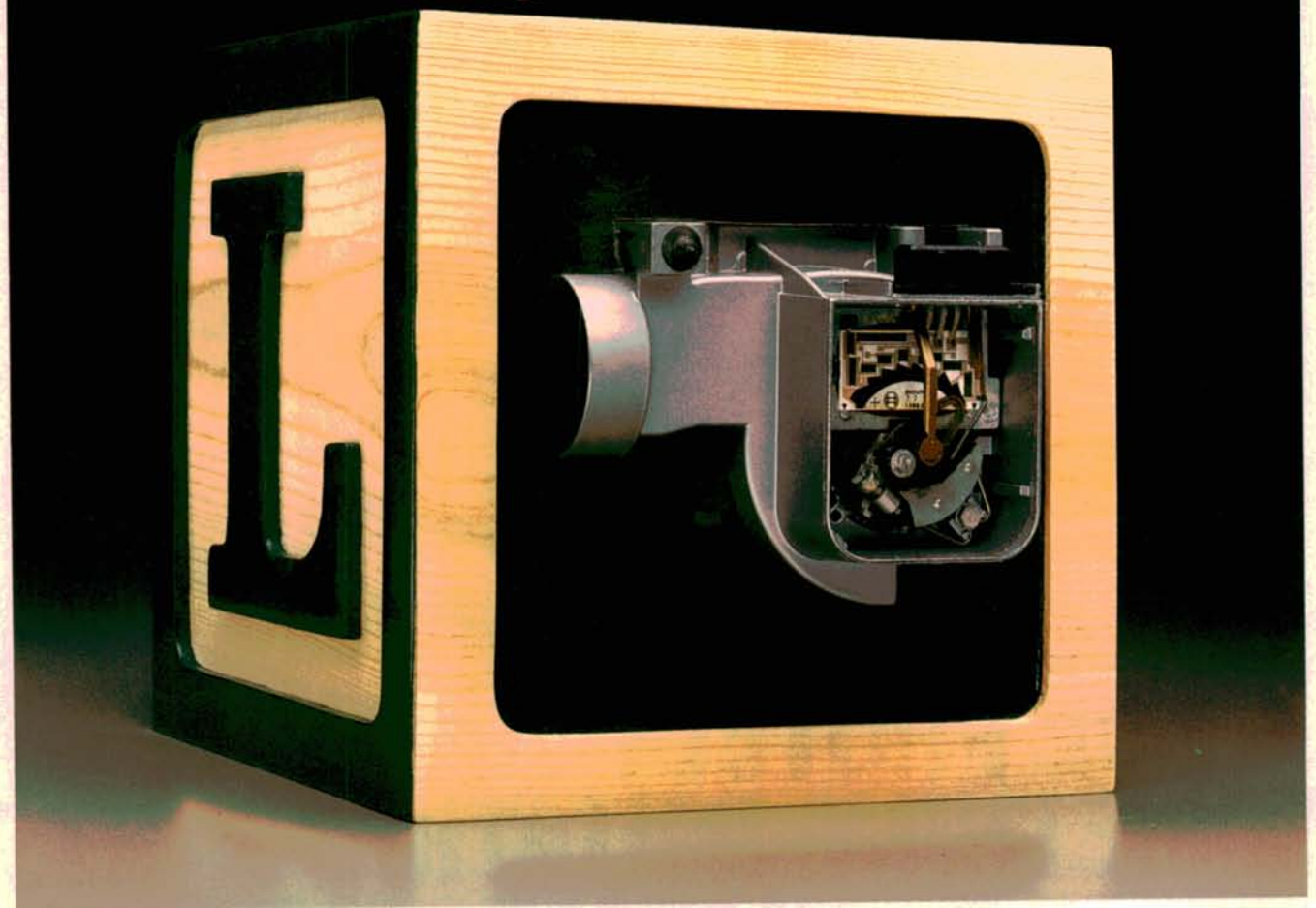


# Elementary L-Jetronic

PART TWO



Life with L is more than just engine backfire and damaged air flow sensors. In reality, life with L can be a variety of little heartbreakers!

