driven to achieve the highest braking force. This means, in practice, starting the vehicle at least 20 times to 30 km/h and then brake fully.

The pressure must be steady when the brake levers are pressed. The brake levers must not decrease further under pressure. If this occurs, it may show a serious malfunction. In such case visit your Drill dealer immediately.

Moisture reduces braking efficiency. The stopping distance is longer when it is wet and slippery. Dirty or greasy brake pads and discs can significantly reduce braking force. Therefore, make sure that no oil or other similar fluid gets into the brakes, for example when lubricating the chain. Never wash the brake pads impure by oil and always replace them with new ones. On contrary, the discs may be washed with a special brake cleaner, or hot water and a conventional cleaner.

Contact an authorized service center to adjust the brake levers correctly.

Continuous braking can reduce braking efficiency and even lead to extreme brake failure in extreme situations due to overheating. Do not touch the disc or the brake caliper after a long downhill run to avoid burns. Learn to brake with both brakes at the same time! Stop at the first signs of overheating, i.e. when the brakes appear to be defective or when more force is required to brake, or smell or hear strange noise. Allow the brakes to cool before continue riding.

## 4.1. Brake maintenance

- 1/ Check the brake pads for wear before each ride (min. thickness 2,5 mm).
- 2/ Always check for wear and damage (min. thickness 1,8 mm) before each ride.
- 3/ The thickness of the discs should not be less than stated value. If this happens, replace the discs immediately.
- 4/ Check the connections of hydraulic brake hoses before each ride (there should be no cracks in the cable, the brake fluid must never leak).
- 5/ Wash the brakes if they are very dirty.
- 6/ Always have the brake serviced by an authorized service center.

## 4.2. Rims, tires, hubs

- 1/ Always check the condition of rims, tires and hubs before driving.
- 2/ Before driving, check the tires for cracks, cuts, bumps or bulges.
- 3/ If you notice any damage or abnormalities on the tire, replace it immediately.
- 4/ Check the tire pressure and condition before each ride.
- 5/ Check the minimum tread depth and, if smaller, replace the tire. The recommended tire pressure is 1,2 - 3,5 bar.
- 6/ Check the condition of the wheel hub regularly. Focus on runout and any cracks or other mechanical damage.
- 7/ Check the wheel wires for tightness. Loose wires can negatively affect vehicle behavior and stability.

## 4.3. Wheels disassembly

### 4.3.1. Removing of the front wheel

- 1/ Place Drill on the mounting stand.
- 2/ Unscrew the central nut of the wheel axle using an Allen key.
- 3/ Loosen the 4 screws from the bottom of the fork with the Allen key. Do not unscrew the screws completely.
- 4/ Lift the wheel slightly upwards so that it does not rest with its full weight on the wheel axis, pull out the wheel axle.
  - Before each operation, make sure the vehicle is switched off.
  - Be careful, the wheel is released when the wheel axle is removed.
  - To replace the wheel, perform this process in reverse order.
  - Never press the front brake lever unless the front wheel is fitted.
  - When refitting the wheel, be careful to insert the brake disc back between the pads.

### 4.3.2. Removing of the rear wheel

- 1/ Place Drill on the mounting stand.
- 2/ Loosen the rear wheel axle nut bolt.
- 3/ Release the chain from the rosette.
- 4/ Remove the rear wheel axle nut bolt and pull out the rear wheel axle.
  - Before each operation, make sure the vehicle is switched off.
  - Be careful, the wheel is released when the wheel axle is removed.
  - To replace the wheel, perform this process in reverse order.
  - Never press the rear brake lever unless the rear wheel is fitted.
  - When refitting the wheel, be careful to insert the brake disc back between the pads.



