

User's manual: Spira4U EV



PREFACE

Thanks for purchasing the Spira4U EV. Your personal safety depends not only on your driving and operation skills, but also relates to whether you are familiar with the mechanical performance. Before driving, check-up and periodical maintenance are basic requirements. If maintenance and repair are needed, go to a skilled motorcycle mechanic for help. If you have the mechanic knowledge and the tools, the dealer can offer you advice and the spare parts.

Have an enjoyable ride and thanks again for your purchasing.

Important points to remember

- Be slow and cautious in cornering as 3 wheeled vehicles tip easier than 4 wheeled vehicles. This motorcycle is limited to one driver and one passenger. Never exceed the maximum load capacity of this motorcycle.
- **A foot on the brake or the right hand safety switch shuts of the motor. This fools many to think they have a problem. The emergency brake may need to be used on hills to take off.**
- For safety, do not drive in windy weather of over 20 mph winds (33 kmph) as Spira4U EV is light.

WARNING the batteries contain a lot of energy. Do not touch the wiring or attempt to repair electrical components without the aid of an experienced electrician. Tools should be taped and gloves worn to keep from shorting the batteries and power leads. Please beware of watches and jewelry when doing electrical diagnosis and repair. Not following operation instructions in this manual may cause injury to you and damage the vehicle.

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I Notice for safe driving

Rules for safe driving

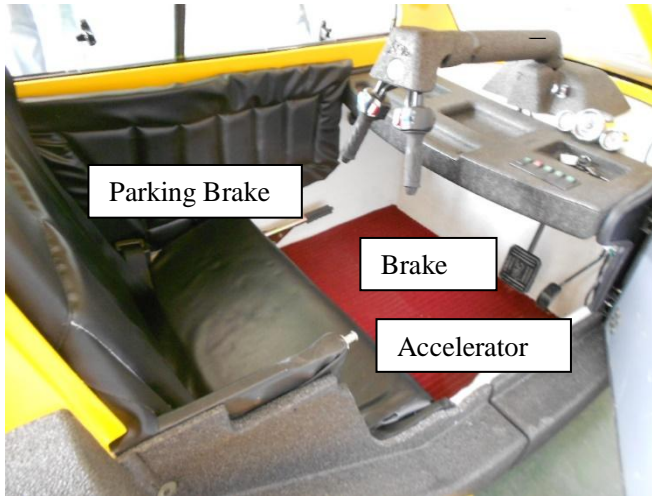
1. Many traffic accidents are caused by the inability of car drivers to notice the smaller vehicles, so the drivers of smaller vehicles should be aware to be noticed by other drivers
 - Please drive with the running or low beam headlights on according to the local law.
 - Please drive with great caution when in a blind spot or when bright lights hinders visions
2. Particular care should be exercised at railroad crossings, entrance and exit of parking lots or when changing automobile lanes.
3. You must obtain the appropriate driving license and be familiar with the local laws. Some states require a motorcycle license and a few require helmets. Never lend the vehicle to the person without driving license or who is unfamiliar with the vehicle.
4. Avoid driving on rough roads. This can easily result in the operation failure and structural damage to the vehicle frame.
5. Inspect and checkup the vehicle before driving. (Look at page 9)
6. Hold on to the hand grips when driving.
7. Do not drive too close to the other vehicles.
8. Spira4u has doors designed to help protect a bicyclist or motorcyclist that accidentally has a door opened into them. The door will give a lot and then break away. This safety feature also limits the load a user can push open a door before breaking it. If a person pushes too hard when opening a door or leans on it too much it may crack the hinge until it fails and then the door needs replaced. Please be gentle on the door when it is open to increase its life.

