

# Lights Not Working — Diagnostic Chart

One light or all of them is the first question, and it splits the fault before you touch anything.

## BEFORE YOU START

Petrol vapour ignites, exhausts stay hot long after an engine feels cool, and a machine on a stand can fall. Work outdoors or with the door open, keep ignition sources away from the fuel system, and never run an engine in a closed space. This sheet helps you observe and record. It is not a repair manual and it does not know your machine.

## THE FIRST QUESTION

One light or all of them splits the fault before you touch anything

WHAT IS OUT

WHERE THE FAULT IS

|                            |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| One light only             | In that light's own branch — bulb, holder, earth, switch or its wiring |
| Everything at once         | Upstream of all of them — a fuse, the main supply, or a shared earth   |
| Everything, but dim        | Resistance in a shared path, or a charging system not keeping up       |
| One light dim, others fine | A poor earth or a corroded connector on that branch specifically       |
| They work then blow        | Not a lighting fault. Go to the charging section                       |

WHICH LIGHTS ARE AFFECTED

DEAD OR DIM?

BETTER OR WORSE WITH REVS?




## ONE LIGHT OUT

### 1 Does a known-good bulb in that holder work?

- YES** The bulb was the fault. Note whether the old one looked intact — a filament can break invisibly at the base.
- NO** The bulb is not the fault. Go on.

↓ still not solved — go on

### 2 Is there voltage at the holder's live terminal with the switch on?

- YES** Supply is arriving. The fault is on the earth side. Go on.
- NO** No supply. Work back through the switch, the connector and the fuse for that branch.

↓ still not solved — go on

### 3 Is there good continuity from the holder's earth terminal to the frame or battery negative?

- YES** Earth is sound. Check the holder itself — corroded contacts and a spring that has lost its tension both stop a bulb seating properly.
- NO** Found it. A corroded or broken earth on one branch is the classic single-light fault, and it costs nothing to fix.

## EVERYTHING OUT, OR EVERYTHING DIM

- ☐ Main fuse intact, and its holder not discoloured by heat
- ☐ Battery rested voltage sensible  
Everything dim points here first
- ☐ Battery terminals and the engine-to-frame earth strap clean and tight
- ☐ Ignition switch passing voltage through
- ☐ The shared earth point behind the headlight, where several branches usually join
- ☐ Voltage at a bulb holder compared against voltage at the battery  
A big difference is resistance in between
- ☐ Lights brighten with engine speed  
Some systems are AC-fed and do this normally

### AC OR DC LIGHTING CHANGES WHAT IS NORMAL

Some of these machines run their lights directly from the stator rather than from the battery. On those, lights that are dim at idle and brighten with revs are behaving as designed. On a battery-fed system the same behaviour points at a flat battery or a charging fault. Establish which you have before treating brightness variation as a symptom.

## BULBS THAT KEEP BLOWING

### THIS IS A CHARGING FAULT, NOT A LIGHTING FAULT

Bulbs failing repeatedly is one of the clearest signs of a regulator that is not regulating. Every replacement bulb will fail the same way and it gets expensive. Stop replacing them, measure the voltage at the battery with the engine revved, and see the battery and charging sheet. Corroborating signs: a battery that gets hot, vents, or smells of sulphur.

- ☐ Voltage at the battery with the engine revved does not keep climbing past 15V
- ☐ Battery not hot or swollen after a run
- ☐ Bulbs fitted are the correct wattage for the circuit
- ☐ Bulb holders not melted or discoloured
- ☐ Glass of a halogen bulb was not touched with bare fingers when fitted
- ☐ Nothing is vibrating badly enough to break filaments  
A loose headlight shell will do it

## RECORD

| WHICH LIGHT | SYMPTOM | WHAT YOU FOUND | FIXED? |
|-------------|---------|----------------|--------|
|             |         |                |        |
|             |         |                |        |
|             |         |                |        |

| WHICH LIGHT | SYMPTOM | WHAT YOU FOUND | FIXED? |
|-------------|---------|----------------|--------|
|             |         |                |        |
|             |         |                |        |
|             |         |                |        |
|             |         |                |        |

**WRITE DOWN WHAT YOU SAW, NOT WHAT YOU CONCLUDED**

The observation is recoverable later and the conclusion is not. “Restarted after cracking the fuel cap” 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](https://thescooterparts.com/identify)