## 4.4. Gears, chain

- 1/ **Check all gears regularly for wear!** If the primary or secondary gears are in poor condition, visit your Drill dealer for replacement.
- 2/ Check the chain for wear.
- 3/ Clean and lubricate the chain after each ride.
- 4/ Use products designed for this purpose.
- 5/ Check the chain tension regularly as shown on the illustration. The gearwheel is located in the oscillation axis, thus the chain tension can be higher than in other constructions, because the chain does not stretch during the springing. The chain tension should be within 1 cm.
- 6/ **The chain of the primary gear is stretched and loosened during the use of the motorcycle. Its tension needs to be checked and adjusted regularly. The primary chain tension should be within 0.5 cm. Service intervals for each component can be found on page 21 of this manual. Have this work carried out by a qualified workshop.**

### **Perform the tension as follows:**

- 1/ Place Drill on the mounting stand.
- 2/ Loosen the rear wheel axle nut bolt.
- 3/ Rotate the tensioner symmetrically at both ends of the wheel to tighten the chain.
- 4/ Check the rear wheel symmetry from the rear and tighten the retaining screw.

## 4.5. Adjustments and periodic maintenance

Years	1	2	3 and every other 1 year	every 1 year
Engine hours	5	20	35 and every other 15 mth	60 months
Steering insert incl. Bearings	CH	CH	CH / L / R	-
Rear fork bearings	CH / L	CH / L	CH / L / R	-
Central spring unit	CH / L	CH / L	CH / L	-
Fork	CH / L	CH / L	CH / L	-
Cabling	CH	CH	CH	-
Battery diagnostics	-	-	CH	-
Engine diagnostics	-	-	CH	-
Brake fluid	CH	CH	CH	-
Battery cover	CH	CH	CH	-
Brake discs	CH	CH	CH / R	-
Break pads	CH	CH	CH / R	-
Primary gear	CH / L	CH / L	CH / L / R	-
Secondary gear	CH / L	CH / L	CH / L / R	-
Wheel hub bearings	CH / L	CH / L	CH / L / R	-
Rear wheel axle	CH	CH	CH	-
Osa motoru, pastorek, vložka	-	-	CH	CH / R
Osa kyvné vidlice	CH	CH / L	-	CH / R
Pouzdra zadní kyvné vidlice	-	-	R	

CH = Check and adjust, L = Lubricate, R = Repair / Replace

## Before every ride

Keep in mind that you are driving an off-road motorcycle, which is subject to high demands when riding off-road. Every ride can damage the motorcycle, even if it is externally unobservable, which can have fatal consequences. So behave responsibly, keep your motorcycle in excellent technical condition, check it before each ride. Have the adjustment or repair carried out by an authorized service center.

- 1/ **Tires:** damage, pressure, condition of the pattern.
- 2/ **Wires:** are they all?, not loose, damaged?
- 3/ **Connections strength check:** check that all screws are properly tightened.
- 4/ **Grips:** do not spin?
- 5/ **Functionality and wear of the brakes:** the levers are not cracked, the bolts are not loose, the brake hoses are not damaged, the brake pads are not excessively worn or damaged, the brake fluid does not leak at the levers or brakes, are the brakes vented?
- 6/ **Primary chain drive:** the primary chain is not loose or too tight, there is no dirt in the chain, it is lubricated, the gears are not worn?
- 7/ **Secondary chain drive:** the secondary chain is not loose or too tight, there is no dirt in the chain, it is lubricated, the gears are not worn, is it in line with the primary gear, is the rear wheel axle not loose?
- 8/ **Footrests:** not loose in the connection with the footrest holder, is the footrest holder in the frame not loose?
- 9/ **Visual control:** of cabling, control of connector connections.
- 10/ **Steering clearance,** wheel hubs, forks.
- 11/ **Suspension:** front fork does not leak, clean front fork gufero, central suspension unit does not leak?
- 12/ **Motorcycle cleaning**

## 4.6. Washing

Wash Drill regularly. This will extend its life and ensure the proper operation of the motorcycle. Be careful not to damage any of its components during cleaning.

