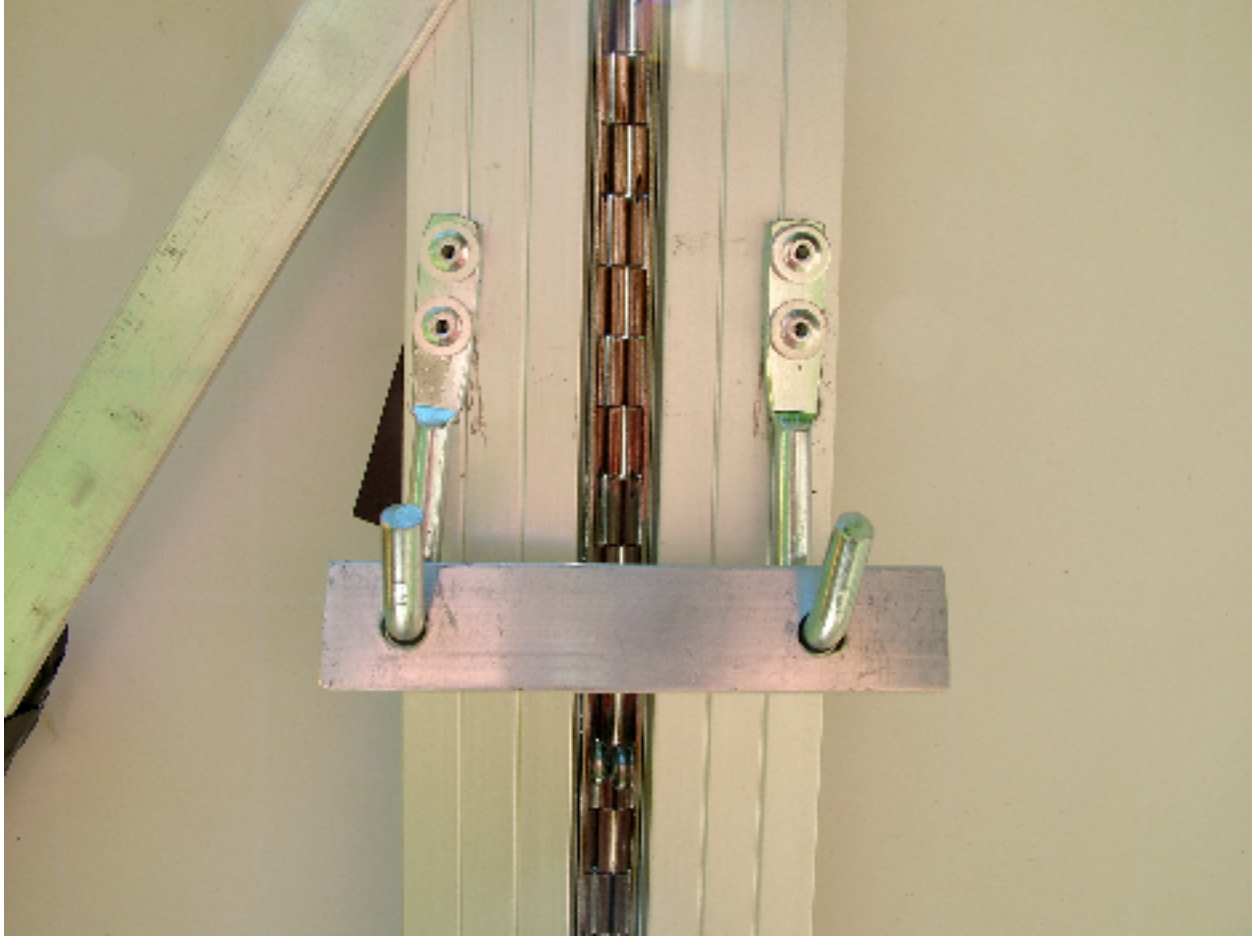




With the panels properly mounted, the next step is to make the crossover/locking mechanism to lock and support the panels in both driving and charging positions. This piece needs to be both strong as well as easy to use. The purpose of the crossover is to create a triangle joint between both sets of panels to keep them from moving while driving down the road.



When moved into charging position, these same pieces hold the panels open, folded toward the sun. Part of the design criteria required the ability to withstand moderate wind loading while parked outside in the weather. Aluminum stock is used for this purpose.



A simple lock of aluminum stock and two rope hooks lock the panels while parked. This simple mechanism keeps the outer panels from folding closed on windy days.

