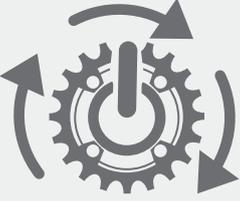


TECHNICAL TROUBLESHOOTING GUIDE

Always make sure your car has a charged battery and a full tank of clean gas

PROBLEM	POSSIBLE CAUSES	SOLUTIONS & TEST POINTS
 <p>No Crank, No Start</p>	Dead battery, very low charge, or bad battery contacts.	Check battery charge. If low recharge or replace. Also clean battery connections.
	Blown fuse.	Check all fuses that power the ECU, Alarm or Immobilizer system. Sometimes there are 3 to 5 fuses to check.
	Bad starter relay.	Check that the starter relay is working properly.
	Seized starter motor, or not working properly.	Try powering the starter motor directly to test if it can crank the engine.
	Faulty ignition switch.	Ensure that all contact points on the Ignition Switch are spreading power and ground throughout the car.
	Broken, short-circuited, dirty or corroded Control Unit harness connectors causing bad contacts.	Ensure all the Control Unit harness connectors are not broken or have a short-circuit problem. Also clean any rust or corrosion. Ensure tight fit.
	Clutch pedal switch on Manual Transmission cars not engaged or faulty.	Ensure that the clutch pedal switch signal is present when trying to start the car.
	Electronics are missing an additional essential ground point.	Check that all the car's ground points have clean and tight connections, and no short circuits.
	The car's Immobilizer "Drive-Block" is activated (Porsche 993 models).	Disable the "drive-block" system by pressing on the key fob button.
The alarm or the car might be activated.	See if there is a way to disable or bypass the alarm system.	
The EWS and DME are not in sync (BMW models after 1995).	With a BMW compatible scanner, perform a DME to EWS alignment / synch.	
 <p>Yes Crank, No Start</p>	Ignition Spark is not present.	Check individual spark plugs, coils, coil packs or distributor signal.
	There is no fuel being delivered to the cylinders.	Check for fuel pump pressure at the fuel rail and that your injectors are firing. Also check your fuses.
	Main / DME Relay went bad.	Relay went bad, or connections under relay box are compromised. These are cheap and easy to replace.
	The Crankshaft Reference Sensor is not working properly.	With a Multimeter test the Crankshaft Reference Sensor (See our YouTube video). Also, sometimes in modern cars you can use your scan tool to see if your ECU is detecting an RPM signal.
	Broken, short-circuited, dirty or corroded Control Unit harness connectors causing bad contacts.	Ensure all the Control Unit harness connectors are not broken or have a short-circuit problem. Also clean any rust or corrosion. Ensure tight fit.
	No compression in the cylinders or the engine.	Perform a compression check on all the cylinders.
	Engine or Distributor timing is off.	Ensure that the timing is correctly set.
	The EWS and DME are not in sync (BMW models after 1995).	With a BMW compatible scanner, perform a DME to EWS alignment.
 <p>Car starts, but then it shuts down</p>	Empty, or very low fuel tank.	Add some new gas to the tank. Sometimes the fuel gauge don't work correctly to show the actual fuel level.
	Fuel is not being delivered correctly.	Monitor constant fuel pressure at the fuel rail. Monitor injector signal at each cylinder. Also ensure cylinders are not getting flooded.
	There may be vacuum air leaks in the system.	Make sure that all hoses on the air intake system are securely attached. You can also perform a smoke test to detect any air leaks.
	The airflow or air mass meter are not working correctly.	Try disconnecting the air meter to see if the car is able to stay running without them. This might may indicate you could have a bad air meter. Also extremely dirty air meters, it should be replaced.
	The Crankshaft Reference Sensor is not working properly.	With a Multimeter test the Crankshaft Reference Sensor (See our YouTube video). Also, sometimes in modern cars you can use your scan tool to see if your ECU is detecting an RPM signal.
	No compression in the cylinders or the engine.	Perform a compression check on all the cylinders.
	Engine or Distributor timing is off.	Ensure that the timing is correctly set.