### Therefore, we recommend:

- 1/ Before washing, check that all electrical components are properly connected and that the vehicle is switched off. **NEVER** wash the vehicle, when the electrical cables are disconnected or damaged.
- 2/ **DO NOT USE** a pressure washer or steam generator. Water could penetrate the bearings, seals or electrical components of the vehicle.
- 3/ We recommend using soapy water and a soft sponge for washing.
- 4/ Wash the plastic parts with soapy water and a soft sponge. Never use aggressive cleaners, solvents, or other products, which could damage the vehicle.
- 5/ After washing, dry the vehicle with a dry cloth.
- 6/ Do not switch on the vehicle until the vehicle is completely dried.
- 7/ Test the brakes after washing and before using the vehicle. Gently apply the brakes several times to dry them.
- 8/ Be careful of all electrical components when washing the vehicle.
- 9/ **After washing, run the bike in a dry environment for at least 5 minutes to dislodge any water from any components where water could be harmful. Place the motorcycle in a dry and warm environment for approximately one hour. Thoroughly lubricate the primary and secondary gears, including the chain.**

3. Composition structure

4. Controls and display

6. Controller and battery

8. Rear silencer





5. Engine

1. Bearings in wheel hubs

2. Rim and tires

9. Swing fork and frame



	 PRESSURE WASHING	 FLOWING WATER	 SOFT SPONGE	 IMMERSION
1.	✗	✓	✓	✗
2.	✓	✓	✓	✓
3.	✗	✓	✓	✗
4.	✗	✗	✓	✗
5.	✗	✓	✓	✗
6.	✗	✗	✓	✗
7.	✓	✓	✓	✗
8.	✗	✗	✓	✗
9.	✓	✓	✓	✗

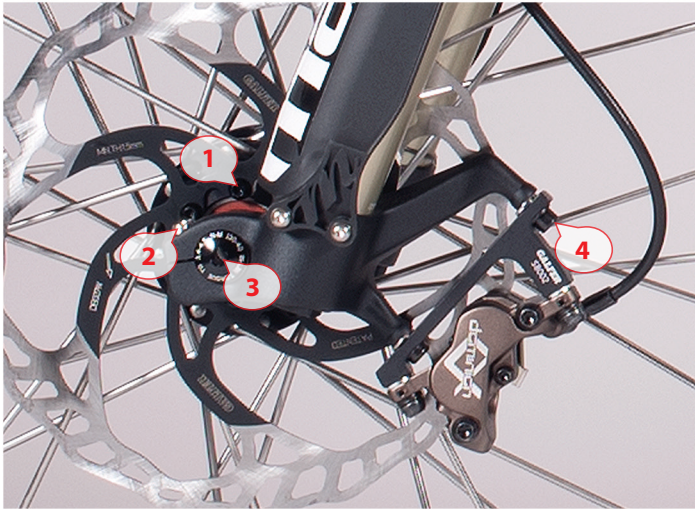
7. Saddle

6. Controller and battery

5. Engine

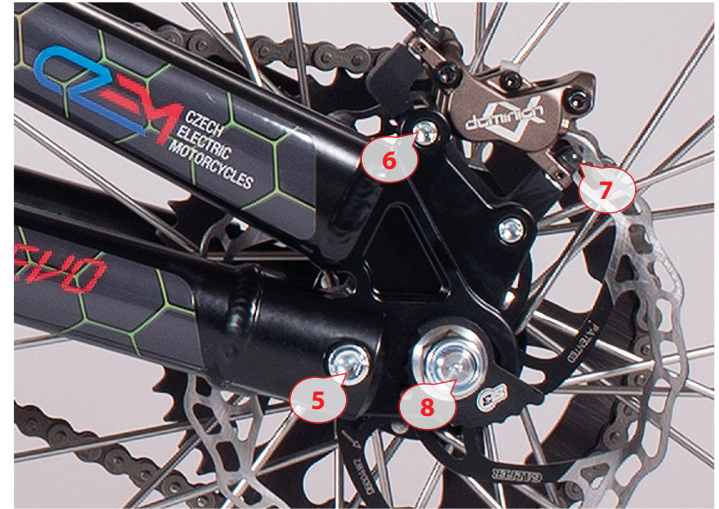


## 4.7. Tightening torques







- 1. Brake disc attached to the wheel hub
- 2. Front axis locking screws
- 3. Front wheel axis
- 4. Front brake

