

**HEBB E-BIKES  
ELECTROGLIDE 500**



**TECHNICAL SERVICE MANUAL**

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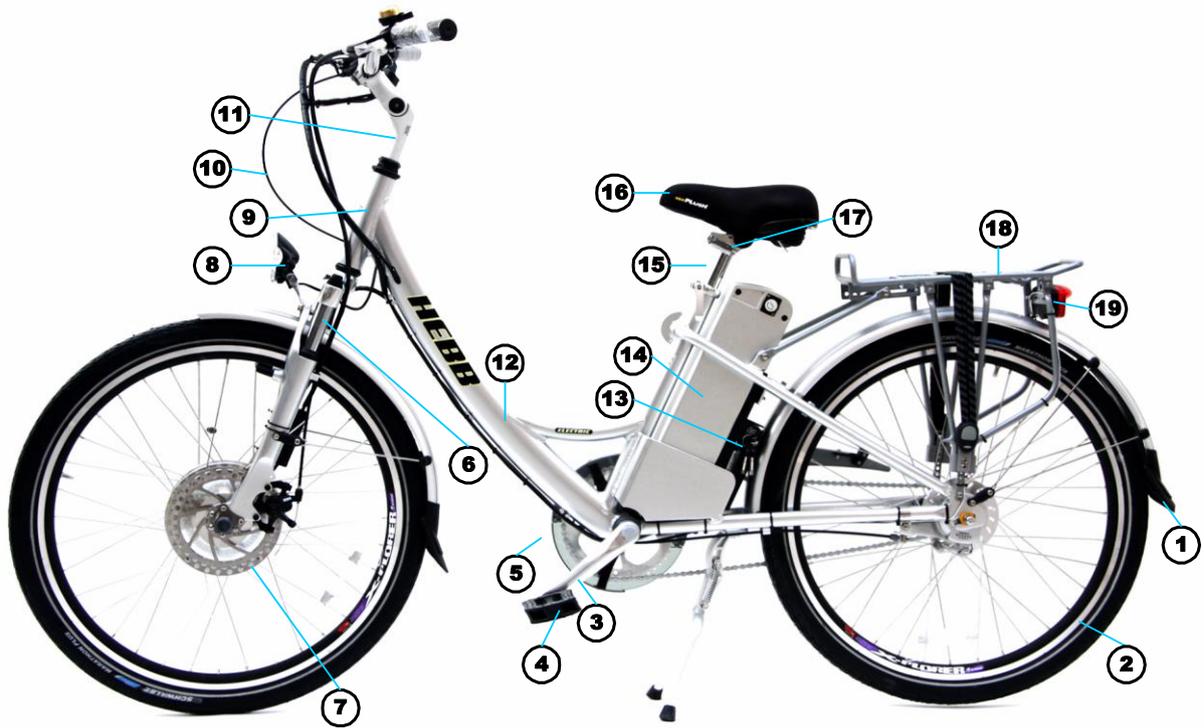
### **10.3 Signal wire trouble shooting**

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# 1. Bike Overview



- |    |                      |    |                              |
|----|----------------------|----|------------------------------|
| 1  | Mudguard             | 15 | Seat post                    |
| 2  | Rim                  | 16 | Saddle                       |
| 3  | Crank/Chain wheel    | 17 | Seat folding mechanism       |
| 4  | Pedals               | 18 | Rear carrier                 |
| 5  | Chain guard          | 19 | Rear light                   |
| 6  | Suspension fork      | 20 | Left brake lever             |
| 7  | Disk brake           | 21 | Digital speedometer/odometer |
| 8  | Front LED light      | 22 | Battery indicator            |
| 9  | Head tube            | 23 | Right brake lever            |
| 10 | Brake wire           | 24 | Throttle                     |
| 11 | Head stem            | 25 | Gear shifter                 |
| 12 | Aluminum alloy frame | 26 | Gears                        |
| 13 | Controller           | 27 | Chain                        |
| 14 | Battery              | 28 | Brushless DC motor           |

## 2. Controller

### 2.1. Controller Overview



1. Self diagnostic LED
2. Motor phase wires
3. Motor hall wires
4. Battery gauge / Throttle / Brake lever
5. Motion sensor
6. Power cables

### 2.2. Part Identification

C1-9923 (20 mile/hr maximum speed)

Microprocessor controlled PWM output for 36V Brushless hub motor with planetary gears, Ebike / EPAC controller unit. Overload protection 20 amps, under-voltage protection 31.5V. Die cast aluminum casing.

### 2.3. Controller installation / removal



The controller is mounted on the bicycle in the space between the battery slot and the rear wheel.

Make sure that the bicycle is turned off and the battery taken out before proceeding with the removal of the controller.



Turn over the bicycle on a clean soft surface or mount it on a bicycle repair stand during the operation to prevent surface scratches and damage.

Disconnect all wires attached to the controller. You will find these wires on the underside center of the bicycle (below the battery slot base plate).

