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## **Why a DC-DC Converter on electric vehicles?**

**The practice of "tapping off" a couple of batteries in a string of several batteries to obtain 12V for lighting is not a good idea. For one thing, the batteries used to obtain 12V will be drawing more current than the remaining batteries in the string. This will discharge those batteries more than the others and could result in those batteries being discharged beyond the recommended discharge level. Discharging batteries beyond their recommended discharge level will drastically shorten the life of the batteries. In addition, when the battery string is re-charged, the 12V tapped batteries will not be fully re-charged in the same amount of time that the other batteries in the string will be.**

**This will accelerate the demise of the tapped batteries due to not being fully re-charged and forced to be discharged beyond their recommended discharge level. If the charger is left on the battery string long enough to recharge the 12V tapped batteries, then the remaining batteries will be overcharged, resulting in excessive gassing (an explosion hazard), and driving water out of the electrolyte. If the electrolyte level falls below the top of the plates, the batteries will be damaged.**

**In conclusion, "tapping off" a couple of batteries in a string of several batteries is NOT recommended and is strongly discouraged. The use of a Solid State DC-DC converter to efficiently convert the full battery string voltage to 12V for use with 12V lighting is the best solution and the only recommended solution.**