eTuk FACTORY

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Keep this booklet with your vehicle

eTuk Limo GT & Vendo GT
User Manual & Maintenance guide

Version number: LGT05 | Version release date: July 2021

Congratulations on purchasing your new eTuk!

You probably cannot wait to start driving! However, please read this manual carefully before you get started. This will enable you to be informed about how to fully take advantage of the capabilities of the vehicle.

Reading and understanding this manual is essential for both your own safety and the safety of your passengers. It also provides useful information for troubleshooting any errors that the vehicle may have.

If you take good care of your vehicle, it will always be in the utmost condition. Keep track of your maintenance in this booklet and follow the maintenance schedule.

Please check our website www.etukfactory.com for an electronic copy of the latest version of this manual.

Thank you and enjoy your e-Tuk!

The eTuk Factory team

Contents

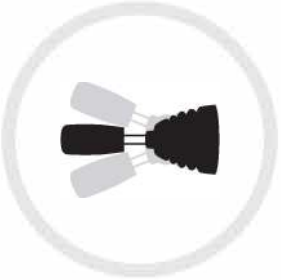
Unplug

Before driving off, make sure the vehicle is not being charged. The e-Tuk should not be able to drive while you are charging.

Place the charging cable securely under the rear seats.

Direction Switch

Put the direction switch in neutral N, and make sure the throttle is not engaged.



Key

Turn the key clockwise.

If you are having issues with your vehicle, please contact your local service provider. Before you do, please make sure you have read this manual carefully. If the manual does not give you the answer to your problem, please contact the following:

Your local service provider:

Notes

Display Turns On

Check the state of charge and Ub or system voltage. Lead acid vehicle battery is full at about 76V, the lithium battery is full at 80.5V.

Parking Brake

Make sure the parking brake is released.

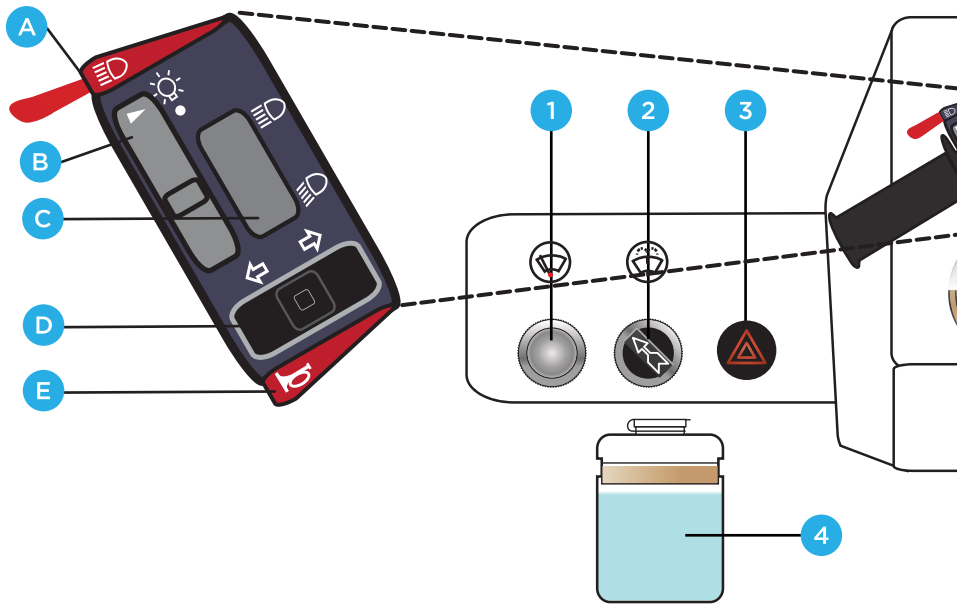
Put in D of R

Do not forget to put on your seatbelt before you start driving.

Put the direction switch in D to drive forwards and R to drive backwards.

Gently twist the throttle and enjoy your ride!

Dashboard and Handlebar



A Main beam flasher
B Headlights power supply*
C Main beam & Passing beam
D Turn signal
E Horn

*Please turn off when storing the vehicle

B04	sg1	sg2	sg3
B08	sg1	sg2	sg3
B12	sg1	sg2	sg3
B03	sg1	sg2	sg3
B07	sg1	sg2	sg3
B11	sg1	sg2	sg3
B02	sg1	sg2	sg3
B06	sg1	sg2	sg3
B10	sg1	sg2	sg3
B01	sg1	sg2	sg3
B05	sg1	sg2	sg3
B09	sg1	sg2	sg3