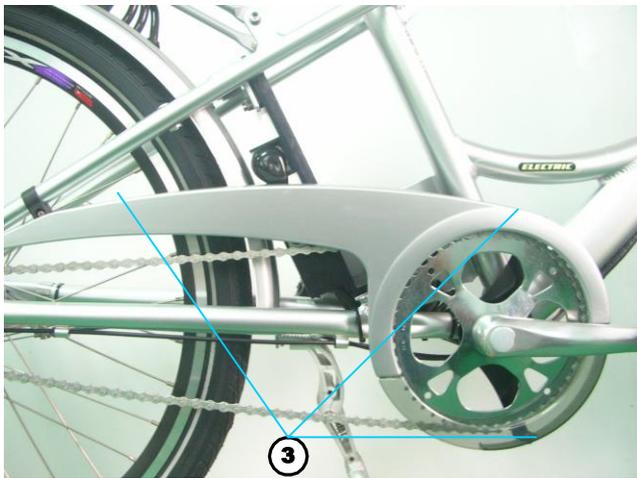


**Note!**

1. On some bicycles, the motor wires from the controller leads all the way to the front fork as shown, in some cases the wires are threaded through the frame cable guides. It is then necessary to cut away the connectors to continue with the dismantling of the controller.



2. Release the controller unit holding screws from the battery slot.

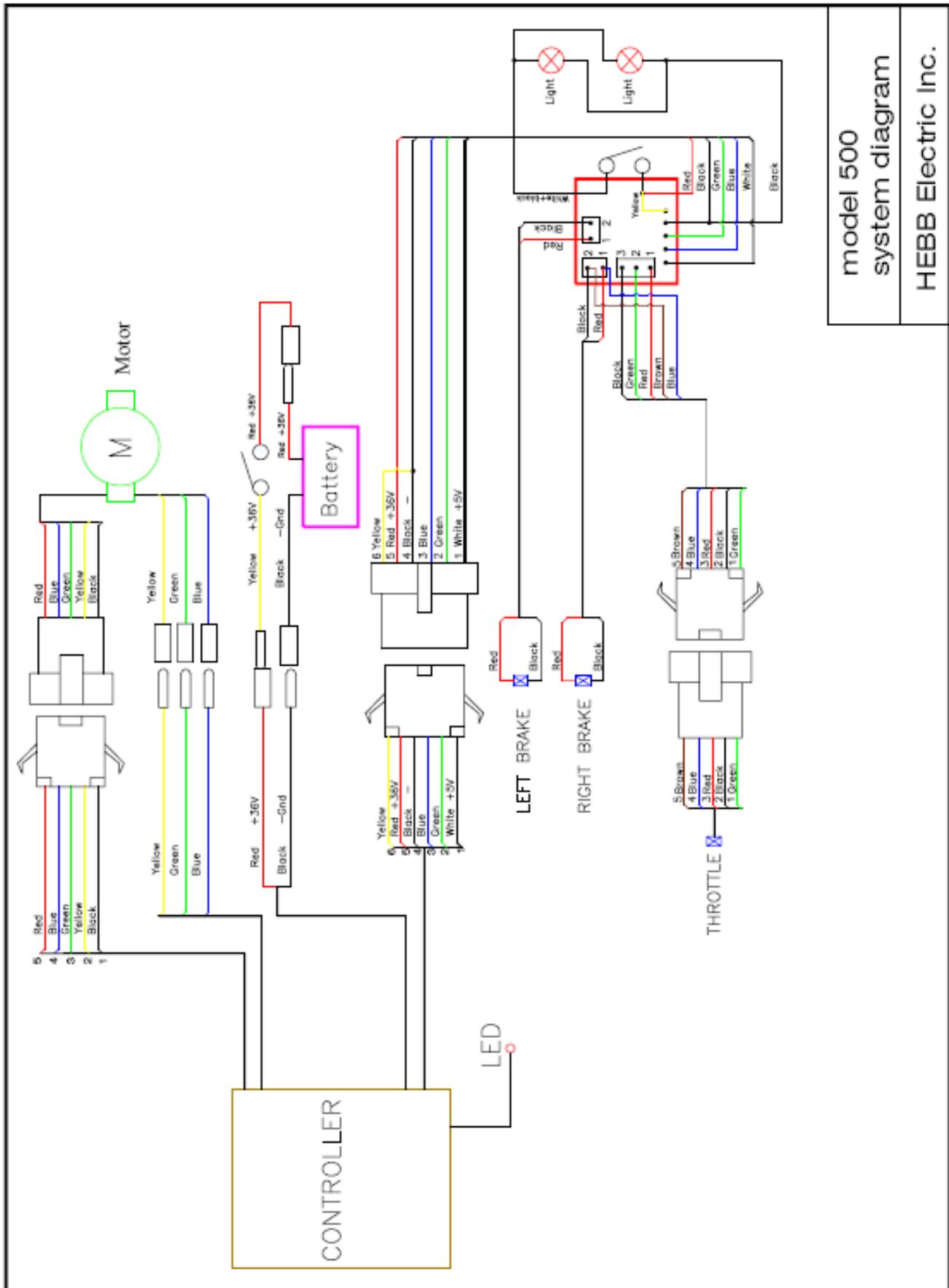


3. Release the screws and nuts of the chain guard (if any) and dislodge the chain to push the controller out towards the right of the bicycle.

**Note!**

On some bicycles the chain guard is secured using both screws and bolts (use 4 mm hex key).

