C.A.R.S.

CAR ALARM & RADIO SERVICES
MOBILE AUTO ELECTRICAL SPECIALISTS

NO-START DIAGNOSTIC CHECKLIST

For all vehicle makes and models — use this checklist to separate **NO CRANK / NO START** from **CRANK / NO START** and work through the fault logically.

Customer:		**Registration:**	
Vehicle:		**Mileage:**	
Date:		**Technician:**	
Battery voltage:		**Fault first noticed:**	

1. FIRST — IDENTIFY THE TYPE OF NO-START

✓	Check / Test	Result / Notes
■	Turn ignition on: note warning lamps, instrument display, immobiliser/security indicator and audible warnings.	
■	Attempt to start. Does the engine crank at all?	
■	NO CRANK / NO START: starter does not operate, or operates only intermittently.	
■	CRANK / NO START: starter turns engine at normal speed but engine does not run.	
■	Slow / abnormal crank: treat as a separate condition — battery, cables, starter, mechanical or engine-management checks may overlap.	
■	Record exactly what happens and whether the symptom is repeatable.	

2. CUSTOMER / SYMPTOM INFORMATION

✓	Check / Test	Result / Notes
■	When did the fault start? Sudden, gradual, after repair, after battery replacement or after water ingress?	
■	Was the vehicle previously running normally?	
■	Does it start when cold, hot, after sitting, or only intermittently?	
■	Any recent work: battery, alternator, starter, ECU/BCM/BSI, keys, wiring, accessories, dashcam, alarm or audio equipment?	
■	Any previous warning lights, messages, intermittent cut-outs or starting problems?	
■	Does a spare key behave the same?	
■	Has the battery gone flat or been jump-started recently?	
■	Has the vehicle been exposed to water, flooding, pressure washing or severe weather?	

3. BATTERY & BASIC ELECTRICAL CHECKS

✓	Check / Test	Result / Notes
■	Measure battery voltage with ignition OFF and record it.	
■	Check battery terminals for tightness, corrosion, damage and heat marks.	
■	Check main battery negative / engine / body earth connections.	
■	Check positive supply cables, fusible links and main fuses.	
■	Measure battery voltage during crank attempt where applicable.	
■	Perform voltage-drop test on battery positive cable during cranking.	
■	Perform voltage-drop test on battery negative / engine earth during cranking.	
■	If crank is slow, test battery condition and starter current / operation before proceeding.	
■	Confirm charging voltage if engine can be started or another test source is available.	

4. NO CRANK / NO START — STARTING CIRCUIT

✓	Check / Test	Result / Notes
■	Does the starter relay click?	
■	Is the starter relay receiving a start request from the vehicle?	
■	Check ignition switch / start button input where applicable.	
■	Check clutch switch / neutral safety / park-neutral switch input.	
■	Check brake pedal input if required by the system.	
■	Check immobiliser authorisation / start enable status.	
■	Check starter relay power supply and control-side ground.	
■	Check starter solenoid feed during the start request.	
■	Check starter motor main feed and earth.	
■	Check for excessive voltage drop through the starting circuit.	
■	Check starter motor operation if correct control and supply are present.	
■	If there is no starter command, trace backwards through ECU/BCM/BCM2/BSI/CEM/etc. as applicable.	

5. NO CRANK — DIAGNOSTIC SCAN & NETWORK CHECK

✓	Check / Test	Result / Notes
■	Connect diagnostic equipment and record all module faults before clearing anything.	
■	Can the scan tool communicate with the engine ECU?	
■	Can it communicate with the body / immobiliser / gateway modules?	
■	Are there U-codes / CAN communication faults?	
■	Check whether the ECU reports a valid start request.	
■	Check whether the ECU reports immobiliser / security authorisation.	
■	Check clutch / brake / park-neutral status in live data.	
■	Check battery voltage / terminal status / ignition status in live data.	
■	If ECU communication is missing, verify ECU powers, grounds and CAN before condemning the ECU.	
■	Do not repeatedly clear codes before recording freeze-frame / status information.	

6. CRANK / NO START — ENGINE SPEED & SYNCHRONISATION

✓	Check / Test	Result / Notes
■	Confirm actual engine cranking speed with diagnostic live data or scope where appropriate.	
■	Check whether the ECU sees an RPM signal while cranking.	
■	Check crankshaft position sensor signal.	
■	Check camshaft position sensor signal.	
■	Check crank/cam synchronisation or 'in sync' status in live data.	
■	If applicable, scope crank and cam signals rather than relying only on fault codes.	
■	Inspect sensor wiring, connectors, shielding and sensor target / reluctor condition.	
■	Consider timing belt/chain condition and mechanical timing if synchronisation is incorrect.	