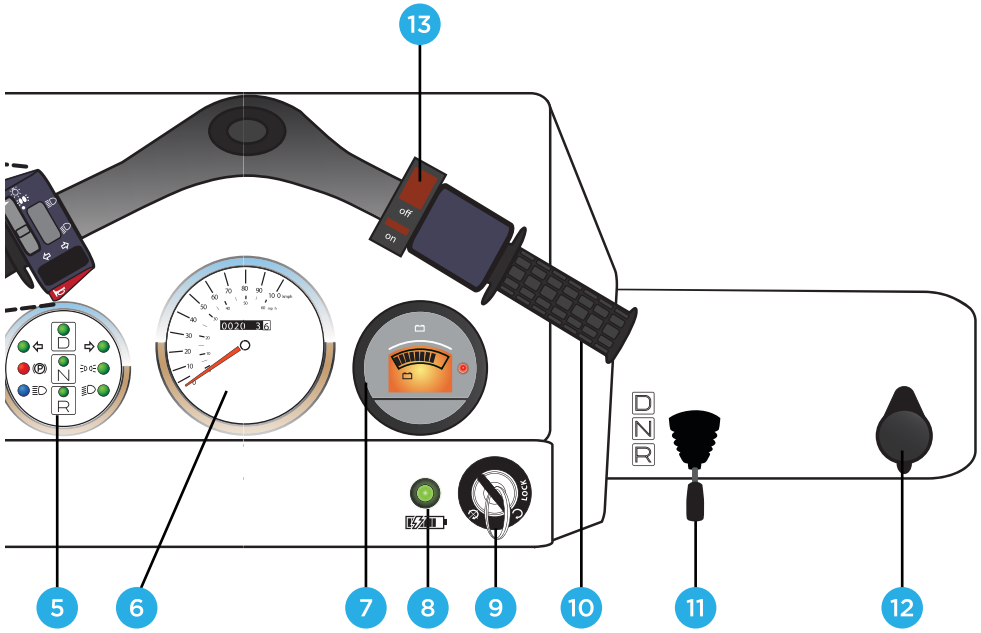
Battery Logging Form

VIN : .....

Date : .....

Time : .....

Total Voltage : .....



1 Windscreen washer
2 Windscreen wiper
3 Hazard lights
4 Windscreen washer fluid
5 Display
6 Speedo- & Odometer
7 Battery discharge indicator (BDI)
8 Charger LED**
9 Key switch
10 Throttle
11 Drive/Neutral/Reverse
12 Outlet 12V
13 Emergency switch

**Lead-Acid powered vehicles only

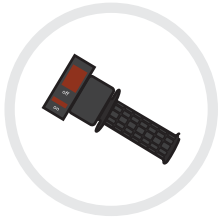
Controls

Brake Pedal

By pressing the brake pedal with your right foot you will engage the friction brakes. Slowing down and stopping your vehicle can also be done by braking with the motor alone. You can slow down without even using the brake pedal. This process also recharges the battery and therefore extends the driving range.

Throttle

Turn the throttle to accelerate. By releasing it the vehicle will automatically use the motor to slow down and stop. The easier you are on the throttle and brakes, the further one single battery charge will take you.

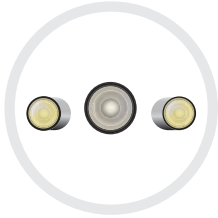


Handlebar Switch

Familiarize yourself with the controls on the handlebar switch before you start driving.

Headlamps

Please note that for safety reasons, the position lights are always on. You'll notice that the centre headlight cannot be switched on. EU-regulation states that you are not allowed to drive on public roads with three headlights.



Drive Logging Form

Charging	End Time													
	Start Time													
After Drive	Km													
	Voltage													
	Time													
Before Drive	Km													
	Voltage													
	Time													

Lead Acid Battery Analysis Tools

Battery Analysis Table

When your battery performance reduces, your service provider could help you to locate the problem. In this section you can find tables that could help you track your battery's performance. If you copy these blank pages you can use them more than once.

To be able to quantify the performance it is advised to perform a field test, measuring range and voltages. The drive logging form can be used for this.

Measuring each battery cell can be done to determine which specific cell underperforms. Each measurement can be filled in the battery logging form. Appropriate values can be found below.

% Charge	6 Volt	72 Volt	Gravity
100	6.37	76.44	1.277
90	6.31	75.72	1.256
80	6.25	75.00	1.238
70	6.19	74.28	1.217
60	6.12	73.44	1.195
50	6.05	72.60	1.127
40	5.98	71.76	1.148
30	5.91	70.92	1.124
20	5.83	69.96	1.098
10	5.75	69.00	1.073

BDI

This is the Battery Discharge Indicator (BDI). It shows you the battery level and relevant driving information. For lead acid vehicle batteries the number of bars on the display shows the estimated battery level, not an exact calculation. Lithium battery vehicles do show the exact battery level.

The display alternates between different screens. The display button can be used to scroll through these manually:

- Ub Voltage of the vehicle battery
- A Total number of amperes drawn from the battery
- UCL Controller software version
- Bat Battery percentage [LITHIUM ONLY]

The BDI also displays present errors. To know what these error codes mean, please refer to the troubleshoot section on page 33

12V Outlet

There is a 12V outlet on the dashboard that is compatible with any 12V car appliance (max 5A). Be careful with any wires that might get entangled in the handlebar. Please note that the range of your vehicle may be influenced by the type of device that is being used. A phone charger will hardly affect the range, but a heater will be a bigger drain the battery.

In passenger vehicles there is also a 12V outlet in the back of the vehicle under the rear bench.

Maximum Load

Please do not exceed the indicated load capacity of the e-Tuk. Doing so may cause damage to the vehicle and could be dangerous to you, your fellow passengers and other road users.

Please be aware that your e-Tuk's driving behaviour and range change when driving with more passengers or higher loads.

e-Tuk Limo GT

Driver plus passenger seats for 4 adults

e-Tuk Vendo GT

Driver plus 209 kg

Date ...../...../..... Km .....

Comments .....

.....

Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

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Comments .....

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Service Stamp:

Next Service Km/Date .....

Service & Maintenance History

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

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Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

Next Service Km/Date .....

