



Battery Maintenance

It's a story we're all familiar with: one fine morning, instead of its usual lively sound, your starter motor just gets slower and slower. And as a reward, you can enjoy the pleasures of public transport, listen to your boss's frosty greeting when you arrive late, and spend your valuable free time at the local

garage. To avoid all this hassle, all you have to do is take good care of your battery, and part with it before it gets too ancient.

The battery is the essential energy store feeding your motorcycle, particularly if your bike has a battery ignition, as opposed to a magneto, which can independently sustain engine function. The battery is fed by the charging current from the alternator, which can only be stored if the battery is in good working order. This means that the lead plates in the battery must not be sulphated, as this would eventually cause a short circuit between the battery plates. The acid level must be adequate and the battery terminals must not show any signs of oxidation.

A digital multimeter, or an acid tester if using a standard battery, will tell you the state of charge. In the case of 12 V batteries, a value above 12.7 V indicates a fully charged battery, 12.4 V indicates that the battery is 50% discharged, and 12.0 V indicates that the battery is completely drained. If your battery is in a poor state of charge, you should try and find out why. If you have only been riding your bike over short distances for quite some time, or if you haven't been riding it at all, then

it is no surprise that the battery is flat. If that is the case then connect your battery to a charger and leave it until it is fully charged. If the battery is simply too old, it is best to replace it. However, if a new battery is not recharging even though you are riding your motorbike normally, the alternator, rectifier or regulator may be defective, or leakage currents may be the cause of the problem. If you are unable to rectify the problem with the help of a bike manual, you will need to talk to your local vehicle workshop.

If you are not going to be riding your bike for a prolonged period (longer than 3 months), it is better to remove the battery, as there is a risk it will deep discharge or be drained by "hidden" electrical devices, like alarm systems, clocks, immobilisers or your sat nav. Ideally, you would connect it to an automatic battery maintainer or an intelligent charger. A battery that is not charged over the winter months will be irreparably damaged after 4 months. If your vehicle is fitted with a large number of auxiliary electronic devices that would need to be

recalibrated after removing the battery (sat nav, alarm system etc.), it is probably better to use an on-board charging socket so that you do not need to remove the battery. However, this only works if you have a maintenance-free battery.

What are the different types of battery?

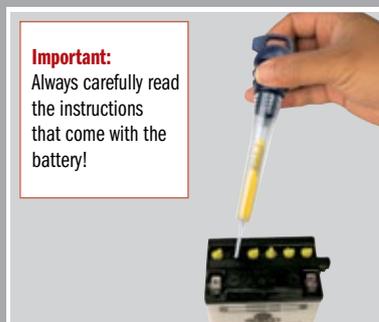
Manufacturers generally fit one of the following battery types to their motorcycles:

Standard acid battery

This good value battery type is particularly prevalent on older motorcycle models. A new standard battery must be filled up with acid – not with water! – (density 1.28 g/cm³). Caution: Battery acid is caustic, so always take great care when handling your battery if you remove it from your motorbike.



Acid corrosion



Important:
Always carefully read the instructions that come with the battery!

Measure acid density

Please note!

These tips for DIY mechanics contain general recommendations that may not apply to all vehicles or all individual components. As local conditions may vary considerably, we are unable to guarantee the correctness of information in these tips for DIY mechanics. Thank you for your understanding.

If, in spite of due diligence, you manage to spill acid on your skin, wash off quickly with plenty of water. If the acid comes into contact with your eyes, you will also need to consult a doctor! Acid splashing on your clothing will generally result in holes. Acid will also damage the paintwork of your bike and generally causes the build-up of rust and acid corrosion, so always wash acid off paintwork with water immediately!

Standard batteries must be charged with open cells and removed from the vehicle to prevent the build-up of acid vapours in the vehicle. You can test the state of charge using an acid tester. For this purpose, you need to remove the covers of the individual battery cell ports and draw a little acid into the acid tester. The float in the test device tells you the state of charge: the flatter the battery, the lower the acid density and the lower the position of the float. Fully charged batteries have an acid density of 1.28 g/cm³, while flat batteries have an acid density of 1.11 g/cm³, and 1.20 g/cm³ would indicate a 50% discharge. The state of charge of each individual battery cell should be pretty much the same - if this is not the case, the battery is defective. If the fluid level of a standard battery has dropped, top up the individual battery cells with distilled, deionised water to the maximum marking (check every 2 months or so).

Do not add acid, as this is only used for the first fill. By adding acid at a later date you would increase the acid concentration

to an inadmissible level. Once you have topped the battery up with water, you may need to recharge it. During charging (always make sure you have removed the cell covers) explosive gases build up in the battery - so it is essential to ensure that the room is well ventilated, that there are no naked flames of any kind near the battery, that the no smoking rule is observed and that there is no risk of sparks.