4 Nm   
 6 Nm   
 4 Nm  
 10 Nm 







- 5. Connection of the upper and lower arms of the swinging fork
- 6. Rear brake adapter
- 7. Rear brake
- 8. Rear wheel axis / new axis

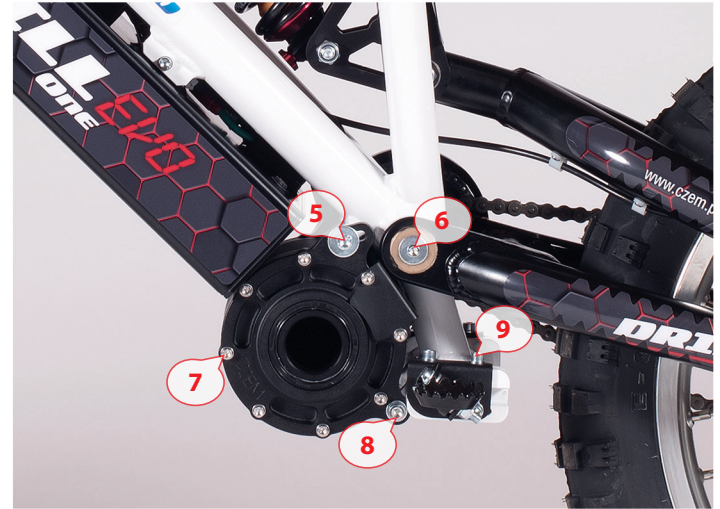
20 Nm   
 10 Nm   
 10 Nm   
 10 Nm / 42 Nm






\* *Glued joints (eg Loctite)* 






- 1. Upper damper mounting 20 Nm 
- 2. Battery holder 10 Nm 
- 3. Mounting the rocker arms in the frame 20 Nm 
- 4. Lower shock absorber mounting and repacking 20 Nm 



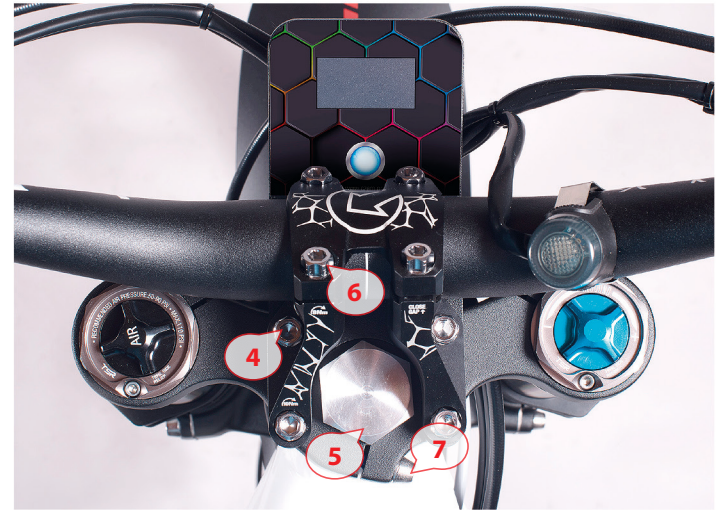
- 5. Upper engine mount - primary chain tension 20 Nm 
- 6. Swing fork axis 10 Nm 
- 7. Engine cover bolts 10 Nm 
- 8. Lower engine mount 10 Nm 
- 9. Footrest holder 10 Nm 

\* Glued joints (eg Loctite) 




- 1. Rosette attached to the wheel hub
- 2. Attachment of the primary rosette
- 3. Axis of the primary rosette

10 Nm   
 10 Nm   
 10 Nm 



- 4. Tightening of the stem
- 5. Tightening of the head assembly
- 6. Position of the handlebars
- 7. Tightening of the head assembly

5 Nm   
 15 Nm   
 10 Nm   
 10 Nm 



Head assembly with roller bearings

\* *Glued joints (eg Loctite)* 






1. Tightening of the stem
2. Tightening of the head assembly
3. Position of the handlebars
4. Tightening of the head assembly