Payload

- **The max payload of this motorcycle is 200kg(440 lb), including the weight of the driver, passenger and goods.**
- **The loading and any load shifts will affect the stability and operation of the vehicle so tie down any heavy loads and wear the seat belts.**

II . Controls and operating instructions

Brakes and Accelerator location (Fig 1)



Meter and indicators (Fig 2)



Fig 2

- (1) Left turn signal indicator
- (2) Right turn signal indicator
- (3) Low brake fluid indicator
- (4) Speedometer
- (5) Odometer

Ignition switch (Fig 3)

- (1) Open(○)—this is the run position for starting and running the engine. Do not pull out the key. Lights can be turned on and the engine start button used.
- (2) Close(⊗)—when the switch turns to this position, the engine stops and you can take out the key.
- (3) Lock(🔒)—when the switch turns to the handlebar lock position you can take out the key, but not turn the handlebar, and not start the engine.

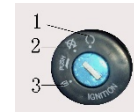


Fig 3



Battery Metering System (BMS) (Fig 4)





Fig 4

- The battery meter indicates the energy left in the battery pack. The battery should read full after charging. The distance you can go depends on the size of the battery pack, the type of driving done, the speed, and the weather.
- Push the green button above the meter to toggle through information screens that will tell temperatures, amp hours used, and battery voltages.
- One of the BMS screens shows four battery terminal temperatures. Warm the batteries to above

freezing before charging or the amount of charge and the battery life will be reduced. Warm the vehicle and batteries before leaving for a trip to maximize the energy the battery can deliver. Cold batteries below 32 F (0 C)will can only receive and deliver about 50% of maximum energy. Charging and discharging below -10 F (-10 C) can do permanent battery damage. In cold climates get a small 110 volt ac 1500 watt or smaller space heater with a thermostat and safety features to warm your Spira4u. The standard battery powered seat heater and defroster are small wattages to conserve energy.

- Minimum cell voltage is 2.7 volts. If you go down to this voltage on several cells plug in and charge ASAP. If only one cell goes down to this level note its # and get service for this cell which may be going bad or is unbalanced. Maximum cell charge is 3.9 volts. If a cell is going up to this level record its # and get service as it is unbalanced and damage may occur above 4.0 volts. .

Emergency On/Off Switch --RIGHT HAND-- (Fig 5)

- The electric motor can quickly be turned off by pressing to the red switch on the far right of the handle to the “OFF” position as shown on the below picture Fig 5.
- The vehicle will not run when in the “OFF” position.
- The Vehicle must be in the “ON” for starting and for the engine to run.

1

*****BEWARE PLEASE ***** Many experienced drivers forget to turn this switch on when starting. It is the most common reason that the motor will not run. Pressing on the brake also shuts off the motor.



Fig 5

Headlight switch –RIGHT HAND--(Fig 5)



Three position of light switch: “☀” “☾” and “●”

☀: Headlight, position lights, tail lights and instrument lights works


: Position lights, tail lights and instrument lights works


- Headlight, position lights, tail lights and instrument lights off.

Headlight dimmer switch –RIGHT HAND—(Fig 5)

Press “” button, for high beam; Press “” button, for low beam.

Turning signal light switch 2 –LEFT HAND (Fig 5)

Press the switch to “” to turn on the Left Turn Signal

Press the switch to “” to turn on the Right Turn Signal


Horn switch 3 –LEFT HAND and LEFT HAND—(Fig 5)

Depress this switch to make the horn work.

Rear trunk lock—RIGHT HAND REAR—

Turn the key clockwise to unlock the trunk.

Steering lock –RIGHT HAND—(Fig 5, Fig 6)

Turn the tiller away from the door (Fig 6). Press IN on the ignition key while turning the key to the lock () position (3). The steering setting is now locked. The key can now be removed.

Do the opposite to unlock the steering.

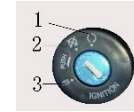


Fig 6

III. Operation Instruction

Check Up Before Driving

For safety and preventing trouble or accident, a pre-checkup is necessary.

Battery Charge Level

Make sure your battery is charged enough to make it to your destination. If traveling far from home or work take your battery charger in case you change plans and need it. It is best to have a working cell phone when driving an electric vehicle to find charge stations or call for help.

