

USER MANUAL



MASTIFF
CARGO BIKE

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INTRODUCTION

Thank you for purchasing a MASTIFF Cargo Bike! On the following pages you will find detailed information on the use, setting, maintenance and repair of your bike.

IMPORTANT!

The user manual contains important safety, performance and maintenance information. Read it carefully before using your cargo bike and keep it for future reference! You can find more safety and maintenance information on specific parts, such as the fork, pedals or accessories (helmet, headlights). Make sure that the person from whom you bought the cargo bike has provided you with all the instructions that came with it and its accessories.

Please follow the safety tips described here, as they will help you avoid serious accidents and injuries.

If, after reading this manual, you have any questions about your cargo bike that are not answered, please contact the dealer from whom you purchased your cargo bike or, if you ordered directly from us, the nearest authorised dealer. You can find a list of our reseller partners on our website: <https://www.mastiffcargobike.com/uzletek/>. Our reseller partners will help answer your questions, perform the necessary maintenance and warranty repairs, and provide you with the best possible parts and accessories.

NOTE:

This manual is not intended for detailed use, maintenance or repair purposes. Contact our reseller partners for all maintenance or repair operations. Information on maintenance and repair manuals and training courses is also available from our reseller partners.

GENERAL WARNINGS

Like all sports, cycling can be associated with the risk of injury. If you decide to ride a cargo bike, you are taking risks, so you should be aware of the basic rules for safe and responsible cycling and the proper use and maintenance of your cargo bike, as this will significantly reduce the risks.

In this manual, the section beginning with the words "**WARNING**" and "**CAUTION**" draw your attention to the consequences of improper maintenance and failure to observe the safety regulations.

The word **WARNING** indicates a potentially hazardous situation which could result in serious injury or death. If such a situation is not avoided, it can lead to serious damage to the cargo bike or loss of warranty.

The word **CAUTION** indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury and warns of unsafe use.

The manual contains several sections of **WARNING** and **CAUTION** warning you that you could lose control of the cargo bike and fall. Since every fall can result in serious injury or even death, we do not always draw attention to the consequences of a fall.

As it would be impossible to summarise all situations and conditions that may occur when riding a cargo bike, this user manual does not include safety information for all situations. Cycling, like all sports activities, involves risks that cannot be foreseen or avoided and for which the user alone can be held responsible.

Special warnings for parents

The use of cargo bikes is generally recommended for adults. If your child is going to use it, it is important that he or she has a good knowledge of cargo cycling, is over 14 years old and is 155 cm tall.

As a parent or guardian, it is your responsibility to judge whether your child can use a cargo bike and, if you decide to do so, you take responsibility for your child's safety. As a parent, it is your responsibility to read this user manual and to discuss the warnings and information about the use and functions of the cargo bike with your child before your child uses the cargo bike.

WARNING! Make sure that your child always wears a suitable cycling helmet, headgear (hereafter: helmet) when cycling; but also make sure that your child understands that a helmet is for cycling only and must be taken off after cycling. Your child should not wear the helmet when playing, in playgrounds, when climbing trees or at any time other than when riding a bicycle. Failure to comply with this warning may result in serious injury or death.



MASTIFF
CARGO BIKE

I. FIRST THINGS TO KNOW

NOTE: We strongly recommend that you read this manual in its entirety before using your cargo bike. If, after reading this manual, you have any further questions about the use of your cargo bike, you should first contact our reseller partner and then, if necessary, contact us, the manufacturer.

I.1 Appropriate cargo bike size

- Is your cargo bike the right size? If the cargo bike is too big or too small for you, you could lose control and fall off. To select the correct saddle height and adjust the saddle height, see section III.1 Saddle position. When adjusting the saddle height, follow the instructions for setting the maximum height described in section III.1 Saddle position.
- Can you fasten the front and rear wheels securely? For more information, please, read section IV.1.1 Installing and removing wheels. Improperly secured wheels can loosen, which can lead to serious injury or death.

I.2 Safety first

- Always wear appropriate head protection when riding a cargo bike and follow the manufacturer's instructions for helmet size, use and maintenance.
- Do you have the necessary protective equipment? Read more about in section II. Safety. It is your responsibility to learn and comply with the laws in your country.

I.3 Technical safety inspection

Check the condition of the cargo bike before each use!

I.3.1 Screws, nuts and other fasteners

Since manufacturers use a wide range of fasteners of different sizes and characteristics, it is not possible to determine the correct clamping torque in general. Read Annex B) of this manual or refer to the relevant component's manual for the appropriate clamping torque values to use.

A calibrated torque wrench is needed to correctly tighten each fastening element. Please have this operation performed by a professional! If you want to carry out

repair or maintenance work yourself, use a torque wrench and observe the torque values specified by the manufacturer of the cargo bike or component. If you need to tighten the fasteners at home or during use, please be vigilant and check the tightening of the fasteners as soon as possible with our reseller partner.

CAUTION! Tightening the cargo bike's fasteners (bolts, nuts) to the correct torque is a priority. When tightening at too low a torque, the fastener will not hold the part securely. Excessive torque can cause failure, breakage or deformation of the fastener. In either case, insufficient torque can lead to failure and cause an accident.

Make sure that none of the parts are loose. Raise the front wheel 5 to 10 centimetres off the ground, then lower it back down and let it bounce, so you can spot any loose parts. Inspect the cargo bike by moving the different parts. If you experience any loose fastening, tighten it. If you are unsure, contact a professional for help.

1.3.2 Wheels and tyres

Make sure your tyres are properly inflated. Check by placing one hand on the saddle and the other on the handlebar and stem connection, then put your full body weight on the bike, while watching the tyres. Do the same for properly inflated tyres and compare the results. Inflate the tyres if necessary.

- Are the tyres in good condition? Turn the wheels slowly and check that the tyres are in good condition by looking for small cuts on the sidewall of the tyres.
- Are the wheels properly centred? Turn the wheels and check the distance between the brake shoes and the brake disc, and check for any movement sideways. If the wheel moves sideways even the slightest bit, or if the brake disc comes into contact with the brake shoes, take the cargo bike to a specialist workshop and have the wheel centred.
- Are the rims clean and undamaged? Make sure that the rims are clean and in good condition, and that the rim edges are in good condition.

1.3.3 Brakes

Check that the brakes are working properly (see section IV.2 Brakes). Tighten the brake levers. Are all cables properly routed and connected? Do the brakes start to apply when the brake lever is moved 2.5 cm? Can you apply the full braking force without the brake levers touching the handlebars? If not, the brakes need adjusting. Do not use the cargo bike until the brakes have been professionally adjusted.

1.3.4 Wheel fastening system

Make sure that the front and rear wheels of the cargo bike are properly secured. Read more about this in section IV.1 Wheels.

1.3.5 Saddle bar

Check that the saddle height is correctly adjusted and securely fastened.

1.3.6 Handlebar stem and saddle position

Make sure that the handlebars and saddle are parallel to the centre line of the cargo bike and properly secured, so that you cannot move them out of their set position.

1.3.7 Handlebar tube ends

Make sure that the handlebar grips are properly secured and in good condition. Otherwise, have them replaced by our reseller partner.

Make sure that the end caps on the handlebar tube are in place. Otherwise please contact our reseller partner.

WARNING! Loose or damaged handlebar grips can lead to loss of control and a fall. A handlebar tube without a cap can cause a cut or serious injury in an otherwise minor accident.

EXTREMELY IMPORTANT SAFETY INFORMATION:

Be sure to read Annex A and note the information on the service life of the cargo bike and its parts.

1.4 First use

When you first get on a cargo bike, choose a familiar, safe environment, away from traffic, other cyclists, obstacles and hazards. Get to know the handling, features and performance of your new bike.

Try the vehicle and familiarise yourself with the brakes on your cargo bike (see section IV.2 Brakes). Test the brakes at low speed, put your weight on the back of the bike and apply the levers lightly (rear brakes first).

Sudden or heavy application of the front brake may cause you to fall over the handlebar.

Applying the brakes too hard can lock the wheel, causing you to lose control and fall off. Locking of the wheels can also lead to skidding or sliding.

Practise changing gears (see section IV.3 Changing gears). Remember never to change gears while pedalling backwards, and never pedal immediately after changing gears. This can cause the chain to get stuck and result in a serious failure.

Test the handling and behaviour of the cargo bike; check the comfort features.

If you have any questions or if you feel that something is wrong with your cargo bike, please contact our reseller partner before you use it again.