! WARNING

Some of testing procedures described on this guide could be dangerous if done improperly. We recommend that they be performed by an ASE certified mechanic

PROBLEM	POSSIBLE CAUSES	SOLUTIONS & TEST POINTS
 <p>Check Engine Light is On</p>	<p>There is an error fault code present in one or more of the Control Modules or the car.</p>	<p>Somewhere in the car an issue remains that has not been diagnosed or remedied.</p> <p>We recommend a factory scanner is used to read all the codes present. Comprehensive and accurate fault code definitions are necessary to correctly follow up on a testing plan.</p> <p>Alternatively you can also visit your local Auto Parts Store for a free computer scan.</p> <p>Try researching the fault codes online. Someone may have already come up with the solution for it. Although the information on the internet is not always reliable, it might help to give you some ideas on how to follow up the fault.</p> <p>Always make copies of the fault code list to compare the "before vs. after" results.</p>
 <p>No communication with scanner</p>	<p>The car's battery may be low or dead.</p> <p>There is not power or voltage to the Control Units or the Scanner.</p> <p>Broken, short-circuited, dirty or corroded Control Unit harness connectors causing bad contacts.</p> <p>The scanner is not compatible or does not have the correct communication protocol to talk to the Control Units.</p> <p>Are you using the correct diagnostic connector? (BMW Only)</p> <p>Are there other damaged electronic modules in the car?</p> <p>The car's Immobilizer "Drive-Block" is activated (Porsche 993 models).</p>	<p>Connect a battery charger to see if you can get communication to any of the Control Modules</p> <p>Ensure the key in the On position in the Ignition Switch otherwise the entire system might not get the voltage it needs to communicate.</p> <p>Ensure all the Control Unit harness connectors are not broken or have a short-circuit problem. Also clean any rust or corrosion. Ensure tight fit.</p> <p>A factory scanner dedicated to the car brand is always recommended.</p> <p>On BMWs from 1995-2001 you have to scan through the Round 20 Pin connector under the hood, if there isn't one, connect through the regular OBD2 under the dash.</p> <p>If you have other electronic issues, such as a bad ABS, TCM, or Air Bag modules, it can break the communication line. Try disconnecting one module at a time, and re-test for scanner communication.</p> <p>Disable the "drive-block" system by pressing on the key fob button. This will enable communication to the DME (See our YouTube video).</p>
 <p>Car Misfires</p>	<p>A spark plug, coil or coil pack may not be working.</p> <p>One or more injectors are not working.</p> <p>Broken, short-circuited, dirty or corroded Control Unit harness connectors causing bad contacts.</p> <p>No compression in the cylinders or the engine.</p> <p>Engine or Distributor timing is off.</p>	<p>Switch the spark plug, coils or coil packs between cylinders and check if the misfire follows the suspicious component. Coil packs tend to go bad, especially on BMWs, and they need to be replaced.</p> <p>Check the injectors while cranking to see if they are working with a noid light. You can also switch injectors between cylinders and check if the misfire follows the suspicious injector.</p> <p>Ensure all the Control Unit harness connectors are not broken or have a short-circuit problem. Also clean any rust or corrosion. Ensure tight fit.</p> <p>Perform a compression check on all the cylinders.</p> <p>Ensure that the timing is correctly set.</p>
 <p>Car start but does not accelerate or the car runs "rough" (rich or lean)</p>	<p>O2 Sensors may not be working properly.</p> <p>The Throttle Body could have problems or its own, it not properly "adapted", or it is the wrong one for the car.</p> <p>The Accelerator Pedal Position Sensor could be bad.</p> <p>There may be vacuum air leaks in the system.</p> <p>The airflow or air mass meter are not working correctly.</p> <p>The exhaust/catalytic converter may be restricted or plugged.</p>	<p>Try disconnecting the O2 sensors while the car is running to see if you notice an improvement. Ensure these sensors are the correct part number for the car.</p> <p>In modern cars you need to perform a Throttle Body adaptation procedure. You should also ensure that the Throttle body is the correct part number for that car. Make sure that the Throttle Body opens up when the accelerator pedal is pressed.</p> <p>Make sure that the Throttle Body opens up when the accelerator pedal is pressed.</p> <p>Make sure that all hoses on the air intake system are securely attached. You can also perform a smoke test to detect any air leaks.</p> <p>Try disconnecting these air meters to see if the car is able to stay running without them. This might indicate you could have a bad air meter. Also extremely dirty air meters, it should be replaced.</p> <p>Ensure that the exhaust system is clean so that the car can exhale freely. Catalytic converter has to be working correctly.</p>