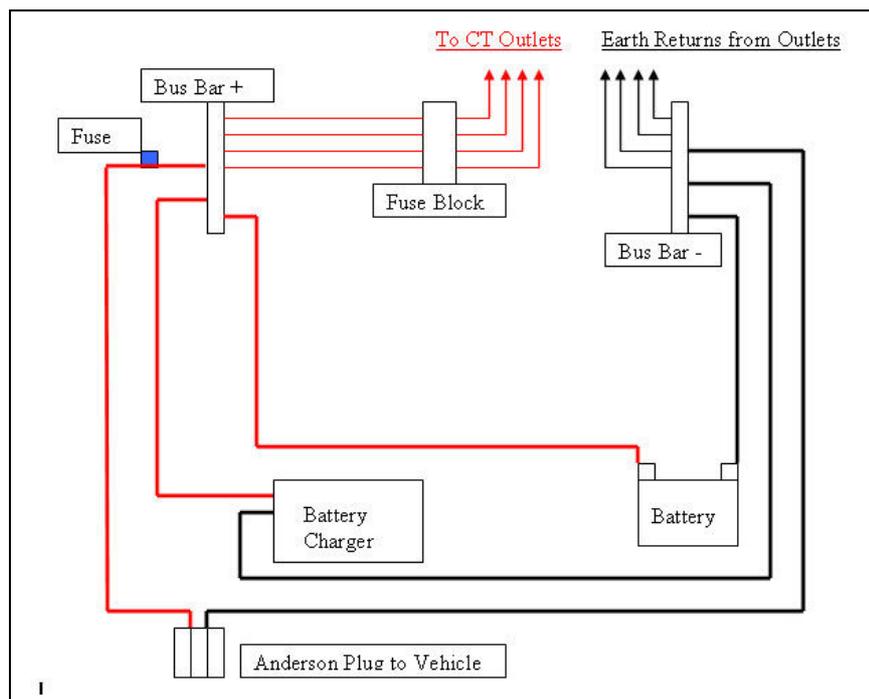


## Here is a report of my 12volt electrics project.

The aim was to provide enough 12v power to run the fridge and lights for a minimum of 48 hours without charging. Most of our camping is in caravan parks but we are looking to spend the occasional weekend in National Parks. I didn't want to carry 12v and 240v lights so the idea is that the 12v will be used regardless of the availability of 240v power. *This project only covers the 12v work. Any 240v work **must** be carried out by a qualified electrician*

I started with Collyn Rivers' books (I own the campertrailer book and a mate has the two motorhome books). I then posted a message on the Yahoo forum which led to advice to continue my discussions offline due to the conflict of opinions existing re 12v setups. I am a novice in this area and welcomed all advice. I am still a novice and do not profess to be anything more. This is not a "how it should be done" article, it is merely a record of the way I did it. During my investigations Rolande Eck pointed me to some websites on batteries and chargers and Rex Adamson sent me to websites with all sorts of 12v info and took the time to look over my proposed wiring diagrams. Thanks guys for your time and input.

Final wiring diagram



I had an auto-electrician install a dual battery unit in the Pajero to charge the camper battery in transit. The 240v battery charger in the camper is a permanent arrangement and is connected to the existing RCD device in the camper, this means that whenever the camper is connected to 240v the charger is running.

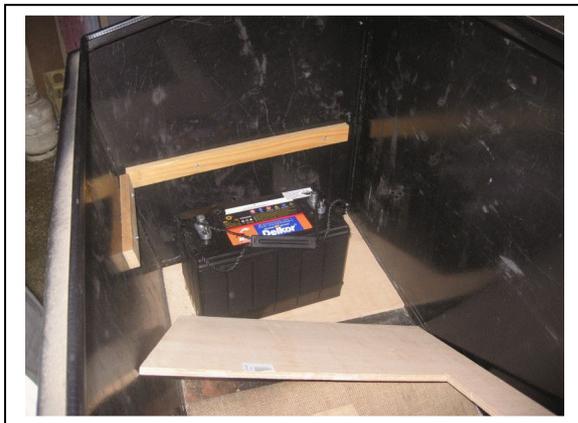
First purchase was a fused switch panel on ebay. I had decided to fuse every circuit so the switch panel made it easier. Picked this up for about \$28. Next followed all the 12v stuff, cable, ties, crimps, joiners etc.

Cable sizes were my main worry, 2 of the 5 cable runs are both approx 4m one way and one of those was expected to run the fridge! I ended up using 6mm for all the cable runs. This is more than adequate for running the 60l Waeco CF fridge and gives me the versatility that the fridge can be run from any of the outlets. The cable from the busbar to the Anderson plug is 6 B&S.