II. SAFETY

II.1 The basics

WARNING! *In the municipality where you ride your cargo bike, you may need special protective equipment in accordance with local regulations. It is your responsibility to be aware of the legislation in force and to use the cargo bike in a way that complies with the regulations, including the accessories of the cargo bike and your own equipment. Obey local regulations and laws for cyclists, including lighting, licensing of bicycles, riding on the sidewalk, use of bike lanes, special regulations for head protection, child seats, and using cargo bikes in traffic. It is your responsibility to know and obey the law.*

- Always wear a bike helmet that meets the latest standards and is suitable for the type of cycling activities you undertake. Always follow the helmet manufacturer's instructions for proper size, use and maintenance. Most of serious cycling accidents could have been avoided if proper bike helmets had been worn.

WARNING! *Riding cargo bikes without bike helmets can lead to serious injury or death.*

- Always carry out a technical safety check (see section I.2 Safety first) before using the cargo bike!
- Get to know the controls of the cargo bike: brakes (see section IV.2 Brakes), pedals, gears (see section IV.3 Changing gears)
- Keep your body parts away from sprockets, moving chains, moving pedals and levers, and rotating wheels!
- Always wear:
 - shoes that fit snugly on your feet and grip the pedal properly. Make sure your laces do not get caught in moving parts, never ride barefoot, in slippers or sandals;
 - bright, visible clothing – not too loose – that won't get caught in the cargo bike or roadside objects;
 - protective goggles against airborne dust particles, insects, tinted goggles in sunny weather, normal lenses in cloudy weather.

- Do not jump with the cargo bike. A jump exposes the cargo bike and its parts to huge and unpredictable loads.
- Always cycle at a speed appropriate to the environmental conditions. Higher speeds mean greater risks.

II.2 Safety

- Obey all local traffic rules.
- Remember: share the road with others – vehicles, pedestrians and other cyclists.
- Ride defensively, always assuming that other road users cannot see you.
- Look ahead and always strive to avoid:
 - cars slowing down or turning, changing lanes, arriving from behind,
 - the opening doors of parked cars,
 - pedestrians in front of you,
 - children or dogs playing,
 - potholes, drain covers, railway tracks, construction zones, rubbish, other obstacles,
 - and other hazards and distractions.
- Use designated cycle routes or cycle lanes, or cycle on the side of the road in the same direction as traffic, in accordance with local laws.
- Stop at traffic lights, slow down and look around at junctions. Remember that a cargo bike can be the injured party in the event of a collision with a vehicle, so be prepared to give way even if you have the right of way.
- Use the accepted hand signals when turning or stopping.
- Never ride a bike with headphones on. They can suppress traffic noise, horns and sirens and distract attention from your surroundings, their wires can get caught in the moving parts of the cargo bike, causing you to lose control of the cargo bike.
- Only carry a passenger in a certified, non-damaged child carrier box, with the child properly secured in the child seat in a seated position, under controlled conditions. Children should always wear a bike helmet.
- Never carry anything that may distract you and does not give you full control over the cargo bike, or may get caught in moving parts of the cargo bike.
- Never cling to another moving vehicle while riding a cargo bike.

- Do not perform tricks or jumps, drive through the curb to the pavement at a maximum speed of 3 km/h, avoiding damage to the handlebar components.
- When driving in road traffic, do not perform sudden, unforeseen actions that may be unexpected for other road users.
- Make sure that the luggage carried on the cargo bike is securely fastened and cannot fall off or fall out of the cargo platform or box or the luggage carrier during transport.
- Pay attention and give the way of right to those on your right.
- Never ride a cargo bike under the influence of alcohol or drugs.
- Whenever possible, do not use the cargo bike when very tired, in bad weather, poor visibility conditions, at dusk or in the dark. These circumstances increase the chance of risks.

II.3 Using the cargo bike in wet weather

WARNING! Wet weather has a negative impact on wheel grip, braking distances and visibility for cargo bike riders and all vehicle users in traffic. The risk of traffic accidents is greatly increased in wet weather.

In wet weather, the braking power of the brakes (similarly to that of other vehicles on the road) is dramatically reduced and the grip of the wheels is also impaired. This makes it harder to control the cargo bike, easier to lose control of the vehicle and cause a fall. Drive slower and faster, braking more gradually in wet weather to stop safely. Read section IV.2 Brakes for more information.

II.4. Riding the cargo bike at night

Night-time cycling is much more dangerous than daytime cycling. The cargo bike rider is difficult to see for other vehicles and pedestrians. Therefore, never let children ride cargo bikes in the dark or at dusk or dawn. Cargo bike riders who take on the dangers of cycling in the dark should use appropriate equipment and take extra care to reduce the risks. Contact our reseller partners for the right safety equipment.

WARNING! Reflectors are not substitute as compulsory lighting fixtures of the bicycle. Riding a cargo bike in the dark or in poor visibility conditions without adequate lighting and reflectors can be dangerous and can lead to serious accidents or death.

Reflectors on a cargo bike help to identify the moving cargo bike to other road users by reflecting the light from ambient light sources, headlamps.

CAUTION! Regularly check reflectors and their fixing, make sure that they are clean, well adjusted, in perfect condition and properly secure. Contact our reseller partner for the adjustment of reflectors, their tightening, and replacing damaged parts.

The front and rear reflectors sometimes also act as safety cable clamps, preventing brake cables from getting caught in the tyre tread if the cable breaks or comes out of the clamp.

WARNING! Do not remove the front or rear reflectors from the cargo bike as they are part of the essential safety equipment of the cargo bike. Removing reflectors can reduce visibility to other road users and therefore pose a risk of accident. Collisions with other vehicles can lead to serious injuries and death.

The front and rear reflectors sometimes also act as safety cable clamps, preventing brake cables from getting caught in the tyre tread if the cable breaks or comes out of the clamp. If the inner brake cable gets caught in the tread of the tyre, the wheel can suddenly lock up, leading to a fall.

If you ride a cargo bike in poor visibility conditions, check and follow local regulations for cycling at night and take the following strongly recommended precautions:

- Use the front and rear lights, which are LED battery lights for normal cargo bikes and battery-powered lights for pedelec cargo bikes. They provide adequate visibility.
- Wear bright, reflective clothing and accessories, lights, any reflective or headlamp devices that will draw the attention of other road users.
- Make sure that your clothing or other accessories do not cover the reflector or the lamp.
- Make sure that the cargo bike is properly equipped and with fitted reflectors.

When cycling in the dark:

- Ride slowly.
- Avoid unlit areas or busy roads.
- Avoid dangerous stretches of road.
- If possible, follow a familiar route.
- You should ride predictably, so that other road users are not caught unawares by a change of your direction.
- Be attentive. Drive defensively and be prepared for the unexpected.
- If you often want to drive on a busy route, ask our reseller partner about safe driving or buy a specialised manual.

II.4 Replacement of parts and installation of accessories

Many parts and accessories are commercially available to improve the comfort, performance and appearance of your cargo bike.

Remember that you replace accessories and parts at your own risk. The manufacturer of the cargo bike may not have tested the compatibility, security or reliability of the accessory or component. Before you install anything on your cargo bike, contact our reseller partner. Read and follow the instructions for use of the product. See Annex A) for more information.

WARNING! Incompatibility, improper installation, use or maintenance of accessories can cause serious injury or death.

WARNING! Replacing the parts of the cargo bike with non-original parts may reduce the safety of the cargo bike and may void the warranty. You can find the terms and conditions of the warranty on the warranty sheet. Contact our reseller partner before replacing any parts.



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III. DIMENSIONS

NOTE: The appropriate size of the cargo bike is essential for safe, comfortable use and optimum performance.

Adapting a cargo bike to your physical figure and the conditions of use requires knowledge, experience and special tools. Leave the adjustment of the cargo bike to our reseller partner.

III.1 Saddle position

Correct saddle adjustment is important for performance. If the saddle is not comfortable enough, you can contact our reseller partner. The saddle is adjustable in three directions:

1. Adjusting the saddle upwards and downwards

To check the correct saddle height:

- Sit on the saddle.
- Place one heel on the pedal.
- Rotate the pedal until the it is at its lowest position, and the pedal is parallel with the saddle bar.

If your leg is not completely straight, the saddle height must be adjusted. If you have to tilt your hips sideways to reach the pedal, the saddle is too high. If your legs bend at the knees, the saddle is too low.