5 Nm   
5 Nm   
10 Nm   
10 Nm 

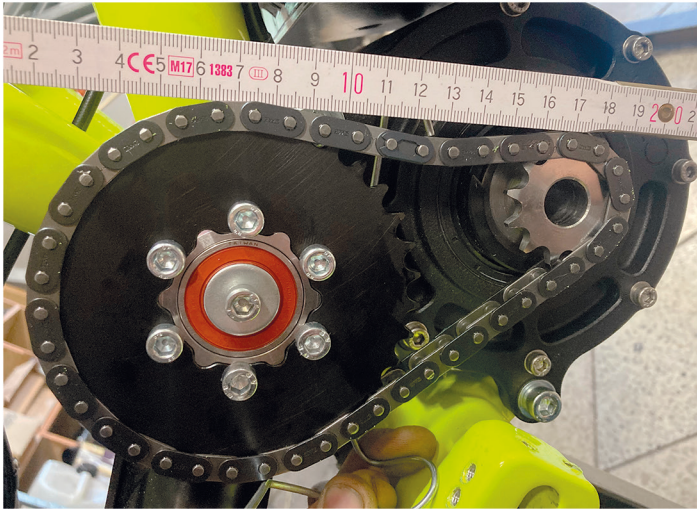
5. Upper front fork mount (in glasses)
6. Lower front fork mount (in glasses)

15 Nm   
15 Nm 

Head assembly with ball bearings.

\* *Glued joints (eg Loctite)* 

## 4.8. Chains tensioning



### Primary gear

The ideal overhang of the primary chain is 0.5 cm. If it is larger, adjust by using an eccentric motor mount. An instructional video can be found at [www.czem.pro](http://www.czem.pro) in the Support/Service folder.



### Secondary gear

The ideal sag of the secondary chain is 0.5 - 1 cm. If larger, adjust using the eccentrics in the rear wheel axis. An instructional video can be found at [www.czem.pro](http://www.czem.pro) in the Support/Service folder.

## 5.1. Problems solving

Before a new Drill comes to you, it passes a very thorough output check. Due to various circumstances beyond our control, various technical problems may occur.

Therefore, we have prepared some tips that could help you in case of a problem. Of course, feel free to visit your Drill dealer with any problem.

### **Drill cannot be started?**

- 1/ Check that the battery is sufficiently charged.
- 2/ Make sure the tug is plugged in and the starter is in position ON.
- 3/ Check that all connections are connected and that all cables are in perfect condition.
- 4/ Has there been a previous reduction in engine power while driving? Did you stop? The engine may be overheated. Proceed in accordance with point 3.6. in point 8/ of this manual.

### **Drill stopped while driving?**

- 1/ The battery is discharged. Check the charge level, if discharged, charge it according to the instructions.
- 2/ Is the tug in correct place?
- 3/ The motorcycle protection system has been activated. Switch the engine off and on again.
- 4/ Has there been a previous reduction in engine power while driving? Did you stop? The engine may be overheated. Proceed in accordance with point 3.6. in point 8/ of this manual.

## 6.1. Warranty

The products of Czech Electric Motorcycles (hereinafter CZEM) were manufactured and tested according to the highest quality standards of the company. Our warranty covers defects of the materials used, defects caused by their processing and defects caused by the assembly of the motorcycle. CZEM provides warranties for defects of material or workmanship for a period of 24 months after the first purchase (12 months when purchased by the company). In general, however, we always guarantee warranties for proper installation, use, service and maintenance. If CZEM is unable to provide a refund and the repair is not practical, feasible or cannot be performed in a timely manner, CZEM may choose to provide a refund of the purchase price in exchange for a return of the product.