## 2.4. System diagram



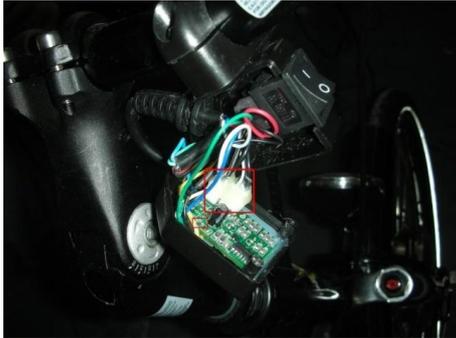
model 500  
system diagram

HEBB Electric Inc.

## 2.5. Self-diagnostic indicator

### Model 500 Trouble Shooting Guide

(Controller version # 9923)

LED blinks	Problem	Solution
Always on	Function normal	
2 times	No such signal	
3 times	Brake lever cut-off in contact	<p>a. Make sure the throttle rock switch is on at “I” meaning the bike is ready to run. When this switch is off at “O”, the LED blinks 3 times even though the brake lever is functioning.</p> <p>b. Check if both brake levers are returned to their rest position. No clearance is allowed on brake lever. If a lever is not in rest position and the brake cable is not loose, replace the brake lever.</p> <p>c. Refer to the system diagram and take apart the battery gauge checking the contacts of both sides brake levers by a multi-meter. The contact is “closed” when the brake is in rest position and is “open” when the brake is activated. Replace the brake lever if the levers do not perform as above. NOTE: Make sure to gently disconnect the connector as they are glued with silicone to the board.</p> <p>d. Replace the battery gauge if the above processes are all good and the light still blinks.</p>
		
	Fig.1	
4 times	Throttle does not return to zero position	The throttle should return to the rest position by twisting the throttle all the way to the end, and releasing. Turn off the bike and turn on power again. If the LED still blinks, replace throttle. Note: You may be able to get the throttle to return to the rest position by slightly loosening the 2 mm bolt holding the throttle to the handlebar.

5 times	No motor movement when throttle is turned.	<p>a. Make sure the throttle inside circuit is not wet. Remove the throttle and let it dry. Requires several hours or up to 2 days to dry depending on how wet the throttle is. (90% error lies at throttle, very few fail at battery gauge).</p> <p>b. Please refer to the system diagram and disconnect connectors between throttle and battery gauge. Use a multi-meter to verify if there is a short circuit at the throttle connector among first 3 pins. The 1<sup>st</sup> pin (green for signal), 2<sup>nd</sup> pin (black for ground), 3<sup>rd</sup> pin (red for 5V).</p> <p>c. Placing probes on 1<sup>st</sup> pin + 2<sup>nd</sup> pin, 1<sup>st</sup> pin + 3<sup>rd</sup> pin, 2<sup>nd</sup> pin + 3<sup>rd</sup> pin. If there is short circuit, replace throttle. Otherwise, replace battery gauge.</p>
6 times	Low voltage	Charge the battery. This is a warning signal when battery voltage drops below 30.5V. Bike is functioning but user needs to charge the battery ASAP. The blinks will stop once the battery is charged up to 34V. If voltage is below 20V, red LED light will be off and unable to activate controller.
7 times	Excessively high voltage	The battery voltage is above 44V and the battery should be replaced.
8 times	Hall sensor in hub motor breaks off	Please refer to the system diagram and disconnect the 5 pins hall sensor connector. Make sure every pin is clean and mounted firmly. Reconnect the connectors securely. Replace the motor if the above does not work.
9 times	Failure of supply 3 phase wires	<p>a. Please refer to the system diagram and disconnect the 3 motor phase wire connectors after the connector housings are removed as Fig. 2.</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p style="text-align: center;">Fig. 2                      Fig. 3</p> <p>b. Using a multi-meter to verify if these 3 cables are broken by placing probes on A): yellow + green B): yellow + blue C): green + blue. If the ohms values among any 2 of these 3 cables are unlimited value, replace motor. See Fig. 3.</p>

10 times	Controller temperature high, thermostat activated	Cool down the controller ASAP. The controller temperature protection is activated. Motor is able to continue to work, but the current will be automatically reduced to reduce the load and cool down controller.
11 times	Thermostat failure	Replace the controller. The thermostat is to protect the controller from high temperature. The controller can still drive the motor but it may be burned if temperature increases too high.
12 times	Controller failure	Replace controller. Motor cannot be activated.
2+3 times	Controller failure	Replace controller. Motor cannot be activated.
3+4 times	Motor stalled	<ol style="list-style-type: none"> <li>a. Make sure there isn't any obstacle to prevent the motor from turning.</li> <li>b. Switch key off and on again to reboot the bike. An extremely high load will stall the motor. Power will be cut off if overload protection is activated.</li> </ol>
3+5 times	Supply 3 phase wires broken (This symptom will show only when the power is on and throttle is twisted.)	<ol style="list-style-type: none"> <li>a. Please refer to the system diagram and disconnect the 3 motor phase wire connectors after the connector housing is removed as Fig. 2.</li> <li>b. Using a multi-meter to verify if these 3 cables are broken by placing probes on A): yellow + green B): yellow + blue C): green + blue. If the ohms values among any 2 of these 3 cables are an unlimited value, replace motor. See Fig. 3.</li> </ol>

### 3. Motor

#### 3.1. Motor overview



EZ-DP-3

36V, nominal 350W planetary reduction gear brushless hub motor.