The free path of rear emergency brake handle (Fig 7、 Fig 8)

Measure the distance of emergency brake handle pulls up before the brake starts to stop you from pushing the Spira.

The free path should be between 25-50mm (1 – 2 inches) or 3 to 5 clicks before the emergency brake starts to grab.

- Adjust nut under the handle clockwise to reduce the distance of free path. Or counterclockwise to increase the distance of free path

The bolt in the emergency brake on the wheel can also be adjusted if the handle adjustment is at the end. A brake expert should do this adjustment to the brake shown on Fig 11 to and check to assure proper

functioning after adjusting. Make sure the lock nut is tightened after adjusting. Also make sure the bolt is not in a position to interfere with the fender when the wheel hits a bump. A shorter bolt may be used to assure no interference.

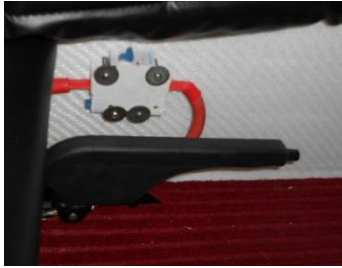


Fig 7



Fig 8

Notice: Once maintenance for brake system is needed, find a nearest professional repair department. Make sure the parts for replacement were made by our company.

WARNING:

When a steel disc gets worn to the limit (see the notice on the steel disc: MINIMUM THICKNESS 3mm), the old disc must be changed in order to not influence the brake performance.

Tires and Alignment

Check the tire pressure regularly and adjust if necessary.

Front tire pressure: 32psi = 225kPa

Rear tire pressure: 32psi = 225kPa



Fig 9

Use two straight 1.5 meter (5 feet) metal tubes to verify rear wheel alignment periodically or if you hit a big bump. The tires should be parallel within 6mm (¼”) per the following method shown in Fig 9. Measure the distance between the tubes close to the tires and again at 1.2 meters (4 feet) after placing to tubes parallel to the tires. A trained mechanic can adjust the wheels to be parallel.

- Check tire pressure when the tire is cooled for an accurate measurement.
- If the motorcycle has a flat tire, fix it immediately.
- Check for any metal, trash, or gravel in the groove of tires.
- Replace the tire when it wears out to the abrasion mark.

WARNINGS:

- **If the tire pressure is not correct, it will possibly cause traffic accidents.**

- **It is dangerous to use a worn tire because the traction between tire and road will be affected and may cause trouble with driving or even an accident.**

Starting the electric motor

- Turn the battery circuit breaker (Fig 10) to the on position by pushing it forward. You will hear a click.



Fig 10

- Push on the brake and put the key into the key hole and turn the engine kill switch (Fig 11) to “O”



Fig 11

- Release the foot and emergency brakes. Then press on the accelerator or turn the hand grip throttle to move and accelerate.

Driving operation:

Accelerating and decelerating will cause the steering to veer off course so be vigilant to react to direction changes when changing the throttle.

NOTICE:

A Payload lower than 440 pounds(200kg) is appropriate (including the weight of driver)

Brake operation

1. Let off the accelerator when braking to slow down.

Notice: Drive with care when driving in bad situation like on a wet or icy road. Perform brake operation, acceleration, and turning operation carefully.

2. Front brake and rear brake work at the same time

Power off the Spira4u EV (Fig 12)

- Turn the ignition switch to (⊗)



- Turn off the battery circuit breaker (Fig 13) Fig 13

Parking operation:

When parking, turn the key to (⊗) position, put on the emergency brake. (Fig 13) **For anti-theft**
Lock the steering and do not leave the key in the ignition before you leave.

IV、 Maintenance and service

Maintenance Periodic Table

This maintenance is based on the odometer, See the Maintenance periodic table as an important guide for your motor's maintenance on schedule. All the main parts of your vehicle should be inspected by a service man after a collision. Repair or replace broken parts so the vehicle will operate safely.