Ask our reseller partner about the correct saddle height and ask him to show you how to adjust it. If you want to adjust the saddle height yourself:

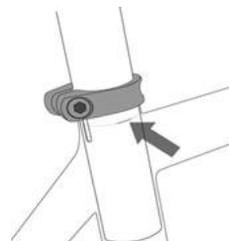
- Loosen the clamp.
- Raise or lower the saddle tube in the seat tube.
- Adjust the saddle so that you face straight ahead.
- Tighten the clamp with the correct torque (see Annex B) or the component manufacturer's recommendation).

After setting the correct saddle height, make sure that you have not exceeded the „minimum“ or „maximum“ mark on the saddle tube (see figure below).

WARNING! *If the saddle bar is not properly inserted into the seat post, the saddle bar can break, leading to a fall and a serious accident.*

2. Adjusting the saddle forward and backward

Ask our reseller partner to help you adjust the saddle forward and backward. If you want to make the adjustment yourself, make sure that the clamping mechanism is pressed against the straight parts of the saddle rail and does not touch the curved parts of the saddle rail. Use the recommended torque to tighten the fasteners. (see Annex B or the recommendation of the component manufacturer).



3. Adjusting the angle of inclination

Most people use a horizontal saddle position, but some cargo cyclists prefer a slightly downward or upward facing saddle position. Our reseller partner will perform and show you the saddle angle adjustment operation.

If you want to perform the operation yourself and there is a single-bolt clamp on the seat tube, it is very important to loosen the bolt enough to remove it, then reposition it to another set position and re-tighten it to the correct torque (see Annex B) or the component manufacturer's recommendation).

WARNING! *After each saddle adjustment operation, before using the cargo bike, make sure that the lowering mechanism is properly secured. A loose clamp can cause a failure in the saddle bar or a fall. A properly fixed saddle adjustment mechanism will not allow any saddle movement in any direction. Regularly check that the adjusting mechanism or clamp is properly secured.*

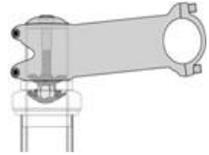
If, despite careful adjustment of saddle height, angle and position, the saddle is still uncomfortable, you may need a saddle with a different form. Commercially available saddles come in a variety of shapes, sizes and elasticities. Our reseller partner can help you choose the right saddle, which, when properly adjusted, will ensure a comfortable ride.

WARNING! *Some state that an incorrectly adjusted saddle can cause short-term or long-term nerve damage, blood vessel damage or even impotence. If the saddle is causing pain, numbness or discomfort, stop riding your cargo bike and contact our reseller partner for a proper saddle adjustment or saddle replacement.*

III.2 Handlebar height and angle

The cargo bike is equipped with a threaded or A-head type handlebar stem. The threaded handlebar stem (stem) is fixed to the inside of the fork with an expander bolt, and the A-head handlebar stem is fixed to the outside of the fork.

If you have an A-head handlebar stem (figure on the right), our reseller partner can adjust the handlebar height by moving the height adjustment spacers (towards or below the handlebar stem). Otherwise, you will have to get a different size of handlebar stem. Ask our reseller partner about this. Do not attempt to perform the operation yourself, as it requires expertise.



WARNING! On some cargo bikes, adjusting the handlebar stem or handlebar height can affect the tension in the front brake line, jam the line or cause a loose line that can affect brake operation. If the position of the front brake shoes in relation to the rim changes after adjusting the steering height or the handlebar stem, adjust the braking system before using the cargo bike.

On some cargo bikes, you can also adjust the angle of the handlebars. If you have a similar system on your cargo bike, ask our reseller partner about the correct adjusting procedure. Do not attempt to adjust the angle yourself, as adjusting the angle may involve adjusting the handlebars – and the brake levers on which they are mounted.

WARNING! Always tighten the fasteners to the correct torques. Bolts that are too tight can break or deform, bolts that are too loose can move and cause material fatigue. Both can lead to sudden breakage of the bolts and an accident.

You can also trust our reseller partner to adjust the angle of the handlebar stem or replace its accessories.

WARNING! An improperly tightened handlebar bolt, head bolt or handlebar horn bolt can affect the steering of the cargo bike, causing you to lose control of the cargo bike and fall. Hold the front wheel of the cargo bike between your legs and try to twist the handlebar-handlebar stem set. If you can turn the handlebars relative to the front wheel, the fasteners are not tightened properly.

WARNING! When using accessories (handlebar horns), you have reduced control over the cargo bike, making it more difficult to steer. You also need to move your hand away from the handlebar to brake, which will increase the reaction time of the braking.

III.3 Adjusting the position of control elements

You can change the position and angle of the brake levers and gear levers as you wish. Ask our reseller partner to make the right adjustment. If you decide to carry out the adjustment yourself, remember to tighten the fasteners to the recommended torque (see Annex B) or the component manufacturer's recommendation) after the operation.



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IV. TECHNICAL INFORMATION

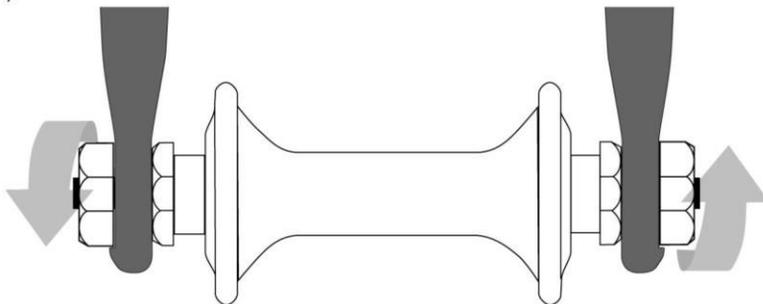
To maximise safety and performance, it is important to understand how a cargo bike works. We recommend that you consult our resale partner regarding the operations described below before carrying them out yourself and that you check with our reseller partner that the operations have been carried out correctly before using the cargo bike. If you have even the slightest doubt after reading this section, please contact our reseller partner. Please also read Annex A).

IV.1 Wheels

The wheels of the cargo bike can be removed for easier transport and repair.

The wheel axle is fitted into the axle mounting lugs (fork bracket) on the fork and the frame.

The hexagon nuts or wedge bolts are fixed to the wheel hub (figure below).



It is possible that the front and rear wheels of a cargo bike are ordered with different axle mountings. In this case, please contact our reseller partner for more information. It is very important to understand the wheel fixing system of a cargo bike and to be able to mount the wheels properly, with the correct torque and safely. Ask our reseller partner to show you how to fix the wheels and ask for the necessary instructions.

WARNING! An improperly secured wheel may wobble or fall out, causing serious injury or death. Therefore, it is of paramount importance that you ask our reseller partner to help you learn how to safely mount and remove the wheel, understand and apply the correct technique of fixing the wheel. Make sure the wheels are properly secured before each use of the cargo bike. The tightness of the properly fixed wheels should be visible on the surface of the fixing lug (fork bracket).

IV.1.1 Installation and removal of wheels

CAUTION! Be careful when touching the brake disc and the brake levers. The disc has very sharp edges, and both the disc and the brake levers heat up during use.

1. Removing the disc brake – front wheel

- If you have a through-bolt clamping system, use a suitable wrench to loosen the clamp by turning it counter clockwise.
- If the front fork has a clip-on type secondary fixing system, release it and move to step 3. If the front fork has an integrated secondary fixing system, loosen the fixing nut enough to remove the wheel from the fork brackets.
- If necessary, tap the upper part of the wheel with the palm of your hand to make it easier to remove it from the fork.

2. Installing the disc brake – front wheel

WARNING! Take care not to damage the brake disc, brake levers or brake shoes when refitting the disc. Do not activate the brake levers of the disc brake if the disc is not properly inserted between the brake levers. For more information, see section IV.2 Brakes.

- In the forward-facing fork position, position the wheel between the fork stems so that the axle is stable on the top of the fork brackets. If you have a secondary clip-on fixing system, make sure it is locked.
- Push the wheel firmly into the upper part of the fork brackets, and at the same time, position the wheel in the middle of the fork stems.
- In the case of through-bolt or bolt fastenings, tighten the fasteners according to the torque values given in Annex B) or according to the hub manufacturer's instructions.
- Rotate the wheel to ensure that the wheel is centred and the brake shoes are properly spaced, then squeeze the brake lever to test the brake for

proper operation.