#### 3.2. Motor installation / removal

- 3.2.1. Remove nut, spring washer, and spacer located on the right side of the bicycle. Tools required:  
19mm wrench / Hex key 4.



- 3.2.2. Release nut, torque plate (screwed onto fork) and spacer on the left side of bicycle. The motor wires are threaded through these parts. These parts may not be removed without first cutting off the connection plugs from the motor wires. The protection bracket may be removed.



- 3.2.3. If it is necessary to remove front hub wheel completely away from the bicycle, remove connections located by the front fork as shown. The front wheel may now be removed from the bicycle.



**Note:** When reinstalling the bicycle remember to fit front hub motor wheel in the correct direction.

3.2.4. Release all 6 screws on hub motor cover. Tools required: Philips head screwdriver.



**Note:** Releasing screws will detune spoke tension. Remember to recalibrate spokes on wheel after installation.

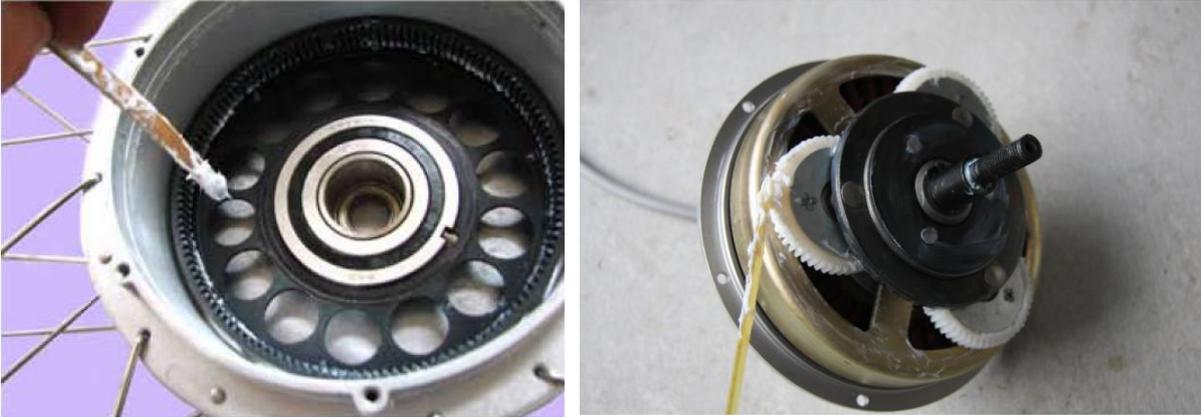
3.2.5. Knock axle as shown on the picture to release hub motor from casing. Tools required: Rubber mallet. Remove hub motor.



- Note:**
1. Hub motor should be worked on in a clean environment to avoid particles from entering sensitive electronic equipment.
  2. Ensure while working or when placing away the hub motor not to put weight or pressure on the axle to prevent damage of the axle.

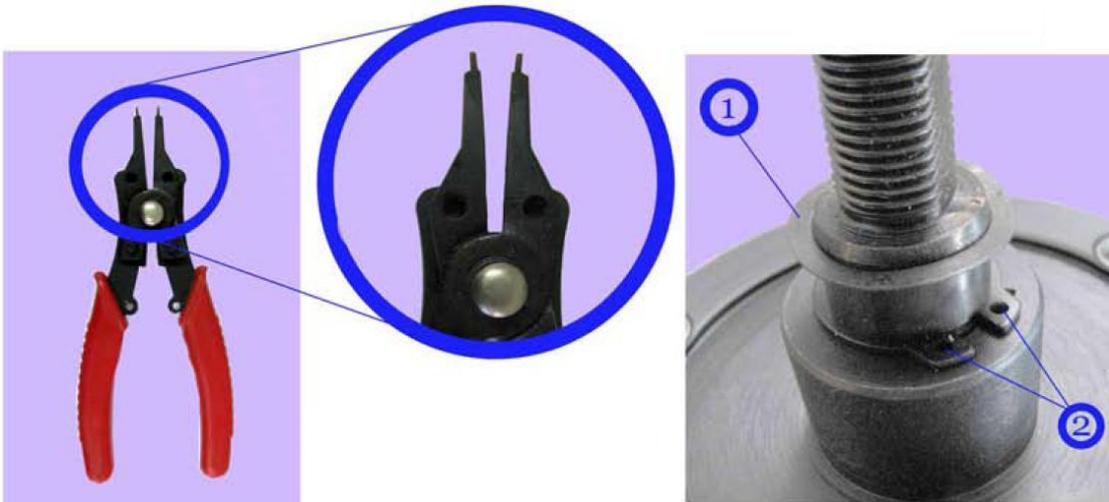
### 3.3. Motor maintenance

3.3.1. All motor parts are not serviceable by dealers with the exception of gears. Gears servicing is limited to re-greasing the gears or replacement of gears. Any modification or reparation work done without explicit consent of Hebb will immediately void warranty.



3.3.2. Apply silicone grease on gears and gear ring with a soft brush as shown on the pictures above.

3.3.3. Removal of planetary gears: Remove washer. Tools required: Snap ring pliers.



3.3.4. Use Snap ring pliers to remove snap ring – Apply the 2 pointed ends of the snap ring pliers into the holes located in the snap ring. Gently and firmly press the plier's handles to enlarge the ring out of its groove. Remove the snap ring out and over the axle.

