

# Zapino™

## Owner's Manual



# ZAP!®

Ride the Future™

## Operation and Maintenance Instructions

**We strongly recommend that you read this entire manual before using your vehicle for the first time**

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# General Instructions Before Riding

- 1) To ensure the vehicle is functioning correctly, do a quick check of the vehicle's tires and check that the brakes are working. (For more detailed maintenance instructions see the Maintenance Schedule). Your vehicle has been thoroughly checked by our engineers before delivery but on the spot checks are equally important.
- 2) When the key is inserted and turned to the "ON" position, the power indicator will illuminate. If current drain is over 60A, the power will be automatically cut off to avoid over-heating. Wait for one minute and then press the red button (see pg.7) to restart the vehicle.
- 3) To avoid unplanned acceleration, always turn the key to the "OFF" position before dismounting or leaving the bike unattended.
- 4) **SAFETY NOTICE:** Be sure that you are seated on the bike and stands are clear of the floor before touching the throttle handle. If you twist the throttle before you are ready to go or while you are mounting the bike it may run away from you and could lead to an accident.
- 5) This vehicle may be ridden in wet conditions, but be sure to avoid soaking it during cleaning to avoid damaging any of the electric components.
- 6) The vehicle should not be left in strong, direct sunlight for long periods as some of the electric components may overheat.
- 7) Motorcyclists must abide by the same traffic rules and regulations as other motorists. Before taking your motorcycle on a public road, be familiar with traffic rules and regulations and any special requirements for motorcycles.
- 8) **Never drink and ride.** Alcohol slows reflexes and greatly limits your ability to operate a motorcycle. Even a very small amount of alcohol will reduce your ability to operate a motorcycle safely.

# Point Inspection before every use

Item	Action
Front Brake	Squeeze right hand brake and push the vehicle to see whether it rolls easily. If it does, then the brake must be tightened. Tighten the bolt until the vehicle will no longer move with the brakes applied.
Rear Power/Disc Brake	Listen for any noticeable grinding or squealing from the tires while the brake is applied. If so, contact the supplier.
Brake Fluid	Check fluid gauge on the left handlebar to ensure that the brake fluid is above the indicated level. If not, top it up with a good brand of brake fluid.
Electric Switch Handle	Turn Throttle counter clockwise then release; the Throttle should spring back to stop position. If not, contact your supplier.
Tires	Check the tire pressure is 36 PSI
Controller/ Motor	Check the usage and condition
Battery	Check the power level by looking at the gauge or with a voltage meter (26V-12V).
Signal	Check to make sure your lights are working.
Nuts and Bolts	Check to make sure that all nuts and bolts are tightened and secured.

## Important Notes

1. Regularly perform a routine maintenance check. Doing so will help protect yourself and your vehicle.
2. If any parts are damaged, whether normal or abnormal, please check with the supplier before riding.

# Assembly Instructions

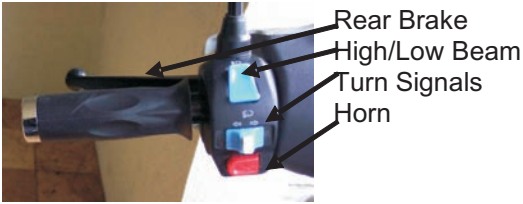
## Installing the mirrors

1. Mirrors can be easily fixed to the handle bars between the grips and the brake handle.
2. Screw in the mirror clockwise. The mirror that goes on the left controller is curved to the left and the mirror that goes on the right controller curves to the right.
3. Secure mirror by tightening the bolt.
4. Clean and adjust both mirrors before you ride. Adjust each mirror so you can see the lane behind you and as far as possible the lane next to you. When the mirror is properly adjusted you can see the edge of your arm and shoulder.

