

F160/F160PRO

USER MANUAL

ELECTRIC
QUADRICYCLE

Thank you for purchasing this product, which is manufactured to the highest safety and operational standards. Please keep these instructions for future reference.

Warning! For your safety, read this manual and the general safety instructions carefully before operating the vehicle. Failure to comply with these rules may result in fire and/or personal injury. Retain this manual for later consultation.

General Overview

Listed below are several features and advantages of this electric quadricycle: - Brushless DC motor - Digital controller with indicator, over-voltage and under-voltage protection - Braking system with power-cutoff function - High-performance lead-acid battery - Front- and rear-wheel suspension delivering a smooth, comfortable ride

The product drawings within this manual are provided as examples; the actual vehicle type and configuration shall prevail.

This four-wheel electric vehicle is designed for one driver plus one passenger. Do not exceed the load limit specified in this manual.

Strictly prevent water ingress into any components of the four-wheel electric vehicle, especially the controller.

Specific Safety Precautions

1. General Rules

- Do not operate the product until you have read this user manual thoroughly and fully understand its operation. Do not lend the vehicle to persons incapable of operating this type of vehicle. For your own safety and the safety of others, drive carefully, consciously observe traffic regulations and stay in the correct lane. - Reduce speed in rainy, snowy or other adverse weather conditions. When braking, apply intermittent braking before coming

to a full stop, braking gradually to prevent side-slip. Increase braking distance accordingly to ensure sufficient stopping time. - Do not make sharp turns or perform harsh braking while driving. - This vehicle may be used in rain, but must not drive through deep-water areas. If the water level submerges any component or motor circuit, a short-circuit may occur. If large amounts of water cover the vehicle body, cut off power and clean the surfaces. Do not resume travel until the vehicle is completely dry. Before setting off, verify that the front and rear brake systems work properly. If any fault occurs, contact authorised repair centres. - While driving, comply with the same traffic legislation as all other road-going vehicles. - The maximum permissible vehicle load is printed on the vehicle identification plate. Never overload the vehicle. Avoid high-speed travel over uneven ground to prevent tyre damage and rim deformation, which could endanger your safety. - You may be hard for other road-users to see. Use the correct signal lights to indicate direction changes, stopping or parking. - Avoid potholes, gravel, wet road markings, oil patches, kerbs, speed bumps, drain grates and other obstacles. - Maintain correct tyre pressure to reduce wear and avoid increased energy consumption. - Become familiar with all vehicle functions. Practise operating turn signals, brakes and the horn. - Do not carry cargo or passengers that block your field of vision or interfere with vehicle control. Do not use items that impair your hearing. Maintain adequate stopping distance from all other road-users. - Do not operate the vehicle under the influence of alcohol, reaction-impairing medication, drugs or other hallucinogenic substances. - Always fasten your seat belt when driving. - Do not answer or make phone calls while driving. - Keep children away from the vehicle during battery charging. - Keep the centre of gravity centred when loading goods; do not exceed the rated load capacity of the vehicle. - Brake gently when descending slopes; avoid extended coasting, which may cause brake overheating.

2. Operation in Adverse Weather

- Exercise heightened caution in poor weather. - Apply brakes earlier: braking distance and stopping time will increase. - Reduce travel speed; avoid sharp braking and take extra care when cornering. - Improve your visibility on the road: wear reflective clothing and use signal lamps. - Potholes and slippery surfaces such as road markings and railway tracks become more hazardous when wet.