3.3.5. To prevent water from leaking into the motor core, apply silicone as shown.



- 3.3.6. Silicone should completely cover up the cable entry point in the axle. Refit motor wheel when the silicone is dry.



### **3.4. Motor trouble shooting**

#### **3.4.1. Motor is not working**

Check LED self-diagnostic indicator. Ensure that all cables are properly attached (see wiring diagram).

#### **3.4.2. Motor makes grinding noise but refuses to spin.**

Check that the phase wires of motor are connected in correct order.

#### **3.4.3. Motor runs but cuts immediately or during riding.**

Check wires and ensure that all are in order. Open up motor to inspect for short circuitry.

#### **3.4.4. Motor makes grinding noises throughout ride.**

Open up motor to examine planetary gears for any damage or misalignment.

#### **3.4.5. LED self-diagnostic indicator flashes 8 times.**

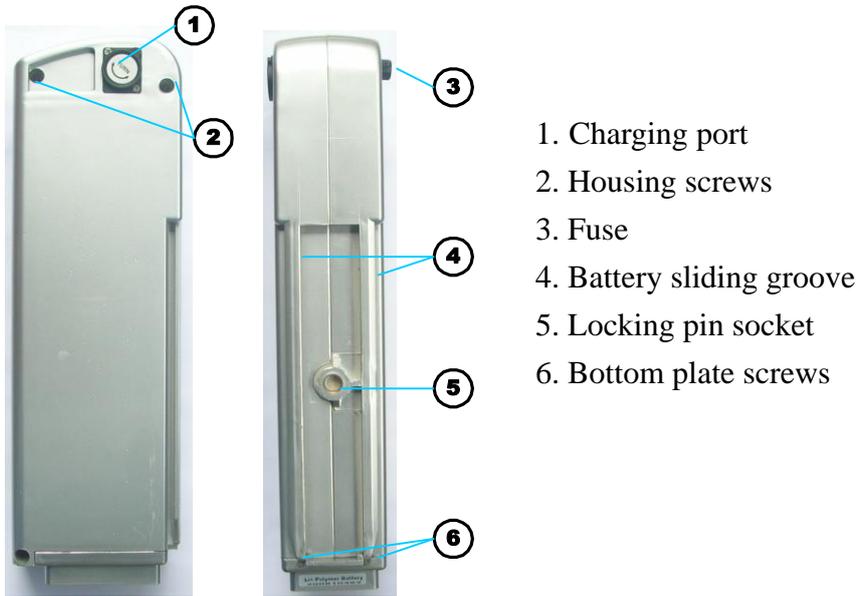
Check wires and ensure that all are in order. Open up motor to inspect for short circuitry.

#### **3.4.6. LED does not blink, motor does not operate.**

Check to insure throttle is working.

## 4. Battery

### 4.1. Battery overview



Li+ / Lithium Manganese Oxide (LiMnO) Battery 37V 10AH

E2 / 002

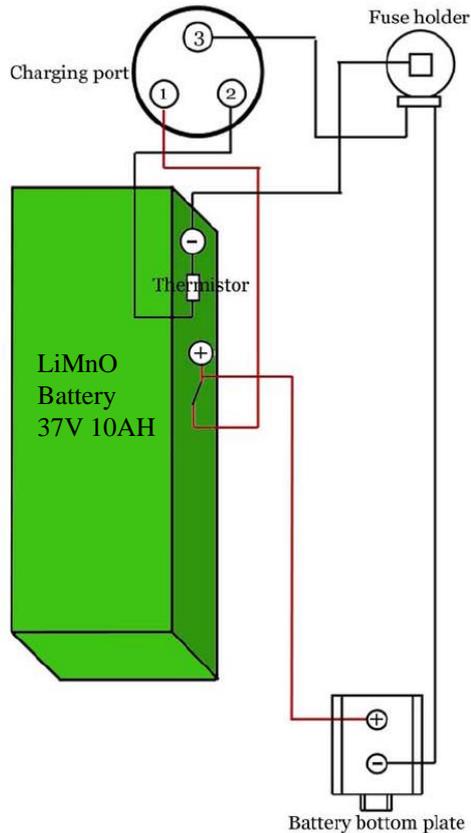


30A Fuse and fuse cover

**Note:** There are no distributor serviceable parts in the Li+ battery. Removal of the warranty sticker will void warranty.

## 4.2. Wiring Diagram

### Wiring diagram for LiMnO Battery 37V 10AH



## 4.3. Battery Trouble Shooting

### 4.3.1. **Problem:** Battery does not fit properly into holder.

- Solution:**
1. Remove battery and realign it along the battery grooves.
  2. If fitting is too tight, apply grease on grooves for lubrication.

### 4.3.2. **Problem:** Battery is in holder but the key does not turn.

- Solution:**
1. Push battery firmly down and ensure that it is securely in place.
  2. Check the alignment of battery locking socket and the pin.
  3. Ensure that the correct key is used for the bicycle.