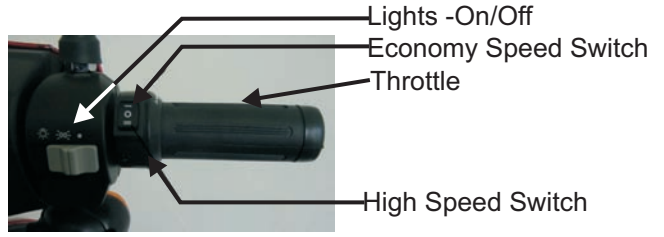
# Technical Specifications

Motor Power	1500W / 2000W Brushless Hub Motor
Battery	DC 48V, 38Ah/DC 60V, 20Ah with the green saver ( silicone power) batteries
Charger	5A,110V~250V/50 Hz ~60Hz
Charging Time	6~10 Hours
Life of Battery	400 Deep Cycles
Wheelbase	10 Inches
Torque	18.45 Foot Pounds
Top Speed	31 mph (50km/H) for 1500W Motor and 40 mph (65km/H) for 2000W motor
Single Charge	Max 55 miles (90km) based on 38AH battery, depending on Terrain and Load
Climbing Capacity	1:5 gradient
Maximum Weight Capacity	282 lbs (128kg)
Tire	Front:3.50-10.00 Inch 8PR Rear:3.5-10.00 Inch 8PR, tubeless tires
Gross Weight	253 (115kgs) with 38AH48V battery and 238 lbs (108kgs) with 20AH60V battery
Net Weight	154 lbs (70kgs) (not including the battery)
Battery Weight	99lbs (45kgs)
Product Size	L 70" x W 27" x H47"
Brake System	Front: Disk /Back: Drum