The warranty applies only to the original purchaser and is non-transferable. This warranty does not apply to rental shops or motorcycles for commercial or racing use. Our warranty can be obtained only by customers who purchase CZEM products directly from authorized dealers, from the manufacturer or through the CZEM website. This warranty does not cover any damage or defects caused by non-compliance with the instructions specified in the user manual, changes or modifications to the original design. Furthermore, we do not guarantee defects caused by force majeure, accident, misuse, neglect, incorrect installation, driver's error, damage to water or other elements or improper storage. CZEM expressly disclaims any warranty coverage for any damage resulting from racing or extreme use. Consequential damages resulting from such use are not included. CZEM does not cover costs related to the transport of the claimed parts or entire motorcycles. This warranty is expressly limited to the replacement of defective parts with parts of equal or greater value, at CZEM's sole discretion.

Assessment of repair, replacement or refund of the purchase price as set out in this warranty is always subject to assessment by the manufacturer or an authorized dealer. CZEM does not entitle anyone to create any other obligation or liability in connection with this warranty. CZEM shall not be liable to the Buyer or any other person for any other damages incurred as a result of the user's use of the motorcycle, including, but not limited to, personal injury damage, property damage or economic losses.

Some components on our motorcycles are subject to natural wear and tear or long-term or poor storage. The degree of wear therefore depends on the care, maintenance and use of the motorcycle.

The guarantor is the company Exac, Ltd., with its registered office at Zbraslavská 27, 159 00 Prague 5, Czech Republic, Reg. No.: 45538140 (hereinafter referred to as Exac).

The warranty applies only to machines that have been placed on the market by authorized dealers, in compliance with the regulatory requirements of the individual countries.

This warranty does not limit or affect local legal provisions that are independent of the warranty provided by the guarantor. Authorized dealers are listed on the website [www.czem.pro](http://www.czem.pro).

## 6.2. Warranty Exceptions

The below listed parts require regular maintenance and replacement and as wear parts are not covered by the warranty. Some components are then further specified.

- Battery
- Chains and sprockets
- Brake pads and discs, brake fluid (DOT), brake hoses, brake body and its components
- Seals
- Grips
- Cables / connectors
- Lighting lamps
- Seat cover
- Lubricants and binders
- Shock absorbers and muffler dusters

**Furthermore, the vehicle warranty does not apply in the following situations:**

- 1/ The motorcycle identification number (VIN) has been changed, modified, deleted or cannot be recognized on the motorcycle.
- 2/ If the safety seal located on some components is broken.
- 3/ If damage to components (guaranteed or not) has been caused by frost, water or the accumulation of contaminants, deposits, clutter or other external factors that prevent the component from functioning properly.
- 4/ If the hour meter has been modified, changed or disconnected.
- 5/ If the maintenance specifications of this motorcycle as given in this manual are not observed.
- 6/ If the warnings described in this manual are ignored.
- 7/ If the electric drive, BMS or controller has been modified.
- 8/ If the machine has been altered or overloaded.
- 9/ If repairs or servicing of the vehicle are performed outside the authorized Drill services.
- 10/ If the defect is not found during delivery or immediately after it and is not recorded and subsequently repaired.
- 11/ If the owner has not taken steps to prevent damage.
- 12/ If the battery instructions described in this manual are not followed.

## 6.3. Warranty on selected components

### 6.3.1. Battery and controller

At the end of the 24 month warranty period, the lithium battery of our motorcycles has a guaranteed capacity of 70% of its original usable battery capacity. However, if the battery fails completely within the first 24 months from the original date of purchase of the motorcycle, it will be replaced or repaired free of charge. Lithium batteries require care and prescribed maintenance to maximize life. Improper battery charging, as stated in the manual (for example, when charging at high or low temperatures), will shorten the battery life below the guaranteed 70% of the original usable capacity during the 24 warranty months. Improper or rough use of the battery will void the warranty.

The battery must not be exposed to temperatures below 5°C (does not apply to low temperature driving when the battery heats up naturally).

#### **The battery warranty is void in the following cases:**

- Damage is caused by overvoltage.
- Damage due to incorrect charger use.
- Damage is caused by incorrect maintenance or rough use or mechanical damage.
- Damage due to misuse of the battery for purposes other than powering the motorcycle.
- Damage is caused by normal wear and tear.
- Damage is caused by ingress of water.
- Charging is not in accordance with the manual.
- If the battery is not charged every month.
- If the battery is discharged below the maximum safe charge level (value).