3. Night-time Operation

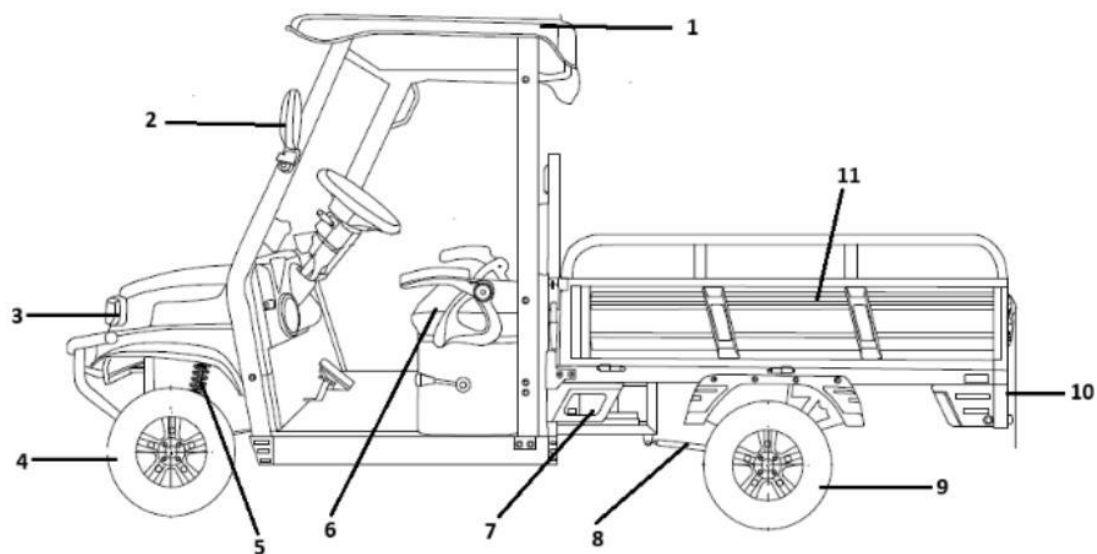
- Ensure all lights are switched on. - Only drive at night when absolutely necessary. Reduce speed and, where possible, use familiar routes with street lighting.

CAUTION! Modifying this product is illegal. Modified vehicles are excluded from warranty coverage. Only purchase original spare parts from authorised sellers. No quality or service-life guarantee applies to spare parts not recommended by the manufacturer.

CAUTION! Failure to follow operating instructions will void the warranty.

Component Description

1. Roof
2. Rear-view mirror
3. Headlights
4. Front wheels
5. Front suspension
6. Seat
7. Battery compartment
8. Rear suspension
9. Rear wheels
10. Rear lights
11. Cargo bed



Technical Specifications

表格

Item	Specification
Product code	684361 / 684404
Nominal power	3000 W
Battery (6 × 12 V units)	Lead-acid, 72 V, 58 Ah
Range*	approx. 78 km
Charging time	approx. 8-9 h
Maximum speed	25 km/h
Charger input voltage	AC 220 V
Charger output parameters	80 V, 7.2 A
Wheelbase	2095 mm
Dimensions (L × W × H)	3292 × 1189 × 1791 mm

Item	Specification
Net weight (vehicle + batteries)	466 kg
Gross weight	543 kg
Technically permissible maximum laden mass	868 kg
Technically permissible maximum load-front axle	302 kg
Technically permissible maximum load-rear axle	566 kg
Tyre size	255/40 R12
Front brake	Disc brake
Rear brake	Disc brake

NOTE * Maximum battery range depends on operating conditions. It is directly affected by ambient temperature, travel speed, payload, operation of electrical consumers (heaters / headlights) and road profile (surface flatness).

Intended Use

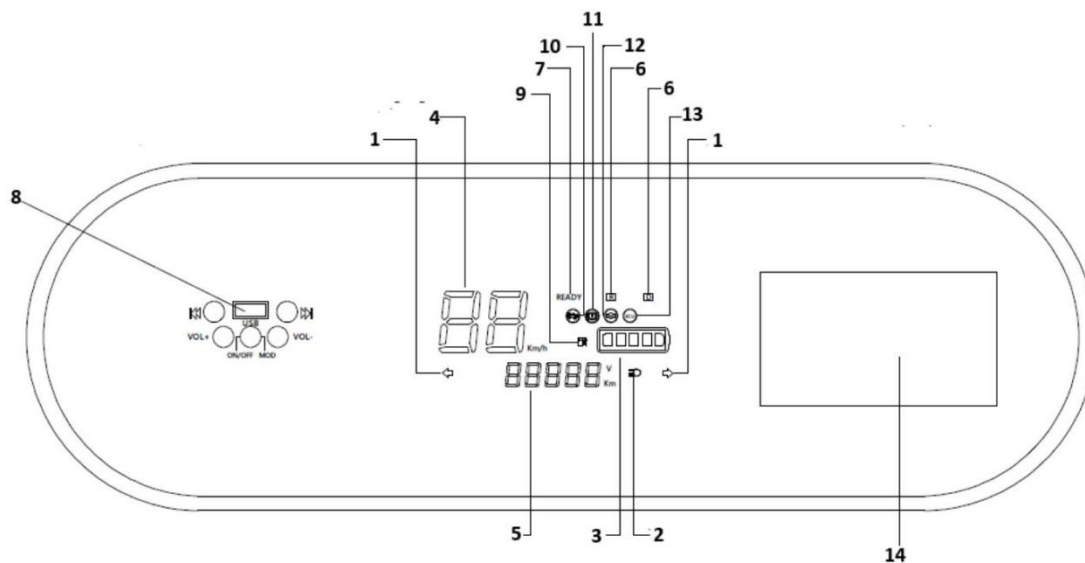
This vehicle is intended for personal use, for transporting persons without exceeding the maximum permitted load.