# Equipment Location

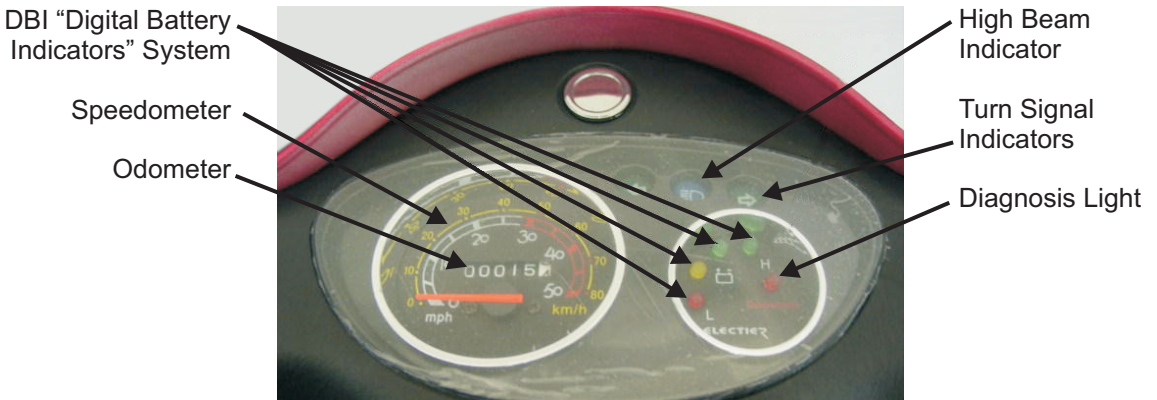


**Left Handlebar**



**Right Handlebar**

## Front Panel



**Kick Stand**  
(this automatically cuts off the power so the bike will remain stationary)



**Seat Lock**  
Use key to release seat



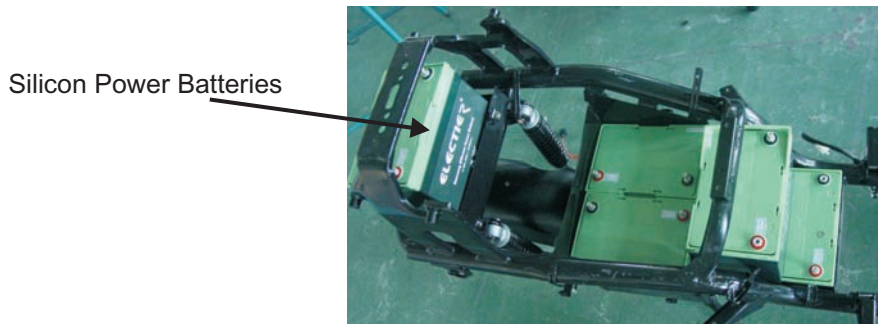
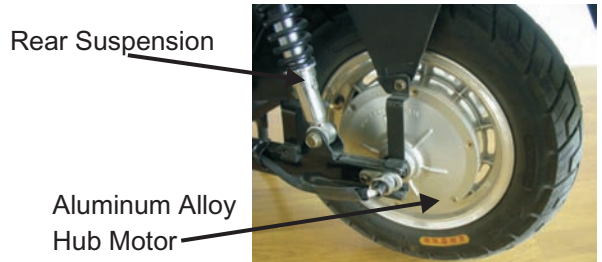
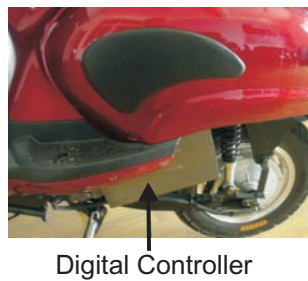
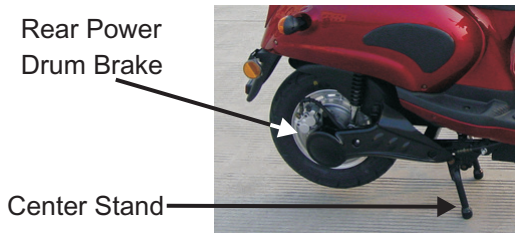
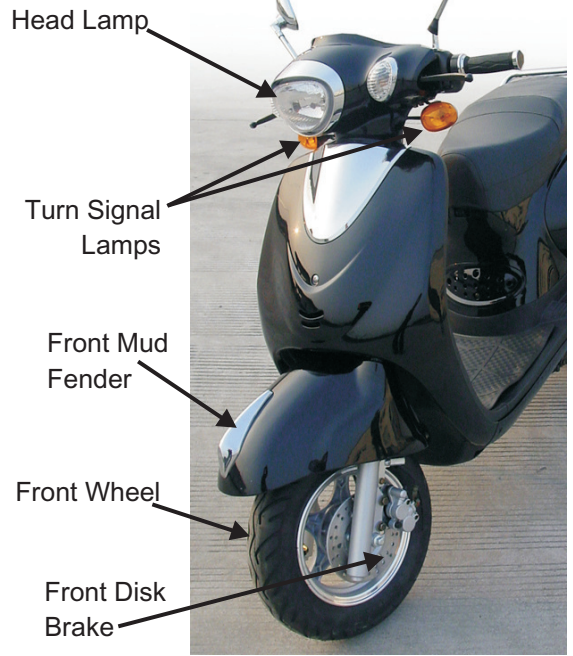
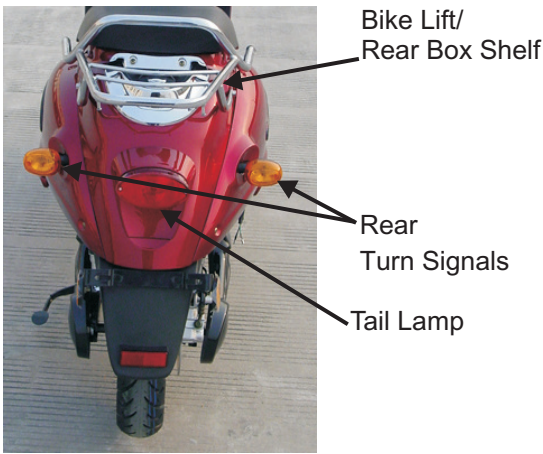
**Seat Storage**  
Charger, tools, etc inside

