

## Table of Contents

<b>Battery Types</b> .....	3
<i>How does a VRLA battery work?</i> .....	3
<i>How are a gel battery and an AGM battery similar?</i> .....	3
<i>How are a gel battery and an AGM battery different?</i> .....	3



# Battery Types

The two battery types that have been used in your Foretravel house system over the last decade or so are Valve Regulated Lead-Acid (VRLA). Commonly known as either a Gel (Gelled Electrolyte) or an AGM (Absorbed Glass Matt).

## How does a VRLA battery work?

A VRLA is a “recombinant” battery. This means that the oxygen normally produced on the positive plates of all lead-acid batteries is absorbed by the negative plates. This suppresses the production of hydrogen at the negative plate. Water (H<sub>2</sub>O) is produced instead, retaining the moisture within the battery. It never needs water and should never be opened as this would “poison” the battery with additional oxygen from the air.

## How are a gel battery and an AGM battery similar?

Both are lead-acid storage batteries that:

- Are sealed using special pressure valves and should never be opened.
- Are completely maintenance free other than the connections should be retorqued and the battery exterior cleaned periodically.
- Uses a recombination reaction to prevent the escape of hydrogen and oxygen gases normally lost in flooded lead acid battery (particularly in deep cycle applications).
- Are non spillable, and therefore can be operated in virtually any position. However upside down is not recommended.

## How are a gel battery and an AGM battery different?

- An AGM is an electric storage battery that has its entire electrolyte absorbed in separators consisting of a sponge-like mass of matted glass fibers.
- A gel battery uses thixotropic gelled electrolyte. (sometimes fluid and sometimes gel: becoming fluid when shaken or stirred and returning to a gel state when allowed to stand)
- Both are considered as “acid starved”. This condition of both protects the plates during heavy deep-discharges. The gel battery is more starved, giving more protection to the plate; therefore it is better suited for super-deep discharge applications.
- Due to the physical properties of the gelled electrolyte, gel battery power declines faster than an AGM battery as the temperature drops below 32°F. AGM batteries excel for high current, high power applications and in extremely cold environments.

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Last update: **2021/03/10 12:31**

