**US Electricar operational, quick start guide:**

When owning or driving a *US Electric Car* for the first time, one should understand the operation of such an all-electric car… Here are a few points to consider.

***Overall inspection:*** *(Working vehicles can skip this step)*

A) Look for temporary jumpers in the in the gray box under the hood or what is known as the Interface Junction Box (IJB). Make sure there and no jumpers added between the terminal strip connections other than fuses added. Download vehicle electrical diagram as posted on this site, verify all connections are stock, from the factory!

B) Inspect visually for loose connections or other worn or damaged parts.

C) Use a volt meter to check 12 volt DC Aux battery, remove, replace or charge if necessary. If charging, always disconnect one lead to the controller so controller does not see high charging voltages. Label all connections before removing or unplugging anything.

D) If it is a new car, add a 1 amp fuse to Terminal #19 (P12\_Bat) to protect motor controller circuit board. See fusing at the Yahoo group as noted below.

E) If a USE truck and it has been parked for over six months, without charging, you may want to remove the truck bed and individually inspect and load test each of the 25 batteries located in the traction battery pack. If the car is a 4 door Prizm the same may apply, however the traction battery pack (50 Batteries) are bolted underneath the car and is removed by using a pallet jack. Always switch off the disconnect at rear of pack first, if removing or working on the battery pack! Unplug Canon screw shell connections at controller next, if the car is a Prizm and then carefully lift, unbolt and lower battery pack assembly as needed. In either car, USE Truck or Car, the nominal battery voltage is 312 volts DC, 350V when charged, use caution and follow USE car factory instructions.

***Charging Vehicle:***

A) After it is determined that the vehicle electronics have not been tampered with, Aux battery is reading 12 volts and the traction battery pack has at least 270 volts, the you are ready to charge your car. Plug your car into a standard 110 volt AC outlet using at least a 20 amp circuit. When plugging in your car, you should hear a click after 4 seconds, or a noise of the main contactor closing. You will also first see a ‘fault’ light in the dash display, then a flashing "Charging" light. Sometimes these lamps are burned out, so talking a note to what you hear is important.

B) After car finishes a charge, the ‘charge’ light will stop flashing and remain solid, or continuously lit.

C) Unplug vehicle form the 110 volt AC power cord and you will hear main contactor open up, or another click noise.

D) When charging and in operation, the vehicle's water pump should be activated. This is checked when the car is cool, removing the radiator cap and seeing the water circulate inside. The water should be present just inside the cap, or filled as needed. From time to time the radiator fan may be activated to help keep the coolant cool, that keeps the motor and controller cool in turn.

E) Never charge car using 240 volts. Use either 110 volts or 208 volts AC only. 110 volt AC charging is easiest, but a bit less efficient.

F) If left plugged in to charge for longer than 10 hours, charger will shut down, and ‘fault’ and ‘charge’ light will flash.

***Booting up vehicle:***

A) After the steps above have been taken and car is again charged, you are ready to insert the key into the ignition. Caution must be noted to take steps of activating the car systematically, as noted above and as mentioned here to start the car. When turning the key to ‘on’ you should see normal car function come to life, like seat belt alarm light, brake vacuum pump start to pump and such. Next, as the key goes to the second position, or to "Run" you will note the "Fault" lamp will or should light. Next after 3 seconds or so the fault lamp should turn off and the green "Ready" lamp should light and remain solidly lit or *on* without flashing. The car is now ready to drive!

B) *Do not ever turnkey switch off and on rapidly*. This will burn out

the pre-charge resistor inside the controller. Always take ten seconds before turning key back on, from off position, to insure the capacitors have fully discharged.

C) After a test drive, you should see the State of Charge (SOC) meter or gas gauge move towards discharge as you drive the car. If not, the gauge just may need to be recalibrated. This procedure is done by entering new numeric values via a laptop computer to the controller software. See the USE group site for instructions on all repair, fusing, care and upgrading of your USE vehicle. For example, SOC calibration procedure is message number 9225.

***USE Car operation:***

A) Normal operation of the vehicle should be smooth, quiet and with similar to a gas driven vehicle. If jerking is noticed on acceleration, the optical motor encoder may need to be cleaned. See the Yahoo group site for this procedure for motor encoder service.

B) Regenerative braking. These cars are equipped with an AC traction motor and controller which allows for the motor to turn into a generator when the brakes are applied. Increased regenerative breaking can be easily achieved when going downhill and shifting the car into "L" and slightly applying the brakes, this allows for maximum regenerative braking. Regenerative braking can return around 100 amps back into the traction battery pack, unless the car is fully charged to begin with. The brake vacuum pump should start and shut off on its own, as the brakes are used. Sometime the vacuum pump may stay on, in which case there is a vacuum leak or a stuck vacuum switch.

C) After driving car, recharge car as needed or charge at one end of the trip. The less you deplete the battery on a drive, or more often you charge at your stops, keeping the battery SOC high, the longer the batteries last.

D) Controller always draws a load on the Aux battery. Disconnect Aux battery if car is not in use.

E) Maintain tire pressure, car is heavy and more miles per charge will be realized!

F) Should ‘Fault’ and ‘Charge’ lights be flashing, over temp may have occurred while charging. Check water level in radiator and that water is circulating.

D) Batteries are usually AGM type and usually do not take water. All battery connections need to kept clean and tight.

**Summary:**

1Always charge the batteries once a week whether you drive the vehicle or not. The vehicle motor controller draws some current on the Aux battery all the time. So for extended storage over a week, disconnect aux battery under the hood and turn off traction battery pack disconnect at rear of main battery pack.

2. Always charge the batteries after every use.

3. Always opportunity charge, when you can, while you are driving around.

4. If you are going to store or leave the vehicle unused for an extended period of time, charge the pack completely and then turn the battery switch off. The vehicle motor controller draws some current on the Aux battery all the time. So for extended storage over a week, disconnect aux battery under the hood and turn off traction battery pack disconnect at rear of main battery pack.

5. For a longer battery life, don't discharge more than 50%. Use care and caution when working around battery pack voltages, always disconnect the battery pack first! Lead acid battery packs usually last about 4 years or around 15,000 miles. With care, more years of service may be achieved.

6. You have a unique car, please always use caution and follow instructions as outlined, properly fuse circuits and keep wiring as per the wiring diagram, in order to enjoy many years of service of your US Electricar.

**Yahoo Group for additional information:**

 <<http://autos.groups.yahoo.com/group/uselectricar/>>

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