### 4.3.3. **Problem:** Battery is in holder, key is at “on” position but there is no power.

- Solution:**
1. Ensure that the battery is charged, battery pins are not damaged, and fuse is not blown.
  2. Check integrity of power cables (Refer to the system diagram).

### 4.3.4. **Problem:** Battery pin is damaged.

- Solution:** Refer to battery wiring diagram. Remove fuse before attempting any repair of the pins.  
Refer to battery bottom plate for positive and negative wires.

### 4.3.5. **Problem:** Li+ battery cannot be charged.

- Solution:**
1. Ensure that the fuse is intact.
  2. Use a different charger.

**CAUTION:** Do not attempt to open Li+ to trouble shoot. Record battery details and keep aside for future inspection by Hebb.

**4.3.6. Problem:** Battery is not giving enough mileage / has lower capacity than specification.

**Solution:** Be sure the battery has been properly charged several times. Warranty for battery is 80% of DOD for 1 year from the date of purchase. The battery must be tested to determine the amount of discharge.

**NOTE:**

1. Use the correct battery charger to charge battery.
2. Charge the battery for 30 minutes after 3 months without using, 1 hour after 6 months without using;
3. Do not fully discharge the battery.
4. Keep batteries in a cool and dry storage area.

## 5. Charger

### 5.1. Charger overview



Lithium Ion battery charger

2 Amps, smart charge maximum charge time: 4-5 hours. Do not attempt to use Li+ charger with other battery types. **Always ensure voltage is set correctly to your country's specification.**

### 5.2. Charging protocol

For optimum and safe charging, charge battery in a clean, cool and dry place. Ensure voltage on charger is set correctly and fuse is working and secure. **Plug power cord into wall socket. Plug charger to battery and then turn on charger.** Red light indicates charger is “on”. Yellow light indicates battery is charging. Green light indicates charging has stopped.

### 5.3. Charger Trouble shooting

#### 5.3.1. Charger does not light up

Ensure that voltage has been set correctly. Ensure that the 10A fuse has not blown, replace if necessary. Ensure that power cord is fitted in properly and in good condition.

#### 5.3.2. Charger yellow light is blinking

The charger is sensitive to movement, temperature and voltage drop. Switch off charger and retry using the protocol described above.

#### 5.3.3. After retrying charging protocol, problem persists

Inspect battery fuse. There are no distributor serviceable parts on the Lithium Ion battery. Replace battery if necessary.

## 5. Battery Indicator

### 5.1. Battery Indicator overview



Battery indicator unit

Two step switch available in following arrangements according to wiring settings:

LED on / off

Bi-model arrangement

Secondary on / off (Ebike safety precaution)

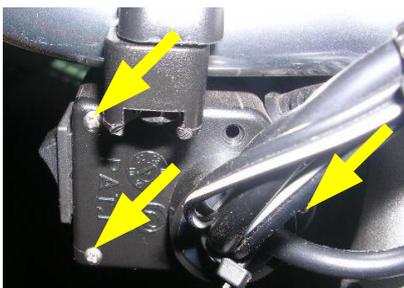
### 5.2. Battery indicator removal



Take off the heat shrink tube and disconnect the throttle connector.

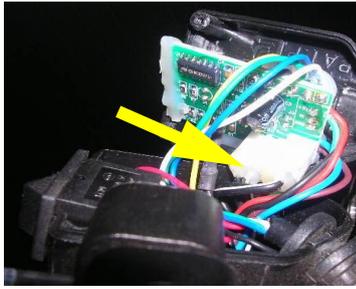


Cut away the nylon cable ties and unwrap the spiral wrapping band to take apart the cables.

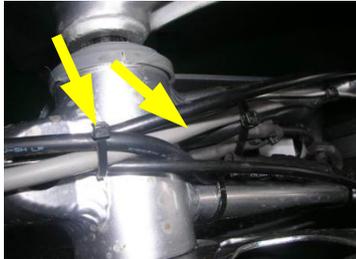


Unscrew 3 screws to open up the battery indicator cover.

Tool: Phillips screwdriver



Unplug the left and right brake signal connectors.



Cut away the nylon cable ties and shrink tube that connects the EPAC interface wire to the battery indicator and unplug the connector under the BB axle.

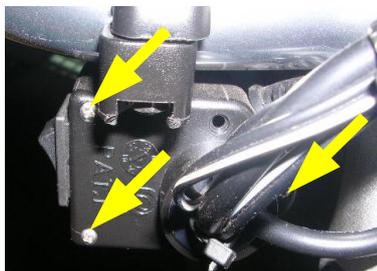


Unscrew battery indicator unit clamps.  
Tool: Phillips screwdriver

### 5.3. Battery indicator installation



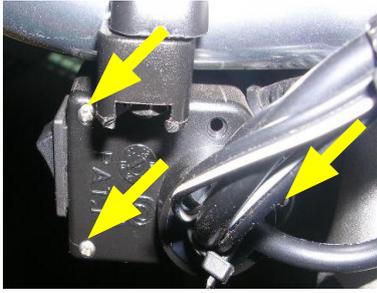
Screw the battery indicator unit clamps to the handle bar.  
Tool: Phillips screwdriver



Unscrew 3 screws to open up the battery indicator cover.  
Tool: Phillips screwdriver



Plug the left and right brake signal connectors.



Screw 3 screws to close the battery indicator cover.

