FAQ'S

FREQUENTLY ASKED QUESTIONS ABOUT CAT® BATTERIES

Questions

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Life & Durability

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Answers

What is CCA?

CCA, sometimes called cranking power or starting power, stands for cold cranking amps. This is a measurement of how well a battery will start your engine. The rating indicates the discharge rate in amperes (an amount of current flow) that a fully charged battery will maintain for thirty seconds at 0°F (-17.8°C) without the terminal voltage falling, usually 1.2 volts per cell. Generally, the higher the CCA, the faster the vehicle will start.

What is RC?

RC, reserve capacity, measures the number of minutes that a fully charged battery at 80° F (27° C) will supply power for ignition, lights, and accessories if the charging system fails. The greater the number of minutes, the longer you can operate your vehicle if your alternator or alternator belt fails.

What's the difference between CCA and CA?

As stated above cold cranking amps, or CCA, is a measure of the battery's ability to deliver current under cold conditions. CCA rating is measured at 0°F for 30 seconds while Cranking Amps (CA) is rated at 32°F. By using a CA rating, distributors can artificially inflate their rating 20%. So, it is important to know the difference between CA and CCA ratings.

What is a maintenance-free battery?

A battery is maintenance free due to the calcium that is added to the positive and negative plates. The calcium construction also means less gassing which reduces the risk of an explosion. They also have virtually no terminal corrosion and stay charged longer. However, it is good practice to service a maintenance free battery and check its fluid levels if it is an MFA (maintenance-free-accessible) battery. MF (maintenance-free) batteries do NOT have accessible caps and are generally referred to as maintenance-free-sealed batteries.

What is the difference between maintenance-free and maintenance-free-accessible batteries?

The only difference from a design standpoint between a MF (maintenance-free) and MFA (maintenance-free accessible) battery is the MFA has caps. There are no internal design differences between the two designs.

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From a performance standpoint the only difference is when the batteries are maintained. In a non-maintained application the MF and MFA are identical from a performance and life standpoint. In a maintained application the MFA will have a longer useful life over the MF, because the MFA has accessible caps so water can be added when fluid levels are low.

What is a low-maintenance battery?

Low-maintenance or "hybrid" batteries use antimony on the positive grid and calcium on the negative grid. These batteries are designed to reduce internal heat and water loss which leads to the term "low-maintenance" because maintenance is required in checking the fluid levels to ensure they are above the battery plates.

Why do some batteries have accessible caps?

Batteries that have accessible caps allow you to monitor the fluid levels of your battery and add water when needed. Ideally, you want to keep the fluid levels above the top the battery plates.

Can a battery that is accessible be maintenance free?

Yes, maintenance free refers to the type of construction of the battery plates. If a battery is constructed with calcium in both the positive and negative plates, then it is maintenance free.

How should I store a battery when my equipment is being stored during the winter?

For extended periods of storage, four weeks or more, the battery cables should be disconnected, If the cables are left connected, it is possible the battery may discharge and freeze from a short or solid state device which continually draws small amounts of current. If the vehicle is stored in an unheated area during the winter, remove the battery and move it inside. If possible, the battery should be stored in a room which has a constant 40-50°F (5-10°C) temperature – but never below freezing. In either condition, the battery should be fully charged.

If a battery dries out from sitting in storage, can it be refilled with water and recharged?

Chances are it will not come back to full-rated power, but you can try if it is an accessible battery. Recharging should be done very slowly, 8 amps or less over a 24-hour period.

What are in the "pills" that are sold to rejuvenate dead batteries? Will they work?

These pills probably contain some form of dry acid. If your battery needs this kind of attention, it is probably best to replace it.

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What is a trickle charger?

This is a very slow charger, usually considered to be in the range of 1-2 amps output.

When should a trickle charger be used?

Anytime you want to maintain a state of charge for a battery stored over a long period of time.

If I recharge a dead battery with a trickle charger, approximately how long will it take to recharge it to a full state?

Don't try to use a trickle charger to recharge a dead battery.