Notice: For the safety and dependability use the genuine factory parts by the dealer for replacement. Otherwise, the performance and operation function can be affected.

Notice: If the vehicle is not used for periods over one month, do a thorough inspection and check if the fuel, tires, or battery are still in good condition before driving.

Maintenance periodic table

I: Check and adjust it when need.

Item		Cycle		speedometer (×1000km)				
				1	4	8	12	Ref page
**	Brake system			I	I	I	I	9
*	Brake fluid				I	I	I	
*	Head light				I	I	I	
**	Swing arm				I	I	I	
*	The nuts\bolts	(Note2)		I		I		
**	Tires & alignment			I	I	I	I	10
**	Steering bearing			I			I	

* Unless you are an expert on maintenance, please let a mechanic maintain or repair your vehicle.

** For safety, we insist all items are to be completed by a mechanic.

Note: 1、 It is recommended to shorten the period of maintenance if use the motor in a particularly moist or dusty area. When the battery consumption becomes high, or acceleration is bad, you should have a mechanic check to see if some parts need repaired.

2、 If you usually drive the on rough roads, please check bolt tightness to insure the safety of the vehicle.

Troubleshooting table

Trouble phenomenon	Reason		solution
The Electric Motor Will not Go	Switch is in the wrong position	Circuit breaker is off	Reset
		Emergency shutoff is in off	Reset
		CDI wear out	Change
	The Battery is discharged	Ignition was left on accidentally	Turn off and charge
		A faulty part has a short	Diagnosis and Change
		The BMS senses low voltage	BMS resets in 30 sec
		The motor controller sense low voltage	Charge the Battery

Trouble	Trouble reason	solution
Riding unsteady	gap between steering bearings is too big	Adjust/Tighten
	tire pressure not enough	Add air
	Front or rear axle are loose	Tighten nut
Braking is slow	The brake pads worn	Change
	Brake spongy	Add Fluid and Bleed
	Parking brake cable is broken	Change
	Free path too big	Change pads

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Battery maintenance (Fig 15)

The battery is maintenance free (don't add water)

- If the battery post and/or terminal is corroded, please have an electrician disconnect and clean.



NOTICE: Turn off the ignition switch and battery circuit breaker before disconnecting the battery.

Fuse replacement

The rated electric current of the fuse is 15 A. If the fuse often burns down, it indicates the short circuit or overload in the electric system. Ask the serviceman to repair it, and never use the brass wires to replace the fuse.

V Vehicle Storage

STORAGE

If the vehicle hasn't been used for a long time, some steps should be taken to prevent malfunction and damage to the parts. Besides, before the long-time storage, proper repairs should also be done.

- ◆ Store the vehicle in a place without strong light or below freezing temperature. Check the battery charge once every month and make sure the battery circuit breaker is turned off.
- ◆ Clean the vehicle and wipe it dry, coat the wax on the surface of the paint, and anti-rust oil on other metal parts.
- ◆ Cover the vehicle and put it in a cool place.

Use the vehicle after long-time storage

- Take off the cover and clean the vehicle.
- Charge the battery if necessary.
- Check all the parts before driving.(see p). Drive Spira4u at low speed in a non-busy area to be safe while testing the brakes and acceleration.

VI Vehicle identification.

Position of the model code, vehicle identification number and label

Provide the VIN numbers above when registering to get the license and when getting service or inspection.

