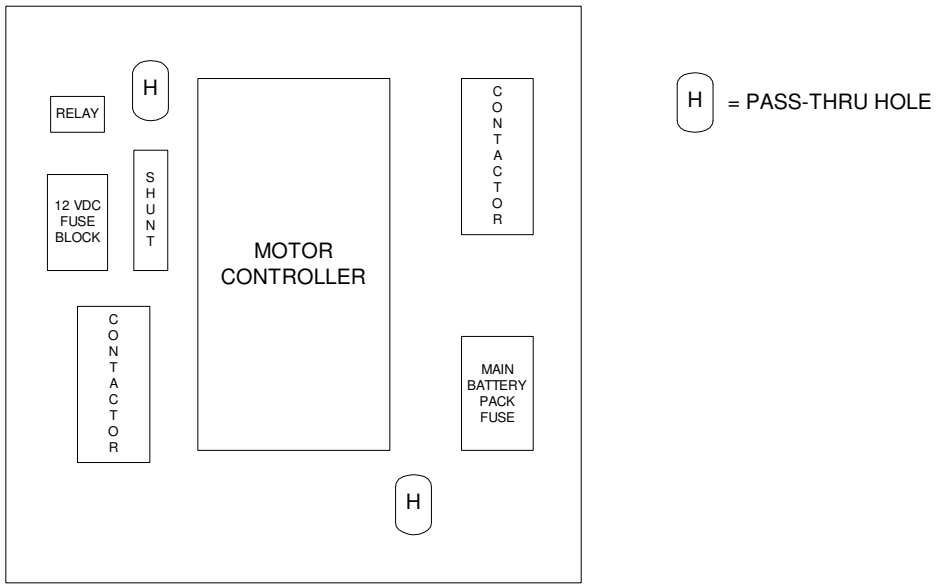
Control Board

The Control Board is a piece of ¾" thick plywood approximately two feet square that holds several components under the hood. Its main components are:

- Motor Controller,
- Contactors,
- Main Traction Battery Pack Fuse,
- Fuse Block for 12 Vdc accessories, and the
- Shunt for the Ammeter.

Ampmobiles started by drilling holes for a Motor Controller cooling fan and pass-thrus for traction pack battery cables. The fan hole is the same diameter as the fan's blade area. The pass-thrus are approximately 1" by 2". Ampmobiles drilled holes near each front corner for mounting, and attached brackets on the underside at the rear corners to work as hinges. They also coated the top and sides with fiberglass resin and painted it.

From experience, Mike knows where to place components. See the diagram below for a basic layout. We mounted some components onto the board before mounting the whole assembly in the vehicle, and mounted other components as the need arose while wiring.



CONTROL BOARD LAYOUT

Pre-assembly

Ampmobiles had cut a piece of aluminum plate, about 1/8" thick and about an inch longer and wider than the motor controller, to use as a heat sink. We bolted the motor controller to the aluminum plate. We used thermal conducting grease between the

controller and the aluminum. Make sure to completely cover the bottom of the Motor Controller with thermal grease. We bolted a 12 Vdc fan to the bottom of the Control Board, then bolted the Controller assembly on top of the board using washers to create about 1/8" gap between the aluminum plate and the Board. This gap forces fan air to flow all along the aluminum heat sink; a larger gap allows air to spill out before touching the whole plate and no gap only allows air to contact the center of the plate -- both situations don't allow complete cooling. A thin plate dissipates heat well; thicker plates trap heat.

Next we bolted down both Contactors. Their wiring terminals face the front of the vehicle. Then we mounted the Main Fuse for the Traction Battery Pack, using a fuse holder that resembles two stand-off posts. The 12 Vdc fuse holder and ammeter shunt followed.

We bolted the Control Board (with components but without wiring) to mounts that were already welded to the truck frame. The Control Board is hinged in the back so it can tilt up to give access to the electric motor below it, although movement is limited because the Motor Controller hits the firewall. ¼-20 bolts are the hinge pins, connecting the brackets on the bottom of the board to metal straps welded to the truck's frame. The Control Board is now ready for wiring.