3. Removing the disc brake – rear wheel

- If you have a multi-speed, chain-shift cargo bike: shift the rear shifter to high gear (the smallest, outermost rear sprocket). If you have a cargo bike with internal hub gear (IHG), contact our reseller partner for advice first and then, if necessary, contact the shifter manufacturer before dismantling the rear wheel.
- On a chain-shift cargo bike, pull the shifter body back with your right hand.
- For through-bolt or standard bolt systems, loosen the fasteners using the appropriate wrench, then push the wheel forward until you can remove the chain from the rear sprocket.
- Raise the rear wheel a few centimetres off the ground and remove it from the rear fork brackets.

4. Installing disc brake – rear wheel

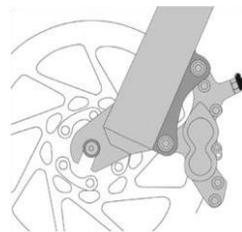
WARNING! Take care not to damage the brake disc, brake levers or brake shoes when refitting the disc. Do not activate the brake levers of the disc brake if the disc is not properly inserted between the brake shoes.

- On a chain-shift cargo bike, make sure that the rear shifter is in the highest gear (lowest sprocket), then pull the derailleur back with your right hand. Place the chain on the smallest sprocket.
- Insert the wheel into the fork brackets and push it fully into the sockets.
- Place the chain on the sprocket, pull the wheel back into the fork so that it is stable and straight in the frame and the chain has about 6 mm of play in the up and down direction.
- In the case of through-bolt or normal bolt fastening systems, tighten the fasteners according to the torque values given in Annex B) or in the component manufacturer's instructions.
- Rotate the wheel to make sure that the wheel is in the centre position and the brake shoes are properly spaced, then squeeze the brake lever to test the brake for proper operation.

WARNING! Using a cargo bike with an improperly secured saddle can cause the saddle to shift, causing you to lose control of the cargo bike and fall off. Therefore, ask our reseller partner to help you learn how to adjust the saddle correctly. Make sure that you understand and are able to perform the correct saddle-fastening operation. Before using the cargo bike, check that the saddle is properly secured!

IV.2 Brakes

The use of improperly adjusted brakes, worn brake pads or visibly excessively worn brake discs can be dangerous and cause serious injury or death. Activating the brakes with too much force or suddenly may lock the wheel, causing you to lose control of the cargo bike and fall.



Sudden or excessive activation of the front brake can cause a cyclist to fall over the handlebars, causing serious injury or death.

The disc brakes (figure on the right) are very efficient. Take special care when using them. Disc brakes can heat up during extended use. Do not touch the brake disc, let it cool down first.

For more information on how the brakes work and how to replace the brake pads, please contact our reseller partner first or, if they are unable to help, the brake manufacturer. When replacing worn or damaged parts, use only original replacement parts authorised by the manufacturer.

IV.2.1 Brake handling and their characteristics

For your own safety, it is very important to remember which brake lever activates which brake. Traditionally, the right brake lever controls the rear brake and the left brake lever controls the front brake, but before using, be sure to activate each brake lever and check which one controls the front and the rear brake.

Make sure that you can reach and activate the brake levers easily and comfortably with your hands. If your hands are too small to use the brake levers comfortably, please contact our reseller partner before using your cargo bike. In some cases, the lever may be adjustable or you may need a different type of lever.

IV.2.2 How the brakes work

The braking effect of a cargo bike is the result of the friction between the brake surfaces. To ensure maximum friction, always keep the brake pads, brake discs and brake lever clean and free of dirt, lubricants and polishing materials.

Brakes are designed not only to stop the cargo bike, but also to control speed. The maximum braking force of the wheels is applied immediately before the wheel „locks up“ (suddenly stops turning) and starts to slide. As soon as the wheel starts to slide, you actually lose most of the braking force and your control of the cargo bike. Practise smooth deceleration without locking, as well as smooth stopping! The technique is called „progressive brake modulation“. Rather than pulling the

brake lever to the position where you think it will apply sufficient braking force, gradually tighten the lever, gradually (progressively) increasing the braking force. If you feel the wheel starting to lock, release a little pressure so that the wheel can just keep turning. It's important to be able to feel the right pressure for the current gears and road surface. To get a better feel, practice: take a few turns with the cargo bike and apply varying amounts of pressure to the brake levers until the wheel locks.

When you apply one or both brakes, the cargo bike slows down, but your body swings forward at the previous speed. This will result in a weight transfer to the front wheel (or front wheel hub in the case of heavy braking), which can throw you forward over the handlebar.

If the wheel is under more load, it will take more brake pressure before locking. If a wheel has a low load, it will lock with less brake pressure. Therefore, when braking, when your weight is pushed forward, push your body back towards the rear of the cargo bike to redirect the weight back to the rear wheel. At the same time, reduce the rear braking force and increase the front braking force. This operation is particularly important on slopes, as the weight will be pushed forward on slopes.

Always pay attention to wheel lock and weight transfer for effective speed control and safe stopping. Practice braking and weight transfer techniques in areas free of traffic and other hazards, where nothing can distract you.

Everything changes when you are riding on uneven road surfaces or in wet weather. It takes longer to stop. The rubber grip is reduced, so the wheels have less turning or braking grip and may also stall at lower braking forces. Moisture or dirt on the brake pads reduces the braking force. On uneven road surfaces and in wet weather, ride your cargo bike more slowly to maintain control.

IV.3 Shifting gears

The multi-speed cargo bikes are equipped with a derailleur (see section *IV.3.1 Operation of the derailleur*) or an internal hub gear (IHG) (see section *IV.3.2 Operation of the internal hub gear*).

IV.3.1 How the derailleur works

If the cargo bike is equipped with a gear-shift, the transmission mechanism may consist of the following elements (depending on the type)

- 3.Rear cassette-type sprocket set
- Rear derailleur

- One or two shift levers
- One, two or three front sprockets
- Chain

IV.3.1.1 Shifting gears

There are different types and styles of gearshift controls: shifters, grip shifters, switches, combined gear/brake controls and push buttons. For detailed information on the type and operation of the gearshift controls on your cargo bike, please contact our reseller.

The terms of gear shift are a little difficult to understand. Downshifting means shifting into a "lower" or "slower" gear, in which it is easier to pedal. Upshifting means shifting to a "higher" or "faster" gear, in which it is harder to pedal. (For details, see the instructions in section *IV.3.1.2 Rear gear shifting*). For example, you can select a speed that makes it easier to pedal uphill in two different ways (downshift): shift the chain to a lower "gear", i.e. a smaller gearwheel at the front, or to a higher "gear", i.e. a larger gearwheel at the rear. So, what we call a downshift at the rear derailleur sprocket actually looks like an upshift. To shift correctly, remember that shifting the chain towards the centre axle of the cargo bike is suitable for acceleration and climbing, and is called downshifting. Shifting the chain outwards, away from the centre axle, is suitable for fast travel, and is called upshifting.

The shifting system of a cargo bike requires the drive chain to move forward when shifting up or down. Therefore, gear shifts can only be made while pedalling forwards.

CAUTION! Never shift backwards while pedalling, and never pedal backwards immediately after using the shifting system. This can cause the chain to get stuck and cause serious damage to the cargo bike.

IV.3.1.2 Shifting the rear derailleur

The rear derailleur is controlled by the right shifter. The rear derailleur moves the drive chain from one sprocket to the other corresponding to a specific speed. The use of smaller sprockets on the gear set result in higher gear ratios. Pedalling is harder at higher speeds, but with each turn of the pedal crank, the cargo bike moves a longer distance. Larger sprockets result in lower gear ratios. Using them makes pedalling easier, but with each revolution of the pedal crank, the cargo bike moves a smaller distance. Switching the chain from smaller to larger sprockets results in a downshift. Switching the chain from larger sprockets to smaller ones will result in upshift. To move the chain from one sprocket to the other, you must always pedal forwards.

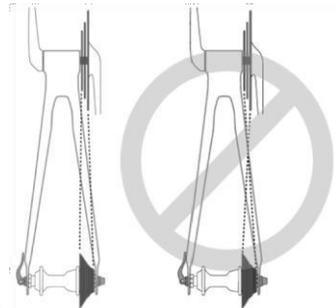
IV.3.1.3 Shifting the front derailleur

The front derailleur, which is controlled by the left shifter, moves the drive chain between the larger and smaller sprockets. Moving the chain to a smaller sprocket makes pedalling easier (downshifting). Moving the chain to a larger sprocket makes pedalling more difficult (upshifting).

IV.3.1.4 Which gear should we swift to?