Several specialists cautioned us that routine testing may not always detect the cause of high-speed misfiring on L systems. They say that dirty/defective injectors may be the cause.

To confirm this, take a page from your K-Jetronic notebook. That is, loosen or remove the injector rail and put a baby bottle under each injector. Then trigger the fuel pump and each injector to check individual injector volume and spray pattern. This is time-consuming, but effective.

To trigger the injectors, you need an EFI test device such as the one pictured on the opposite page. These

devices are available from companies such as Autoforce/JGM, APS/Big A, BAP/Geon, Beck/Arnley, Borroughs, BWD, Guaranteed Parts, Kent-Moore, Lucas, Matco, NAPA, OTC, Sorenson, and Vera.

Another way to analyze wide-open injector flow is to compare the pressure drop across each injector. To do this, run the fuel pump and note the fuel pressure. Trigger each injector for several seconds. Note the fuel pressure again. The pressure drop in the fuel rail caused by the bad injector will be much lower than the pressure drop that occurs when good injectors open. Between each injector test, run the engine to clear out raw fuel.

—By Dan Marinucci





# 1

It's critical that the air flow meter resistance changes smoothly and steadily as you open the air flap. If the ohms reading skips or jumps as you slowly open the flap, replace the air flow meter. Many guys find it easier to read this gradual ohms movement on an analog instead of a digital meter.



# 2

Don't you get tired of these EFI "experts" who either don't own a pressure gauge or own a gauge but never use it? The very first thing you do after you've performed a basic engine analysis is to check fuel pressure. Until you know what the fuel pressure is, you don't know where you stand!



# 3

You want to check and compare pressure drop across each injector? To do an accurate comparison, you must hold each injector open exactly the same length of time! With an EFI tester such as this one, the tester automatically triggers each injector for the same period of time.



# 4

Hook your DVOM across an injector. First, artificially richen the mixture. Then create an air leak. If the ECM's reacting correctly, the injector voltage drop will decrease when the ECM leans the mixture. Injector voltage drop will increase when the ECM richens the mixture.



# 5

One size does not fit all! Spray patterns and fuel flow varies from injector to injector. So does solenoid resistance. Different resistance values mean different current capabilities and different pulse-width/injector-duration characteristics. Be sure you get the correct part for the application!



# 6

Testing for power to the injectors? Probing around with a standard test light can be risky. Play it safe and use either a high-impedance test light or a high-impedance voltmeter. Or, use one of these compact injector test lights that plugs into the Bosch-type injector harness connector.





# 7

You may associate off-idle hesitation with D-Jetronic, but it's not uncommon for a misadjusted throttle switch to cause the same problem on L-Jet systems. Anytime you have to reset a throttle stop screw adjustment, always double check the throttle switch adjustment at the same time.



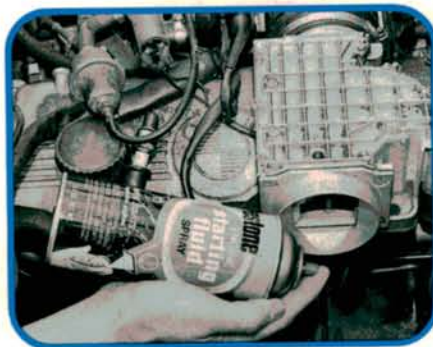
# 8

Because they are computer-controlled, L-Jetronic systems often live and die on the integrity of their electrical connections. To prevent corrosion-caused comebacks, some technicians routinely dab these terminals with dielectric grease or else spray them with lubricant.



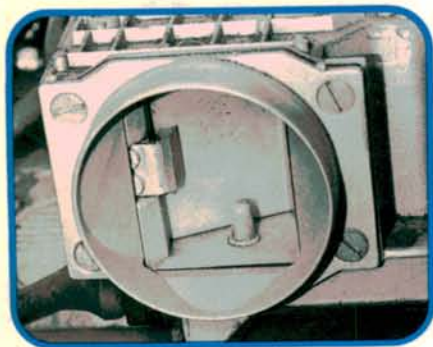
# 9

To check out a hard-start complaint, some technicians prefer to pull the cold start injector out of the manifold. Then they chill the thermo-time switch with a choke-chilling tool or with electronics freezing spray. When you chill the thermo-time switch, the cold start injector should squirt.