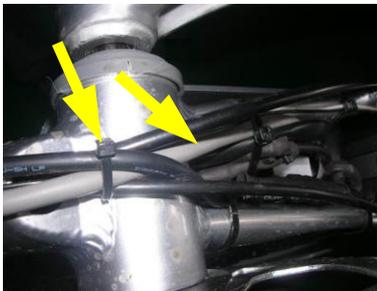
Tool: Phillips screwdriver



Connect the throttle connector then cover the heat shrink tube.



Use the nylon cable ties and the spiral wrapping band to tie the cables together.



Tie and wrap the cables along the underside of frame. Connect the connector from the controller and covered by the heat shrink tubes around the BB axle.

## **5.4. Battery indicator trouble shooting**

### **5.4.1. Battery indicator is not responding**

Ensure that problem is not power failure. Replace the battery indicator in case of malfunction.

The battery indicator has no serviceable parts. Insure that all wiring is intact and in working condition. If the problem persists, replace entire battery indicator.

## 6. Head light

### 6.1. Head light overview



Head light

### 6.2. Head light installation / removal



Unscrew the head light from the frame.

Tool: Allen wrench + Spanner

### 6.3. Head light trouble shooting

#### 6.3.1. Head light does not work.

1. Make sure the switch on the battery indicator is “ON”.
2. Open up the head light and check that the wires have good connection.
3. Check the voltage between two wires is 36V (as two yellow marks on Fig. 1).
4. If the voltage between two wires is 36V, the head light is damaged. Replace head light.



Fig. 1

5. If there is not 36V, check the voltage between two wires in the battery indicator (as two yellow marks on Fig. 2).
6. If the voltage between two wires is 36V, the battery indicator is damaged. Replace battery indicator.

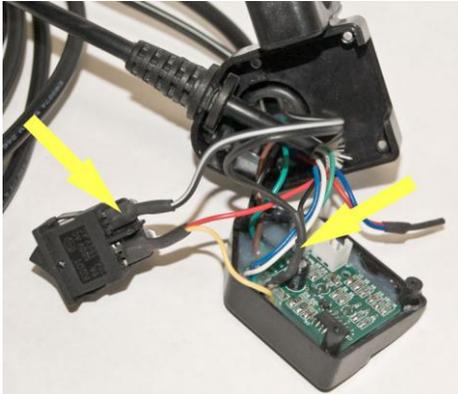


Fig. 2

## 7. Rear light

### 7.1. Rear light overview



Rear light

### 7.2. Rear light removal



Unscrew the rear light from the frame.

Tool: Spanner



De-soldering the two wires.

Tool: Soldering iron

### 7.3. Rear light installation



Screw the rear light to the frame.

Tool: Spanner



Solder the two wires.

Tool: Soldering iron



Put the heat shrink tubes to cover two soldering points and shrink the tubes with a heat gun. Or carefully wrap with electrical tape.

#### **7.4. Rear light trouble shooting**

##### **7.4.1. Rear light does not work.**

Checking the voltage between the two wires is 36V (refer to Fig. 1). If the voltage is 36V, the rear light is damaged. Change rear light.



Fig. 1

## 8. Signal wires of left and right brake lever

### 8.1. Brake lever overview



Brake lever

### 8.2. Signal wire installation / removal



Unscrew the screw to remove the signal wire.

Tool: Phillips screwdriver

### 8.3. Signal wire trouble shooting

#### 8.3.1. The LED on the controller blinks 3 times.

7. Check if both left and right brake levers return to its rest position. No clearance is allowed on brake lever. If it is not in rest position and the brake cable is not loose, replace the signal wire of brake lever.
8. Refer to the system diagram and take apart the battery gauge checking the contacts of both sides brake levers by a multi-meter. The contact is “closed” when the brake is in rest position and is “open” when the brake is activated. Replace the signal wire of brake lever if it does not respond correctly.

Note: Make sure to gently disconnect the connectors as they are glued with silicone to the board.

## 9. Throttle

### 9.1. Throttle overview

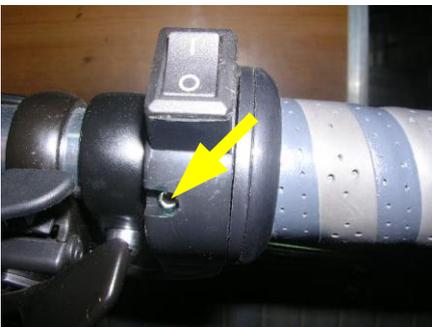


Throttle

### 9.2. Throttle removal



Take of the wire and the heat shrink tube and disconnect the throttle.  
Using a very sharp knife is helpful in removing the heat shrink but be very careful not to cut any wires.



Unscrew the throttle.  
Tool: 2 mm Allen wrench

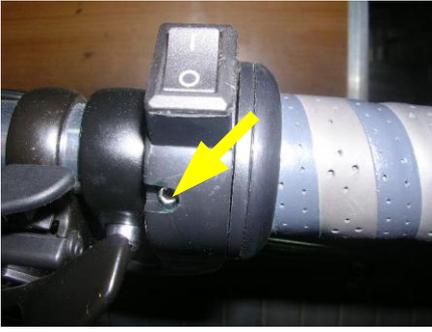


Slide off the throttle. Note the routing of the throttle wires.