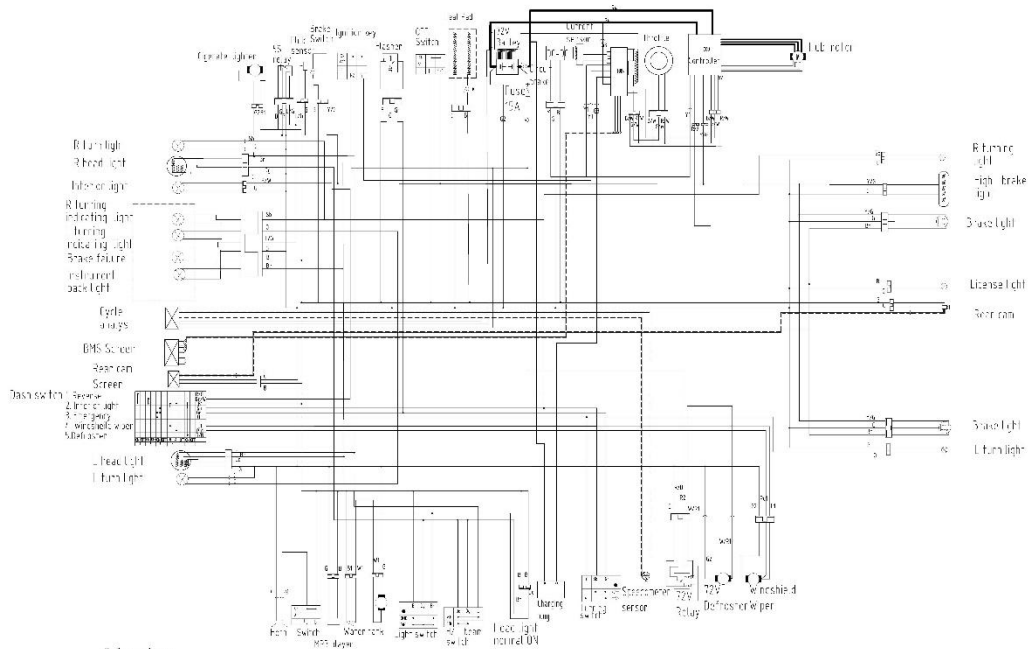
A VIN Plate is riveted
onto the dash

VII Vehicle specifications

Item	Parameter		Item	Parameter
L×W×H (mm)	2720×1470×1300		Front Tire	100/80-14
Wheel Base (mm)	1880		Rear Tires	100/80-14
Ground Clearance (mm)	125 5 inches		Pressure Of Front Tire (kPa)	32psi (225)
Dry Weight lbs. kg	520# 236 kg		Pressure Of Rear Tire (kpa)	32psi (225)
Max Payload lbs. kg	440# 200 kg		Transmission	Automatic
Turning Angle of Steering Handle	≤44		Reduction Ratio of Transmission	6.89~22.39
V=60km/h	Brake Distance m	Speed-down average m/s ²²	Motor type	Brushless Hub
	≤37.3	≥4.4(5.8)	Turning Light	12v 10W
Max speed (km/h)	≥100		Tail Light/Brake light	12V 5W/21W
License Plate Light	12V 5W		Fuse	15A

Rated Power	6KW continuous and 10KW Maximum 30 sec	Headlight	12V 35W/35W×2
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VII Wiring Schematic



Color chart

Code	G	K	Y	L	Le	Br	Y/W	L/W	R/W	Pt	
Color	Green	White	Yellow	Blue	Light Brown	Yellow	Blue/Black	White	White	Purple	
					Green	/White	White	White	/Red		
Code	O	R	B	Gr	Ss	V/R	Dg	R/B	B/Y	B/W	Br/W
Color	Orange	Red	Black	Grey	Blue	Yellow	Dark Green	Red/Black	Yellow/Black	Brown	White

NHTSA Safety Notice

If you believe that your vehicle has a defect which could cause serious injury or death, you should immediately contact the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Spira4u Co. Ltd.

If NHTSA receives similar complaints, it may open an investigation and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign.

However, NHTSA cannot become involved in any individual problems between you, your dealer or Spira4u Co. Ltd.

To contact NHTSA you may call the Auto Safety Hot line toll-free within the United States on 1-800-424-9393 or write to: NHTSA, 400 Seventh Street SW, Washington, DC 20590.