The combination of the largest rear and the smallest front gearwheel (gear) is suitable for the steepest climbs. The combination of the smallest rear and the largest front gearwheel is suitable for the highest speed.

There is no need to change speeds in sequence. Instead, find the "starting speed" that matches your capabilities – that is, hard enough to go fast, but light enough to be able to start without fluctuations – and experiment with upshifting and downshifting to get a feel for the different speed combinations. At first, you should only practice shifting in an obstacle-free and traffic-free area until you learn to handle the shifting system with confidence. Learn to anticipate the times when a shift of gear is needed, and shift down to a lower speed before the gradient becomes too steep. If there are problems with the gear shift, a mechanical adjustment may be necessary. Please contact our reseller partner for assistance.



WARNING! Never shift to the largest or smallest sprocket if the shifting system does not shift easily. It is possible that the derailleur is out of gear and the chain gets stuck, which can lead to loss of control and accidents while driving.

IV.3.1.5 What to do if gear shifting does not happen?

If repeated use of the shifter does not result in a smooth shift to the next gear, the mechanism is probably misadjusted. Please contact our reseller partner for assistance with adjustment.

IV.3.2 How the internal hub gearbox works

If the cargo bike has an internal hub gearbox, the gear shift mechanism consists of the following elements:

- 3-, 5-, 7-speed internal hub gearbox or any number of gears,

- one or sometimes two shifters,
- one or two control cables,
- front cassette called sprockets,
- drive chain.

IV.3.2.1 Shifting gears

To shift gears using the internal hub gearbox, simply move the shifter to the correct position to reach the desired gear. Once you have moved the shifter to the correct position, release the pressure on the pedals for a short time to allow the system to complete the shift.

IV.3.2.2 Which gear should we shift to?

Use the numerically lowest gear (1) for the steepest climbs. Use the numerically highest gear for the highest speed.

Shifting from an easier, „slower“ gear (e.g. 1) to a harder, „faster“ gear (e.g. 2 or 3) is called upshifting. Shifting from a harder, „faster“ gear to an easier, „slower“ gear is called downshifting. There is no need to shift gears in sequence. Instead, find a „starting speed“ that suits the conditions – i.e. hard enough to go fast, but easy enough to start without wobbling – and experiment with upshifting and downshifting to get a feel for different speed combinations. At first, practice shifting only in an area free of obstacles and traffic until you learn to handle the shifting system with confidence. Learn to anticipate the times when a shift of gear is needed, and shift down to a lower speed before the gradient becomes too steep. If you have problems with shifting gears, you may need a mechanical adjustment. For assistance, please contact our reseller partner.

IV.3.2.3 What to do if gear shifting does not happen?

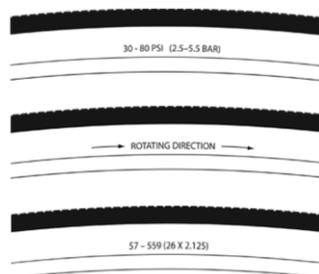
If repeated use of the shifter does not result in a smooth shift to the next gear, the mechanism is probably misadjusted. Please contact our reseller for assistance with the adjustment.

You do not want to use a specialist to fine-tune the shifting system.

IV.4 Tyres and inner tubes

IV.4.1 Tyres

Cargo bike tyres are available in a wide range of designs and technical specifications, from general purpose tyres to solutions designed for specific weather or road conditions. Once you have gained some experience on your new cargo bike, you may feel that a different type of tyre would suit your needs better: in this case, our reseller partner can help you choose the right type.



The size, pressure rating and recommended conditions of use for certain high performance tyres are indicated on the side of the tyre (see figure above). Out of these, the most important piece of information is the tyre pressure.

CAUTION! *Never inflate the tyre above the maximum pressure marked on the sidewall. Exceeding the maximum recommended pressure can result in the bursting of the tyre off the wheel, which can damage the cargo bike and cause injury to the rider or bystanders.*

Using a cargo bike pump with a built-in pressure gauge is the safest and most reliable way to set the right pressure.

CAUTION! *The use of air hoses or other compressors available at petrol stations can be dangerous, as these devices are not designed for cargo bikes. They move large amounts of air at very high speeds, increasing the pressure in the tyre very quickly, which can lead to the tyre bursting.*

The tyre pressure may be indicated as a maximum pressure or as a range. Pressure has a big impact on tyre performance in different terrain or weather conditions. When inflated to near the maximum recommended pressure, the tyre offers the lowest rolling resistance, but with it comes increased vibration of the cargo bike. High air pressure is recommended for smooth, dry pavement. Very low pressures, near the bottom of the pressure range, perform best on smooth, flat terrain (such as clayey terrain and deep, loose surfaces such as deep, dry sand).

CAUTION! *Pencil-type vehicle pressure gauges can be inaccurate and cannot be used as a basis for consistent, accurate measurements. Always use a good-quality, good-looking measuring instrument.*

Ask our reseller partner for help in determining the optimum tyre pressure for your riding habits, and how to inflate to the correct pressure. Next, check the air pressure as described in section 1.3.2 *Wheels and tyres*: this will tell you the condition of the properly inflated wheels (good to know if you will not have a pressure gauge available).

Certain types of tyres need to be inflated to the correct pressure every week or two, so it is important to check the pressures before each time you ride the cargo bike.

Some high-performance tyres have unidirectional treads: the tread pattern is more effective in one direction than the other. On the sidewall of unidirectional tyres, a mark indicates the correct direction of rotation. If the cargo bike has unidirectional shock absorbers, make sure that they are fitted in the correct direction of rotation.

IV.5 Valves

The two most common valves for cargo bikes are the Schraeder (auto) valve and the Presta valve. Make sure that the fitting of the cargo bike pump matches the valve stem of the cargo bike.

The Schraeder valve (right) is similar to a car tyre valve. To inflate the Schraeder valve, remove the valve cap, then clamp the pump fitting onto the end of the valve stem. To drain the air, push in the pin at the end of the valve with the end of a spanner or other suitable tool.



WARNING! It is advisable to carry a spare tyre with you when riding your cargo bike. Internal patching of the inner tube is considered an emergency operation only. If you apply the patch incorrectly, or apply more than one patch, the inner tube may fail, or the patch may cause a puncture that could result in loss of control and a fall from the cargo bike. Replace the patched inner tube as soon as possible.

IV.6 Electric assistance (display, sensor, motor)

If you did not choose an electric-assisted (pedelec) cargo bike, this section does not apply to you. In this case, go to section V. Repair and maintenance.

If you chose a normal (not electric-assisted) cargo bike, but still want to equip your cargo bike with a pedelec system in the future, you can do so retroactively for cargo bikes with a front-drive hub-motor. You should first check with our reseller partner and then contact the manufacturer directly if necessary.

WARNING! If you suspect to have suffered an electric shock while using or loading the cargo bike, seek medical advice immediately to avoid complications later.

CAUTION! Never wash the battery, display or motor with a high-pressure water jet, as this may cause damage to the components.

WARNING! After using the cargo bike, always disconnect the system using the rocker switch on the side of the battery. You can re-energise the system before use.

The use of the cargo bike is not subject to the condition that the battery is charged or the display/assist switched on, but battery life is increased when fully charged.

IV.6.1 Factors affecting range

Range is affected by the following factors:

- cold weather,
- the weight of the cyclist riding the cargo bike,
- the weight of the load carried,
- transport dynamics,
- tyre pressure,
- level difference overcome
- the rate of assistance applied

That is, if a heavier cyclist with a heavy load rides dynamically with low tyre pressure in cold weather, the range will be noticeably shorter than if a lighter cyclist with a light load rides with slower starts in warmer weather with wheels set to higher tyre pressures. It is important to bear this in mind during use.

IV.6.2 Safety requirements

Never use an aftermarket charger! This can lead to overheating, battery damage, explosion or fire. If the charger is ruined, lost or damaged please contact our reseller partner.

- **Make sure your charger is compatible with the electricity network (do not use it outside the European Union)**
- **Use the charger indoors only!**
- **Never open it or try to repair it!**
- **Do not touch the battery contacts!**
- **Do not remove the battery from the cargo bike while charging!**

- **Even if you don't use your cargo bike, charge it for 1 hour a month!**
- **Do not charge with a non-standard charger!**
- **Make sure that no liquid gets into the charger!**
- **Do not use the charger around small children!**
- **Never use in wet, contaminated environments!**
- **Do not charge if there is lightning nearby!**
- **Make sure that the charger is not subject to shocks or strong vibrations!**
- **Tampering with the battery casing will immediately void the warranty.**
- **Do not use acidic or alkaline cleaning products to clean your cargo bike!**

IV.6.3 Charging the battery

Always charge the battery indoors! You can also charge the battery while it is on the cargo bike,

or removed from the rail.