Safety

Throttle

Please note the red emergency switch connected to the throttle (on the right hand side of the handlebar). Pressing the off button will disable the motor. This will make the e-Tuk shut down immediately. Keep in mind that you will lose motor braking power and the vehicle can be stopped with the pedal brake only.

VIN Plate

The Vehicle Identification Number Plate can be found above the brake pedal. This plate contains the e-Tuk's serial number and other manufacturing information. The serial number is the number that is stamped into the plate. When contacting your service engineer, make sure you have the serial number ready.

Key Switch

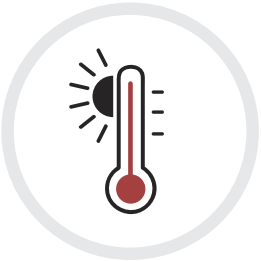
Your e-Tuk is equipped with a steering column lock. To engage the lock, turn the handlebars all the way to the right, then turn the key all the way to the left (counterclockwise). Now remove the key and the handlebars are locked into position.

Safety Belt

It is a legal requirement that the driver and any passengers use the safety belts as provided on the e-Tuk. The e-Tuks seats and safety belts are not approved for the use child seats.

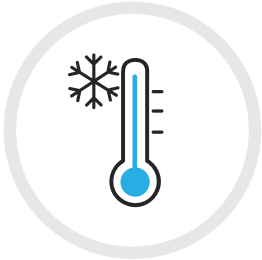
Driving Conditions

Temperatures



Weather conditions may affect the performance and range. High temperatures (35+ °C) combined with high payloads and hilly terrain may cause the motor and motor controller to get very hot. Drive calmly at a steady pace and give the motor and motor controller time to cool down.

For lead acid battery vehicles cold weather reduces the range. Your vehicle will drive normally but keep in mind that you may not be able to drive so many kilometres on a single charge. It is recommended that you park your vehicle inside, preferably in a warm environment. The ideal temperature for your lead acid battery is 27 °C.



Driving on Slopes

Driving uphill drains more energy from the batteries and requires more power from the motor. Driving in hilly areas will reduce the vehicle's range. The maximum slope your vehicle can drive has an inclination of 20%.

When the vehicle is stationary on a hill, do not use the throttle to prevent the vehicle from rolling down the hill as this will cause the controller to overheat. Instead always use the brake pedal or parking brake.

When driving from stand still on a hill, apply throttle and release the foot brake. Your vehicle may roll back slightly before taking off.

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

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Service Stamp:

Next Service Km/Date .....

Service & Maintenance History

Date ...../...../..... Km .....

Comments .....

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Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

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Comments .....

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Service Stamp:

Next Service Km/Date .....

Ways to Extend Your Range

eTuk Factory Takes You Further

For lead acid battery vehicles the range can be extended by taking breaks in driving. This allows the batteries to settle and recover some energy. A lead acid battery can release more energy when it is discharged slowly over a longer period.

Tires

Properly inflated tires reduce friction. The recommended tire pressure is 3bar / 44psi. Check your e-Tuk's tire pressure at least every month.

Weight

More weight means more power from the batteries. For maximum range leave unnecessary belongings at home.

Traffic Light

By anticipating traffic you can make the ride more comfortable. If you release the throttle you will slow down using motor braking. You'll regain energy and your brakes will last longer.

Image Speedometer

Lower your maximum speed and acceleration, the batteries will last longer if you take it easy on the throttle.

Charging Plug

Driving to a place with electricity? Charge on the spot!

Battery Information Lead Acid Battery

Battery Health

Your e-Tuk's battery is one of the most important components of the vehicle.

To keep your battery in the best condition you need to take good care of it. Following our basic maintenance rules keeps your battery in good shape.

These rules have been set up by the battery manufacturer*. Not following them will void battery warranty. Additional information can be found on the next few pages.

Inspection & Cleaning

- Keep batteries clean and dry
- Check that all filling system caps are tight
- Check if all cable connections are tight (fastening torque is 11 Nm)
- Use a mixture of baking soda and water to clean if there is acid residue on the batteries or corrosion on the terminals
- Terminal protectors or protective spray can be applied to prevent corrosion

Safety

- All battery maintenance, except for cleaning and watering, should be done by an authorised service mechanic. This should be done at least once every year. Always wear protective clothing, gloves and goggles when handling batteries.
- Keep flames, sparks or metal objects away from batteries (use insulated tools)
- Neutralize acid spills with baking soda immediately
- Charge with filling system securely in place
- Provide proper ventilation during charging to prevent explosive gas build up. It is advised to remove the rubber floor mat and battery cover (floor plate)

Storage

- Batteries should be fully charged prior to and during storage
- Never store discharged batteries
- Batteries will self discharge over time. It is recommended to charge stored batteries/vehicles every month
- Store batteries in a cool, dry place to minimize self-discharge
- Avoid temperatures below freezing to prevent the electrolyte to freeze.
- Fully charge batteries prior to storage
- Monitor battery voltage every 6 weeks
- Charge whenever charge is 70% or less
- Do not charge the batteries in temperatures below freezing

Service & Maintenance History

In this section we have reserved space for your service and maintenance provider to keep track of service and repairs on your e-Tuk. Please keep in mind that your vehicle needs regular maintenance. Regular checks need to be done on your battery. You can find the maintenance schedule on page 39.

