HOW TO TEST A CAR BATTERY WITH A MULTIMETER

Knowing how to test a car battery with a multimeter for common battery issues may not seem important, but battery cell problems, corroded terminals, acid buildup, and battery case damage are among the main culprits behind starting and charging system problems. Use your digital multimeter for some simple tests to find out the working and physical condition of your battery, and then clean your battery to help prevent the most common battery issues.

If your battery discharges after some time or doesn't seem to accept a charge, there's a chance your battery is behind this issue; but you also may be dealing with a starting or charging system problem.

This guide will show you how to use a digital multimeter and other simple tools to help you troubleshoot, inspect, and even clean your battery, if necessary.

How Can You Tell if Your Battery Is Charged?

You can quickly check if your battery has enough juice for the starting system of your car to fire up your engine using a digital multimeter. This is a quick way to learn the state of your battery, specially on so-called free maintenance batteries, which don't have removable caps.

Battery Voltage Test Using a Multimeter

You can quickly check your car battery charge using a multimeter. Some free maintenance batteries come with a charge indicator, a sight on the battery top that tells you if the battery is fully charged (green dot), in need of a charge (no color visible), or faulty (yellow dot).

Whether you free maintenance battery comes with an eye indicator, you still can test it to reveal the general state of charge in a minute, using your digital multimeter.

1. First, set your digital voltmeter to 20 DC volts.
2. Touch the negative (black) battery terminal with the negative (black) meter probe.
3. Touch the positive (red) battery terminal with the positive (red) meter probe.
4. Ask an assistant to turn on the headlights to provide the battery with a light load.
5. Check your voltmeter reading.

At about 80 degrees F (26.6C) in temperature:

- A reading of about 12.5 or higher, means your battery has a good charge.
- A reading of about 12.3, means your battery is about 75% charged.
- A reading of 11.8 or lower, means your battery is about 25% or less charged.

If you got a low reading, slow charge your battery to improve the chemical reaction of the battery and repeat the test. If your reading doesn't go higher, replace the battery.

How to Check Battery Terminals

This is one of the main causes of "dead" batteries. Dirty, corroded, or loose battery terminals will lead to hard-to-start or no-start issues. Sometimes, though, these type of problems are hard to spot with a simple visual inspection.

Here, you'll check your battery terminals for voltage drop to know the state of your battery connections using a voltmeter.

1. First, disable the ignition system. Do this by temporarily disconnecting the ignition coil or removing the fuel pump fuse or relay (check your car owner's manual or your vehicle repair manual to locate the coil or fuse, if necessary). This will prevent your engine from starting.

2. With your meter's red probe, touch the positive battery post. Now, touch your meter's black probe to the cable terminal connecting to the same battery post.

3. Ask an assistant to crank the engine. If your meter registers over 0.5 volts you need to clean or check the physical condition of the battery post and terminals.

4. Now, test the other battery terminal. This time, though, with your meter's black probe, touch the negative battery post. Now, touch your meter's red probe to the cable terminal connecting to the same battery post. Ask your assistant to crank the engine and check the voltage reading on your meter. If it is more than 0.5 volts, you need to clean or check your battery terminal for damage.

Warnings

- Keep your body parts and clothing away from the fan shroud in the engine compartment. It can turn on automatically and cause serious injury.
- Remove all jewelry before touching the battery terminals or cables.
- Do not allow any object to make contact with both battery terminals or cables at the same time.
- Do not use the 10A connector on the multimeter to measure voltage. Doing so may blow the multimeter's integral fuse or damage the unit.