AMERICAN & IMPORT ENGINES

What's All This About A Computer In My Car?

Oxygen Sensor/EGO Sensor

Measures the percentage of oxygen in the exhaust, and tells the computer whether the fuel/air mixture is too lean or too rich.

Crankshaft or Camshaft Position Sensor/CPS

Monitors the rotation of the engine and tells the computer exactly when to trigger the fuel injectors or the ignition spark.

Ignition Wires

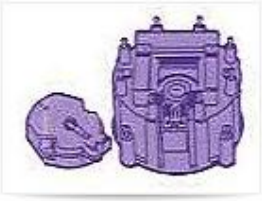
Carries the spark voltage to the spark plugs. Faulty wires can drain off the voltage to the spark plug and cause misfiring.

Mass Air Flow Sensor/MAF Sensor

Measures the amount of air drawn through the engine's air intake, so the computer can compensate for altitude and temperature.

MAP Sensor/BAP Sensor

Reads changes in barometric (air) pressure. The ECM uses this information to adjust timing advance and air/fuel ratio.



Distributor Cap/Rotor

Routes the ignition coil's output voltage to the correct spark plug. A faulty cap or rotor will cause the engine to misfire or refuse to start.

Detonation Sensor/Knock Sensor

Listens for engine "ping" so the ECM can retard the spark timing, and thereby reduce emissions and overheating, if the engine is knocking.

Ignition Coil

Convert's the car battery's 12 volts to the thousands of volts needed to fire the spark plugs.

Air Pump Check Valve

One-way valve that prevents hot exhaust gases from recalculating back through the air pump, protecting the air bypass system.

Fuel Pump

Feeds fuel from the gastank to the carburetor or fuel injection system. Most fuel-injected cars have electric fuel pumps.

Mixture Control Solenoid

Used on computer-controlled carburetors. Controls the blend of air and fuel to produce the needed amount of power and minimize emissions.

Idle Speed Control Actuator

Adjusts idle speed as dictated by the ECM, to prevent idle fluctuations and keep emissions low.

EGR Valve Position Sensor

Detects the opening of the EGR valve, so the ECM can make adjustments to optimize performance.

Control Module/Igniter

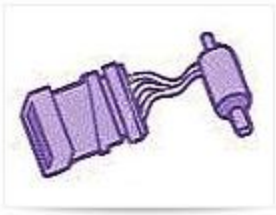
Regulates and times the spark signal to the ignition coil, for correct ignition without misfiring.

Ported Vacuum Switch

Senses engine temperature, and opens or closes vacuum lines to various emissions-related components.

EGR Valve

Recalculates a measured amount of exhaust gas into the engine's air intake, to lower combustion temperatures and reduce emissions, especially NOx.



Throttle Position Sensor/TPS

Monitors the position of the accelerator pedal and the throttle linkage, so the ECM can make accurate air/fuel mixture adjustments.

Coolant Temperature Sensor/CTS

Measures the temperature in the cooling system, so the ECM can make adjustments based on the engine's operating temperature. Can also control the dashboard warning light.

Air Cleaner Temperature Sensor

Prevents cold outside air from entering the air intake until the engine warms up. This limits emissions and improves cold-engine performance.

PCV Valve/Positive Crankcase Ventilation Valve

Recalculates partially-burned gases from the crankcase to the combustion chamber, to improve economy and reduce emissions while preventing buildup of sludge and corrosion.

Voltage Regulator

Controls the voltage supplied to the car's electrical system, preventing overcharge, undercharge and damage to electrical computers.

Fuel Injector

Injects fuel into the intake manifold. The ECM tells the injector exactly when to inject, and how much to inject, to produce the needed amount of power.

Breather Element

Filters out contaminants from the crankcase gases that are being drawn into the intake system throughout the PCV Valve.

Computer/ECM

Controls spark timing, fuel delivery and emission controls. Continuously receives signals from sensors and input devices on or near the engine; sends control signals to valves, controllers and other output devices. Stores "trouble codes" and warns driver when service is needed.