We advise you to keep all invoices you receive for these repairs. They will give additional insight in your vehicle's history.

Date ...../...../..... Km .....

Comments .....

.....

Service Stamp:

Next Service Km/Date .....

Date ...../...../..... Km .....

Comments .....

.....

Service Stamp:

Next Service Km/Date .....

Your e-Tuk's DNA

Vin	:	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
Type	:	Classico/Limo/Cargo/CargoXL/Vendo/VendoXL
Colour	:	.....
Licence Plate No.	:	.....
Installed Options	:	.....
		.....
Country	:	.....
Distributor Stamp	:	

Watering

- Add distilled or deionized water to cells using the battery filling system
- Never add acid or other additives to cells this is dangerous and will alter the chemistry
- Only add water to fully charged batteries. Let the batteries cool down after charging before adding water
- If the plates are exposed in discharged batteries, add water to a level just above the lead plates
- Add water to the maximum level indicator
- Do not overfill the batteries

Charging

- Batteries should be charged after every use to ensure they are never stored in a discharged condition
- If batteries are stored for extended periods of time they should be charged every month
- Lead-acid batteries DO NOT have a memory effect (they do not need to be fully discharged prior to charging)
- The charging cycle should always be finished completely to ensure battery life
- If charging cycles have been cut off, equalization should be done. See “Equalization” on page 20.

* Source: Trojan batteries

Battery Specifications

Your e-Tuk has been fitted with 12 Lead-Acid Deep Cycle batteries. Each battery produces 6 Volt and around 185Ah. The total battery pack gives your vehicle 72V to power the motor and electronics. One broken battery should be replaced with the same type, brand and health/age. ETF recommends to replace the entire battery pack if a single cell is broken.

Watering the Batteries

Your e-Tuk's battery needs regular watering. The water is an essential part that makes the battery work. During heavy use the batteries heat up and the water evaporates. ETF recommends regular filling (see "Maintenance schedule" on page 39 for more info). Monitoring the amount of water which is used during the refilling process will give you a good indication of your water use. Watering can be done with the battery filling system. It is recommended to do regular visual checks of the water level.

- **Only add water to fully charged batteries, except when the battery plates are not fully submerged.**
- **Let the batteries cool down after charging before adding water.**

	Replace brake discs	Replace brake pads	Read controller history	Update controller software	Wiring harness check	Differential oil level and quality check	Battery terminal service	Battery range check	Battery cable replacement	Battery fluid specific gravity measurement	Grease motor spl e	Drum brake service	Flush differential oil
	M	M	M	M	M	M	M	M	M	M	M	M	M
		x	x										
	x	x	x	x	x	x	x	x	x	x	x	x	x

Storing the Vehicle

Make sure your vehicle is stored indoors in a dry environment. Any water left on the vehicle should be removed before storing the vehicle. These are the best conditions for keeping the body and roof cover in good condition.

For storage also check page 13&18 for info on batteries.

Maintenance Schedule

Proper maintenance is key to the vehicle's life time. To ensure good performance and reach the expected lifetime of the vehicle, stick to this maintenance schedule. Documentation of maintenance is required for warranty claims. We advise you to use the maintenance history section in this booklet.	Tyre pressure check**	Clean steer damper (Vendo only)	Apply silicone lubricant on rain cover zippers	Tyre profile check	Lights check***	Water batteries*	Brake pads and shoe check	Equalize batteries	Clean motor	Flush brake fluid	
Maintenance done by	U	U	U	U	U	U	U	U	M	M	
Weekly or 200km	x	x				x					
Monthly or every 800km	x	x	x	x	x	x	x	x			
Yearly or every 12.500km	x	x	x	x	x	x	x	x	x		
Every 2 years or 25.000km	x	x	x	x	x	x	x	x	x	x	

U You can do this yourself with some basic technical skills

M This needs to be done by an authorised service and maintenance engineer

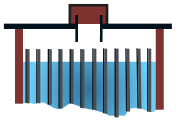
*The battery manufacturer recommends that batteries are checked once a month. Check the water level of the batteries monthly. Also, check all the battery pole connections for corrosion. Only refill batteries one hour after charging them.

**The optimal tire pressure is 3bar / 44 psi.

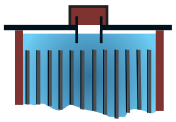
***Check to see if all the lights (front, rear, direction indicators) work every week.

Watering the Battery Manually

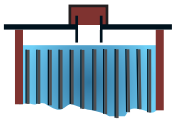
- Make sure your vehicle is turned off
- Make sure that your batteries are fully charged and have cooled down
- Remove the front passenger bench
- Remove the rubber mat and floor plate in the passenger compartment
- Open the vent caps and look inside the filling wells
- Check the liquid level; the lead plates in the battery should be submerged.
- If necessary, add water until the liquid level is 0.3cm below the bottom of the filling well
- A piece of rubber can be used safely as a dip stick to help determine this level
- Clean, refit, and tighten all filling caps



Not Enough



Too Much



Just Right!

- **Battery fluid is hazardous! Always protect your clothes, skin and eyes.**
- **Always use distilled or deionized water to refill the battery.**

Battery Information
Lead Acid Battery

Refilling the Battery Using the Battery Filling System

If your e-Tuk is fitted with a water filling system. This system lets you fill all batteries at once through a single hose.

