

WHAT IS CCA ON A MOTORCYCLE BATTERY

In the Cranking Amp versus Cold Cranking Amp Part 1 blog, we covered the basics centered around what Cranking Amps (CA) and Cold Cranking Amps (CCA) are and what that means in the automotive world. Now you may be wondering how these metrics, and the standards behind them, translate to motorcycle and other powersport starter SLA (sealed lead acid) batteries.

THE JIS D5302 STANDARD

It is interesting to note that there is only one standard of testing or regulations for SLA power sport batteries – the JIS D5302 standard – and it does not test for, or define, CCA. This standard quantifies capacity, high-rate discharge and dimensional information that standardizes power sport application batteries. Capacity testing is performed at a standard 10-hour rate, and the battery designation type must meet certain criteria in order to be classified into that battery type. For example, a BTX5 battery type is 12-volts, 4 amp-hours, fitting into a case size of 105x70x113mm (height x width x length) with a weight of approx. 2kg regardless of manufacturer.

The high rate discharge test in this JIS standard specifies that a battery must discharge a specific amount of current (in amps) for a certain amount of time (usually 1-3 minutes) and the voltage at 5 seconds must remain above a limit. The 5-second voltage test is to confirm the initial cranking power will turn over the bike. This test is much shorter than what is seen in automotive – because the amount of power needed to turn over the motorcycle engine is lower than what is demanded from big engines and can be delivered in a shorter amount of time.

The high rate discharge test checks that the power (where power is current multiplied by voltage, and the voltage limit is sufficiently high to assume a constant power over the 5 seconds) delivered for the 5 seconds of high rate discharge current is enough to start the motorcycle in cold weather. This high rate discharge test is conducted at -10° C, but it is not defined as CCA.

DO MOTORCYCLE BATTERIES HAVE CCA?

In fact, there is no true standard of CCAs for motorcycles at all. Although the JIS standard is specific to powersports vehicles, it does not have a simple metric equivalent to CCA. What does this mean for CCA testing and your powersport battery? It means that companies instead turn to using automotive standards to quantify these metrics, even though these standards are not intended for powersports.

There are several reasons that the automotive standards are not applicable to powersports. It may seem obvious, but this brings an observation that CAs and CCAs testing standards in the automotive market are designed to turn over much larger engines than what is seen in the powersports arena. Your average truck engine is going to be much larger than that of the average motorcycle, ATV, or snowmobile and requires time to heat up in cold weather.

Likewise, the batteries you see in your motorcycle are going to be smaller and will need to provide less power to the engine than what is required from a car. All CCA testing standards are intended for larger batteries and motors than that of motorcycles. But, why do standards matter in these applications at all?.

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WHY DO THESE STANDARDS MATTER?

Standards matter because CAs and CCAs are determined by these standards and are used to communicate performance to the end user. As mentioned previously, most motorcycle and other powersport batteries are tested to automotive standards – of which there are several. A quick review of automotive CCA standards states that the batteries are tested for at least 30 seconds, and as long as two and a half minutes, while keeping voltage above 7.2 for a 12-volt battery, conducted at 0°F (-18°F) temperature.

What do the automotive standards mean for you, a powersport user, in determining how CCAs apply to your next battery purchase? Well, if you're like most powersport users, you aren't going to be outside enjoying your vehicle in freezing temperatures. The 30 second test (and certainly two and a half minutes) is a very long time for a powersport engine to turn over, and 7.2 volts doesn't provide enough power to start an engine in any weather condition. With this knowledge, it is easy to deduce that CCAs may not be as applicable to powersport batteries as they would be to vehicle batteries, and therefore do not hold as much weight when it comes to deciding which battery is better.

The JIS D5302 standard, which is specific to powersports, does not outline any CA or CCA rating tests for motorcycle batteries and does not provide a simple metric like CCA. Because of the lack of CA/CCA standards for powersports and the perhaps peculiar application of the automotive standards to these batteries, testing for CCA is not tightly regulated or even consistent across different manufacturers. This means that a similar model across different manufacturers can have different methods for determining CCAs including the use of handheld testers not covered by the standard. Some manufacturers may choose to only list CA and while not a hard and fast rule, if a CCA test was not performed or if CCA is not provided, you can multiply the CA by 80% to get a rough approximation of the CCA ($CA \times 0.8 = CCA$).

IS A HIGHER CCA BATTERY BETTER?

Just because CCAs don't translate the same way to powersports as they do to vehicles doesn't render them useless. CCAs are still a good metric for comparing batteries, but CAs are certainly just as relevant. When selecting powersport batteries, make sure you are buying a battery with enough voltage, and general amps to support your vehicle's needs.

All the information inside of this blog is specific to SLA starter and powersport batteries. This blog is intended to educate you, the powersports user, that the CCA listed on a battery is based on an automotive standard with little relevance to a powersports application. In a similar manner, the powersports user also needs to understand that these standards do not apply to lithium powersport batteries and that there are currently no standards for testing for any lithium starter batteries – automotive or power sport. We will cover lithium powersport batteries and CCAs in part 3 of the CA vs CCA series – and discuss real world testing that illustrates the superiority of lithium batteries to SLA in powersports.

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