

How does parallel charging compare with priority charging?

The normal way this type of system operates is for the voltages of both batteries to be monitored, with the alternator being switched to either one battery or the other, depending on which one needs it most.

The idea of swapping the full alternator output between batteries (priority charging) can sound attractive; however there are some points that should be considered.

The system must ensure there is a "make before break", i.e. there must be an overlap where both batteries are connected momentarily during the change-over.

If there is "break before make" (no overlap), there may be a time when no battery is connected to the alternator- this will result in a very high voltage surge into the vehicle electrical system (alternator load dump) and can result in damage to the vehicle system.

Traveling at night, the alternator may be charging the main battery, maintaining it at 13.8V and giving nice bright headlights.

The system then notices the auxiliary battery (possibly with a fridge etc connected) has dropped to 12V, so it swaps the alternator over to the auxiliary battery to give it a charge.

Now the main battery is not being charged and, with the headlights on the voltage drops quickly.

This will result in the headlights getting noticeably dimmer. After a while (depending on how it operates) the system will notice the main battery is getting low, so it will swap the alternator charge back to the main battery and the headlights suddenly become brighter. This cycle will continue all night with the headlights going dull to bright every few seconds or minutes.

This can get annoying (and maybe attract the attention of the law?)

What is the difference between priority charging and parallel charging?

With priority charging, both batteries get the alternator to themselves for half the time.

With parallel charging, both batteries share the alternator all the time. Note, there are a few ways batteries can be connected parallel, not all resulting in optimal charging.