NOT DESIGNED FOR INDUSTRIAL USE!

Pre-operation Preparation

Before starting a journey, inspect all vehicle components for correct condition (tyre inflation, brake function etc. – see the section on daily and pre-journey checks).

Dashboard Display



1. Left- / right-hand turn-signal indicator: flashes when the turn-signal lever is actuated
2. Main-beam indicator: illuminates when the light switch is set to main-beam
3. Battery-charge indicator: shows battery level when the vehicle electrical system is switched on
4. Speedometer: shows current vehicle speed during travel
5. Odometer: shows total distance travelled by the vehicle
6. Gear-mode display area: marks P (Park), R (Reverse), N (Neutral), D (Drive)
7. "Ready-to-drive" status indicator: confirms that the electrical system is activated
8. USB multimedia port
9. Battery-charging indicator
10. Accelerator fault indicator
11. Brake-system fault indicator
12. Electric-motor fault indicator
13. Controller fault indicator
14. Reverse-camera display area

Functions and Switches

1. Lighting control
2. Turn-signal lever

3. Horn
4. Hazard-warning-light switch
5. Windscreen-wiper switch

Turn-signal Switch

- Push the lever to the right-arrow position: right-hand turn signals activate, right-hand indicator lamp flashes. - Push the lever to the left-arrow position: left-hand turn signals activate, left-hand indicator lamp flashes. - Return lever to central / neutral position: signals switch off.

Hazard-warning-light Switch

The button sits centrally above the steering column (item 4 in the dashboard diagram), marked with a red-triangle symbol. - Activation: press the button to enable the system; all four vehicle indicators (front and rear) flash simultaneously. - Deactivation: press the button again to turn off hazard lights. - Independent operation: hazard lights generally work even if the ignition key is removed or the vehicle is switched off.

Wiper-control Button

The wiper switch has three positions: Off, low speed, high speed.

Do not operate wipers on a dry windscreen, as this will damage the wiper blades.

Gear-selector Knob

Switch on vehicle power, fully release the parking brake, confirm no obstacles ahead before gently accelerating. The gear-selector has three positions; rotate the knob to select the required mode.

-**R(1): Reverse mode.** When selected, gentle accelerator input makes the vehicle travel backwards. -**N(2): Neutral mode.** In neutral, the vehicle will not move even if the accelerator is pressed. -**D(3): Forward-drive mode.** When selected, gentle accelerator input moves the vehicle forward from standstill.



WARNING! Change forward-reverse gear selection **only when the vehicle is fully stationary and the accelerator pedal is fully released.** Failure to do so may cause accidents. It is strictly forbidden to engage reverse gear while the vehicle is moving forward! For parking: press the brake pedal to bring the vehicle to a complete stop, apply the hand-brake, then release the brake pedal.

Ignition Switch

-**LOCK:** full power cut-off. The key can only be inserted or removed in this position. All electrical systems are disabled to prevent battery discharge. -**ACC ON:** supplies power to basic accessories (radio, USB charging ports), without activating the motor or main drive systems. Fully powers the instrument cluster and all vehicle electrics.

