

Class Day 2

Battery Cables! We needed to build and install all of the 120 Vdc cabling for the batteries and to the Control Board. We also built the battery boxes and beefed up the rear springs so we could install the batteries. The goal was to assemble the traction battery pack so we could connect it to the battery charger and freshen the batteries overnight. .

Battery Boxes: For details, see the article entitled “Building Battery Boxes”. We cut pieces of ABS plastic to make the sides and bottoms. We did not make battery box tops, except for the batteries under the hood (shaped like a []). Instead, after all batteries and cables were in place we cut sections of rubber mat to lay over groups of battery boxes. They will insulate the battery terminals from the truck bed, but can peel back easily for battery maintenance.

2/0 Cables: Good crimped connector ends on cables are critical; bad (loose or low contact or corroded) connections can heat up and limit current flow or become open circuits. It is important to size and orient cables so that they do not stress the terminals that they connect to. Please see the document entitled “Battery Cables” for more information.

Helper Springs: The lead-acid batteries add about 1000 pounds to the vehicle. Most of them are behind the cab, over-stressing the stock rear springs. For this truck we added two 500 pound/inch helper springs, one mounted over each rear shock absorber. The helper spring mounting kit required modifications: the top brackets needed grinding to fit around the shock absorber and the bottom brackets were discarded. We’ll use the lower shock absorber mount to locate the bottom of the helper spring.

After the truck was completed, we noticed that the rear springs were sagging a little. Terry decided to add another leaf to each spring, later.

Battery Refreshing: As the battery boxes were completed, we installed batteries and interconnecting cables. We temporarily set up the battery charger and connected it to the Traction Battery Pack cables. The charger’s indicator showed that it was working, once it was connected properly. We left the batteries to charge overnight, to be sure that they were ready for use the next day when the conversion was completed.

Panel Gauges: We took the instrument panel out of the cab so we could decide how to mount the Voltmeter and Ammeter. Note that we must be careful handling the printed circuit board on the back of the instrument panel. If damaged, a 12 Vdc circuit that we need may not work – and it will be difficult to troubleshoot and repair. We found that the Nissan panel had two blank circular moldings for uninstalled optional gauges (one in each bottom corner of the panel). The moldings fit our meters perfectly. One of our class members took the panel home to his workshop overnight, to cut the blanks out and mount the meters.

Power Brakes: We plumbed the vacuum switch to the vacuum pump, and found a place to mount this assembly to the front left fender (under the hood). We made a bracket out of a piece of ABS plastic. We used stripped-off pieces of 2/0 cable insulation as shock absorbers on the mounting bolts (between the plastic bracket and the inner fender). The absorbers minimize vibration noise transferred from the pump to the body. Then we connected vacuum hose from the pump to the truck's original brake booster.