- Make sure your vehicle is turned off
- Make sure that your batteries are charged and have cooled down
- Locate the filling hose
- Fill your water filling tank with deionized or distilled water
- Connect the hose of your water filling tank to the battery hose
- Place the water filling tank high above the batteries. The e-Tuk's roof is a good location for this. Gravity will pour the water in the batteries
- You will see the water flowing through the flow indicator in the tank's hose
- When the liquid stops flowing the batteries are full

Full Cell

Cell Needs Filling

The battery filling system has an indicator for each single battery cell. The indicator shows if the battery is filled and automatically cuts the water feed.

			Limo GT	Vendo GT
Drive Train	Motor type AC		•	•
	Motor power (kW)		7	7
	Reverse speed (km/h)		10	10
	Controller Curtis 450A		•	•
Size and Weight	Size	Length (mm)	3840	3720
		Width (mm)	1530	1500
		Height (mm)	2120	2000
	Cargo space	Length (mm)	-	1850
		Width (mm)	-	1400
		Height (mm)	-	1200*
	Track (mm)		1260	1260
	Wheelbase (mm)		2780	2780
	Kerb weight (kg)		1030	850
	Tyre size rear wheels		155/80R13	155/80R13
	Tyre size front wheel		155/70R12	155/70R12

• Standard || - Not available || * Vendo height may differ ||
** In a standard e-Tuk city cycle || *** Depends on vehicle version

Battery Information Lithium Battery

If your vehicle is equipped with a lithium battery it will not need maintenance. However, you do need to take some things into account to ensure safety and long battery lifetime.

Battery Specifications

The eTuk lithium battery is a battery pack which contains 1200 cylindrical NMC lithium cells. The pack voltage is between 63-80.5V (0-100%). The battery pack is maintenance free and should not be opened.

Display Information

The lithium battery has a Battery Management System (BMS) which monitors and manages the battery safety. If any error occurs, the BMS sends service messages to the controller. These service messages will be displayed on the BDI. For common messages see BDI error messages on page 35. Battery maintenance should be done by trained and certified mechanics only.

Storage

A lithium battery will self-discharge over time, even when the vehicle is switched off. Make sure to charge a battery before long term storage.

- Store a battery at a charge of 40%.
- Recharge every month to prevent full self discharge.
- A fully charged lithium battery will self discharge within 6 months. A 40% charged battery will self discharge in 2.5 months.
- An empty lithium battery will self-discharge beyond repair within 2 weeks.

Charging

- Batteries should be charged after every use to ensure they are never stored in a discharged condition.
- If batteries are stored for extended periods of time they should be charged approximately every month
- Lithium batteries DO NOT have a memory effect (they do not need to be fully discharged prior to charging)

Charging Lead Acid Battery

Standard Charging Sequence

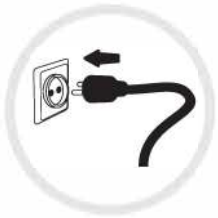
Turn Off

Remove the key from the key lock.

Parking Brake

Apply the parking brake to make sure your vehicle does not roll away.

Plug In



Charging cable plug in

The electrical plug that is needed to charge your e-Tuk can be found underneath the rear seats.

Wait at least 15 minutes before driving off after charging, your batteries need to cool down. Driving immediately after charging will damage your batteries and affects range!

Always finish the charging sequence. Cutting off a sequence will damage batteries and affects range!

If you use an extension cord, make sure it's fully unwound. Rolled up cords can get very hot and can cause fire!

Vehicle Information

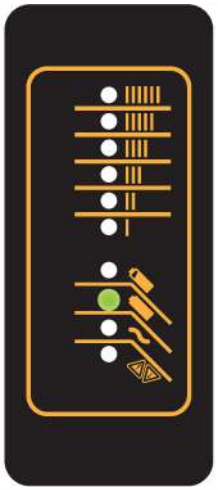
			Limo GT	Vendo GT
Vehicle	Driver comfort seat		•	•
	Passenger seats		4	-
	Cargo space (ltr)		-	2530
	Maximum payload (kg)	Lithium	523	284
		Lead acid	294	284
	Maximum speed (km/h)		30/45/50***	30/45/50***
	Range** (km)	Lithium	100	90
		Lead acid	60-70	60-70
	EU vehicle category		L5	L5
Battery Lead-Acid	Deep cycle Lead-Acid		•	•
	Capacity (kWh)		15	15
	Charging time 0-100% (hrs)		14	14
	Cycles charging		500 ****	500 ****
	Charger type Delta Q		•	•
Battery Lithium	NMC		•	•
	Capacity (kWh)		10.8	10.8
	Charging time 0-100% (hrs)		6	6
	Cycles charging		1000 ****	1000 ****
	Charger type Delta Q		TC 30A	TC 30A

• Standard || - Not available || * Vendo height may differ ||
** In a standard e-Tuk city cycle || *** Depends on vehicle version
**** Do not lower 15% charge

Troubleshooting

BDI Error Messages

Error	What does it mean?	What has happened?	What do I do?
38	The main contactor is welded shut. Vehicle shuts down.	The main contactor does not open anymore.	Replace the main contactor.
39	The main contactor did not close. Vehicle shuts down.	The main contactor did not close or power connections are oxidised	Check the pins on the contactor, fuse and batteries or replace main contactor.
41/42	There is an error in the throttle.	The throttle is broken or the wiring is faulty.	Check wiring on the throttle, or replace the throttle.
47/put 0	Vehicle will not drive while direction switch is in D or R.	You started the vehicle without putting the direction switch in neural.	Shut down the vehicle, put the direction switch in neural (N) and start it again. Check: Throttle, direction switch and footbrake switch.
73/StALL	Stall detected. The motor is stalled and the vehicle will not drive.	Something is blocking the motor and preventing it from turning.	Check if something is blocking the motor, wheels or drive train. Check the 4 pin connection on the motor. The driving angle might be too steep or too much load.