**Charge Plug**  
Located under seat



**Rear View Mirrors**





Part	Item	Function
A	Head Lamp Light	Light is illuminated when switch key and head lamp are 'ON'
B	Power Light	Motorcycle is 'ON' when it is illuminated
C	Indicator	Light is on when indicator is on
D	Speedometer	Indicates speed
E	Odometer	Indicates mileage
F	Critical Battery	Red light is illuminated when the battery is discharged
G	Low Battery	Yellow light is on when battery is low
H	Full Battery	Green light is illuminated when battery is full
I	Current Meter	Shows Amperage being used



# Ignition Key Position

Key Position	Description
On	Key cannot be taken out when power is on.
Off	Key can be taken out when power is off
Lock handle bar	To prevent theft, turn the Handle Bar to the far left and turn the key into the lock position. The key can be taken out when handle bar is in the lock position.
Opening the seat	Use the key in the slot on the side of the bike to release the locking mechanism of the seat.



## Left handle bar controls

Headlight Switch	High Beam – Push switch up Low Beam – Push switch down
Horizontal Switch	Left Turn Signal – Slide switch to the left Right Turn Signal – Slide switch to the right Turning off Signal – Press central release button
Horn Button	Sounds Horn – Push red button on the left.
Rear Brake Lever	When Brake Handle is compressed the rear wheel will slow to a stop and power will be cut off. Power will flow once lever has been released.

## Right handle bar controls

Front Brake Lever	When brake handle is compressed the front wheel will slow to a stop and power will be cut off. Power will flow once lever has been released. To start, turn the throttle counter clockwise.
Throttle	Turn throttle counter clockwise to increase speed.
Parking Lights	The dashboard lights, headlight, and taillight will turn on when the switch is in the middle position.
Head Light	The dashboard lights, headlight, and taillight will turn on when the switch is in the left position.

# Accelerating and Braking

## Throttle Tips

1. Turn the key to the 'ON' position, and turn the Throttle gradually to accelerate.
2. To prevent losing control of the vehicle, please turn the Throttle slowly until the speed increases.
3. Do not turn the Throttle until you are in the position to drive.
4. To stop, release the throttle and apply the front and rear brake simultaneously.
5. To move, release the brakes and turn the Throttle gradually.
6. The Brushless motor makes a small electromagnetic noise when turning the Throttle to start. This is normal.
7. Please, for your safety and security, take the key out when you are not riding.

## Braking Tips

1. For safety, this vehicle has a circuit brake system. When the front and rear brake is applied, the controller will disable the circuit; release the throttle back to the start position then accelerate again.

# Battery Gauge and Charging Instructions

Color	Description
Green	While riding, when the battery is fully charged the gauge light will be green.
Green (2 <sup>nd</sup> )	This light indicates that the battery is 75% of full charge
Yellow	When power is low (around 50%) the battery gauge will turn to yellow.
Red	When the battery is discharged the battery gauge will be red, and the motor will be automatically cut off. This means that there is less than 25% charge remaining. You should push the green button and drive slowly if you want to maximize the distance you can travel at this time.

## Charging

- ◆ The battery for this vehicle is a sealed, maintenance free D/C battery. The owner must use the factory-supplied charger with an 110V (or 240V) outlet.
- ◆ Turn off all switches while charging the battery. Plug one side to an 110V (or 240V) outlet and the other to charging plug on the vehicle (located under the seat- looks like a kettle socket).
- ◆ The average charging time is 8 hours (90%) for the 2500W. To fully charge battery, charging time will be 10 or 4 hours.
- ◆ After charging, turn the ignition to the 'On' position and unplug the charger from both sides.
- ◆ To keep the battery in good condition, charge it after each use. Please charge the battery fully once a month, even when the vehicle has not been ridden.
- ◆ The range with silicon battery is 60kms and lithium battery is 70kms.

## Battery Longevity

The driver should, if possible, charge the scooter after every trip as this will help the battery's life. The life of the Green saver battery is 400 deep cycles (100% discharged), but if you charge the battery every time or when its capacity falls below 50%, the battery life will be greatly increased. Therefore we advise the rider to charge the bike as often as possible.