7. CRANK / NO START — FUEL SYSTEM

✓	Check / Test	Result / Notes
■	Check fuel level and confirm fuel supply is actually reaching the system.	
■	Listen for pump operation where applicable.	
■	Check fuel pump power, ground and control.	
■	Check fuel pressure / rail pressure during cranking.	
■	Compare actual rail pressure with requested / minimum starting pressure.	
■	For diesel systems, check low-pressure supply, high-pressure generation and injector return where appropriate.	
■	For petrol systems, check injector command and fuel pressure.	
■	Check for fuel contamination or suspected incorrect fuel.	
■	Do not assume a fuel-pressure fault from a code alone — verify pressure with suitable test equipment.	

8. CRANK / NO START — IGNITION / INJECTION / ECU COMMANDS

✓	Check / Test	Result / Notes
■	Petrol: verify ignition coil power and control.	
■	Petrol: verify spark quality using an appropriate test method.	
■	Petrol: verify injector pulse / command where appropriate.	
■	Diesel: verify injector command and relevant rail-pressure conditions.	
■	Check ECU power supplies and grounds under the actual fault condition.	
■	Check ignition-on feed and switched supplies.	
■	Check relevant engine-management fuses and relays under load.	
■	If no command is present, establish whether the ECU is withholding it because of synchronisation, immobiliser, sensor input or another enabling condition.	

9. IMMOBILISER / KEY / SECURITY

✓	Check / Test	Result / Notes
■	Check immobiliser/security warning indicator and any displayed message.	
■	Test known-good / spare key where available.	
■	Check key recognition / transponder status in live data.	
■	Check immobiliser authorisation / start enable parameter.	
■	Check communication between immobiliser/body module and ECU.	
■	Check for recently programmed keys, modules or configuration changes.	
■	Do not replace an ECU solely because an immobiliser-related code is present — establish which module is refusing authorisation and why.	

10. AIR / MECHANICAL / ENGINE CONDITION

✓	Check / Test	Result / Notes
■	Check intake system for major obstruction or disconnection.	
■	Check throttle body / air-metering system as applicable.	
■	Check EGR / throttle / intake flap position where relevant.	
■	Check compression if electrical and fuel checks do not explain the fault.	
■	Check mechanical timing where indicated.	
■	Check for unusual engine noises, abnormal cranking speed or uneven compression.	
■	Check for excessive crankcase pressure / flooding / obvious mechanical symptoms.	

11. POWER, GROUND & CAN — WHEN SOMETHING DOES NOT MAKE SENSE

✓	Check / Test	Result / Notes
■	Back-probe and verify module powers with the module connected, not just with the connector unplugged.	
■	Verify module grounds under load.	
■	Check voltage drop rather than relying only on resistance measurements.	
■	Check CAN-H / CAN-L and network behaviour using appropriate test equipment.	
■	Look for aftermarket equipment, trackers, alarms, radios, dashcams or wiring modifications affecting the network.	
■	Inspect connectors for corrosion, water ingress, pushed-back pins, damaged terminals and previous repairs.	
■	If multiple modules are offline, consider gateway/network/power-supply faults before condemning individual modules.	

12. FINAL DECISION — RECORD THE EVIDENCE

✓	Check / Test	Result / Notes
■	Fault reproduced: YES / NO / INTERMITTENT.	
■	Fault type confirmed: NO CRANK / NO START / SLOW CRANK / CRANK NO START.	
■	Primary fault area identified: electrical / starting circuit / immobiliser / network / sensor / fuel / ignition / mechanical / other.	
■	Record confirmed tests and measured values — not assumptions.	
■	Record any DTCs before and after testing.	
■	Record any parts or modules suspected but not yet proven faulty.	
■	Record recommended next diagnostic step or repair.	
■	If the fault cannot be reproduced, document the conditions required for further testing.	

QUICK DECISION FLOW

QUESTION	IF YES	IF NO
Does the engine crank?	Go to CRANK / NO START checks.	Go to NO CRANK checks.
Is cranking speed normal?	Continue engine-management diagnosis.	Battery / cables / starter / mechanical checks.
Does ECU communicate?	Check live data and DTCs.	Check ECU powers, grounds, CAN and gateway/network.
Does ECU see engine RPM?	Check sync, fuel, spark/injection.	Check crank sensor circuit/signal.
Is crank/cam synchronised?	Continue fuel/ignition/injection checks.	Investigate timing/sensors/wiring.
Is required fuel pressure present?	Check injection/ignition and enable conditions.	Diagnose fuel supply/pressure system.
Is immobiliser start authorised?	Continue engine-management diagnosis.	Trace key/security/module communication.

IMPORTANT DIAGNOSTIC PRINCIPLE

Do not diagnose from a fault code alone. A DTC identifies a condition detected by a control module; it does not automatically identify the failed component. Confirm powers, grounds, signals, commands and system operation before replacing parts or modules.

TECHNICIAN NOTES / MEASUREMENTS

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