



NEWS FROM

Cadillac

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DIGITAL FUEL INJECTION

DETROIT --- The digital fuel injection system on 1981 Cadillacs equipped with the new 6.0 liter modulated displacement V-8-6-4 engine (a GM engine produced by Cadillac) uses sophisticated computer technology.

Digital fuel injection (DFI) is a speed density system that combines a throttle body injection assembly with two electronically-pulsed fuel injectors metering fuel to the engine.

The brain of DFI is the Electronic Control Module (ECM), a digital micro-processor. It provides all computation capability for the engine controls, including electronic spark timing, fuel management and idle speed. New features for 1981 include provisions for added emission controls, support for driver assist systems, such as MPG Sentinel and Cruise Control, and augmented service diagnostics.

The microprocessor receives its information from sensors that monitor a wide range of engine operating variables. Included are the manifold absolute pressure, ambient barometric pressure, engine coolant temperature, intake manifold air mixture temperature, engine speed, throttle position and exhaust gas oxygen sensors.

As the sensors supply data to the microprocessor, it computes spark timing and fuel delivery rate to maintain a desired mixture, thus controlling the amount of fuel delivered by the two injectors. In turn, the injectors meter and direct atomized fuel into the throttle body above the throttle blades.

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DEFI idle speed control maintains consistent idle speed (with the vehicle in gear or out of gear, with the air conditioner on or off). It reduces stalling tendencies, improves fuel economy (through the use of lower idle speeds) and requires no idle adjustment or readjustment. Optimum idle speed is programmed into ECM memory.

The ECM also supports MPG Sentinel and Cruise Control. MPG Sentinel, introduced on 1980 DEFI-equipped Eldorados and Sevilles, is standard on all 1981 Cadillacs equipped with the V-8-6-4 engine. It features a digital display of both average and instantaneous miles per gallon as well as a new fuel range function.

Another new feature of MPG Sentinel is an "active cylinders" display that provides a digital display of the number of cylinders (eight, six or four) which are active on the modulated displacement engine at any particular time. Integrating Cruise Control logic into the ECM in 1981 improves speed-holding capability while ascending long uphill grades.

The microprocessor does more. It:

- continuously monitors the engine control system, its sensors and actuators for proper operation.

- memorizes any malfunctions, even if only temporary.

- alerts the driver of a malfunction by way of a "check engine" telltale light on the instrument panel.

- can substitute nominal values for critical sensor values to allow the continued operation of the vehicle until repairs can be made.

- provides a trained service technician with the means to interrogate the engine microprocessor and receive information in a diagnostic code that appears on the digital display panel normally used as part of the Electronic Climate Control (ECC) system.

Cadillac for 1981 provides owners with one of the most advanced engine control, fuel metering and emissions monitoring systems in the automotive industry.