# Performance

1. The distance and speed depend upon various elements of the rider's style and the road conditions. A 20mph constant speed will ensure the longest range but our figures include going flat out too. Other factors include weather, vehicle condition, and battery charge. Drivers must be cautious when driving on rough roads, in poor weather, or when the battery charge is low.
2. This vehicle has a circuit brake system to protect the vehicle when the brake is applied;
3. After each trip, the driver should turn off the vehicle, take out the key and charge the battery. This battery does not have memory (i.e. you do not have to run it down completely to achieve a good charge. On the contrary, regular charging will lengthen the life of the battery) and can be charged at any time in the cycle of the battery.
4. Always check the battery gauge while you are riding and be sure that it does not get too low too often.

# Maintenance

**This electric motor bike represents a new generation of environmentally friendly two-wheeled transportation. Therefore, good maintenance will play a major role in keeping your vehicle in good working condition and prolonging the life of the batteries. Please follow these suggestions:**

- To prevent rust always keep your vehicle dry and clean.
- Regularly check the front and rear tires, suspension and body frame and all fasteners.
- When riding in rain do not go through deep puddles or muddy areas; excessive water will cause the motor and other electrical components to suffer undue harm.
- To prevent rust from forming on the vehicle, avoid parking your vehicle in high humidity and corrosive areas.
- To avoid damage to the electrical parts of this vehicle, especially the controller, do not park the vehicle in direct sunlight or in heavy rain.
- Due to the complexity of the electronic manufacture of this vehicle, customers should never attempt to take out any of the parts, or attempt major maintenance without consulting the supplier (this will invalidate the warranty).
- Never overload and ride the vehicle for an extended period of time, prolonged use with excessive weight could cause serious damage to the electronic and mechanical parts.
- Always check your vehicle and perform necessary routine maintenance - tires, brakes, nuts and bolts.
- For your safety, perform routine maintenance on your vehicle. This will lower the potential for damage.

# Maintenance Schedule

Mileage	400	1000	2000	3000	4000	5000	6000	Maintenance
Battery			C				C	
Charger			C				C	
Tire Pressure	C	C	C	C	C	C	C	A
Tire Wear							C	
Brake System	C		C		C		C	A
Brake Pad							A	
Nuts and Bolts	T		T				T	
Mileage		7000	8000	9000	10,000	11,000	12,000	Maintenance
Battery			C				C	
Charger			C				C	
Tire Pressure		C	C	C	C	C	C	A
Tire Wear			C				C	
Brake System			C		C		C	A
Brake Pad			A				A	
Nuts and Bolts			T				T	

**A: Adjust    C: Check    T: Tighten**



# Frequently Asked Questions

## 1. Fully charged, what is the range of the electric vehicle?

**A.** The Range is affected by the weight of rider, the type of terrain and the speed at which the vehicle is driven. Under optimal conditions (push red button and keep a steady 20mph rate speed), a range of **(110 km)** has been recorded on a single charge.

**B.** See the specification sheet for the full range and speed of the models.

## 2. Is riding an electric vehicle a comfortable riding experience?

**A.** Riding an electric vehicle is indescribably more comfortable than riding a gasoline motor vehicle. The silence and the smoothness of a direct drive electric-motor-powered vehicle are incomparable.

**B.** .Quick accelerating---speed from 0 to 38 mph (62km/H) takes only 5 seconds (with the EFV 200)

## 3. Do you have to warm-up the electric vehicle before riding it?

**A.** When the driver turns the ignition key, three beeps will immediately follow telling the driver that the vehicle is ready to drive. There is absolutely no warm-up time needed. Just turn the key and you are ready to go. It cannot be any easier.

## 4. What about maintenance?

**A.** This motor bike is designed for minimum maintenance. Considering the fact that this vehicle has no combustion engine, no transmission, no belts, no chains, no gasoline, no lubricants, no ignition plugs, no carburetor, etc. Modular designed components are practically maintenance free. The unique design of the direct drive system and the total absence of belts or chains make this vehicle much easier to maintain than other electric scooters. Practically any scooter dealer can do most of the maintenance that may be required. The brushless motor is precisely that so there is never a need to change the brushes.

