

76-79 Cadillac Fuel Injection Repair

Here is some general stuff. If you think only half the injectors are firing, check that the black wires on the injectors have a good ground connection on the engine. There are usually 2 bolts grounding the lugs, one for each bank.

There is always the possibility of bad fuel injectors; it is usually possible to get them cleaned. Replacing ALL the injector gaskets and high pressure fuel hoses might save you a fire; be sure to check for leaks after repairs.

Regarding the 76-79 350 and 76 500 engines, they use different distributors, different fuel injectors, in fact about the only parts on the engine that are the same are the temperature sensors. The computers are calibrated/adjusted differently. The 77-79 425 parts are very similar to the 500, but use the same injectors as the 350. The throttle position switch seems to be the same for all models. The 78 and

later 350 engines use a small bore throttle body on an aluminum intake manifold, others use a large bore on an iron intake manifold. The aluminum intake has corrosion problems around the coolant passages and should be checked to avoid leaks. I would recommend milling about .030" off and putting in some of those Mondello fiber gaskets over the regular valley pan.

If you switched computers from one car to another, a car should at least start and run a bit. So you can test a computer in any running car. Also the SPEED SENSOR in the distributor is the same. If you are taking parts, save the computer. The computer parts can be used to fix other computers, and I can convert a 350 computer to run a 500

You need to know if your car won't run because of fuel or spark. Make sure there is plenty of spark at the plugs.

Try turning on the ignition but not starting the engine. You should hear the fuel pump run for about 8 seconds

and then shut off. There should be 39 psi (3.6 Bar) of fuel pressure at the injectors. If no pressure, check pump power from computer. There is a fuel pump fuse in the wiring connecting to the computer.

If pressure is very low, try squeezing closed the hose on the return pipe from the fuel pressure regulator. If this raises pressure its the regulator; if not its the pumps. There are 2 pumps, a low pressure pump in the tank and a high pressure pump mounted in the frame.

Try this test on the computer. Take off the air cleaner. Turn on the ignition but don't start the engine. Slowly pull the throttle all the way open, and you should hear the injectors click 21 times. If this works a lot of your injection system is working. The electrical unit on the the throttle body shaft is a multi contact switch which generates acceleration enrichment pulses plus detects full open or closed throttle. It is very reliable, but sometimes must be adjusted (turned) to close the closed throttle contact. Throttle body shaft bearings can be worn like a carb, and repaired the

same way.

The MAP sensor is located in the ECU, fed by a vacuum hose in the wiring harness. If there is a leak anywhere, the engine will run rich. A short hose inside the ECU can leak or come off. Use a hand vacuum tester and apply a vacuum where the hose attaches to the throttle body. Find and repair any leaks.

The 78-79 distributor uses an Electronic Spark Selector module (ESS) mounted in the engine compartment and connected to a special module in the HEI distributor. It provides spark advance (high vacuum) or retard (for starting) but is essentially independent of the EFI.

The 76-77 distributor is essentially standard except for a modified curve and the added Speed Sensors.

Do your periodic maintenance. Worn out distributor bearings or weight pivots, bad ign wires, or bad vacuum advance will severely affect operation. All of these cars

are so old the timing chain and sprockets should be replaced regardless of mileage. The plastic teeth will be falling off the cam sprocket if not already worn away.

The SPEED SENSOR is a pair of reed switches operated by magnets, located in the lower part of the distributor. There is a 3 wire connector to it. If it is working, the switches will alternate closing for a short time, one switch each engine revolution. With a meter on the wires, the white wire will have about 9 volts. The red and the black wires will each briefly rise to about 7 volts in 2 engine revolutions (one distributor revolution). If this fails, the engine may start and barely run by pumping the pedal hard.

If only one of the SPEED SENSOR contacts is not closing, none of the injectors (either bank) will operate. If only one contact is shorted, one of the injector banks will operate. If the SPEED SENSOR is unplugged, an ohm meter may be used to check the contacts. As the distributor rotates slowly, there should be a brief contact closing (zero ohms) alternating between the following pairs of wires

white to red

white to black

The EGR passages on these systems often get plugged up. This will cause the engine to run lean. I recommend taking off the EGR valve and throttle body, and cleaning them out. If the extra diaphragm unit fails, I set them up with the simpler system used on a 79 Olds 350/403 EGR.

The idle air valve is in the throttle body. The assembly may be removed by removing the electrical plug and air cleaner stud, and turning the plastic block 1/4 turn.

The idle speed may fail to shut all the way down if the idle air valve does not close all the way. Usually this can be fixed by use of an extra spacer (like a dime) of some .040" to .080" thick in the center of the moving part of the valve. Power is supplied from the fuel pump circuit, which will shut down after 10 seconds if the engine is not running. If power does not flow through the circuit, idle speed will be very high.

The 2 thermistors measure air and coolant temp, and are interchangeable. These should measure ballpark 1000 ohms if good; usually the failure mode is open circuit. An open will cause the engine to go to the hot mixture level, no cold enrichment. The coolant sensor has much more effect on operation. So if you only have one good one, put it in the coolant position to get things running.