In the event that the battery needs to be removed for assessment, directly at company CZEM, it is the customer's responsibility to have the battery safely removed only by an authorized dealer. CZEM will reimburse the costs incurred in connection with sending the battery for assessment. CZEM reserves the right to repair or replace the battery at its sole discretion. All lithium batteries must be transported as Class 9 Dangerous Goods (HAZMAT) and must be shipped in accordance with all local and international laws. Lithium batteries mounted on our motorcycles can NEVER be transported on board a passenger plane.

### **6.3.2. Engine**

The functionality of the engine is covered by a warranty of 24 months from the original date of purchase. In the event of a complaint requiring the return of the engine to CZEM for assessment, the customer is responsible for its disassembly and sending to CZEM. CZEM does not cover the costs associated with transport.

#### **The engine warranty is void in the following cases:**

- Damage is caused by overvoltage.
- Damage is caused by overheating and burning of the stator or rotor winding.
- Damage is caused by improper maintenance or rough use or mechanical damage.
- By misusing the engine for purposes other than driving the motorcycle.
- Damage is caused by normal wear and tear.
- Damage is caused by ingress of water.
- Operation is not in accordance with the manual.



### **6.3.3. Brakes**

Warranty for brake components is provided for a period of 24 months from the original date of purchase. Normal wear of the brake pads and other brake components is not covered by the warranty. Components warranty claims are made in accordance with the component manufacturer's instructions.

### **6.3.4. Chassis components**

Warranty on chassis components is provided for a period of 24 months from the original date of purchase. Normal wear and tear of chassis components is not covered by the warranty. Components warranty claims are made in accordance with the components manufacturer's instructions.

### **6.3.5. Transmission components**

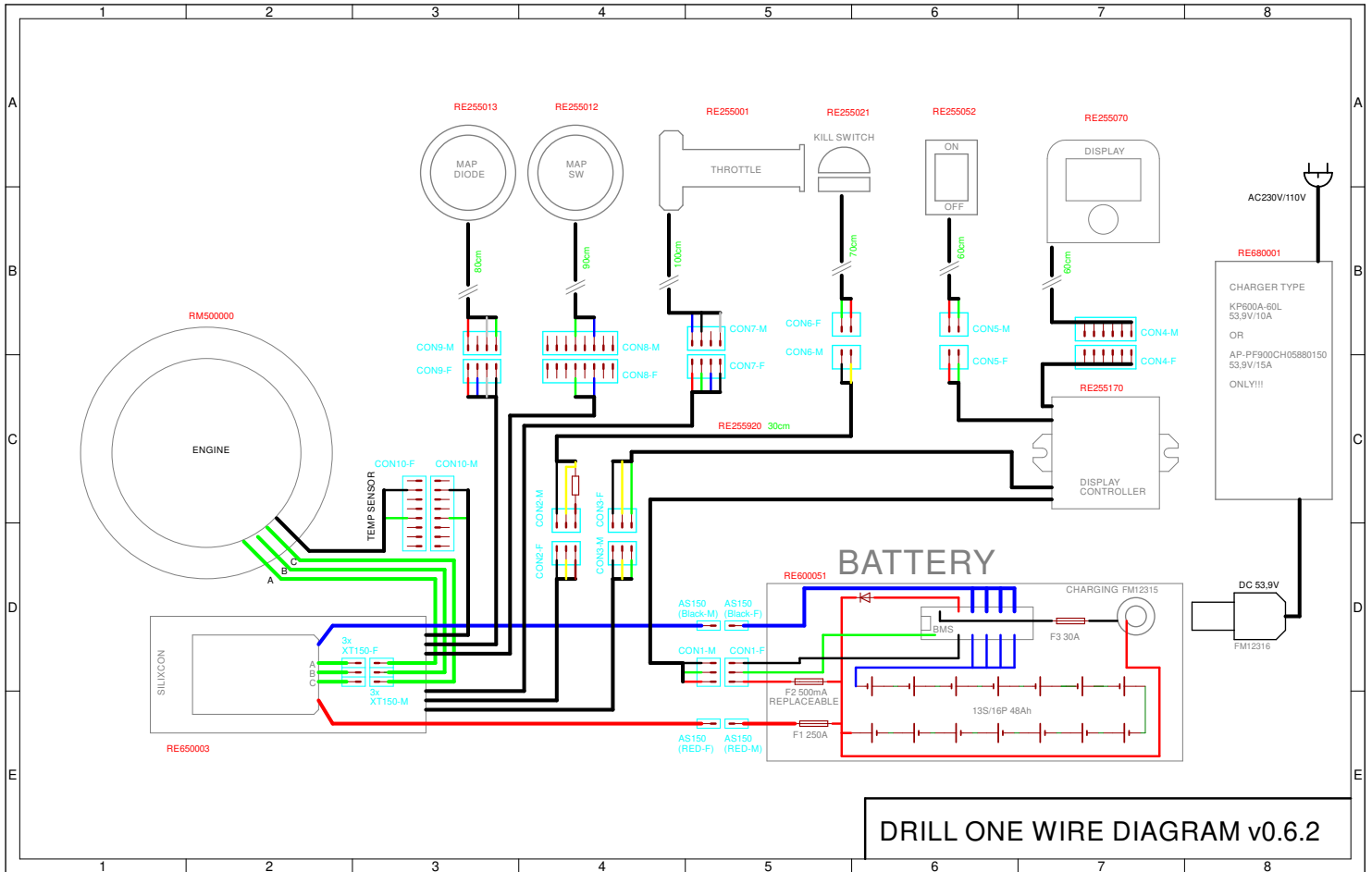
The drive train includes sprockets, chain and wheels. Warranty on transfer components is provided for a period of 24 months from the original date of purchase. Normal wear and tear of transmission components is not covered by the warranty. Components warranty claims are made in accordance with the components manufacturer's instructions.