## 5. What about parts, is it a problem getting parts for the Zapino?

**I.** ALL parts can be purchased directly from the supplier including batteries, tires, bulbs, body shells, seats etc.

**II.** We supply a one year warranty for all parts (subject to due care from the driver) excluding batteries (3000km) and tires.

**6. Can the electric vehicle be cleaned or washed with water without any concern?**

**A.** Due to its Direct Current source and 48V / 60V system design, there is no danger when the vehicle gets wet.

**B.** However, one should be careful not to pour water directly into the charger outlet, the controller and the internal battery set when washing or cleaning.

**7. Do you need to wear a helmet to drive the electric vehicle?**

**A.** For safety reasons we always advise the use of a helmet. However, local law dictates whether or not riding vehicle law obligates a helmet.

**8. Is it easy to recharge the batteries?**

**A.** Yes, it is very easy. The user just needs to insert the input plug of the Battery Charger into any regular wall outlet of AC110V (or AC220V) and the output plug into the inlet on the right rear side of the vehicle, which is clearly marked. This will start to recharge the batteries. Daily charge of the battery will lengthen its life cycle, up to 1000 deep charges from 400 occasional charges.

**9. How long will the batteries last, what is the batteries life cycle?**

**A.** The battery's life cycle will be reduced or damaged if an insufficient charge level is retained for a long period of time. Depending on the user's operation, between 400 and 1000 cycles. Normally the batteries should last between two and three years if the user charges it regularly.

**10. How can I know the batteries condition and energy level?**

**A.** The display panel includes a row of LED lights, which clearly indicate the power level of the batteries in your vehicle.

**I. FULL: First green light is on.**

**II. 75% FULL: Second green light is on.**

**III. 50% LEFT: Yellow light is on and you also hear a Warning Beep (At this level, charging is highly recommended).**

**IV. Low 25% LEFT : Red light is on (Immediate charging is necessary).**

**11. If one of the batteries has a problem do I need to change all the four batteries?**

**A.** Not necessarily. Simply check the condition of all four batteries and only replace the battery which shows lack of charge.

**12. Can a rider get burned while riding the electric vehicle?**

**A.** Riders will not get burned from riding the electric vehicle. The vehicle does not have an exhaust pipe like in gasoline scooters. Nothing heats up.

### **13. Why is this product the best available in the world today?**

It has a Brushless motor. We emphasize "**brushless**" not just because this is the latest technology, but because these permanent magnet motors are supremely reliable! These more expensive motors produce high torque at low speeds, keeping an acceptable balance of torque and energy across the whole speed range. In addition to not wasting energy at idle, the motors offer the advantage of using the permanent magnet motor's energy recovery capability during deceleration (regenerative braking), so the batteries recharge during deceleration. Often other types of electric vehicles on the market today will still use sealed brush-type motors that are dependant upon brush life that build up brush dust (residue) and susceptible to wear over time which may affect maximum speed and electrical noise or become problematic in other ways. Because these brush-type motors are sealed, it often takes an expensive motor replacement to get them working again.

### **14. What is the Manufacturer Warranty?**

ONE YEAR unlimited mileage warranty for all parts except batteries (3000km) and tyres. This warranty is subject to the customer/rider/owner taking due care and maintenance of the vehicle at all times.