The only charger we have is a small 10 amp unit. How do I know when the battery is fully charged? We don't have other battery tools.

This is probably a constant voltage charger. When current tapers to about 1 or 2 amps, the battery is fully charged. This may take 12 or more hours.

What is considered a fast charge? A slow charge?

For a 12-volt battery, a fast charge is 40 amps for 1-2 hours. A slow charge is 1 amp per positive plate cell for 12 to 24 hours.

When should I slow charge a battery? Fast charge?

It is always preferable to slow charge a battery, but if you need the battery immediately, then fast charging is the only alternative. By fast charging, you always run the risk of overheating the battery which can boil out the water and buckle the plates.

What if it is filled with acid instead of water? Will it stand a better chance of returning to a full charge and rating then?

No, acid should never be added to a battery that has been activated. Use water only! It is best to use distilled water if available.

When my battery needs water, can I add regular tap water?

Yes, just avoid hard water. If possible, use distilled water.

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We have distilled water from our dehumidified and air conditioner. Would it be better to add that?

Yes, if it is clean. Look at the bottom of the container the water drains into, if it is clean then the water is probably okay.

Can batteries be placed on concrete floors?

Yes! This is an age-old myth that still lingers today. Any automotive or commercial battery you buy today has a container made of polypropylene, which has been the case for many years. This material is highly insulative and prevents your battery from discharging through the floor.

What tests are Cat batteries subjected to?

Well, for example, we shake them in a vibration test for 100 hours and then make sure they still perform to specifications compared to the industry standard of 18 hours—our batteries are 5 times tougher than the industry standard! We also cold soak our batteries at subfreezing temperatures and see if they will still start an equally cold engine. We subject our batteries to tests that are more severe than any of our competitor's tests and are more demanding than the conditions your machine will ever have to endure.

Why does a battery wear out?

As a battery is charged and discharged during normal operations, the lead paste material eventually wears out and drops off the lead grid, usually the positive plate. This material falls to the bottom and accumulates, eventually shorting out the battery. Also, as the plate material comes off the battery, the plate material corrodes, the battery gradually grows weaker and its ability to start your engine is reduced.

What causes a battery to fail?

There are four major reasons why batteries fail:

1. Overcharge—the most common cause of failure usually results from faulty voltage regulation. Overcharging will show up as (a) excessive use of water; (b) black lead material on the underside of the vent caps; or, (c) high reading on the amp meter.
2. Undercharge—long storage and neglect, a low voltage regulator setting or alternator which is not working properly will cause the battery to continually operate at a partially charged condition. Normally, a battery in this condition will simply not start your engine. If the problem isn't corrected, it can cause the plates to harden (sulfate), which destroys the battery. Sometimes recharging at 8 amps or less for 24 hours will rejuvenate the plates, but the results are generally unsuccessful.

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3. Vibration—batteries subject to high vibration, loose mounts, missing battery holddowns, etc. will fail early. This results from plate breakage, intercell weld cracks, plates touching and shorting out, plate material being shaken from the plates and building up on the battery bottom then shorting out the battery.
4. Neglect—low electrolyte levels, missing holddowns, etc. can also cause battery failure. Low electrolyte levels cause the top part of the plates to dry out, destroying the exposed portion.

How strong are Cat PHO battery handles and containers?

Our handles are required to withstand a static pull of 2 times the battery weight in the vertical direction for 30 minutes and a static pull equal to the battery weight in the horizontal direction for 30 minutes. They are also made of electrolyte resistant rope. In regards to the container, we use a polypropylene copolymer and it is required to meet a tensile yield strength test according to ASTM D638.

Why are wet batteries favored over dry batteries?

Wet batteries are ready to be used right off the dealer's shelf. Furthermore, wet batteries are usually cheaper and can outperform dry batteries. They are also more tolerant to extreme temperatures and conditions such as overcharging. However, dry batteries are not considered hazardous material which makes it easier to transport by boat, airplane or truck. These batteries have a longer shelf life compared to their wet equivalents.