Caution: do not leave the key in ACC ON for long periods – this will drain the battery. -**START:** position for activating the drive motor.

Note: always remove the ignition key when parking the vehicle.

Rear-view Mirrors

Adjust rear-view mirrors so you can clearly see the vehicle's sides. Do not adjust mirrors while the vehicle is in motion – risk of accident.

Charger and Charging Port

When the low-battery indicator illuminates, the vehicle must be charged. Open the charging-port cover and connect the external power supply to the charging port. The charging port is for input charging only; do not attempt to power external devices from this port.

-Do not touch positive or negative terminals with metal objects or bare hands: risk of short-circuit or skin burns. -Use **only** the original charger supplied with the vehicle. Use of other chargers may damage the battery or create dangerous conditions. -Start charging when remaining battery capacity reaches 20-30 %; avoid fully draining the battery.

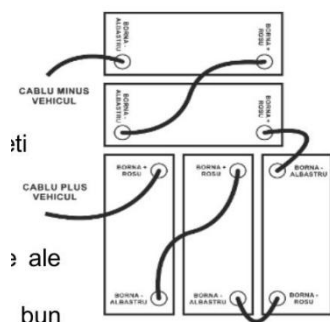
Charging Safety Precautions

1. New-vehicle batteries are not fully charged. Charge fully before first driving. The vehicle must be stationary and braked during charging. 2. Do not charge continuously for more than 8-9 hours. If the vehicle is not being used, charge the battery at least once per month. 3. Never use an incompatible charger. Place the charger in a well-ventilated location while charging. Do not charge near combustible or explosive waste / materials. 4. Indoor charging is strictly prohibited. Charge the vehicle outdoors or in an open-air covered area. No flammable or explosive materials may be nearby. 5. For best performance, charge the

battery at ambient temperature 10-30 °C, with good ventilation. 6. This charger must not be used for other vehicles. 7. Do not charge the vehicle in damp locations.

Battery Connection

Warning! Follow these instructions precisely: - Always lift batteries with both hands and handle with care. - If the casing becomes damaged, contents may leak out. - Never pierce or open a battery casing. Contents are hazardous and may cause injury. If you touch leaking battery material, seek urgent medical assistance. - Do not touch both metal battery terminals at the same time: this creates a short-circuit that can cause personal injury and severe damage to the vehicle electrical system. - Do not handle batteries while they are wet; water conducts electricity and can cause electric shock and injury.



Battery-charging Procedure

Before connecting the vehicle to mains power, set the ignition to the OFF position (cut vehicle power). This vehicle uses a 72 V lead-acid battery pack. Charge after every journey. Also charge if the vehicle has not been used for 30 days or longer.

Maintaining a fully-charged state maximises battery service life. Begin charging when the charge indicator reads 20-30 %. Charge immediately when the 10 % warning starts flashing.

Any energy consumed during a day should be re-charged on the same day.

Keep children away from the vehicle while charging. For long-term storage, charge the battery at least once a month to extend its service life.

1. Plug the charger output connector into the vehicle charging socket ①. 2. Plug the charger mains-input plug into a wall socket ②. 3. The battery is fully charged when the charger indicator turns green. For optimum battery performance, allow an extra 1-2 hours of charge after the green light appears. 4. When charging is complete, disconnect the mains-input plug first, then remove the output plug from the vehicle.

Warnings: 1. Do not place batteries near heat sources or open fire. Do not store or operate the charger in high-humidity locations. 2. Do not leave batteries charging in extremely hot or extremely cold locations. Never touch charging connectors with bare hands, keys or other metal items. 3. For safety, use the supplied charger exclusively for charging this vehicle battery. 4. Do not leave the charger connected for excessive periods. Unplug it once charging finishes, to prevent charger damage and fire hazards. Strictly observe all charging instructions.

Steering-system

The steering system is a critical vehicle component that governs directional control. Correct operation is essential for your safety and the safety of other road-users.