# 10

They say that desperate men do desperate things. Trying to fire up a cantakerous AFC-equipped engine with starting fluid definitely falls into the desperate—and dangerous—categories. Whenever you use starting ether here, you're flirting with an air flap-damaging kind of backfire!



# 11

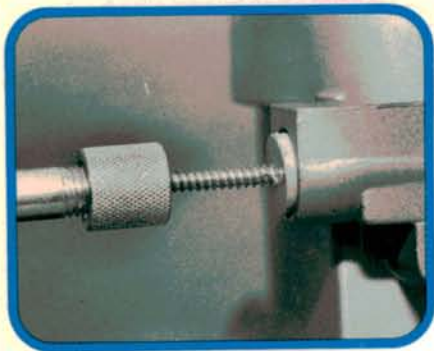
On some L-Jetronic systems, the air temperature sensor is visible in the air flow meter inlet. On others, it's hidden inside the air flow meter box. If the inlet air temperature sensor fails its resistance tests, you can't service just the sensor. You have to replace the entire air flow box!



# 12

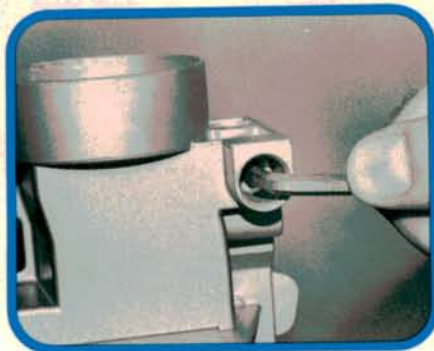
When an auxiliary air valve fails, it's usually junk. In an emergency, however, you may be able to revive one by rapping it with a wooden hammer handle. If tapping on it frees it up, remove the valve, flush the crud out of it with electrical or brake spray cleaner, and then retest it.





# 13

To remove the CO adjustment access plug, gently center punch it and drill a small hole in it. Be careful not to damage the air flow meter housing! Stop drilling as soon as you feel the bit penetrate the plug. Then use a dent puller or locking pliers and a self-tapping screw to pull out the plug.



# 14

If the air flow meter's got an allen head CO adjusting screw in it, remember that the adjusting screw takes a 5 mm wrench. Shelf those carburetor habits for a moment, friend. On L-Jetronic systems, turning the screw in fattens the mixture, turning it out leans the mixture.



# 15

Instead of the 5 mm allen head, some systems have a straight-slot CO adjusting screw. When you're guesstimating the time you'll spend servicing an L-Jet system, remember that you have to remove the air flow meter on some vehicles in order to safely remove the CO adjustment access plug.



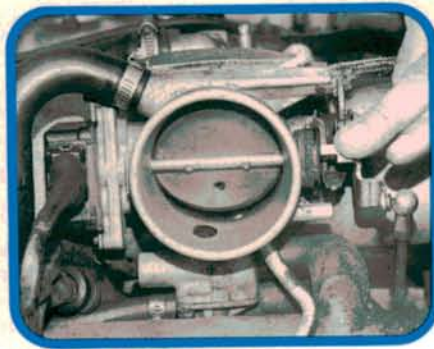
# 16

If you turn the idle speed screw and nothing happens, the idle air by-pass channel is probably full of carbon and gum. As you can see, this one was so bad, the tip of the idle screw's carboned up! Remove the idle speed screw and flush out the passage with carburetor cleaner spray.



# 17

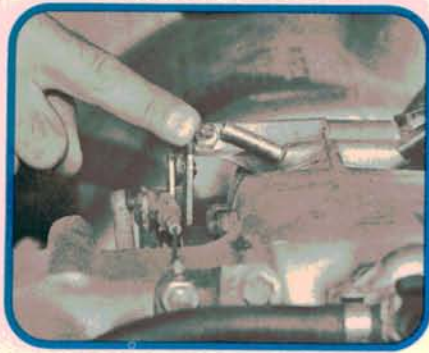
L-Jet doesn't seem to be quite as hard on injector o-rings as K-Jet is. However, leaking o-rings are still a very common cause of vacuum leaks and lean conditions on EFI systems. If the o-rings on one injector are leaking, always try to sell the customer new o-rings for all the injectors.



