

Battery And Charging System Test Record

Three voltage readings diagnose most electrical faults on these machines. Two thresholds are sourced; the rest is direction of change.

BATTERIES AND METERS

A lead-acid battery gives off hydrogen and contains acid. Charge it in a ventilated place, keep sparks away from it, and do not lean over one that is charging. When measuring current, the meter must be in series and set to amps — putting a meter set to amps across a battery will destroy the meter and may destroy more than that.

READING ONE — RESTED VOLTAGE

Rested voltage on a 12V lead-acid battery. Rested means no load and no charge for several hours — a reading taken straight after riding or charging is meaningless.

RESTED VOLTAGE	WHAT IT MEANS	WHAT TO DO
12.6 – 12.7 V or above	Fully charged	The battery is not your fault. Look elsewhere
Below about 12.4 V	Not fully charged	Recharge fully before drawing any conclusion from it
Recovers on a charger, then falls again	Something is draining it, or it will not hold	Do the parasitic draw test overleaf
Will not reach 12.4 V on a charger	The battery itself is finished	Replace it before diagnosing anything else

WHY THIS TABLE HAS FOUR ROWS AND NOT TEN

You will find charts giving a voltage for every twenty-five per cent of charge. They contradict each other, and when we traced one back to a battery manufacturer only the fully-charged row was an open-circuit figure — the rest were measured under load, which makes them depend on how much current is being drawn. So this sheet prints the two thresholds that are defensible and leaves the rest out. A battery that reads full and still will not crank is a connection problem, not a charge problem.

RESTED VOLTAGE

HOURS SINCE LAST RUN OR CHARGE

DATE

V

READING TWO — IS IT CHARGING?

Measure DC volts at the battery terminals, engine off, then again with the engine running and revved. What matters is the direction of change, not any particular number.

WHAT THE METER DOES	WHAT THAT TELLS YOU
Does not rise at all when revved	Nothing is charging. The fault is in the stator, the regulator/rectifier or the wiring between them and the battery
Rises clearly above the engine-off reading, then levels off	The charging system is producing and the regulator is regulating
Keeps climbing well past 15 V	The regulator is not regulating. Stop — this destroys batteries and blows bulbs

WHY NO TARGET VOLTAGE IS PRINTED HERE

Sources for these machines disagree with each other, and we found two figures quoted inside a single discussion thread. Many of these systems will not fully charge at idle at all, which makes an idle figure meaningless. The three observations above need no reference number to be useful, which is why they are what this sheet asks for. Corroborating signs of overcharging: a battery that gets hot, vents or smells of sulphur, and bulbs that keep blowing.

ENGINE OFF

RUNNING, IDLE

RUNNING, REVVED

 V

 V

 V

READING THREE — IS SOMETHING DRAINING IT?

THE PARASITIC DRAW TEST

Key off, everything off. Disconnect the negative battery lead and put a multimeter set to amps in series between the lead and the terminal, so all the current has to flow through the meter. The 49ccScoot FAQ gives up to 50 milliamps as acceptable. Above that, unplug suspects one at a time and watch the reading fall — an aftermarket or factory alarm is the first thing to try, then anything with a lit switch, then a stereo.

WHAT WAS UNPLUGGED	DRAW BEFORE MA	DRAW AFTER MA	CULPRIT?

THE CHECKS THAT COST NOTHING

- ☐ Battery terminals clean, bright and tight enough not to twist by hand
- ☐ Engine-to-frame earth strap present, tight and not corroded through
- ☐ No lights, alarm or accessory left live with the key off
- ☐ Battery case not swollen, cracked or weeping
- ☐ Battery not hot after a run
Heat and a sulphur smell point at overcharging
- ☐ Bulbs are not blowing repeatedly
Another overcharging sign
- ☐ Fuse and fuse holder not discoloured by heat

RUNNING RECORD

DATE	RESTED V	REVVED V	DRAW MA	WHAT YOU CONCLUDED AND DID

DATE	RESTED V	REVVED V	DRAW MA	WHAT YOU CONCLUDED AND DID

WRITE DOWN WHAT YOU SAW, NOT WHAT YOU CONCLUDED

Every box on this sheet asks for an observation. That is deliberate: the observation is recoverable later and the conclusion is not.

"Plug dry after six attempts" is still useful in a month. "Fuel problem" is not, because you will not remember what made you think so.

Need to work out what you actually own?

The Scooter Parts Registry is a free public record of the Chinese factories behind US-market scooters, ATVs and go-karts — brand, engine family, VIN prefix, factory and related machines. No account, no email.

thescooterparts.com/identify