



Malfunction Indicator Lamps

Twenty years ago we used to be concerned with only a few warning lights that monitored the condition of an important vehicle system such as oil or temperature. We called them "idiot lights". They did little more than indicate it was time to get your car off the road as soon as possible. Today's instrument panels, however, display multiple system lights that provide a wealth of information. This article is to take the mystery out of interpreting what they display and if it is safe to continue to operate your vehicle.

Warning Lamps Vs: MIL Lamp

There is two types of instrument panel displays, warning lamps, and malfunction indicator lamps (MILs). Warning Lamps generally report on a single component or system, such as fluid levels (coolant, windshield washer fluid, fuel, engine oil, etc.), instrument gauges (if reading abnormally high or low) and the position of the emergency/parking brake, doors, hatch or deck lid etc. These lamps are generally red in color.

The MIL, on the other hand, refers to a more complicated system monitored by a processor (computer). It usually requires testing with specialized equipment to determine the exact malfunction and the repair required. These systems include the antilock braking system (ABS), airbag system (SRS), automatic transmission/transaxle, traction control, and the Engine Management/Emission Control system. These lamps are generally amber in color, and will appear as a descriptive icon or as the initials of the system they support. They all illuminate when the ignition key is first turned on. During this period, all of these computer-monitored systems go through their programmed self-test procedures. It is not uncommon for them to stay on for a few seconds, and then go off after passing the internal diagnosis. If any stay on, or come back on after momentarily going off, that indicates a fault with that system.

The "Check Engine" lamp, may actually appear using these words, or may appear as "Service Engine Soon," or a descriptive icon (such as an engine). When it is illuminated, the problem could be in one of three areas: Engine Management, Emission Control, or Accessories.

Engine Management: This system is directly responsible for the fuel delivery and ignition/spark requirements of the engine, and uses a number of sensors, which input into the computer, so that it can make adjustments for optimal performance. (i.e.: map sensor, engine coolant temperature sensor, Intake air temp sensor, knock sensor, mass air flow sensor, cam /crank sensor and oxygen sensor). A malfunction of any of these sensors may well cause poor fuel economy. You may not notice any drivability symptoms with the PCM compensating for sensor failures.

Emission Control: This system is closely integrated with the engine management system and reduces exhaust and evaporative emissions, while maintaining optimal drivability (i.e.: EGR valve or EVAP system).

Accessories: Certain components are controlled by the engine management computer. They include the transmission, fuel pump, alternator, radiator cooling fan, air conditioning compressor, rear defogger, power windows and doors, entertainment systems, climate controls and memory seats. All of these components are designed to operate with certain parameters that the computer monitors. When one of the components operates outside the assigned limits, the computer recognizes this and illuminates the MIL. The computer is also programmed to switch into "fail safe mode," reverting to a default strategy to compensate for the failure. It may also create a noticeable drivability symptom. So, if the MIL is not enough motivation, the driver will be more



inclined to take the vehicle in for service.

There's no question that when there's a drivability symptom along with a lit MIL, your vehicle should be taken to a technician. What if there is no drivability symptom? Engine management/emission control systems are so sensitive that the MIL will light up due to human error such as leaving the fuel filler cap loose, driving the vehicle too hard under extreme conditions or using the wrong grade of fuel. Sometimes these faults will correct themselves after several drive cycles and the MIL may reset itself.

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