Maintenance-free batteries

In contrast to standard batteries, maintenance-free batteries do not contain liquid electrolyte. Instead the electrolyte is immobilised either in the form of a gel or in a fibreglass mat between the lead plates. Because these batteries barely lose any liquid to evaporation, they can be permanently closed after the first fill. There is no need to check their fluid level for the rest of their service life. There is no vent hose and the cells do not need to be opened for charging. Gel batteries and some special AGM batteries are already filled and hermetically sealed when you buy them. Simple maintenance-free batteries are supplied with an acid pack of the appropriate size (acid density 1.32 g/cm³), which is poured into the battery prior to initial use and permanent closing. Maintenance-free batteries can be charged in situ in the vehicle, e.g. via an on-board charging socket. Always use an automatic charger suitable for motorcycles. That said, if a maintenance-free battery is deeply discharged, you need a special charge mode

to bring it back to life. A basic automatic charger does not provide this function, so it's a good idea to get yourself an intelligent automatic charger - then you're ready for any eventuality. While maintenance-free batteries, and particularly gel batteries, have a lower self-discharge rate and a slightly better cold start performance than standard batteries, they are also more sensitive to overcharging (which is why it's essential to have an automatic charger designed specially for motorcycles). Maintenance-free batteries should only be used if they are manufacturer-approved for your vehicle, as only then can you be sure that the motorcycle regulator's charging voltage is compatible with the battery.



You will find this tip for DIY mechanics at www.louis.de/schraubertipps

1 When choosing a battery, check that it complies with the vehicle manufacturer's specifications, i.e. be sure to check the model designation, dimensions, voltage (6 V or 12 V), amperage and the position of the battery terminals and vent. First remove the seat and - BEFORE you fill and install the battery - double check that the battery is the right size and that the terminals are in the right position.

2 To prevent short circuits when removing the battery, always make sure that you disconnect the negative cable first, then the positive cable! When recharging your battery, do not use a charger with a high amp rating from your local car accessories shop or the local DIY store. Only use chargers specially designed for motorcycles. While chargers for cars might work faster, the charging current is too high, and will damage the relatively small motorcycle battery.

3 Use a battery acid bottle or a small funnel to top up a standard battery to the maximum level with battery acid. The battery should be placed on an acid-resistant surface! The battery will emit fumes during filling - that is quite normal. All batteries are factory activated (partially precharged), but you will still need to connect the battery to a charger initially in order to fully charge it. If you are using a standard battery, leave the cells to breathe for approx. 2 hours post-charge, re-check the level and then replace the covers. Before installing the battery, carefully wash off any spilled acid.

4 Clean the outside of the battery prior to installation, as any dirt or soiling may well cause leakage currents and loss of charge.

5 Always connect the positive cable first and then the negative cable. Make sure you do not mix up the terminals - this would not only damage the new battery, it may also irreparably damage your bike's generator and electrical system!

6 Lubricate the terminals with a little Procycle battery terminal grease. If you have a standard battery, make sure there are no kinks in the vent hose.



Remove the seat

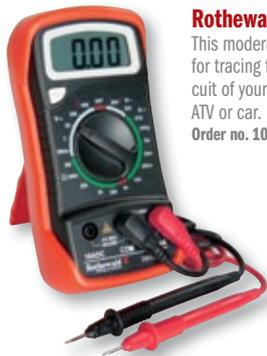


First disconnect the negative cable and then the positive



Fill with acid

We recommend:



Rothewald digital multimeter

This modern digital multimeter is ideal for tracing faults in the electrical circuit of your motorcycle, scooter, Quad/ATV or car.

Order no. 10002567



Procycle battery terminal grease

Specially developed for lubricating battery terminals and connectors.

Contains: 50 g.

Order no. 10004881

Motorcycle battery acid funnel

Extremely small!

Order no. 10003215



Deionised, distilled water

1 litre bottle

Order no. 10038020

ProCharger XXL

One of the most powerful high-tech diagnostic battery chargers for scooter, motorcycle, quad/ATV, car and even van and SUV batteries ■ Suitable for charging all popular 6 V and 12 V standard lead-acid batteries, as well as all maintenance-free, gel and AGM batteries ■ Even suitable for charging pure lead and 12 V Li-ion motorcycle starter batteries

Order no. 10004603



Gefo acid tester

With this inexpensive tester, you will always be sure of the charge level in your battery!

Order no. 10003891



Brass wire brush

Fine brass wire brush ■ Cleans more than just spark plugs, e.g. aluminium engine blocks.

Order no. 10003950



Pressol battery acid bottle

Top-up bottle for battery acid/deionised water: Motorcycle batteries have very small openings for topping up.

Volume: 500 ml

Order no. 10003631



Battery acid

1 litre bottle

Order no. 10038001

Please note: Causes severe burns.

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4



Clean the contacts

5



Connect the positive cable first and then the negative

6



Grease the terminals

Battery information

Important and useful information on motorcycle batteries

The battery is particularly important for starting your bike, which is why you should pay attention to a few details when buying one. It may well spare you the hassle of push-starting your bike later, as well as preventing a host of other problems. The right type of battery will always be specified by the manufacturer, so if you're not sure, just check the details in your owner's manual or on your old battery. There are also a few things you should know about individual battery types. To make it easier for you, we have listed the key facts in the following section and the table below.