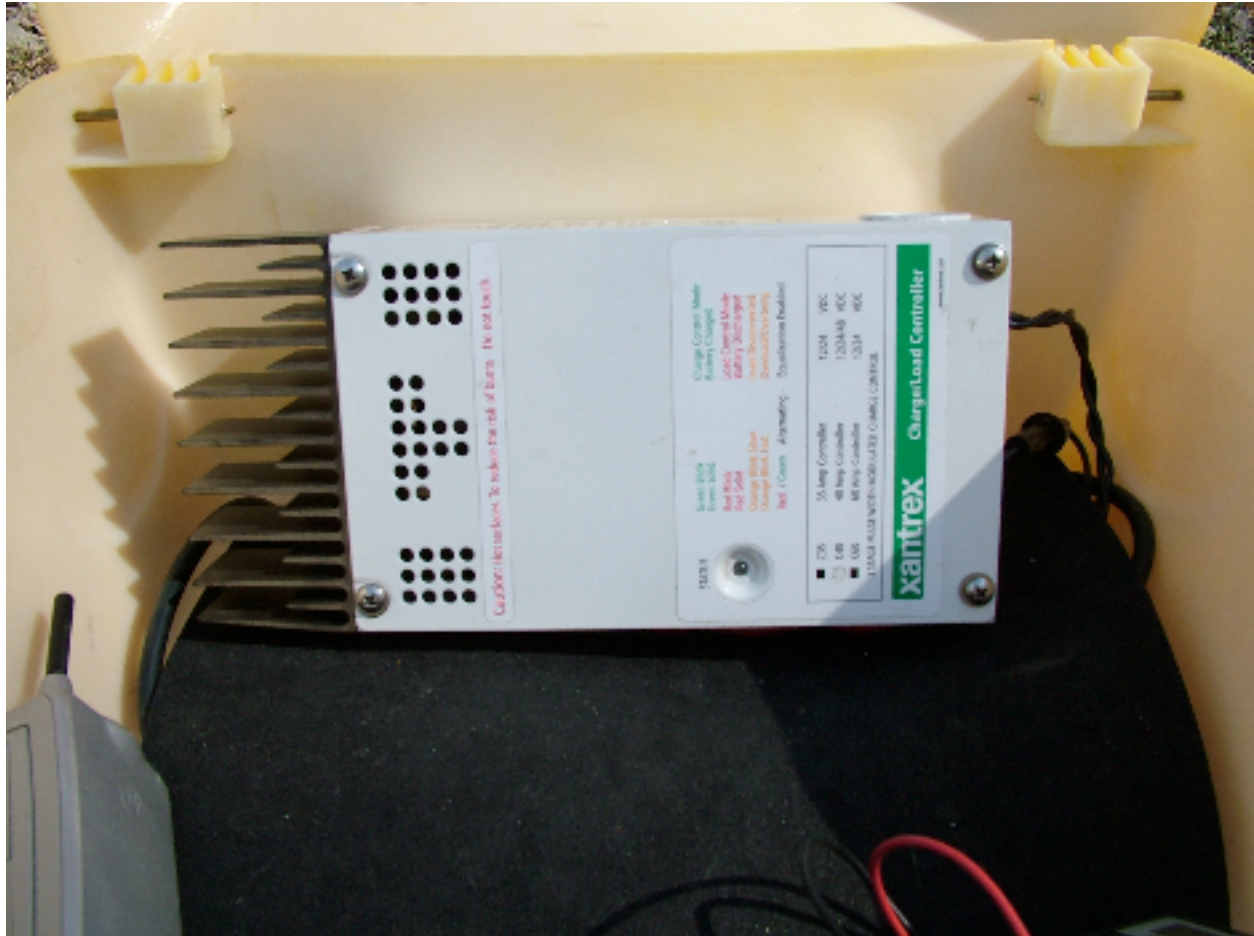


A round, hollow aluminum rod is used to simply slide over the flat stock, locking the assembly into the charging position. This has done well in gusty wind conditions between 20 and 30 miles an hour with no problems.

Wiring is next. On the right side of the bike are main connectors that can be pulled apart, disconnecting power from the batteries to the controller. Similar connectors are on each battery. Be sure to pull the power connectors apart before working on the main battery leads.



Two 3/8 inch holes are drilled in the back cover with the EVT logo. This is located just behind the drivers seat. The main 48 volt wire loops from the battery to the charge controller, just in front of the brake light assembly and under this cover. The insulation is bared and electrical splicing joints are used to make a strong mechanical connection. These will be the two leads from the C-40 charge controller and are fed through the holes in the back cap. Two matching holes are drilled in the bottom of the trunk to allow the wire to be fed to the charge controller, which will be mounted in the trunk for protection.



Mount the charge controller inside the trunk. I chose near the hinge, front of the trunk, mounted sideways with cooling fins on the left side. This allows the rest of the trunk to be used for storage. Feed the wires inside the trunk and choose an appropriate knock out on the C-40 controller. I chose the bottom knockouts (now located on right side of trunk). Attach the negative lead to the battery ground post of the C-40. Attach a fuse assembly to the battery positive post, with the opposite lead of the fuse assembly attached to the main positive lead from the battery. I used fuse 30 amp, all weather fuse holders available from Radio Shack.



With the solar panels folded open in the charging position, wire the panels in series for the 48 volt configuration. The panels I used had 10 feet of lead wire to work with so no additional wire purchase was necessary. You will need to use a volt meter to keep the positive and negative wires in the correct polarity of pos to neg, and so on. When wired correctly the panels should read about 40 volts DC at no load on each side. I used zip ties and electrical tape to hold the wires in place in the panels.

When the panels are wired, drill a 3/8 inch hole in the bottom left and right side of the trunk. Feed the wire from each side into the hole in the bottom of the trunk. Using a volt meter, check the polarity of each side and make the final connection of the series. The combined voltage should now be about 80 volts DC. I attached a 10 amp fuse inside a holder to the "panel positive" block inside of the C-40. Connect the negative lead wire to the "panel negative" post inside of the C-40. Inserting the fuse into the respective fuse holders acts as a simple switch to turn the system on. Removing the fuse turns the system off. Mounting the charging system in this manner allows the factory charger to still be used, should extended cloudy days reduce charging. It appears EVT chose to charge each battery individually as a separate lead goes to each battery individually. My bike has not been plugged into the factory charger since April 15th 2005.

I like how quiet this bike is when riding. You can hear everything around you as if you are walking. In thunderstorms you hear everything around you, wind, thunder, rain, etc. It is fun to be at a traffic light and talk to the person in the car next to you. Hearing excited kids shouting at mom or dad with excited comments about "that really cool motorcycle"

I hope to use the test numbers from this bike as a stepping stone for a larger model. I really think the technology is now here to ride affordable motorcycles, charged only by the sun.





