

It Will Not Start — Diagnostic Chart

A structured way through the four things an engine needs, ending at an observation you can make rather than a part you should buy.

BEFORE YOU START

Petrol vapour ignites, batteries produce hydrogen, and a machine on a stand can fall. Work outdoors or with the door open, keep ignition sources away from the fuel system, disconnect the battery before touching wiring, 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.

An engine needs four things: a way of turning over, fuel, a spark at the right time, and enough compression to make use of them. Every no-start is one of those four. Work down in order and write down what you find.

1 Does anything happen at all when you press the starter — lights, a click, the starter turning?

YES Something is reaching the machine electrically. Go on.

NO Check the kill switch, the side stand switch if fitted, the main fuse, and that the battery is charged and its terminals are clean and tight. A machine that has stood for months is nearly always a flat battery before it is anything else.

↓ still not solved — go on

2 Does the starter turn the engine over at a healthy speed?

YES Cranking is fine. Go on.

NO A slow or clicking crank is a power delivery problem, not an engine problem: battery charge, terminal corrosion, earth strap, starter relay. Try the kickstart if it has one — if it starts on the kick, you have confirmed the fault is in the starting circuit and nowhere else.

↓ still not solved — go on

3 Is there fuel in the tank, and is it reaching the carburettor or injector?

YES Fuel is present. Go on.

NO Check the tank actually has fuel — gauges on these machines are unreliable. Check a manual tap is on. A vacuum-operated tap only opens while the engine is turning, so it will look shut when you test it cold. Look for a blocked filter and a kinked or perished hose.

↓ still not solved — go on

4 Take the plug out. Is it wet with petrol after several attempts to start?

YES Fuel is getting into the cylinder. The problem is spark or compression, not fuel delivery. Go on.

NO Dry plug means the fuel is not arriving. On a machine that has stood, a carburettor whose jets have varnished over is the usual cause and no amount of cranking will clear it.

↓ still not solved — go on

5

With the plug earthed against the engine and the engine cranking, is there a strong blue spark?

YES

You have fuel and spark. Go on to compression.

NO

No spark or a weak orange one is an ignition fault. The no-spark chart on this site takes it further. Hold the plug lead with insulated pliers and keep clear of the plug body.

↓ still not solved — go on

6

With your thumb over the plug hole and the engine cranking, does it push your thumb off firmly?

YES

You have all four. The fault is most likely timing, or a fuel mixture that is present but wrong. Record everything and take the findings to someone who can see the machine.

NO

Low compression points at the top end — valve clearances closed up, a burnt valve, or bore and ring wear. This is where a compression gauge stops being optional.

RECORD WHAT YOU FOUND

STEP	WHAT YOU OBSERVED	YES / NO	DATE

THINGS THAT ARE SPECIFIC TO A MACHINE THAT HAS BEEN STANDING

- ☐ Fuel in the float bowl has evaporated and left varnish in the jets
- ☐ Battery has self-discharged below the point where it will crank
- ☐ Vacuum tap diaphragm has perished and no longer opens
- ☐ Rubber fuel hose has hardened and is drawing air at the joint
- ☐ Rodent damage to wiring or a nest in the airbox
- ☐ Rust in a steel tank blocking the outlet
- ☐ Seized brake or a stuck clutch making it feel like it will not turn over

NOTES — WHAT YOU TRIED, AND WHAT CHANGED

WHEN TO STOP

Stop and get help if you smell burning insulation, if fuel is leaking anywhere, if the battery is hot or swollen, or if the engine turns over and then locks solid. None of those get better by trying again.

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