AGM DEEP CYCLE BATTERIES
VOLTAGE & STATE OF CHARGE EXPLAINED

12V Battery Voltage

A 12V system can be a little confusing – as the voltage can be as high as 14.6 volts when charging and as low as 10.5V when under load and fully discharged – if you're new to 4WDing and camping this is important to know!

RESTING VOLTAGE is the voltage of the battery with no charger (or solar) or loads like a fridge or camp lights connected to the battery. Ideally to test battery voltage, you would disconnect all chargers and loads and let it rest for at least a couple of hours to get an accurate reading.

A 12V battery is *not* able to supply power all the way down to 0 volts – see the graph for an idea of battery charge level when at a certain voltage!

Adventure Kings AGM Battery Resting State Of Charge		
LEVEL	RESTING VOLTAGE	STATUS
100%	12.9+	GOOD[1] (USE SOLAR)
75%	12.6	OK[1] (USE SOLAR)
50%	12.3	CHARGE NOW[1]
25%	12	NEEDS COMPLETE CHARGE[1]
0%	11.8	NEEDS COMPLETE CHARGE[1]

[1] REMEMBER, WHILE THIS GRAPH IMPLIES 'CHARGE NOW' SHOULD ONLY OCCUR WHEN BATTERY IS ALREADY DISCHARGED, IDEALLY YOUR SOLAR PANEL WOULD BE KEEPING STATE OF CHARGE UP AND NEVER REACHING THE LOWER STATE OF DISCHARGE IN THE FIRST PLACE.

Adventure Kings AGM Battery State Of Charge (5A Load)		
LEVEL	UNDER 5A OF LOAD VOLTAGE**	STATUS
95%–100%	12.55	THIS ASSUMES A 5A LOAD DRAINING CONSTANTLY FROM THE BATTERY – FOR EXAMPLE A FRIDGE THAT IS COOLING DOWN AND THE COMPRESSOR CONSTANTLY RUNNING. THIS IS WITH NO SOLAR OR OTHER CHARGER CONNECTED (WHICH WOULD CHARGE THE BATTERY & RAISE VOLTAGE)
75%	12.42	
50%	12.1	
25%	11.8	
0%	10.5	

Voltage of batteries while being *used*

When your fridge is pulling power from your battery, the battery voltage will be reading lower, as the battery is under load. The amount of load on the battery, the temperature, the condition and age of the battery will all affect this value so it's harder to gauge.

** THE ABOVE IS BASED ON A CONSTANT 5A LOAD – IF THE LOAD IS HIGHER THE BATTERY VOLTAGE WILL READ LOWER. TRYING TO JUDGE YOUR BATTERY'S STATE OF CHARGE WHILE IT'S BEING DISCHARGED (OR CHARGED) IS DIFFICULT AND OFTEN NOT ACCURATE!

TOP TIP: IT'S ALWAYS A GREAT IDEA TO CHARGE YOUR BATTERY WHENEVER YOU'RE USING IT, BY CONNECTING YOUR PORTABLE SOLAR PANEL KIT