

# THE SECRET OF RELIABLE TRAILER ELECTRICS



*Piranha Off Road products work together to provide a reliable solution to your camping electrics*

**To optimise your electrical storage system so as your free camping experience is not ruined by electrical issues there are a number of basic preventive measures to look at.**

Starting with the obvious, make sure your auxiliary battery to be used is the correct type. Usually this will mean a Deep Cycle battery of the correct ampere hour capacity and you will need to ensure your management system is allowing sufficient charging current to the auxiliary battery. The earth lead is critical to correct operation.

*make sure your auxiliary battery to be used is the correct type*

Next, your connections, use correct diameter automotive grade cable to suit the application. For example, 6mm squared for fridge & compressor power while 3mm squared for lighting would be acceptable. Battery cable should be a minimum of 10mm Squared while winch cable can be 35mm squared. When using plugs ensure the correct plug is used, a quality Anderson plug of the correct amperage for delivering battery power and meritt sockets and plugs for accessories. At this point we need to recognise the benefit of in line fuses and manifold connected fuse boxes for accessories to protect each line and most importantly the electrics to the rest of the vehicle.

*use correct diameter automotive grade cable ... minimum of 10mm Squared*

Charging is crucial to the operation of the entire system, and whether you are charging from your alternator, solar, petrol generator or a 240V charger, making sure the correct charge voltage and current (amps) is being received by the auxiliary is essential. *Too little and it will not charge, to high and you risk damaging the battery.* Making sure the charging process continues for the correct amount of time to totally restore the battery will optimise battery life and ensure adequate running time. Installation quality is an investment in hassle free operation. Do not scrimp on hardware and where possible solder the joins. The

use of temporary joiners such as "Scotch locks" is not satisfactory and will rarely perform when under off road travelling conditions. With water crossings, high temperatures, vibration, temporary joiners are just that, temporary. Do not forget to create solid earths as you cable the vehicle/trailer, vital to completing the circuit.

All of the above can now be bought together with an advanced battery management system that incorporates the technology to suit our modern vehicles. Ensure we have current limiting, spike protection and current surge protection. Next as part of the management consider a Battery monitor and if required combined battery protector to maximise the life of the battery/ies. Using the manufacturers detailed product sheets make sure you are familiar

*Do not scrimp on hardware and where possible solder the joins*

with the system, how it works, any maintenance and fault diagnoses.

Finally, all your electrical accessories will only work properly if correctly earthed. This always seems to be left as an afterthought but is absolutely essential. Solid earth means using correct diameter cable, scratching back surfaces to get bare metal. Make sure if using body earth, body is earthed to chassis and chassis is earthed to block back to MAIN battery. Many of our modern cars have anti vibration mounts of rubber between major body connections and the earth path is not always clear. If in doubt run an earth back to battery from accessory and sometimes for major power uses this is a preferred option. (Fridges, compressors, pumps)

*run an earth back to battery from accessory*

**SEE OVER FOR ILLUSTRATION**



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Your electrics are important - spend some time thinking of them before free camping

## STARTING BATTERY

Charges first from alternator and is **NOT** drained by either Auxiliary battery or accessories.

**Only when the starting battery is full does the management system charge the auxiliary batteries.**

## BATTERY MANAGER

Intelligent Battery Management that electronically senses the state of batteries and allocates power appropriately.



