

Members of TEVA-NC (the Triad Electric Vehicle Association in Burlington, NC), as part of a workshop taught by Mike and Paula Moore of Ampmobile Conversions LLC, converted a 1986 Nissan King Cab pickup truck from gasoline to electric power. Please see our pictures posted on this web site. TEVA-NC is a group of electric car enthusiasts and hobbyists. Here is a summary of what we learned.

The workshop started with a pre-prepared truck and the major system decisions made. The major new components are:

- DC motor; Advanced DC model FB1-4001A (9”).
- DC electronic controller system; Curtis model 1231C-8601 (rated for 96 Vdc to 144 Vdc input voltage and able to deliver up to 500 amperes).
- 120 volts of AGM Lead Acid Deep Cycle batteries (an advanced sealed type for longer life); Discover Energy model EVCH6-A, rated at 6 Vdc and 225 AH each. This totals twenty batteries at a total weight of about 1000 pounds.

Other options:

- Power brakes. There will be no gasoline engine vacuum, so we added a Gast vacuum pump that will be controlled by a Square D vacuum switch and several feet of connecting hose that doubles as a reservoir.
- Power steering. Converted to manual steering by looping the pump hoses together (on the gearbox itself). The gearbox is filled approximately 2/3 full of fluid.
- Heat. Without the gasoline engine and its water/radiator/heater core system we had to substitute. We used the ceramic heater core from an electric space heater.
- On-board battery charger for the traction batteries that is programmed to match the characteristics of the batteries. Ampmobile sourced a new charger that came already programmed and can accept a 110 Vac or 220 Vac input. We mounted it inside the truck's cab, behind the driver's seat (the King Cab has room) and made adapter extension cables for each input voltage.
- On-board battery charger for the original 12 Vdc starter battery. The original battery will now power the lights, windshield wipers, horn, turn signals (like it did in the original truck) and also some parts of the traction battery control circuit. The original alternator was removed, so we used a DC/DC converter. It will convert some of the 120 Vdc traction battery pack power to about 13 Vdc to keep the original battery charged and give us brighter headlights.

Transmission. We will use the original Nissan 5-speed manual transmission. Although the electric motor has enough torque to motivate the truck without shifting gears, it will be easier to wire the control circuits if we use the transmission to provide reverse. The forward gears can be beneficial on hills or while passing. We do not need the clutch and will remove the clutch pedal (although we will use the pressure plate).