Earth And Ground Connection Checklist

A corroded earth produces the same symptoms as a dead ignition component, and costs nothing to fix. Check these before buying anything.

BEFORE YOU START

Petrol vapour ignites, batteries produce hydrogen, ignition coils carry thousands of volts and a machine on a stand can fall. Work outdoors or with the door open, disconnect the battery before probing wiring you are not deliberately measuring live, and never run an engine in a closed space. This sheet helps you observe and record. It is not a repair manual.

DO THIS BEFORE YOU BUY ANYTHING

A corroded earth will give you no spark, a dim headlight, a starter that only clicks and a battery that never charges. Those are the exact symptoms that get blamed on the CDI, the stator and the regulator — three of the most expensive parts on the machine. Twenty minutes here has saved more money than any other page in this library.

WHERE THE EARTHS ARE

- [ ] Battery negative terminal
  Clean, bright, tight enough not to twist by hand
- [ ] Engine-to-frame earth strap, both ends
  The one that usually fails
- [ ] Frame-to-bodywork earth points
- [ ] Earth at the CDI or ignition module
- [ ] Earth at the regulator/rectifier
- [ ] Earth at the starter solenoid
- [ ] Earth behind the headlight, where several often join
- [ ] Earth at the tail light and indicators
- [ ] Earth at the instrument cluster
- [ ] Any earth added by a previous owner or an accessory

THE TEST THAT FINDS WHAT LOOKING CANNOT

A connection can look perfect and still have resistance, because the corrosion is between the two faces where you cannot see it. The voltage drop test finds it: with the circuit working and drawing current, measure the voltage between the two ends of the earth path — for example between the battery negative post and the engine case. On a good earth that reads close to zero. A meaningful reading there is voltage being lost in the connection, and that is your fault.

1. Meter on DC volts, on its lowest range.
2. Put one probe on the battery negative post itself, not on the cable.
3. Put the other on the engine case, on bare metal.
4. Switch on a load — headlight, or press the starter briefly.
5. Read the meter. Near zero is a good earth. Anything substantial is voltage being dropped in that path.
6. Repeat between the frame and the case, and between each component's earth and the battery.

WHAT YOU MEASURED

BETWEEN THESE TWO POINTS	LOAD APPLIED	DROP V	CLEANED?	DROP AFTER V

FIXING ONE SO IT STAYS FIXED

- [ ] Both mating faces cleaned back to bright metal, not just one
- [ ] Paint, powder coat or anodising removed where the earth lands
  All three are insulators
- [ ] Any corroded ring terminal replaced rather than cleaned
- [ ] Star washer used to bite through any remaining film
- [ ] Fastener properly tight
- [ ] Joint protected afterwards with grease or a suitable coating
- [ ] Retested with the voltage drop test after refitting

> **IF CLEANING FIXED IT, SAY SO IN THE RECORD**
> An electrical fault cured by cleaning an earth is worth writing down, because it will come back on a machine that lives outside — and next time you will go straight to it instead of spending a weekend on the ignition system again.

WHAT YOU FOUND, AND WHETHER IT CURED THE SYMPTOM