If AGM batteries are advertised to sustain a longer life, why aren't they recommended for Cat machines?

The longer life claim with AGM product is debatable, a lot of variables play into this. In our high temperature machine applications a flooded accessible design will outlive an AGM design. We do not use or recommend AGM product for our machine applications. AGM batteries have a tighter charge voltage tolerance than flooded batteries. In our high temperature machine applications AGM batteries would be over charged and because they are sealed and water cannot be added their life would be severely diminished and much less than that of our flooded accessible design. AGM batteries require a specific charge voltage or a temperature compensated voltage regulator to minimize overcharging, which our current alternator do not have.

Does a higher rated battery mean it will last longer than one with a lesser rating?

Generally, yes, because if you have the same size engine, the premium battery will start it easier using less of its capacity. This means the battery cycles less (low charge to a fully charge to a low charge) so it’s in the fully charged state more often. For example, while a half-charged low performance battery probably won’t start your engine, a half-charged high performance battery will. So, you get the benefit of more power and dependability with a premium battery.

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For my 18-wheeler, should I buy the battery with the highest cold cranking amps rating?

No. Batteries for over-the-road trucks should be purchased according to their application, not just the rating. Caterpillar recommends 1800 CCA for basic starting requirements, but the number and mix of battery types depends on how the truck is used. For instance, in a pick-up and delivery application where the vehicle is frequently starting and stopping and the battery is not allowed to fully charge, then a starting/cycling battery with less CCAs will last longer than a starting battery with higher CCAs.

Also, for severe cycling applications, such as refrigerated trailers or for trucks that have an isolated battery system, cycling batteries should be used.

Caterpillar doesn't manufacture batteries; you buy from other manufacturers. Why should I buy from Caterpillar?

There are many battery manufacturers, but Cat Batteries are designed and built to Caterpillar's specifications by a certified supplier. Our Premium High Output batteries must meet our specifications, which are the toughest in the industry. After all, we are concerned with the performance of your Cat equipment and engines. If one of the competitive batteries fail, they may lose you as a battery customer. If a Cat Battery fails, that is a reflection of our quality and we could lose you as an equipment and engine customer.

Will a side terminal battery perform better than a standard top post battery?

That depends on the specifications. If they both have equal specifications, then one will perform as well as the other.

Are there advantages to a top post battery over a side terminal or vice versa?

Top posts are more prone to corrosion and need more frequent terminal cleaning than do side terminals. However, top terminal batteries are easier to boost start than side terminals because there is more to clamp the booster or jumper cables to.

What qualities should I look for when buying jumper cables?

A set of booster cables should be flexible, made of copper not aluminum, with at least #1 or 0 gauge wire for normal personal use, 00 gauge or welding cable for commercial-duty use. They should be soldered to the terminal grips and not just bolted or clamped enough. Above all, they should be heavy enough so the wire or grips do not get hot when cranking for extended periods of time. Using Cat jumper cables will ensure that you have the best cables for your application.

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What should I use when I replace battery cables on my vehicle or equipment?

Use original equipment if available or buy the largest diameter, shortest length copper wire cables available. Never replace the ends of battery cables with the temporary ends except in an emergency, and then replace these as soon as possible using a Cat battery cable repair kit (6V3025). In any event, the voltage drop should be no more than 1 volt in the cranking circuit when checked from battery terminal to starter terminal.

If I put in a new, more powerful battery, do I need to install a larger alternator?

No, alternators provide proper voltage regulation regardless of battery physical size or battery performance capability.

Does Caterpillar offer different rated batteries in the same group size?

We supply the highest quality premium battery in each group size used in Cat equipment. Since applications vary greatly, we provide a value selection to meet users' needs.

Does Caterpillar sell batteries for all applications?

Yes, we have batteries for many applications. Please refer to the Cat Batteries Cross Reference Guide (PEGP7801)

Does Caterpillar sell battery acid?

For dry charged batteries, Cat does not sell acid with the batteries. Acid should be bought through your local acid distributor.

PEBJ0025-00