Fault finding guide

Symptoms	Possible Causes	Checks to perform (If not working)	Possible causes/ Resolutions
Run time less than expected.	Undercharged battery.	Does the battery have sufficient charge.	A new battery should have been charged for at least 7-9 hours before using the vehicle for the first time, depending on the model. Up to 8 hours is required after each subsequent use.
		Check all wires and connectors.	Make sure the battery connector is tightly plugged into the charger connector, and that the charger is plugged into the wall.
		Check power at wall outlet is on.	Make sure the wall outlet is turned on.
	Battery has reached the end of its service life.	Check voltage output from the battery using a multimeter.	Even with proper care, a rechargeable battery does not last forever. Average battery life is 1 to 2 years depending on vehicle use and conditions. Replace only with a genuine EBOX replacement battery.
	Brakes/ chain are not adjusted properly.	Check smooth running of drive train and free wheeling of front wheel.	Brakes or chain are not adjusted properly and causing excessive drag. Refer to manual for correct set up instructions.
	Faulty battery charger.	Check the charger is outputting the correct voltage (48/60V).	If battery output is lower than specified contact your dealer to source a replacement.
	Duty cycle more aggressive than typical.		Riding conditions are more aggressive than typically expected. E.g. aggressive throttle use, riding up inclines, excessive rider weight, uneven conditions, surface condition that cause excessive drag or wheel spin. Any of these conditions will shorten battery run time.

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Charger gets warm during use.	Normal response to charger use.		No action required. This is normal for some chargers and is no cause for concern. If your charger dose not get warm during use, it does not mean that it is not working properly.
Vehicle stopping performance impaired.	Brakes are not adjusted properly/ Brake pads excessively worn. Brake fluid requires bleeding or change.	Do the brakes work as expected? Visually inspect your brakes and pads. Check brake levers for soft/ spongy action or excessive travel.	Refer to the brake adjustment instructions in the manual to properly adjust brakes.
Throttle does not return.	Failed spring.	Does the throttle return.	Crash damage, replace throttle.
No hard stop on response/ speed dial.	Grub screw not tight.	Hard stop should be present when turning dial from min to max settings.	Not tightened enough from factory/ PDI. Tighten the grub screw or replace knob/ grub screw.
Not reaching expected top speed/ sluggish.	Insufficient battery charge. Insufficient tyre pressure. Chain tension too tight. Riding up a hill. Riding in mud. Riding on uneven surface. Rider weight over recommended maximum. Max speed dial set incorrectly. Brakes dragging.	Set tyre pressures as per manual. Ensure battery is charged. Set chain tension as per manual. Understand gradients and their effects on performance, stated top speeds can only be achieved on a smooth and level surface.	See checks to perform, adjust as necessary. Then, re-attempt top speed run.
Vehicle does not respond. (Silent)	Vehicle parameters not set correctly.	Check ignition barrel. Check kill switch. Check brake lever kill switch.	User error, please consult initial start guide in manual.

Symptoms	Possible Causes	Checks to perform (If not working)	Possible causes/ Resolutions
Vehicle does not respond (silent). *Continued*	Throttle.	Check battery indicator shows consistent battery level. Disconnect brake switches from wiring loom, check fuse connections. Check kill switch is in correct position/ working correctly. Check all wiring and connectors for any sign of damage, check for water ingress/ corrosion.	If battery indicator consistently shows charge level, the fuse connection is sound, the fuse has not failed, brake switches are proven effective (multimeter), kill switch is proven effective (multimeter) then throttle is faulty, replace. If the problem persists then replace the motor and or speed controller. *NOTE: This is a complex procedure if you are not confident please take your bike to a recommended dealer.*
	Kill switch/ brake switch (lever).	Check battery indicator shows consistent battery level. Disconnect brake switches from wiring loom, check fuse connections. Check kill switch is in correct position working correctly. Check all wiring and connectors for any sign of damage, check for water ingress/ corrosion.	Damage to the brake switch or kill switch. Disconnect the brake switches, if this solves the problem replace the brake lever/ switch. If the problem persists replace throttle.
	Battery.	Check charge indicator is above 10%.	Battery is not charged, requires adequate charging before use. Charge fully and retry. Battery indicator drops to 0 then screen goes blank. Battery has a faulty cell and reduced output voltage. Check battery output voltage using a multimeter, battery voltage should be above 55V (60v), 43V (48V). *Please note a healthy battery will be close to the stated working voltage.* If battery percentage rapidly drops to 0% on powering up, check fuse as possible cause. *(see possible cause Fuse)*.

