

BATTERY ACUMEN TO TAKE YOUR ADVENTURE UP A NOTCH

Helpful tips and useful information to help get the most from your powersports battery



- Seven Traits to Look For When It's Time For an Upgrade
- No Two Battery Chemistries Are The Same
- Maintenance Tips To Minimize Downtime
- Charging 101
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- Food For Thought To Help Avoid Warranty Related Issues
- Frequently Asked Battery Questions

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SEVEN TRAITS TO LOOK FOR WHEN IT'S TIME FOR AN UPGRADE



1

Extreme Temperature Tolerance

For excursions with exposure to intemperate weather, such as the severe cold encountered on snowmobiles or the scorching heat on an All Terrain Vehicle (ATV) during a hot summer day, it's a good practice to invest in a powersports battery that can tolerate extreme temperatures that come along with the territory.



2

Massive Starting Power

A battery built with a higher Cold Cranking Amp (CCA) can create more starting amperage and therefore deliver more power for massive results.



3

Fast Recharge Efficiency

A battery capable of fast recharge can minimize downtime and get your vehicle back up and running in no time.



4

Longer Storage Life

If storing your vehicle on the off-season is a must, a battery engineered to provide a long shelf-life (up to 1 or 2 years) can help save customers time and money due to premature battery failure.



5

Deep-Cycle Reserve

Today's technologically advanced powersports vehicles are equipped with onboard accessories to enhance the end-user experience including lighting, winches, communications systems, Global Positioning Systems (GPS) and mobile device chargers. A battery with deep-cycle reserve capacity can help start the engine and provide the power needed to keep all onboard electronics running properly.



6

Vibration Resistant

Whether combating the rough terrain of dirt, sand and mud in your ATV or confronting a strong wake in your Personal Watercraft (PWC), a non-spillable, durable design with extreme vibration resistance can help cushion harsh blows due to the environment.



7

Maintenance-Free

Having to do regular maintenance and upkeep checks on your powersports battery can become a tedious chore. Innovations to battery design, including Absorbed Glass Mat (AGM) and Thin Plate Pure Lead (TPPL) technology, can significantly minimize maintenance requirements often seen with conventional flooded lead acid batteries. ■





NO TWO BATTERY CHEMISTRIES ARE THE SAME

There are many different battery chemistries on the market today for your powersports vehicle and each one has its own unique characteristics. Let's explore the different chemistries available to energize your powersports application to see which battery is right for you.

Flooded Lead Acid Batteries

Conventional flooded lead acid batteries are usually the least expensive option available but have many downfalls for this type of vehicle application. For starters, flooded lead acid batteries generally have a higher rate of self-discharge. Extremes in temperature can also dramatically affect the battery's performance. Physical maintenance and human intervention are mandatory for proper operation, such as topping off the water level after extended use. This type of battery is not the most robust, with cases and covers not built to withstand the severe shock and vibration dished out during an exhilarating ride. If the battery case cracks, acid could leak from the battery. Excessive vibration can damage the battery's internal components.

Absorbed Glass Mat Batteries

Absorbed Glass Mat (AGM) batteries are engineered to withstand extreme temperatures, making them an excellent option for seasonal powersports vehicles such as a snowmobile or

PWC. They feature rugged construction, they're non-spillable and are shock and vibration resistant. However, not all AGM batteries are the same. It's beneficial to choose an AGM battery with an appropriate Cold Cranking Amperage (CCA) to give you adequate power to start your engine.

Thin Plate Pure Lead Technology

Thin Plate Pure Lead (TPPL) technology takes the benefits of AGM batteries a step further with pure lead electrode plates that can be made thinner than standard AGM engineering so that more plates will fit than in a comparably sized conventional lead acid battery. The additional plates provide as much as 15 percent greater surface area, increasing the electrochemical reactions with the electrolyte. The result is significantly higher cranking power.

Lithium-ion Batteries

Lithium-ion batteries tend to have a higher upfront cost than alternative chemistries and are not necessarily temperature tolerant. They're compact, lightweight and recharge easily but require very specific charging algorithms. The battery's small size and durable construction make it easy to install and maintain.

When it's time to purchase a battery for your vehicle, make sure you consider more than just price. Go with a battery that's fully capable to take on all the challenges powersports applications can dish out as well as all the fun! ■



MAINTENANCE TIPS TO MINIMIZE DOWNTIME

When handling batteries, always use protective gloves and eyewear, as well as insulated tools. Be sure to follow the manufacturer's guidelines for proper battery maintenance and care and direct any questions to your battery professional.