The steering assembly includes: -Steering wheel: main driver interface for direction control
-Steering column: transmits rotary motion from the wheel to the steering gear -Steering gear: converts steering-wheel rotation into linear movement of tie rods

1. Hand position: grip the steering wheel with both hands, ideally at the 9-and-3 or 10-and-2 clock positions. This gives optimum control and reduces fatigue. 2. Cornering: turn the steering wheel smoothly and progressively in the desired direction, keeping both hands on the wheel. 3. Maintaining straight travel: apply light constant pressure to the wheel and

make small ongoing trajectory corrections. 4. Tight bends: reduce speed before turning and rotate the wheel appropriately. 5. Difficult road surfaces: on rough or slippery ground, hold the steering wheel firmly with both hands to retain control.

CAUTION! Never force the steering wheel hard against its end stops. - Do not drive

with a faulty steering system. - Avoid sharp turns and harsh braking. - Steering failure

can cause total loss of vehicle control and serious accidents.

Commissioning / Getting Ready to Drive

Before every use, perform a quick inspection to verify key-component function and ensure

safety: -Walk fully around the vehicle and inspect tyre condition. -Switch ignition on and

check battery charge level. -Charge the vehicle when the indicator approaches the critical

red zone. -Test brake and accelerator pedals to confirm smooth, reliable operation.

Both pedals are operated using the right foot only!

This pre-drive check helps identify potential faults before you set off, supporting safe, comfortable driving.

Starting Procedure

1. Insert the ignition key and turn it to the START position to power-up the vehicle. 2. Check the dashboard for fault warnings and confirm adequate battery charge. 3. Press the brake pedal firmly and select travel direction D (Drive) or R (Reverse). 4. Release the parking brake. 5. Select a lower drive setting, press the accelerator pedal gently. The vehicle will start moving. Lift your foot from the accelerator to decelerate.

WARNING! Always start from a low-speed setting to prevent sudden vehicle

movement and personal injury. **WARNING!** Do not jab the accelerator pedal: the

electric vehicle can surge unexpectedly and you may lose control.

Important Driving Rules

-Gear-selection changes: never change gear while keeping the accelerator pedal depressed. -Energy efficiency: smooth, gradual acceleration when starting maximises driving range. -Parking on slopes: always engage the hand-brake when parking on inclined ground.

Braking

To reduce speed, first release the accelerator pedal. Then press the brake pedal smoothly and progressively. Braking intensity depends on how firmly you press the pedal.

WARNING! Avoid harsh braking, which may lock wheels and cause loss of control. On difficult surfaces (rain, snow, ice), brake even more gently and incrementally.

Parking Brake

This mechanism locks the stationary vehicle to prevent unintended movement. Use it correctly. -**Engage (parking):** After full stop via brake-pedal input, shift gear-selector

to N (Neutral), activate the P parking button to secure the vehicle. -**Release**

(pre-drive): Press the brake pedal firmly, select the desired gear D or R, then release the parking-brake button. -Always check the dashboard indicator to confirm the parking brake has been released before using the accelerator.

Parking Steps

1. Set gear-selector to N (Neutral). 2. Turn ignition key to OFF (LOCK). 3. Engage the parking brake.

Tyre Pressure

Correct tyre pressure is essential for safety, performance and energy efficiency. Incorrect pressure impairs grip, handling and braking distance; increases tyre wear and power consumption, raising accident risk.

Recommended pressures: - Front tyres: 200 kPa (2.0 bar) - Rear tyres: 250 kPa (2.5 bar)

Check pressures only on cold tyres (vehicle stationary for ≥ 3 hours or driven less than 2 km). Use a tyre-pressure gauge at least once a month and before long trips.

CAUTION! Do not over-inflate tyres. Do not drive on under-inflated tyres. Inspect tyres regularly for cuts, bulges or other damage. Replace worn or damaged tyres.

Driving on Steep Slopes

When descending steep gradients, first release the accelerator and apply front and rear brakes progressively to reduce speed.

Driving on Slippery Surfaces or through Curves

On slippery ground or in bends, avoid sudden braking to prevent accidents.

Maintenance and Inspection

1. Periodic General Inspection

Mechanical wear occurs with vehicle use. Without regular maintenance, performance, reliability and safety will degrade and service life will shorten. Correct scheduled maintenance detects minor faults early and supports safe driving.