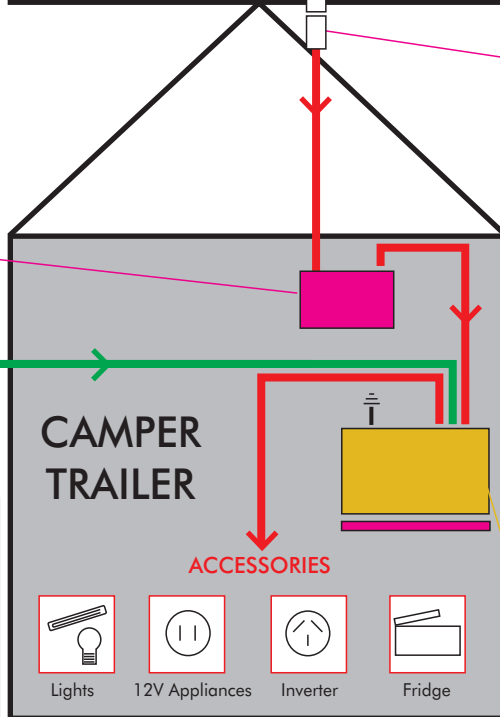
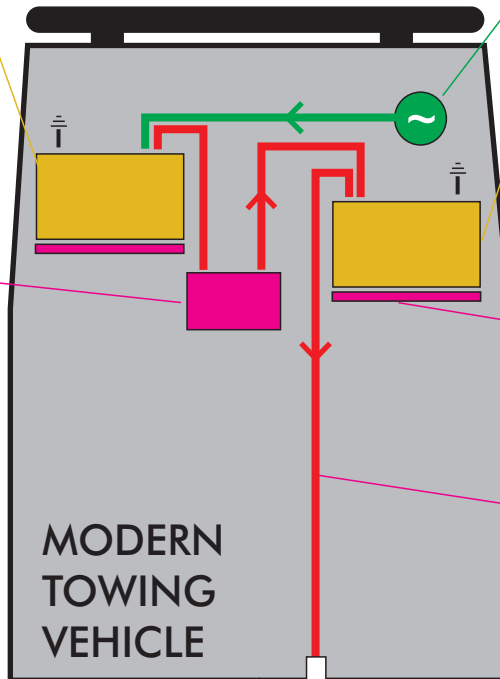
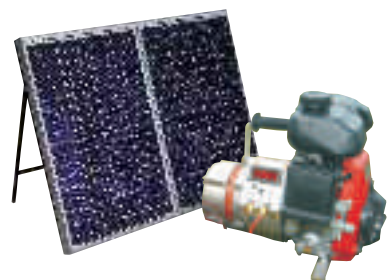
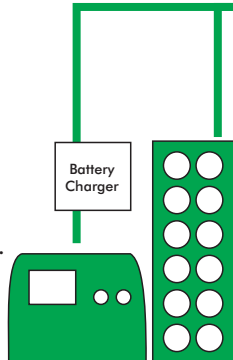
- No fuses/circuit breakers
- Dissimilar batteries can be used
- LED's indicate operation & warnings
- 3 wire hookup & built in brackets
- Sealed against water & dust and
- Solvent resistant
- Designed for engine bay
- Recessed terminals for safe operation

Camper Trailer Intelligent Battery Management that electronically senses the state of batteries and allocates power appropriately.

## EXTERNAL INPUT

- Solar panel / Generator

Power input from external source when camped. These can be directly connected via Anderson plug to battery manager.



## ALTERNATOR

## AUXILIARY BATTERY



Vehicle auxiliary battery runs all internal vehicle accessories. It is charged by either alternator, when vehicle is running, or external input when camped.

## BATTERY TRAY

Heavy duty electroplated battery tray purpose built for Australian conditions.

## HEAVY DUTY CABLE

10mm cable throughout system for high amp rating allows for minimal power loss. In line, high amp fuses.



## ANDERSON PLUG



High amp rating (up to 175amps) for minimal power loss. **NOT** connected via trailer plug (low 10amp rating).

- Housing material meets strict flame & Chemical Resistant
- UV resistant & resistance to hydrocarbons and solvents
- Genderless design eliminates "male" & "female" connectors replacing them with one unit
- Flat wiping action cleans contact surface during disconnection
- Safe for "Hot Plug" of battery power

## AUXILIARY BATTERY

Camper Trailer auxiliary battery runs all accessories. It is charged by either alternator, when vehicle is running, or external input when camped.

- ENERGY OUTPUT
- ENERGY INPUT
- ENERGY STORAGE
- ENERGY ACCESSORY