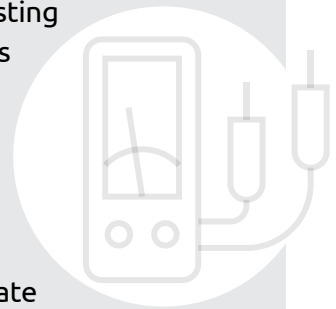
- Inspect the case, terminals, cables and clamps for damage, wear and dirt
- Check the battery's State of Charge (SOC)
- Check the battery for corrosion
- If the battery is a conventional flooded lead acid battery, check the electrolyte and replenish as needed
- If the battery needs replacement, be sure to disconnect all cables from the battery before removing it from the vehicle
- To clean the battery, disconnect it and wash dirt from the cables and connectors with ammonia or a paste of one part baking soda and three parts water
- Use an emery cloth for the battery terminals and use water to clean the case and clamps
- Rinse, dry and reconnect the battery, then coat the terminals with dielectric grease, anti-corrosion spray or petroleum jelly



CHARGING

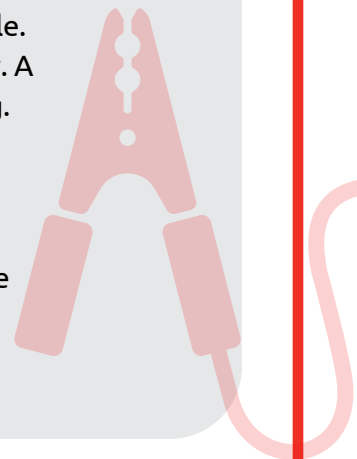


TEST STATE OF CHARGE (SOC): Simple testing can be performed to determine the battery's SOC. To conduct a test, use a digital voltmeter to measure the disconnected battery's Open Circuit Voltage (OCV) at least six hours after the battery has been charged. This rest period allows the battery's chemical reactions to reach a state of equilibrium and the surface charge to dissipate so that an accurate voltage reading is obtained. The manufacturer's specifications will provide the OCV that corresponds to 100 percent SOC.



CHARGE THE BATTERY: If testing indicates a decreased SOC, charge the battery whether you're recommissioning or decommissioning the vehicle. This will help ensure the life and capacity of the battery. A full charge will also help keep the battery from freezing. A smart charger can prevent the battery from being overcharged.

Chargers aren't universal, so be sure to use the right charger and the right settings for your battery type. The best way to charge an AGM battery is to use a charger designed specifically for that type. ■



PROPER STORAGE MATTERS



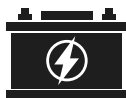
As seasons change, many powersports vehicles are decommissioned and put into storage. To help ensure a healthy battery when it's time to power your vehicle back up to operate on land, sea or snow, consider the following storage guidelines:



Inspect the battery to make sure the cables and their housings are in good condition and the connectors are secured tightly to the battery



Check the battery electrolyte levels and replenish as needed



Make sure the battery is stored at a full State of Charge (SOC)



If the battery is stored in a cold environment, periodic charging or connection to a trickle charger or battery maintainer will help ensure batteries are kept at a full SOC.



Try to store your vehicle in a safe and dry location. ■



WARRANTY RELATED ISSUES

A powersports battery warranty protects consumers from defects in materials, faulty parts or poor assembly that could cause a product to fail prematurely.

With lead acid batteries, however, consumers are expected to follow proper battery maintenance to achieve the manufacturer's life expectancy and performance. This makes it important to read and understand the complete warranty and what it entails to help ensure that there are no issues with coverage.

Battery warranties also contain certain clauses under which a manufacturer has no obligation to honor the warranty. For example, certain limited warranties will not cover things like willful abuse, misuse, physical damage or neglect. Overcharging, undercharging, charging or installing in reverse polarity, improper maintenance, allowing the battery to be deeply discharged via a parasitic load or mishandling the battery are also things that could lead to a void in the warranty.

Not all battery warranties are created equal so it's important to do your research and direct any specific questions to your battery professional. ■



FREQUENTLY ASKED QUESTIONS

Q: Can I use an AGM charger for my Lithium-ion battery?

A: There are some AGM charger systems that can be used to also charge Lithium-ion batteries, but you should always refer to your battery manufacturer's guidelines on proper charging procedures. It will usually specify the type of charger that is most compatible with the battery. As always, direct any questions to your battery professional.

Q: Can a powersports battery be jump started by a car or a truck?

A: If the car or truck is not running, you should be able to jump start your powersports battery by following proper manufacturer guidelines.

Q: What is the best battery to use if my vehicle has additional electrical accessories?

A: A battery engineered with Thin Plate Pure Lead (TPPL) technology can provide ample power to not only start the engine but also operate any additional onboard electrical accessories.

Contact your ODYSSEY® battery representative
for more information by visiting our website at:
www.odysseybattery.com.



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