Perform these checks: - Keep the motor differential housing clean; check for oil leaks and

correct starting behaviour. - Confirm the brake pedal / lever operates smoothly and

delivers adequate braking effect. - Verify front and rear shock-absorber integrity; maintain

proper tyre pressure; ensure all electrical components work. - Check that all fasteners

across the whole vehicle are tight; keep the vehicle clean. - Ensure all lubrication points are

properly greased with no oil leakage. -Confirm battery connections are tight and securely fastened.

2. Daily Pre-drive Checks

Vehicle condition can change day-to-day. Before every drive check: -Function of indicator lamps and dashboard instruments -Operating condition of lighting systems -Function of signal lamps and horn -Brake-pedal travel -Inspect brake cables for wear, cracking or loose connections -Tyre pressure and tyre-wear condition

3. Tyre Inspection

Correct tyre pressure ensures ride comfort and vehicle stability and extends tyre life. Check pressure frequently and adjust as needed. Before driving, inspect cold tyres for cuts, nails or embedded sharp foreign objects. Check rims for dents and deformation. Observe tyre-to-ground contact pattern. Always keep pressures within the specified range.

CAUTION! Incorrect inflation causes abnormal tyre wear and may cause accidents.

Low pressure degrades vehicle performance and may lead to loss of road grip.

4. Battery Inspection and Maintenance

This vehicle uses sealed lead-acid batteries that do not require topping-up with water or electrolyte. Even so, follow precautions to achieve maximum service life. Store the vehicle in a garage to avoid low-temperature-related performance loss.

-Do not disassemble battery cells. -Keep batteries away from children; store in dry, frost-free secure locations. -Do not short-circuit charger terminals during charge or discharge cycles. -Do not immerse batteries in water. -Do not store batteries above 60 °C

or close to heat sources. - Do not strike, drop or destroy batteries. - If a battery develops strange odours, excessive heat, smoke, discolouration or physical damage: stop using it immediately and isolate it. - Do not discard batteries in domestic waste. Used batteries must be recycled in compliance with local regulations.

For long-term vehicle inactivity (e.g. winter lay-up): disconnect the battery from the vehicle.

Fully-charge before storage. Store in cool, dry, well-ventilated premises. Check charge status periodically and top-up as required.

Regularly inspect battery terminals for corrosion (blue-green deposits). If corrosion is present, clean terminals with a wire brush or coarse cloth. A solution of boiling water plus baking soda works well for corrosion removal. After cleaning, rinse terminals with clean water and dry thoroughly.

When connecting / disconnecting batteries: ensure vehicle ignition is OFF. - Disconnect sequence: first negative (-) terminal, then positive (+) terminal. - Re-connect sequence: first positive (+) terminal, then negative (-) terminal.

Tighten terminals properly to avoid loose contacts or short-circuits.

For winter / long-term storage protection: - Ensure batteries are 100 % charged before storage. - Always switch off the main circuit breaker (master fuse) to eliminate residual parasitic drain.

5. Motor and Controller Maintenance

In rainy seasons prevent water from rising above the motor centre-line to avoid short-circuit damage. - Do not hold the brake and accelerator simultaneously on start-up;

this may damage other components. -Reduce vehicle speed on poor-quality roads: heavy vibration can disrupt electrical connections.

6. Rear-axle Maintenance

After approximately 1000 km of travel, inspect lubricant level in the rear-axle differential; add gear-box oil (50-70 ml). Repeat every 1000 km or according to the service schedule in your warranty certificate. For a full differential oil-change: drain all old oil; maximum refill quantity is approx. 150 ml.

7. Brake-system Maintenance

After each use, inspect brake-discs for overheating, abnormal noise and uneven brake-pad wear. -Replace brake pads when pad thickness < 3 mm or brake-disc-groove depth > 1 mm. -Spongy brake feel is usually caused by insufficient brake fluid or trapped air in lines: top-up brake fluid and bleed the brake circuit. -Check for sticking pads or warped discs; resurface or replace components as necessary. -Do not aim high-pressure water directly at brake calipers during washing: water ingress causes rust. -Check brake-fluid reservoir level: maintain fluid between the MIN and MAX marks. Top-up with the identical grade of brake fluid if required.