I received all sorts of opinions about batteries and in the end just had to work out what was best for me. I chose a Delcor M31 Marine battery and am expecting it to carry approx 80-90 A/H. Two reasons for this type of battery.

- The battery will spend long periods sitting unattended and I believe that this battery will cope with that without shortening its life.
- It is being installed in the toolbox so I needed to avoid leaking acid and minimise gas emission.



Battens have been bolted into the toolbox and the locations of all the components is being worked out.

The footprint for the battery has been glued and screwed and 2 angle irons will be bolted through the floor of the toolbox to take the battery hold-down clamps.



The mounting board for the switchboard all took place on the lounge room floor. Here is the completed unit ready for installation. The wife will be happy to see it out of the lounge. The 7A 3stage charger is fastened to the board along with the 2 busbars, fuse panel and 30A fuse. The small black wire is required for the illuminated switches. At the moment the pretty red lights are a novelty but when that wears thin I'll disconnect that negative wire. Throughout this project I have avoided using the trailer as part of the electrical circuit so all cable runs will return back to the negative busbar.



It all certainly looks better in the trailer than the lounge room.



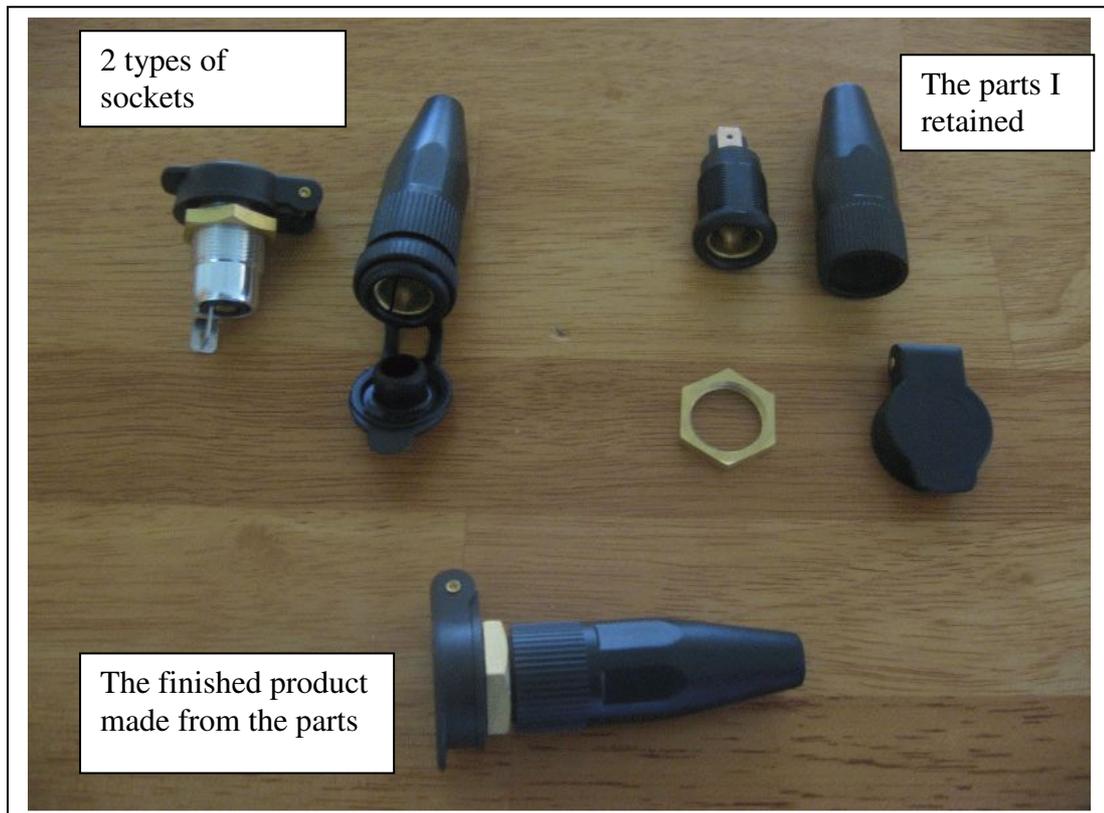
Another issue was my introduction to Anderson plugs and to heavy duty cable eyes that my crimpers wouldn't even look at. The electrician where I work kindly soldered all those ends for me. He even covered the joints with heat-shrink for me.

The next step is to cut through the wall into the camper for the cable runs. This will also include the 240v lead for the charger. (In my case the 240v lead is only an extension lead run from my RCD block to the charger so no electrician needed). For the insulating grommet I used part of an inflation rubber from the milking machine cups from the dairy, trimmed it to size and fastened it to the backboard with silastic. It works a treat and carries all the cables. It can be seen in the photo of the completed cabling.

