

Ignition Circuit Diagnostic Checklist

Is Your Spark Alive? – Practical Diagnostic Flowchart

Start Here: Symptom → **No Start** or **Misfire / Running Rough**

FOR A **NO START** (Engine cranks but won't fire)

STEP 1 – Do You Have Spark?

- 1 Remove one spark plug wire or coil-on-plug assembly.
- 2 Insert an old spark plug or spark tester into the boot/coil.
- 3 Ground the metal body of the plug to clean, unpainted engine metal.
- 4 Have a helper crank the engine and observe the spark.

Result:

- **Strong blue spark:** Ignition OK → Check fuel or compression.
- **Weak yellow/orange spark or no spark:** Ignition fault → Go to Step 2.

STEP 2 – Isolate the Fault

- **Check power to coil:** Key ON, verify ~12V at coil + terminal. If missing → check ignition switch, fuse, wiring.
- **Check coil trigger signal (modern cars):** Use noid light/test light while cranking. No flash → suspect crank sensor, cam sensor, or ECU.
- **Test the coil:** Power and trigger present but no spark → swap with known-good coil.
- **Older vehicles:** Inspect distributor cap, rotor, and points for wear or carbon tracking.

FOR A **MISFIRE / RUNNING ROUGH**

- **Identify bad cylinder:** On a running engine, disconnect one coil or plug wire at a time using insulated pliers. No change = dead cylinder.
- **Swap components:** Swap suspect coil with a good cylinder. If misfire moves → bad coil.
- **Inspect spark plugs:** Normal = tan/gray. Fouled = black/wet. Worn = large gap. Damaged = cracked or melted.

Free checklist by HelpyMechanic – Printable & Downloadable