8. Monthly Vehicle Maintenance

-Tighten critical bolts: tyres, chassis, suspension and other connecting assemblies. -Apply a thin film of petroleum jelly to door hinges, steering column and parking-brake mechanism. -Inspect brake hoses and motor wiring for wear, ageing or damage. -Check shock-absorbers for oil leaks and defects, to confirm proper damping performance.

9. Semi-annual / 2000 km Maintenance

- Replace brake fluid: drain old fluid, fill with matching-specification new fluid and bleed the braking system. -Adjust disc-brake running clearance for smooth, drag-free brake return.
- Inspect rear-axle / differential oil; replace if needed. -Verify motor and controller wiring is securely fastened; clear dust from cooling-vent openings. -Perform tyre rotation (front-rear or left-right swap) to achieve even tyre-wear and extend service life.

10. Annual Full-service Inspection

- Complete inspection of chassis, suspension and steering for loose fittings and wear.
- Thorough inspection of front- and rear-disc-brake assemblies: replace worn pads, re-machine brake-disc surfaces. -Test battery condition (capacity, internal resistance); assess whether service or replacement is required. -Re-route and bundle aged wiring harnesses to prevent short-circuit risks. -Clean and touch-up paintwork on body and cargo bed to slow corrosion progression.

Basic Troubleshooting Table

表格

Fault	Probable Cause	Simple Remedy
Vehicle fails to start	Flat battery / incorrect gear selection / parking brake still engaged	Check battery charge; re-select gear; confirm parking brake release
Spongy / ineffective brakes	Insufficient brake fluid / air trapped in lines / worn brake pads	Top-up brake fluid → bleed hydraulic circuit → inspect brake pads
Fast battery-charge depletion	Low tyre pressure / over-loading / battery ageing	Inflate tyres to specification → reduce payload → test battery condition
Abnormal disc-brake	Uneven pad wear / warped brake	Reface / replace brake pads →

Fault	Probable Cause	Simple Remedy
noise	disc / seized caliper	inspect brake disc → lubricate caliper assembly

Cleaning

Wash and dry the vehicle thoroughly to remove dirt and contaminants. **Do not use solvents** (petroleum-derived products, alcohol etc.) – these damage plastic components.

Storage Procedure

Before storage, wipe body panels with a soft cloth dampened in soapy water. Protect the vehicle from direct sunlight; store in shaded conditions if possible. - Inspect and replace rear-reducer oil to maintain gear-set lubrication throughout storage. - Fully-charge batteries before storage. Where practicable, disconnect batteries from the vehicle and store in cool, dry premises. - Check and set tyre pressures to the correct values. You may use stands to lift the vehicle off the ground and relieve tyre load. - Fit a suitable vehicle cover for dust, moisture and environmental-damage protection. - Store in dry, cool, well-ventilated premises. Avoid extreme temperatures and direct solar exposure. - Check battery charge periodically and recharge as needed.

Inspection-Adjustment-Lubrication Schedule

● Inspect ◆ Adjust ■ Lubricate

表格

Components for inspection	Daily	60-day interval	180-day interval
1. Accelerator system		● ■	● ■
2. Bolt-loosening-risk mechanical assemblies & moving parts		● ■	● ■

Components for inspection	Daily	60-day interval	180-day interval
3. Tyres and lighting consumables	●		
5. Brake shoes			◆
6. Wheel rims		●	●
7. Front suspension assembly		●	●
8. Braking system	●	● ◆	● ◆
9. Horn, charger and battery pack	●		

CAUTION! 1. User-performed inspection, adjustment, cleaning and lubrication must

follow the intervals in this table and the instructions within this manual. 2. Vehicle repairs and component replacement must be carried out exclusively at an authorised service centre.

This product counts as Electrical and Electronic Equipment (EEE). Under Directive 2012/19/EU governing Waste Electrical and Electronic Equipment (WEEE), this unit must **not** be discarded as unsorted municipal waste. Hazardous substances within can harm human health and the environment. At end-of-life, hand the unit over to an official WEEE collection and recycling facility.