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Vehicle does not respond (silent). *Continued*	Fuse.	Check condition of the fuse. Check battery charge indicator shows consitent charge level and is not dropping to 0 when key is on.	Fuse has failed. Visually check that the fuse is intact. Fuse has bad connection, check connection. Check terminals are clean.
	Speed controller.	Check battery indicator shows consistent battery level. Disconnect brake switches from wiring loom. Check fuse connections. Check kill switch is in correct position/ working correctly. Check all wiring and connectors for any sign of damage, check for water ingress/ corrosion. Check/ replace throttle.	Speed controller has suffered total catastrophic failure, replace speed controller.
	Motor.	Check battery indicator shows consistent battery level. Disconnect brake switches from wiring loom Check fuse connections. Check kill switch is in correct position/ working correctly. Check all wiring and connectors for any sign of damage Check for water ingress/ corrosion. Check/ replace throttle. Check/ replace speed controller.	Motor has suffered total catastrophic failure, replace motor.
Vehicle does not respond as expected (noise/ unexpected behaviour/ slow/ fast/ intermittent/ vibration).	Speed controller.	Check all wiring and connectors for any sign of damage. Check for water ingress/ corrosion. Check input voltage from battery using multimeter.	Speed controller has suffered partial catastrophic failure, replace speed controller.

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Vehicle does not respond as expected (noise/ unexpected behaviour/ slow/ fast/ intermittent/ vibration). *Continued*	Motor (electrical).	Does motor vibrate/ skip/ judder with throttle input?	Hall effect sensor or coil issue. Replace motor.
	Motor (mechanical)	Motor is making a grinding, screeching noise/ vibrating. Motor is seized.	Snapped motor shaft, failed bearings, other internal mechanical issues. Replace motor.
	Drive train.	Check chain tension. Inspect sprockets for wear and/ or damage. Inspect rear wheel bearings for play. Inspect rear wheel for buckles/ loose spokes. Inspect rear wheel alignment. Inspect chain for damage. Inspect drive train for foreign objects. Inspect rear brake/ disc for seized calliper and/ or bent disc.	Wear or damage to drive train components. Inspect and adjust/ replace as necessary.
	Loose/ damaged wiring or connection.	Check all wiring and connectors for any sign of damage. Check for water ingress/ corrosion.	Clean connection terminals. Replace wiring loom.
Battery failing to charge.	Charger is not working.	Check electric supply socket is working. Check the condition on the wires and connector to battery. Check for corrosion/ water ingress. Check charger indicator light is orange while charging, after the specified charge time the light will turn green to indicate the battery is full.	Check to see if your charger is working by using a multimeter (48/60V or higher) or ask your authorised service centre to test your charger for you. If charger flashes red it is catastrophically impaired.

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Unexpected steering performance/ Movement in front end/ Clunking under braking or acceleration/ Clunking on uneven surfaces.	Headset play.	Pull front brake to lock front wheel, push back and forwards on handlebars to check for excessive lateral movement in headset.	Bearing has suffered catastrophic failure or requires slight adjustment. Replace bearing and/ or adjust headstock.
Handlebars move under load.	Loose handlebar clamps.	Are clamp bolts set to correct torque?	Under torqued stem clamp bolts. Tighten clamp bolts to correct torque.
Oil on fork leg or under front of bike.	Fork seal leaking.	Pump forks and check if oil leaks past seal.	Worn/ degraded seals. Damage to fork stanchions. Service fork seals or replace forks if necessary.
Fork “clonking”.	Broken/ worn spring. Insufficient damping. Worn bushes. Loose headset.	Check headset is correctly torqued.	If headset is correctly torqued and the issue persists take your bike to an authorised dealer for diagnosis/ repair.
Fork legs have excessive play.	Worn fork bushes.	N/A	Take your bike to an authorised dealer for diagnosis/ repair.
Forks bottoming out unexpectedly.	Broken spring. Excessive rider weight. Excessive terrain.	Ride the bike on a smooth, flat and level surface. If the problem persists then take the bike to an authorised dealer for diagnosis.	Take your bike to an authorised dealer for diagnosis/ repair.
Rear shock clonking, excessive play, bottoming out.	Broken/ Worn spring. Insufficient damping. Worn bushes. Excessive rider weight. Excessive terrain.	Ride the bike on a smooth, flat and level surface. If the problem persists then take the bike to an authorised dealer for diagnosis.	Take your bike to an authorised dealer for diagnosis/ repair.
Swingarm play/ clonk.	Loose swing arm bolt. Worn or failed bearings.	Is the frame/ swing arm bolt tightened to the correct torque. Lift the rear end of the bike, check to see if the swing arm has excessive lateral play.	Tighten swing arm bolt to correct torque. Replace worn/ damaged swing arm bearings in the frame.