### 9.3. Throttle installation



Slide on the replacement throttle.  
Route the throttle wire the same as the original throttle.



Tighten the 2mm Allen bolt.  
 Tool: 2mm Allen wrench  
 Note: Only tighten enough so the throttle does not slide off the handlebar. If over-tightened, it may prevent the throttle spring from properly working.



1. Connect the connector.
2. Wrap connection with electrical tape.
3. Replace the wire ties to secure the wires.

## 9.4. Throttle trouble shooting

### 9.4.1. The motor does not move when the throttle is twisted.

Check the voltage of pin 1 (throttle) on the throttle connector (refer to Fig. 1). The voltage should change when the throttle is twisted. If the voltage does not change, the throttle is defective. Replace with a new throttle.

### 9.4.2. The motor moves slightly when the throttle is in the off position.

Check the voltage of pin 1 (throttle) on the throttle connector (refer to Fig. 1). The nominal voltage should be 0.9V. If the voltage is over 1.2V, the function of throttle is abnormal. Replace with a new throttle.

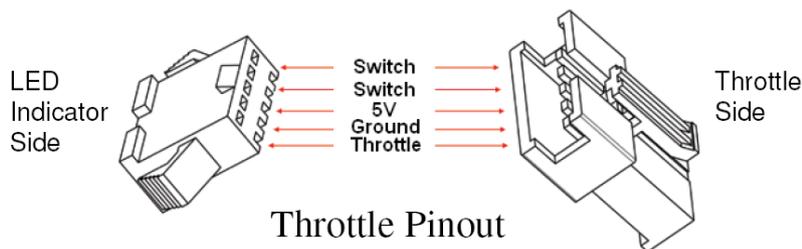


Fig. 1

## 10. Signal wires of left and right brake lever

### 10.1. Brake lever overview



Brake lever

### 10.2. Signal wire installation / removal



Unscrew the screw to remove the signal wire.

Tool: Phillips screwdriver

### 10.3. Signal wire trouble shooting

#### 10.3.1. The LED on the controller blinks 3 times.

9. Check if both left and right brake levers return to its rest position. No clearance is allowed on brake lever. If it is not in rest position and the brake cable is not loose, replace the signal wire of brake lever.
10. Refer to the system diagram and take apart the battery gauge checking the contacts of both sides brake levers by a multimeter. The contact is “closed” when the brake is in rest position and is “open” when the brake is activated. Replace the signal wire of brake lever if it does not respond correctly.

PS: Make sure gently disconnect the connectors as they are glued with silicone to the board.

## 11 Front Wheel Removal for Tire Repair



1. Remove screws on torque plate using 4mm hex key.



2. Remove nut using 19mm (or adjustable) wrench on axle.



3. Remove all the small parts, nuts, washers, torque plate, etc.



4. Cut nylon ties with cutter or scissor.



5. Un-screw and remove connector casing cover



6. Disconnect cable



7. Disconnect wire



8. Loosen nut on opposite side using a 19mm or adjustable wrench.



9. Take wheel out of the fork and proceed to change inner tube or tire.

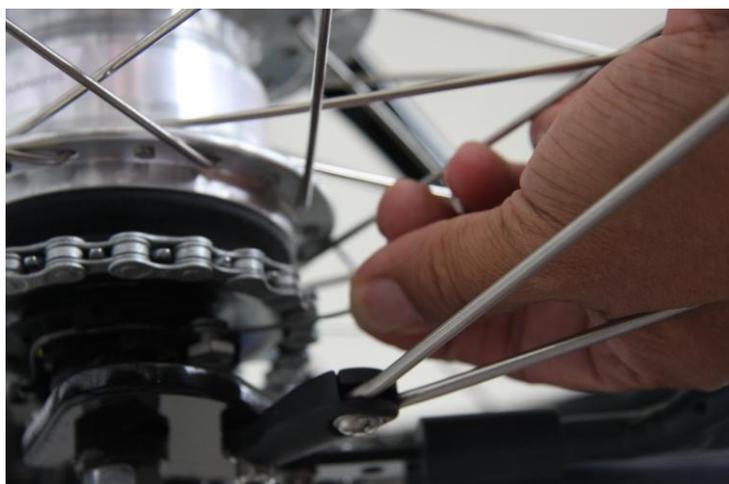


10. Put wheel back in place and tighten both sides evenly, a little on each side at a time.  
Reconnect the cables and wires. Check alignment of the disc brakes.

## 12 Rear Wheel Removal for Tire Repair



1. Shows gear shifting cable



2. Grip cable with fingers or pliers.



3. Release shifting cable and nut from hub by pulling backward and outward.



4. Release nut and bolt assembly from brake assembly using 10mm wrench and nut driver. At this point, you should also remove the axle nuts and torque washer.



5. Pull back and release chain from hub sprocket.



6. Release rear wheel from frame to change tire or inner tube



7. Put rear wheel back on and chain on sprocket.



8. Put torque washer back into position



9. Tighten nuts of both sides evenly and slightly ( do not tighten yet )



10. Pull wheel backward with one hand and the other holding against rear stay so that chain has slight tension is not loose.



11. Align shifting cable into groove of the hub and snap the nut back into position