Time to Charge

Charging your e-Tuk requires high current. Make sure each socket has its own power 'group'. Only connect ONE vehicle to a single 15A circuit or the circuit may become overloaded.

Equalization

Whenever your battery's performance reduces, or if you were not able to complete a charging sequence, your battery needs to be equalized. Additionally, TTF recommends regular equalization of your battery pack (see "Maintenance schedule" on page 39 for more info).

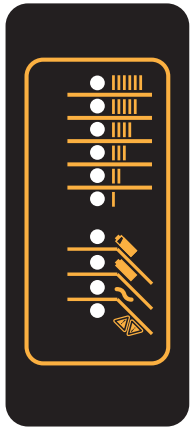
- To equalize your battery, simply charge it until the charger indicates that the battery is full.
- Pull out the charger plug from the wall socket and put in back in again to start the equalization process.
- Equalization can take up to 6 hours, depending on the state of your batteries.

Is it not charging?

- Check for red lights on the charger or dashboard LED
- Check your outlet/plug connection fuse.

Charging Lead Acid Battery

Charger Display



The e-Tuk's standard charger is located underneath the rear floor, in front of the rear axle. It has a display on which you can check the progress of the charging sequence. Cutting off an unfinished charging sequence will lower your battery lifetime. When the green 100% battery charge light turns on, the charging sequence is complete.

Ampere meter	Constant:	Displays approximate scale of charge during the first 80%.
	Flashing:	High internal charger temperature. Charging speed is reduced
80%	Constant:	First 80% charged, the last 20% will go more slowly
	Flashing:	Contact your service supplier
100%	Constant:	Fully charged
	Flashing:	Charging almost complete, finishing
Charger turned on	Constant:	AC power good
	Flashing:	Low AC Voltage, check voltage and extension cord length
Error	Constant:	Charger error. Reset charger , contact your service provider

BDI Error Messages

Error	What does it mean?	What has happened?	What do I do?
22/C hot	The controller is overheated. Driving speed is reduced.	Heat sink temperature reached +85°C.	Drive slowly and do not accelerate & decelerate abruptly The controller will slowly cool down.
23/lo-bat	Battery power is getting low. Driving speed is reduced.	Battery power is getting low.	Get to a wall socket and recharge soon.
28	The motor is overheated. Driving speed is reduced.	The motor is overworked. This could have been caused by too much weight on the vehicle or going up too many steep slopes	Allow the motor to cool down. Reduce the weight on the vehicle or take a less steep route.
29	The motor temperature sensor is not connected. The vehicle will not drive.	The motor temperature sensor has detached.	Check the 2 pin connection nearby the motor.
36	Encoder error.	The encoder has detached.	Check the 4 pin connection by the motor.

It's Still Not Working!

Check the battery display for errors, write them down and communicate them to your service engineer.

Most common errors are shown on page 34.

	Vehicle does not turn on	Vehicle turns on but does not drive	Vehicle turns on but only drives about 2 meters	Vehicle cannot reach maximum speed	Vehicle drives jolty at slow and fast speed	Motor stops while driving	Battery does not charge	Vehicle's rear axle makes a lot of noise	Vehicle starts moving by itself	Display does not function	Lights, horn, display, wiper, washer do not work
A	X										
B	X										
C						X					
D		X									
E		X									
F				X	X						
G				X							
H						X					
I			X		X	X					
J			X			X					
K			X			X					
L			X			X					
M			X	X	X	X					
N		X							X		
O										X	
P								X			
Q								X			
R											
S	X	X	X	X	X		X				
T							X				
U							X				
V											X
W	X	X								X	
X				X							
Y											

Key contact not turned correctly
Key contact faulty connection
Handle (parking) brake still on
Emergency button pushed in
Charger still connected
Wrong start-up sequence (error 47, put 0)
Battery voltage too low (<58V) (error 23)
Controller too warm (error 22)
Main contacter faulty
Encoder fault
Motor connector faulty
Motor fault
Motor stalled (error 73)
Motor temperature too high
Throttle fault
Display connector faulty or CANBUS issue
Rear axle differential low on oil
Rear brakes touching / locking
Front brake touching / locking
Battery fault
Charger faulty
Charger not connected correctly
12V/relais battery malfunction
35 pins connector faulty
Slow drive mode engaged

Dashboard Charging LED

If you do not need detailed charging information, but just want to know if the charging sequence is finished, you can easily check the charging LED on the dashboard. It is located next to the key switch.

Green	Constant:	Fully charged
	Flashing:	Short: <80% Charge
		Long: >80% Charge
		Not constant: Contact your service supplier
Orange	Flashing:	Reduced Power Mode: Low AC Voltage or High internal charger temperature. Use a shorter extension cord
Red	Flashing:	Charging error. Re-plug the charger plug in the socket or contact your service supplier

Charging Lithium Battery

Standard Charging Sequence

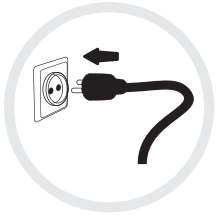
Turn Off

Remove the key from the key lock.