Things to observe before filling your new battery with acid and installing it in your bike!

- Is it the right battery for your vehicle (fit/dimensions/type)?
- Are the positive and negative terminals in the right place?
- Is the vent of the battery in the right place (not applicable to maintenance-free batteries)?
- Has the battery got the right voltage (V) and capacity (Ah)?

Always read the operating and safety instructions supplied with the battery carefully!

| | Standard batteries | Maintenance-free batteries delivered dry, incl. acid pack | Maintenance-free batteries delivered pre-filled with acid and sealed | Maintenance-free batteries delivered pre-filled with gel substance and hermetically sealed |
|--|---|--|--|---|
| 1 Battery pre-charged? | Yes, dry, partially charged. Prior to installation, you will need to fully charge the battery using a suitable motorcycle charger. | Yes, dry, partially charged. Prior to installation, you will need to fully charge the battery using a suitable motorcycle charger. | Yes, partially charged. Prior to installation, you will need to fully charge the battery using a suitable motorcycle charger. | Yes, partially charged. Prior to installation, you will need to fully charge the battery using a suitable motorcycle charger. |
| 2 Fill with acid? | Yes, you will need to order acid separately (with the exception of Exide standard batteries). For information on the quantity of acid you need, go to www.louis.de . With Exide standard batteries, the acid pack is included. | Yes, the right acid pack with the exact quantity of acid is always included. Never use any other acid to fill the battery, but only the acid pack supplied! | No! Under <u>no</u> circumstances must the battery be opened and filled with acid, as it is already pre-filled. After being fully charged the battery is ready to install! | No! Under <u>no</u> circumstances must the battery be opened and filled with acid, as it is already pre-filled with gel. After being fully charged the battery is ready to install! |
| 3 Maintenance? (= regular checks of the acid level?) | Yes! Check the acid level approx. once a month. If the battery needs to be topped up, only use deionised (=distilled) water. Never use acid to top up after the first fill! | No, after the first fill the battery is sealed and is then maintenance-free for the entirety of its service life. Under <u>no</u> circumstances should it be re-opened! There is no need to top up with deionised (=distilled) water or with acid - in fact it is absolutely forbidden as this would irreparably damage the battery! | No, this battery is maintenance-free for the entirety of its service life! Under <u>no</u> circumstances must it be opened! Never top up this battery using deionised (=distilled) water or acid as this would irreparably damage the battery! | No, this battery is sealed and maintenance-free for the entirety of its service life! Do <u>not</u> open under any circumstances! |
| 4 Storage of acid | Free liquid in cells. | Immobilised in a fibreglass mat. | Immobilised in a fibreglass mat. | Electrolyte mixture immobilised in gel substance. |
| 5 | Caution! While all motorcycle batteries, standard as well as maintenance-free, are delivered partially charged, it is still essential to connect them to a suitable motorcycle battery charger and ensure they are 100% fully charged prior to installation. Failure to do so will shorten the service life of your battery considerably and may damage the battery. If unused for a prolonged period (longer than 2 months), all motorcycle batteries must be fully charged using a suitable motorcycle charger! Deeply discharged motorcycle batteries (10.5V or less) will suffer permanent damage very quickly! | | | |

In order to prevent acid burns when filling standard batteries with battery acid, we recommend using a special battery acid funnel or acid bottle (available at www.louis.eu). Always wear suitable gloves and protective glasses when handling battery acid! Any residual acid or acid splashes must be washed off immediately with plenty of clear water.

To keep your battery in good condition for as long as possible, you should fully charge it using a suitable charger. Never use a car charger or a charger from your local DIY store, as their amp rating is too high and they will damage your motorcycle battery. If the battery is not used for a prolonged period, e.g. during winter storage, you should fully charge it every couple of months. We recommend using the ProCharger motorcycle battery charger.

Information pursuant to § 10 of the Batteries Act of 25 June 2009

Starter batteries can be returned without charge to the seller at the point of sale (not through the mail, due to hazardous goods regulations). Some municipal collection points or recycling centres may make a charge. Please inquire at your local collection point.

If a new starter battery is bought without returning a used one, the end user must pay a deposit of 7.50, which will be refunded when a used starter battery is brought back. Our stated battery prices do not include this deposit.

Advice on § 18 of the Batteries Act of 25 June 2009

The crossed-out wheelee bin illustrated on the right means that batteries must not be put into domestic waste. If any of the following letters appear underneath this symbol (Pb: battery contains lead, Cd: battery contains cadmium, Hg: battery contains mercury), this means that the batteries contain these metals and therefore special rules apply to their disposal. Batteries must not be disposed of with household waste. They may contain substances that are harmful to the environment and pose a health

risk. Please return used batteries to us, or take them to your municipal recycling centre or battery dealer. The return of used batteries is free of charge and required by law. All batteries are re-used, enabling valuable materials to be recycled and, at the same time, protecting the environment and health.