## **6.4. Complaint form**

You can find the complaint form online at [www.czem.pro](http://www.czem.pro).

## **6.5. Warranty management**

All warranty formalities must be performed through the nearest dealer.  
You can find the list of dealers at [www.emotionbikes.cz](http://www.emotionbikes.cz) and [www.czem.pro](http://www.czem.pro).





<b>Vehicle</b>	Motorcycle Model	<b>DRILL ONE EVO</b>	Enduro 21 / 19	Marathon 26 / 19	Trail 19 / 19	Trail 19 / 16
	VIN No.			Engine No.		
	Date of delivery			ODO meter status		
	Invoice No.			Guarantee duration	Commercial 1 Year	Consumer 2 Year

**This product has been correctly assembled and we certify that all the components and installations function accordingly.**

<b>Dealer</b>	Company name					
	Address					
	Telephone			E-mail		
	Technician			Signature		

<b>Customer</b>	Customer name					
	Company name					
	Address					
	Telephone			E-mail		

**The dealer confirms that they:**

- performed all the pre-delivery inspection as prescribed and required by the manufacturer, and informed the customer that this is completed.
- explained to the customer all aspects of the safe, responsible and considerate use of the motorcycle, as they are described in the User Manual and completed a test ride.
- informed the customer about the warranty conditions, provided a copy of the User Manual and Maintenance Schedule
- validate the warranty with signatures of both parties on this document.

**The customer confirms that they:**

- were informed in detail about all the above stated facts by the dealer.
- were informed in detail about the content of the DRILL ONE EVO User Manual and particularly about following details:

- 2.3.1. Check or Adjust before each ride		- 6.1. Warranty Conditions	
- 3.6. Driving Instructions		- 6.2. Warranty exceptions (Service items)	
- 4.5. Adjustment and periodic maintenance		- 6.3. Warranty on selected components	
- 4.6. Washing Methods			

- fully understand the stated facts and will follow all these instructions.

<b>Receiving customer signature</b>			<b>Dealer signature</b>	
<b>Date</b>			<b>Dealer stamp</b>	
Company name	Dealer address			