During my research I read a number of articles and postings advising not to use cigarette sockets for running fridges as they are too easily bumped or vibrate loose causing poor connection. I ended up going with Hella or Merit sockets, they are smaller than cigarette sockets but seem to have a greater contact area and the plug clips in more securely. I opted for Merit plugs as sold by Jaycar because they have the earth contact that goes all the way around the plug rather than 2 small contacts, one on each side.

The problem that I found with Merit/Hella sockets is that they have a metal body and would earth against the trailer wall. If I was using the trailer-body as my earth circuit it wouldn't be an issue but I was trying to be a purist.

I purchased some inline sockets which have a plastic body instead of metal and they have a plastic shroud at the rear to cover the spade connectors. Problem is the threaded plastic shroud couldn't be tightened enough to hold the socket in place. In the end I pulled all the fittings apart and used the plastic socket-body and the brass nut and sprung dustcap from the standard socket

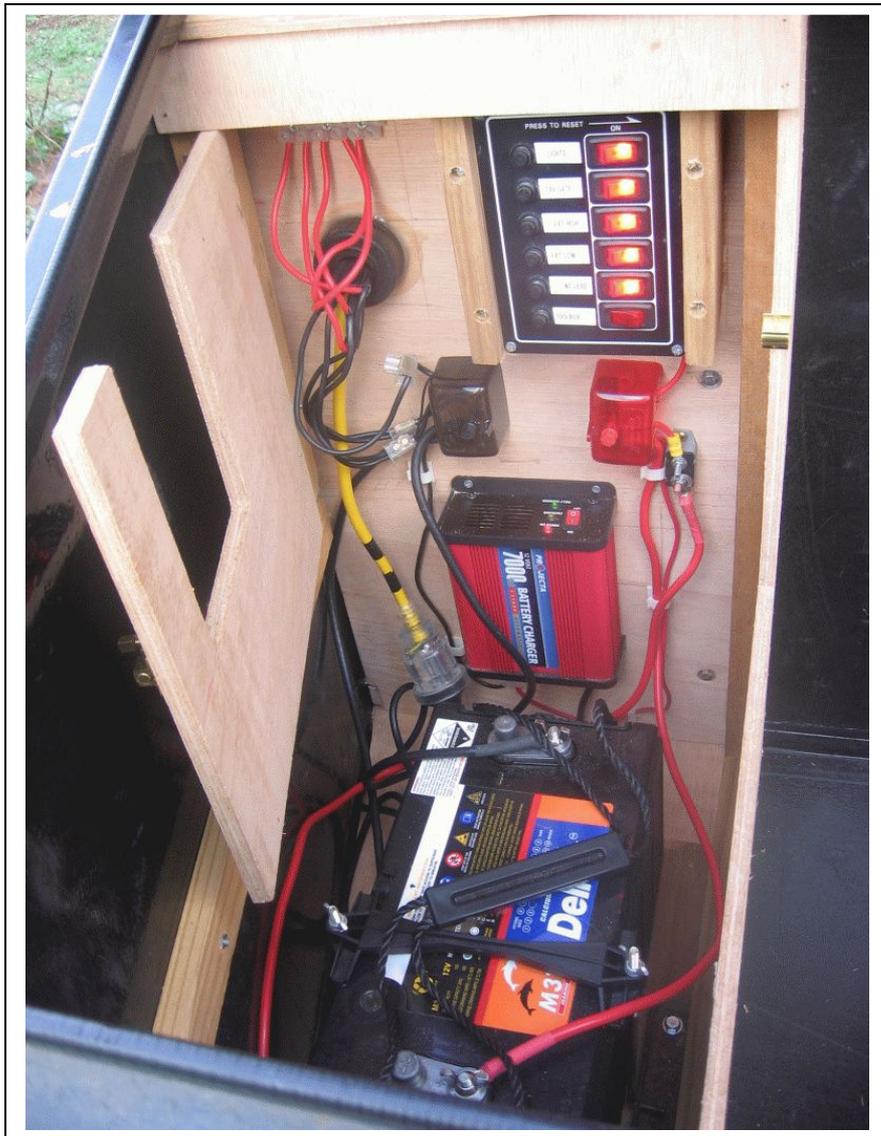


I ended up installing 5 of these sockets

- 2 inside the tailgate (our camper is off the back so these are inside the tent)
- 1 under the bed – this is our storage area
- 2 on the external wall of the trailer (our annexe/kitchen area)

I also used flushmount cigarette sockets for our bedside lights. I purchased led lights for this purpose and use cigarette plugs that have a switch on them.

The finished switch panel with wiring complete



And again with the lid on the battery box and the door closed. The switch panel is recessed and should be out of harms way but is still readily accessible.



The sockets on the tailgate. I have mounted these in a 'jiffy' box and screwed it to the tailgate



The sockets on the external wall