Parking Brake

Apply the parking brake to make sure your vehicle does not roll away.

Plug In



Charging cable plug in

The electrical connector that is needed to charge your e-Tuk can be found underneath the rear seats.

If you use an extension cord, make sure it's fully unwound. Rolled up cords can get very hot and can cause fire!

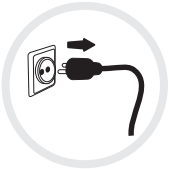
Handheld Programmer 1313

To facilitate vehicle troubleshooting, eTuk Factory offers the 1313 handheld programmer. With this diagnostic device you can detect present and historical errors. Whenever an internet connection is available, remote assistance can be given by authorised distributors and service mechanics.

The handheld device can be plugged into the communication port which is located underneath the rear passenger bench on the white box.

etuk Factory recommends you to order a handheld whenever your business uses multiple vehicles, or when a dedicated service station is not readily available.

It's not working!



Check the charger cable. Whenever it is plugged in the e-Tuk will not drive.

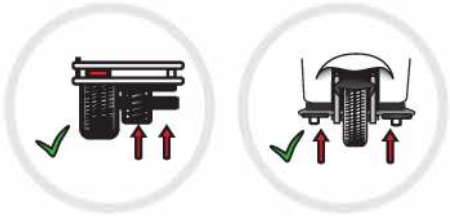
Make sure the red emergency button on the handlebars is in the ON position.

Do a re-run of the starting sequence. Check if the direction switch is in N

Check the battery display for the battery level. Remember that this is only an estimated level of the battery's charge

Troubleshooting

Jacking



To prevent any damage, only place the jack at the allocated jacking positions.

Do NOT jack up the vehicle on the diagonal beam near the rear axle. This will damage the suspension.

Changing Tires

To change a rear tire, first jack up your vehicle. Remove the 4 nuts that hold the wheel in place. Remove the wheel. Make sure you put the new wheel in place and secure the bolts while the vehicle is still jacked up.

Fully tighten the wheel nuts when the jack has been removed and the parking brake is applied. Fastening torque of the rear wheel nuts is 100Nm

To change the front tire, jack up the vehicle. Remove the brake calliper and loosen the bolt of the front axle. Remove the front axle to release the front wheel. Pay attention to the right assembly order of the several spacers and other parts. Reassembly is the reverse order of removal. Fastening torque of the front wheel nuts is 100Nm

Towing

In case your vehicle needs to be towed, use the towing eye at the front of the vehicle. Turn the vehicle on, but engage the emergency switch (put it in the off position) and turn on the hazard lights button located left of the dashboard. Make sure your hazard lights remain on whilst being towed.

Time to Charge

Time to Charge

The lithium charger charges the battery at 30 ampere. Fully charging an empty battery takes 6 hours.

Charging your e-Tuk requires high current. Make sure each socket has its own power 'group'. Only connect ONE charger to a single 15A circuit or the circuit may become overloaded.

Lithium Charge Indication

The lithium charging system does not have a charge indicator. The charger stop charging when the battery is full. To see if the vehicle is charged you need to turn on the vehicle and read the BDI 'Bat' (battery percentage) value.

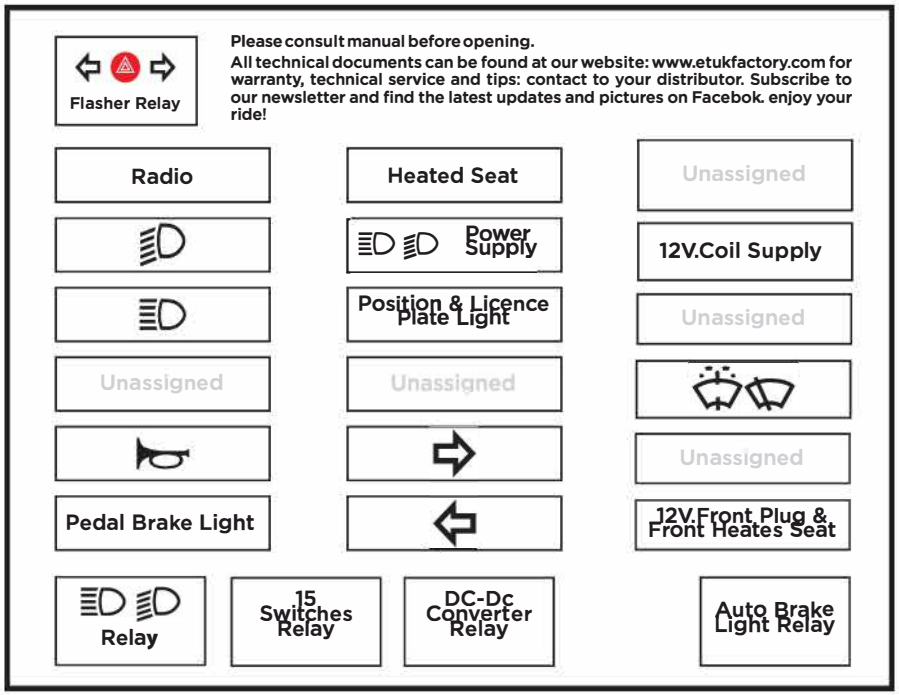
The Fuse Box

The e-Tuk contains several fuses.