# 18

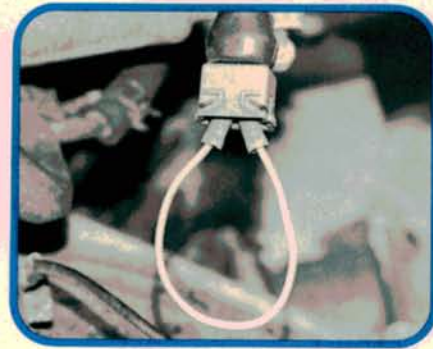
A misadjusted throttle stop screw can allow the throttle blade to stick in its bore. Symptoms of this include erratic idling, erratic idling when hot, and idling either higher or lower than normal RPM. While you're checking this out, watch for sloppy throttle shaft bushings too.





# 19

If someone has disturbed the throttle stop adjustment, you can usually reset the stop correctly this way: back out the screw until it doesn't touch the throttle lever anymore. Then turn it back in until it just touches the lever. Next, turn it in another quarter turn and retighten its lock nut.



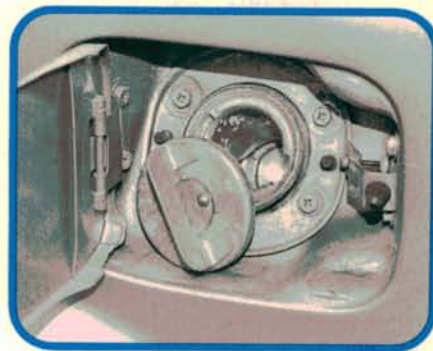
# 20

Most coolant sensors are negative temperature coefficient (NTC) type—the hotter they get, the lower their resistance. So if you bridge the terminals of an NTC sensor's connector, you can trick the computer into thinking the engine's warm. The computer should lean the mixture accordingly.



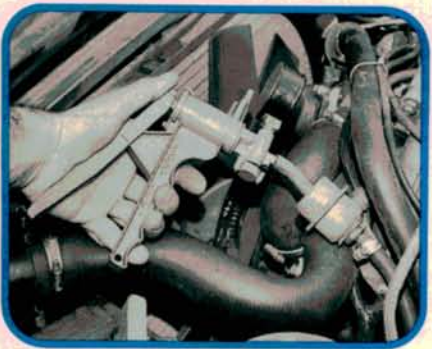
# 21

When a vehicle equipped with an NTC-type coolant sensor has cold driveability problems, some techs disconnect the coolant sensor harness. Then they give the car the ol' cold drive-away test. If this trick eliminates the cold stalling and hesitation, they know to test the coolant sensor first.



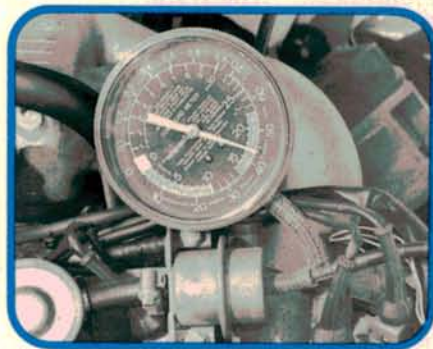
# 22

Want to stop getting gasoline showers when you change fuel filters? Then remember to vent the fuel tank before you loosen the filter fittings. On hot days, lots of pressure builds up inside a partially full fuel tank. Unless you relieve this pressure, it'll empty the tank on you every time!



# 23

If you suspect that a fuel pressure regulator is sticking on you, try exercising it with your hand vacuum pump. Connect your pressure gauge to the system. Increasing the vacuum should lower the fuel pressure. Decreasing the vacuum should raise the fuel pressure.



# 24

A partially restricted exhaust can lower manifold vacuum enough to trick the fuel pressure regulator. If the engine's rich and running sluggishly, perform the vacuum gauge checks for exhaust restriction. When in doubt, see if loosening the exhaust pipe restores the car's normal performance.