Never charge the battery in wet or damp environment! Do not charge the battery in a humid environment! Never touch the battery or charger with wet hands!

Do not cover the battery or charger when charging, as this can generate heat and prevent heat dissipation, which can damage the battery and charger or, in worse cases, cause a fire!

How to charge the battery:

1. Switch off the battery!
2. Plug the charger connector into the battery!
3. Plug the charger into the mains!

Never reverse the order as this may damage the battery and the charging equipment.

When the charging is complete, carry out the operations in reverse order:

1. Disconnect the charger from the mains!
2. Disconnect the charging plug from the battery!
3. Replace the protective cap on the battery charger connector to prevent corrosion!

IV.6.4 Technical specifications

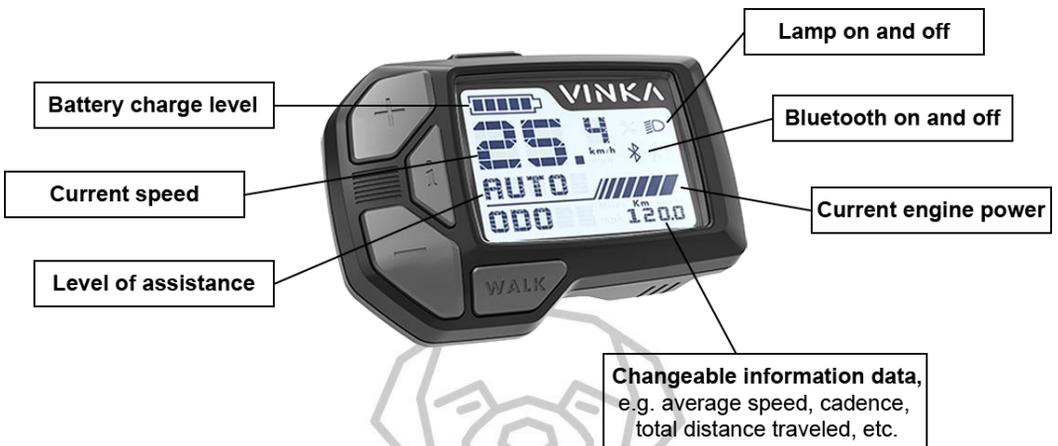
For electric assisted cargo bikes, we use a VINKA Front HUB drive – torque sensor – motor. For the technical specifications of the pedelec motor, see the official website of the manufacturer in English: https://www.vinka.jp/hub_drive_unit/5.html.

The technical specifications of the battery for powering electric assisted cargo bikes are available at the following link: www.mastiffcargobike.com/downloads/mastiff_ak-kumulator_specifikacio.jpg

IV.6.5 Display control buttons (DS20)



IV.6.5 Data displayed on the screen

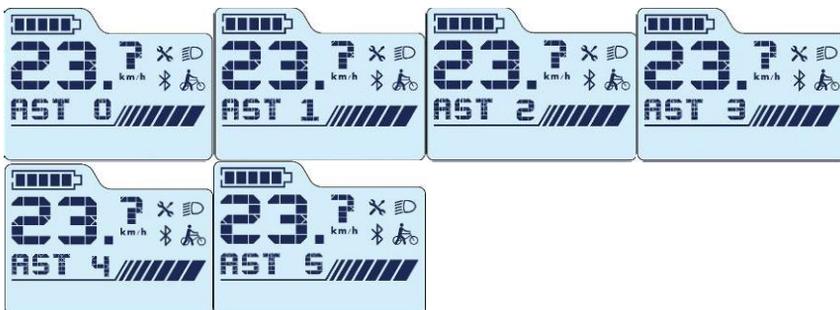


IV.6.6 Switching on/off

The electric system of the cargo bike can be switched on by pressing the ON/OFF button for 1 second. After use, you can switch off the electrical system of the cargo bike by pressing and holding the ON/OFF button for 1 second. After 15 minutes of parking, the electric system of the cargo bike will automatically switch off.

IV.6.7 Assistance levels

You can switch between the assistance levels by pressing the + and - buttons from the range of 0 to 5. In position 0 the motor is not running and in position 5 the electric assistance is running at maximum power.



IV.6.8 Meaning of ODO, AVG, MAX, CAD, TRIP information displayed on screen

ODO – Total distance travelled

AVG – Average speed

MAX – Maximum speed

CAD – Pedal rotation

TRIP – Distance travelled

Pressing the "+" and "-" buttons simultaneously on the TRIP display resets the "Distance travelled" counter to zero.

If the ODO value exceeds 9999 km, it automatically restarts counting.

IV.6.9 Walk mode

To start the walk mode, press the "**MODE SELECT (i)**" button, then press and hold the "**WALK**" button to start the cargo bike at a steady speed of 6 km/h. When you release the button, the walk mode stops immediately.

IV.6.10 Switching lights off/on

To turn on the lights, press and hold the "+" button for 1 second. This automatically reduces the brightness of the display, and the lighting pictogram will appear.



IV.6.11 Settings

To enter the SETTINGS menu, press the "**SELECT MODE (i)**" and "-" buttons simultaneously. To exit, press and hold the "**SELECT MODE (i)**" button. You can switch between menus by pressing the "+" and "-" buttons.

V. REPAIR AND MAINTENANCE

WARNING! *Advances in technology are enabling ever more complex cargo bikes and cargo bike components, leading to increased development opportunities. Due to space limitations, this guide cannot cover all repair and maintenance information. In order to reduce the risk of accidents and possible injuries, all repairs and maintenance not expressly covered in this manual must be carried out by the reseller partner. It is similarly important that individual maintenance requirements can vary depending on a number of factors, from driving style to geographical location. To specify your maintenance requirements, please contact our reseller partner.*

WARNING! *Many cargo bikes maintenance and repair operations require specific skills and equipment. Do not make any changes or repairs to your cargo bike before you have learned the correct operations from our reseller partner. Improper adjustment or repair operations on the cargo bike may cause damage to the cargo bike, as well as accidents resulting in serious injury or death.*

If you want to learn the main repair and maintenance tasks:

- Contact your reseller partner for questions about the installation and maintenance of parts, or contact the part manufacturer if necessary.
- Ask our reseller partner to recommend a cargo bike repair service for your cargo bike.
- Ask our reseller partner to recommend a cargo bike repair course in your area.

We recommend that, for the first time, you have the quality of the repair or maintenance work you performed checked with our reseller partner before you start riding the cargo bike. This way you can make sure that you have performed the operations correctly. Such routine check may have a low cost.

We recommend that, after learning the replacement procedures, you ask our reseller about the type of replacement parts (inner tubes, bulbs, etc.) that are suitable for your cargo bike.

V.1 Servicing

Certain service and maintenance operations are recommended to be carried out by the owner and do not require any special tools or skills beyond those provided in this manual.

The following are examples of servicing operations that can be carried out by the owner. All other servicing, maintenance and repair operations must be carried out by a suitably equipped workshop, by a qualified bicycle mechanic, using the tools and procedures specified by the manufacturer.

V.1.1 Run-in period

Prior to more intensive use, run-in will result in longer service life and better performance of the cargo bike.

Inner cables and spokes may stretch or "embed" when the new cargo bike is first used, and this may require readjustment by the reseller partner. The information in section I.3 Technical safety check identifies the components that need to be readjusted. But even if everything seems to be in order, it's still a good idea to take the bike back to our reseller for a routine check. We recommend that you do this after 30 days. Another, alternative definition of the date of the first routine check: after 10-15 hours of use on road or on light terrain. If you feel that something is wrong with your cargo bike while you're on the road, take it to our reseller before using it again.

V.1.2 Before each use

Carry out the procedures described in section I.3 Technical safety check.

V.1.3 After prolonged or heavy use

If the cargo bike has been exposed to water or dirt, clean the cargo bike after every 150 km and lightly lubricate the chain rollers with a good quality bicycle chain lubricant. Wipe off the excess with a lint-free cloth. The wetting operation can be carried out depending on the weather conditions. Contact our reseller to determine the ideal lubricants for your local conditions and the recommended lubrication frequency. Make sure that the rims are not exposed to lubricant!