# Special Maintenance Warning Signals

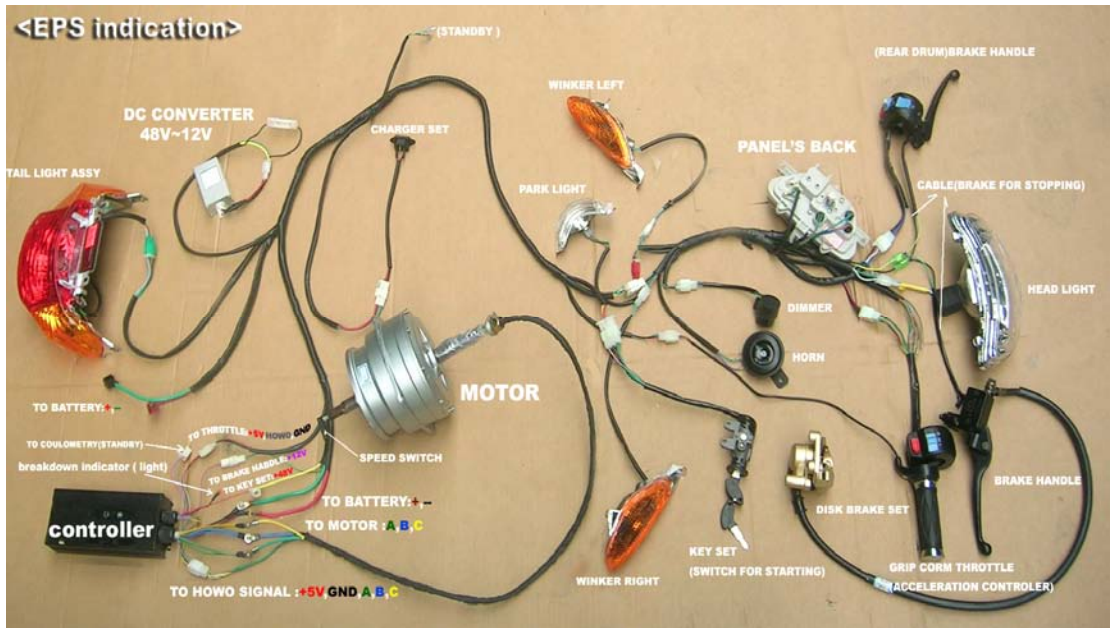
If the Zapino is not working, look at the trouble light (break down lights) above the speedometer, as follows:

- Flash 2 or 3 times, problem is with brake (brake cut off)
- Flash 4 times, problem with throttle, it didn't come back to position.
- Flash 5 times, problem with throttle, throttle is broken
- Flash 6 times, problem with voltage, too low voltage on battery.
- Flash 7 times, problem with voltage, too high voltage on battery.
- Flash 8 times, problem with motor, hall inside broken.
- Flash 9 times, problem with motor, wrong motor (48V and 60V have been confused).
- Flash 10 times, overheat protection, leave to cool.
- Flash 12 times, problem on controller current sensor.

# Troubleshooting

Problem	Condition	Check	Solution
When I turn my vehicle on nothing happens.	1. Power indicator light is off while riding.	1. Check power connection and battery level.	1. Fasten connections.
	2. Indicating light on motor is not illuminated.	2. Check battery and motor connection.	2. Recharge battery.
		3. Assess the weather for humidity.	3. Loosen connection and wipe down with a damp rag and dry and fasten again. Contact the supplier.
		4. Check regulator.	4. If there is any corrosion replace. Contact the supplier.
		5. Battery level is low.	5. Change or replace damaged part. Contact the supplier.
The Throttle does not work or switch on, the vehicle moves without acceleration.	The Throttle does not return to stop position.	1. Check the grip for damage	1. Use a flat head screwdriver to adjust the gap between the rubber handle and the cover.
		2. Check the Throttle spring.	2. Readjust the Throttle spring position. Contact the supplier.
		3. The Throttle handle is loose.	3. Lubricate the Throttle spring. Contact the supplier.
The batteries do not take a charge.	Charger light is off	1. Check the charger plug position.	1. Check by unplugging charger and plugging in again.

		2. Check the fuse in the charger box.	2. Unplug the charger and replace the fuse. Contact the supplier to order a new charger fuse/charger.
		3. Charger has blown a fuse.	3. Replace the charger fuse. The fuse box is located on the floorboard, unscrew the two screws and open the fuse case, and replace scooter.
		4. A bad connection exists between the charger and the battery.	4. Unplug and plug in again. Otherwise contact the supplier.



**ZAP!**

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