All fuses for the 12v system general vehicle electrics (like lights, horn, window wiper) are located in the fuse box underneath the driver's seat.

To reach the fuse box you will have to remove the driver's seat and the cover below it.

The illustration shows the location and function of the fuses.



Refilling the Washer Reservoir

Washer Reservoir

Your windscreen washer can easily be filled with washer fluid. Best way to do it is to slide it down out of its holder. This way the opening cap is easy to reach and you won't spill a drop.

Rain Covers and Canopy

To keep your rain covers and canopy in good condition special maintenance is required:

Depending on use, apply silicone lubricant to the zippers to ensure consistent smooth operation

Whenever rain covers are being re-installed on the vehicle, make sure to use silicone lubricant for the rail and raincover seams to allow smooth installation.

Fluids

Oil

Your e-Tuk uses different types of oil for different parts of the vehicle.

Report any leakage to your local service provider immediately.

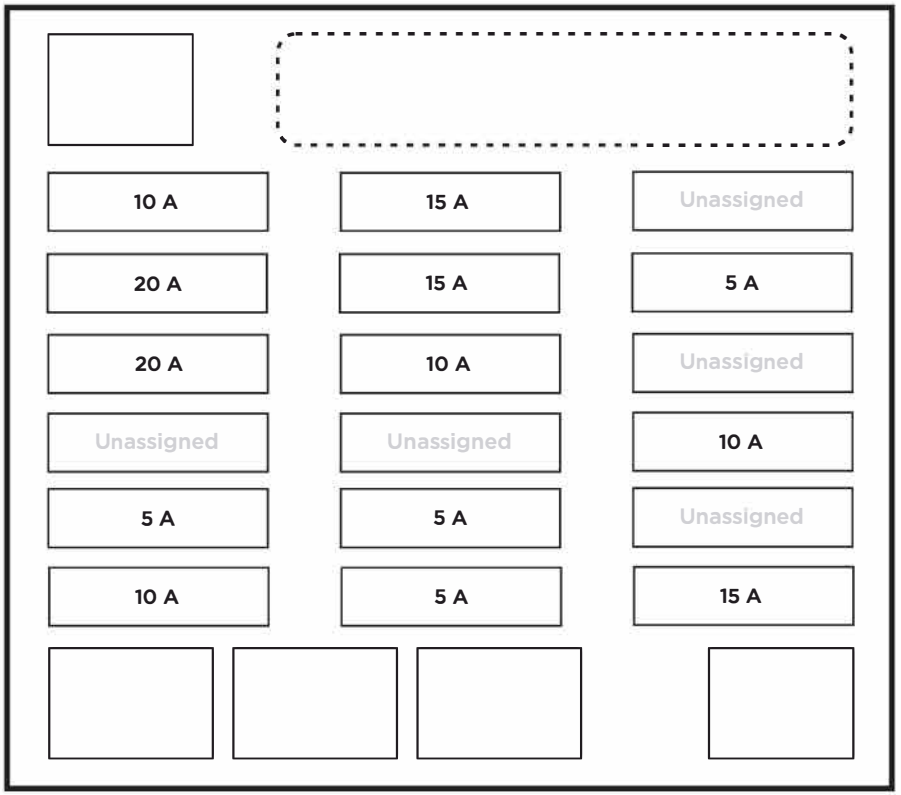
Differential oil	Check the state of your differential oil every 3 years and replace if necessary. Use 800ml of 80W90 oil to fill the differential.
Brake fluid	Check the level of brake fluid every year. Unscrew the body panel that covers the brake pedal. This gives you easy access to the two reservoirs that hold the brake fluid. Check if the level of fluid is between the indicated levels on the reservoirs. Check for any visible leaks. Use DOT 4 type fluid.
Front fork	Visually check for any leakage. Replace the oil in the front fork when you have spotted leakage or when damping becomes less. Also make sure you replace the fork seals. Use 15W type oil.

When you are replacing fuses, only use a amp rating according to the table below.

In order to check if a fuse is broken, carefully remove it from the fuse box. If the metal wire between the two poles is broken, the fuse is blown.

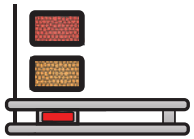
Blown Fuse

Ok To Use!



12V Battery

The 12V battery can be found underneath the driver's seat in front of the fuse box. When the vehicle is turned on, the minimum voltage, measured directly at the battery terminals, should be at least 13.1V. When the vehicle is turned off, the voltage should be at least 12V. If the battery voltage is less than 10V, the battery needs to be replaced and a service mechanic should check the DC/DC converter.



Tail Lights

The tail lights and rear direction indicator are highly durable LED lights. If they are not working, please make sure to check the connections and fuses first. If the light is indeed broken, you need to replace the entire unit.

Headlights

If one of your lights is not working, you will need to check fuses, bulbs, connectors and wiring. If a bulb needs to be replaced, remove the entire headlight assembly:

- Unscrew the two screws inside the dashboard that holds the headlight in place.
- Slide the black rubber protection cap back to reveal the white fitting
- Rotate the white fitting to remove it from the metal housing
- Press and turn the light bulb clockwise to remove the bulb from its fitting
- Install a new bulb, and install everything. Installation is reverse of the removal.

Use a BA20D 12V 35W bulb