V.1.4 After every long or difficult ride, or after every 10 or 20 hours of riding the cargo bike

Apply the front brake and tilt the cargo bike backwards and forwards. Does everything seem stable? If you feel a bump with each forward and backward movement, the stem joint is probably loose (see section III.2 Handlebar height and angle). Check with our reseller partner.

Lift the front wheel and swing it to the left and right. Is the movement smooth? If you notice a jam or unevenness in the handlebar, the stem probably fits tightly. Check with our reseller partner.

Hold one pedal and push it towards the centre axle of the cargo bike and back, then do the same with the other pedal. Does anything look loose? If so, check with our reseller partner.

Take a look at the brake pads. Do they look worn or not in contact with the brake disc at right-angle? It's time for your reseller partner to adjust or replace the brake pads.

Carefully check the inner cables and cable sheathing. Do you notice rust marks, lumps or signs of wear? If so, ask our reseller partner to carry out the replacement.

On both sides of each wheel, squeeze each adjacent spoke with your thumb and index finger. Do they feel the same? If any of them seems loose, ask our reseller partner to check the tightness of the wheels.

Check the wheels for significant signs of wear, cuts or other damage. If necessary, have your wheel replaced by our reseller partner.

Check the wheel rims for significant signs of wear, marks of impact, dents or scratches. Contact our reseller partner if you notice any damage.

Make sure that all parts and accessories are connected correctly and tighten the loose parts.

Check the frame, especially around the joints, handlebars, handlebar stem and seatpost for deep scratches, cracks or discolouration. These signs of wear from increased use indicate that the part is reaching the end of its useful life and needs replacement. See also Annex A).

WARNING! Like any mechanical structure, a cargo bike and its components are subject to wear and tear. Different raw materials and mechanisms are subject to different degrees of wear and tear under load, and have different lifetimes. If a component is used beyond its service life, the component may suddenly fail irreversibly, causing serious or fatal injury to the cyclist. Scratches, cracks, wear and discolouration indicate that the component has reached the end of its useful life and needs to be replaced. While the materials and workmanship of the cargo bike and its components may be warranted by the manufacturer for a certain period of time, there is no guarantee that the product will actually last until the end of the warranty period. The life of the product is usually greatly influenced by the style of riding the cargo bike, and the way in which the cargo bike is cared for. The warranty of a cargo bike does not mean that the cargo bike will not suffer

damage or will last forever. The warranty only means that the appropriate warranty conditions apply to the cargo bike. Please refer to Annex A).

V.1.5 If necessary

If any of the brake levers do not comply with the conditions described in section I.3 Technical safety inspection, do not use the cargo bike. Have our reseller check the brakes.

If the chain does not shift smoothly and quietly from one speed to the next, the shifting system is misadjusted. Contact our reseller partner.

V.1.6 For every 25 hours of riding (off-road terrain) or 50 hours (on road) of the cargo bike

Take your cargo bike to our reseller partner for a full inspection.

V.1.7 If the cargo bike is exposed to a bump or collision

First check and treat your own injuries to the best of your ability. Consult a doctor if necessary. Then check the damage to the cargo bike.

After any accident, take your cargo bike to our reseller for a thorough inspection. Carbon fibre components (such as frames, wheels, handlebars, handlebar stems, swivel levers, etc.) that have been subjected to physical impact are strictly forbidden to be used before they have been dismantled and thoroughly inspected by a qualified bicycle mechanic. See also Annex A).

WARNING! Accidents or other physical impacts can put an extreme strain on the components of the cargo bike, which can lead to permanent damage. These parts can suddenly and irreversibly fail while the vehicle is in motion, causing serious or fatal injury to the person riding the cargo bike.

A) ANNEX: INTENDED USE OF THE CARGO BIKE

CAUTION! Always use the cargo bike as intended:

- **do not exceed the permitted load weight (80 kg);**
- **always properly secure the load being transported (use straps or clamps manufactured for fixing loads securely) so that they do not fall off during transport, causing an accident;**
- **always position the load in such a way that it does not prevent unobstructed view (the rider of the cargo bike can see the road in all directions);**
- **the load does not interfere with safe steering, and the intended use of the brake levers;**
- **when transporting a heavy load, be more careful than with a conventional city bike, ride more slowly so that you can stop safely at any moment (note that sometimes more time is needed to stop safely or to brake);**
- **for the carriage of passengers, use only a certified, undamaged accessory (child carrier box), with the passenger properly secured in the seat in a seated position (wearing a helmet!) under controlled conditions;**
- **when transporting pets, make sure that your pet can travel safely in the transport box (do not transport it on the cargo platform), without risking an accident by any sudden movements;**
- **when transporting pets, the pet must be securely fastened in the transport box (leash, etc.).**

Be aware of your limitations before you set off, and only set off if you have adequate cycling experience. Use the cargo bike without a load and passenger first; when you can ride it confidently, only then carry a load on the cargo bike.

1. Useful life of the cargo bike

Once the cargo bike or its components have reached the end of their useful life, further use can be dangerous. The service life may vary depending on: the construction of the chassis and components and the raw materials used, the maintenance and care of the chassis and the parts, the wear and tear on the chassis and components. The life of the frame and components can be drastically shortened by factors such as riding tricks, ramps, jumps, riding the cargo bike aggressively, off-road terrain, harsh weather conditions, carrying loads in excess of the maximum weight limit (80 kg), and other non-standard uses. One or a combination of these conditions can lead to unforeseeable failures.

Have the cargo bike and its parts checked regularly by our reseller partner for signs of possible overloading and/or potential failure, such as cracks, deformation, corrosion, paint chipping, dents, and other signs of potential problems, misuse or damage. These safety checks are very important as they are designed to prevent accidents involving bodily injury to the rider of the cargo bike, and to prevent the reduction of the service life of the cargo bike.

2. What can you expect?

Today's heavy-duty cargo bikes require frequent and attentive inspection and maintenance. In this annex, we explore the scientific basis and their results for the cargo bike. We will discuss the compromises made when choosing a cargo bike, and what to expect. We also provide important and basic guidelines for maintenance and inspection. It is not possible in this guide to cover everything you need to know about proper inspection and maintenance, so once again we encourage you to take your cargo bike to our reseller for professional maintenance and inspection.

WARNING! Frequent inspections of the cargo bike are important safety procedures. Before each ride on a cargo bike, carry out the technical safety inspection described in section 1.3 Technical safety inspection of this guide.

At certain intervals, it is also important to carry out a more comprehensive inspection of the cargo bike. The frequency of a through inspection depends entirely on your habits of using the cargo bike.

Only the cargo bike rider/owner knows how often he/she uses his/her cargo bike, what loads he/she exposes it to, and where he/she uses it. Since the reseller partner cannot check such data, it is the responsibility of the user to transport the cargo bike to the reseller partner periodically to carry out inspection and maintenance operations. The reseller partner will help you to determine the frequency of inspection and maintenance required for your specific cycling habits.

For your own safety and to ensure proper communication with your reseller partner, please read this annex carefully. The raw materials used in the production of the cargo bike determine the methods and frequency of inspection.

Failure to heed this warning could result in failure of the frame, fork or other components, causing serious or fatal injury.



3. About metals

The main raw material for our cargo bike frames is steel and the front fork is made of chromium-molybdenum. Our cargo bikes are designed to carry heavier loads than conventional bicycles, but the frame can still be damaged and crack under loads higher than the maximum load.

3.1 Properties of metals

It would be difficult to summarise the uses of different metals in simple terms. In general, the way the selected metal is used is more important than the raw material itself. In addition to the basic properties of the metal, the design, testing, manufacture and construction of the cargo bike must also be taken into account.

Metals also differ greatly in their resistance to corrosion. Steel must be protected against rust.

Metals are relatively ductile. Ductility refers to the bending, deformation and elongation of the metal before fracture. Generally speaking, steel is the most ductile of the raw materials used for the frame of cargo bikes.

Metals vary in density. Density is the mass per unit of raw material. The density of steel is 7.8 g/cm³.

Metals are subject to fatigue. After a sufficient number of use cycles and a reasonable amount of stress, cracks will appear in the metal, which can lead to failure. Be sure to read below section 3.2 On metal fatigue.

Suppose you drive into a ditch or hit a kerb, a stone, a car, a cyclist or other object. At any speed above a brisk walk, your body will continue to move forward, pushing you over the handlebars of the cargo bike. You cannot and will not stay on the cargo bike, and what happens to the frame, fork or other parts is insignificant compared to your bodily injuries.

What can you expect from the metal frame of your cargo bike? This depends on a number of complex factors, including design. In addition, the fork or frame may bend or twist if subjected to sufficiently strong physical impact. On steel cargo bicycles, the steel fork may bend violently while the frame is not damaged.

When steel cargo bikes are involved in an accident, the ductility of the steel usually results in the metal bending, warping or deforming.

3.2 On metal fatigue

The term fatigue refers to the accumulation of damage in a component that results from repeated use. The damage that causes fatigue requires the component to be subjected to a reasonable amount of stress. Fatigue has nothing to do with time or age. A cargo bike stored in a garage is not fatigued. Material fatigue is the result of use.

What kind of "damage" can we talk about? Hairline cracking occurs at the microscopic level in the area subjected to high stress. As the stress is repeated, the crack becomes larger and larger. Beyond a certain point, the crack is visible to the naked eye. Eventually, it can grow to the point where the part becomes too weak to carry the load it could without cracking. This can lead to complete and immediate failure of the component.

It is also possible to design components that are so strong that their fatigue life approaches infinity. This requires large amounts of raw materials and a lot of weight. Any structure that needs to be light and strong has a finite fatigue life.

Aircraft, racing car and motorcycle parts all have a finite fatigue life. A cargo bike with infinite fatigue life would be much heavier than any of the cargo bikes currently on sale.

3.2.1 What should you look for?

<p>AS SOON AS A CRACK APPEARS, IT CAN BECOME ENLARGED VERY QUICKLY. Remember that the crack is the beginning of the road to failure. This means that every repetition is a potential source of danger, and this danger can only increase over time.</p>	<p>RULE 1. If you notice a crack, replace the part, or have it replaced.</p>
<p>CORROSION ACCELERATES DAMAGE. Cracks grow much faster in corrosive environments. Bear in mind that corrosive materials will further weaken and expand the tear.</p>	<p>RULE 2. Clean the cargo bike, lubricate the cargo bike, protect the cargo bike from salt, remove all salt as quickly as possible.</p>
<p>DIRT AND DISCOLOURATION MAY APPEAR ALONG THE CRACK. These may show signs of cracking.</p>	<p>RULE 3. Check for any discolouration as it may be related to cracking.</p>
<p>MAJOR SCRATCHES, GROOVES, DENTS OR NOTCHES CAN BE A STARTING POINT FOR CRACKS. Think of the cut surface as the focal point of the load (engineers call these areas „load increasing“ because the load is increased in their area). You have probably seen a glass cutting process before. The glass is first slit and then broken along the incision.</p>	<p>RULE 4. Do not scratch, carve or slit surfaces. If this does happen, pay close attention to the area, or replace the part (or have it replaced).</p>
<p>SOME CRACKS (ESPECIALLY BIGGER ONES) MAKE SQUEAKING NOISES DURING RIDING THE CARGO BIKE. These noises should be considered</p>	<p>RULE 5. Inspect the cargo bike and find the source of the noise. The noise may not be caused by a crack, but by other problems that need to be solved.</p>

serious warning signs, and should be treated accordingly. A well-maintained cargo bike is always very quiet and free from squeaks or creaks.	
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In most cases, a crack from fatigue is not a sign of failure, but a sign that a component has worn out, i.e. that it has reached the end of its useful service life.

3.2.2 Fatigue cannot be calculated perfectly

Fatigue cannot be calculated perfectly, but based on some general factors, you and our reseller partner can determine how often your cargo bike needs to be inspected. The more you fit into the "short service life" profile, the more often you should have your cargo bike inspected. The more you fit into the "long service life" profile, the less often you will need to have this test.

3.2.3 Factors of short service life:

- A heavy-use, rough style of riding the cargo bike
- Bumping into objects, accidents, jumps, other vibrations caused to the cargo bike
- High mileage
- Body weight higher than that permitted (kg)
- Overloading of the cargo area (> 80 kg)
- Stronger, fitter, more aggressive cargo cyclist
- Corrosive environment (humid, salty air, winter pavement salt, damp environment)
- The presence of abrasive mud, soil, sand, oil on the terrain of the area where the cargo bike is used

3.2.4 Factors of long service life:

- Light-use, smooth style of riding the cargo bike
- No bumping into objects, accidents, jumps, other vibrations caused
- Low mileage
- Low body weight
- Proper loading of the cargo platform
- Less aggressive riding style of the cargo bike rider

- Non-corrosive environment (dry, salt-free air)
- Clear ground conditions

CAUTION! *Do not ride a cargo bike if you notice any cracks, bumps or dents, whether small or large, on the cargo bike or its parts. Cracks in the frame, fork or component may lead to complete failure of the component during riding the cargo bike, which can result in injury or death.*

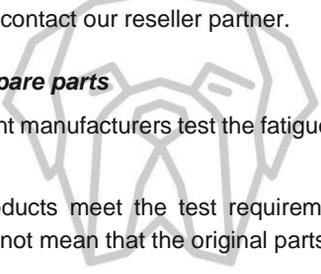
3.3 About the parts

It is often necessary to remove and dismantle parts to ensure proper and careful inspection. This task should be carried out by a professional cargo bike mechanic, so in such cases, please contact our reseller partner.

3.3.1 Original spare parts

Cargo bike and component manufacturers test the fatigue life of original equipment after production.

This means that the products meet the test requirements and have adequate fatigue life. But that does not mean that the original parts will last forever.



MASTIFF
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B) ANNEX: TIGHTENING TORQUES

For your own safety, always observe the prescribed tightening torques when fastening. Always tighten the fasteners to the specified torque. If you find a value in this manual that is different from the one given by the manufacturer of the part, please contact our reseller partner or the manufacturer's customer service. Over-tightened bolts can stretch and deform. Screws that are too loose can be displaced and fatigued. Both errors can lead to sudden failure of the screw.

Always tighten the key fasteners of your cargo bike with a properly calibrated torque wrench. For accurate results, carefully follow the torque wrench manufacturer's instructions for proper torque wrench setting and use.

RECOMMENDED TORQUES		
Part	Fastener	Torque (in-lbf / Nm)
SADDLE BAR	Non-integrated clamps	120 / 13.6
PEDAL	Pedal-crank adapter	304 / 34.3
CRANK	Crank – rectangular shaft fixing screw	305 / 34.5
HANDLEBAR STEMS	Handlebar stem – handlebar system clamp	71 / 8
	Aluminium handlebar stem at the 31.8 mm handlebar clamp (4 screws)	44 / 5
SADDLE CLAMPS	Aluminium saddle clamp (for wedged, round saddle bar)	95/10.7
DERAILLEUR	Fixing screw for rear derailleur	70/7.9
BRAKES	Fixing screws for disc brake adapter (Shimano, Magura)	53/6.0

RECOMMENDED TORQUES		
Part	Fastener	Torque (in-lbf / Nm)
	Disc brake rotor (T-25 Torx) fixing screws (Shimano, Magura)	35/4.0
	MTB brake/handlebar clamp (all types)	40/4.5
WHEELS	Cassette	261/29.5
	Freewheel	261/29.5
	Threaded shaft	200/22.6



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C) ANNEX: INSTRUCTIONS FOR THE PUTTING INTO OPERATION AND MAINTENANCE OF ELECTRIC CARGO BIKES

For pedelec (electric assisted) – torque sensor – cargo bikes, the warranty is conditional on the installation and software update by a specialist workshop (registered reseller partner). The first installation at the reseller partner's premises is free of charge, further mandatory inspections will be invoiced at the partner's rates.

When pedalling at speeds up to 25 km/h, pedelec cargo bikes are considered as bicycles according to traffic rules, so the relevant traffic rules apply.

Bring your cargo bike to our reseller partner for a first inspection within one month of the date of first putting into operation/purchase or after 100 km, for a second maintenance/inspection after 6 months and every year thereafter.

As the manufacturer of MASTIFF cargo bikes, we recommend that you check your cargo bike after the first 1,000 km to prevent possible future breakdowns, and then every 5,000 km or every two years the hub gearbox needs regular servicing.

If you experience a premature error message on your pedelec cargo bike, please check the error table (www.mastiffcargobike.com/downloads/mastiff_motor_hibakod_jegyzek.pdf). If you require expert intervention to remedy the error, please contact our reseller partner.

As a means of transport, it is important that the cargo bike is in good technical condition. It is equipped with rotating-moving-wear parts, which can be checked at the service station, where they can suggest possible adjustments and repairs, so that the owner can use it in the long term with the proper quality and safely.