

## **CIS Fuel Injection**

By C.A.Stoddard

This new system introduced on the 1973 2.4 911-T is now standard on all U.S. 2.7 911 Porsches. It has proven to be exceptionally reliable, troublefree, and has good fuel economy and driveability (ref. July '73 Pano). Once in a while, starting difficulties have been experienced, all of which are readily explained and cured. They are summarized in the following 4 points:

### **(1) Flooding**

This rarely occurs, but can happen as the starting (7th) injector works whenever the engine is cranked by the starter motor with the accelerator 1/4 or more open. The best cure is to crank the engine with the throttle slightly open (less than 1/4) to draw air only through the cylinders; then wait a minute and hold throttle wide open while starting—and remove your foot promptly when it fires!

### **(2) Air Leak**

Because the system senses air flow and then meters the appropriate amount of fuel, any air leak between the sensing device and the cylinders will result in an excessively lean possibly non-combustible mixture. Once in a while a CIS engine will cough back through the induction system, and blow the large rubber air duct off its connection to either the throttle valve or the sensor plate, thus giving a substantial air leak. This is usually easily recognized when the engine starts and runs (on the 7th injector) for about 2 seconds, and then dies for lack of fuel. The cure is to loosen the retaining clamp, and carefully reseal the profiled rubber duct—a 5 minute task requiring a screwdriver.

### **(3) Vapor Lock**

In very hot weather, after an engine has been running and then shut off, it may be reluctant to restart. This is caused by gasoline vaporizing in the injector nozzles and lines due to heat absorbed from the cylinder heads. The cure is to wait a few minutes and try again, or after removing the plastic air filter housing and cartridge, lift the air sensor plate about 1/2" while the key is on for about 4 seconds. This allows the system to pump cool fuel into the injectors. Then start the engine and replace the filter.

### **(4) Starting (7th) Injector**

If the 7th injector does not work while cranking the engine, the engine will not start. To check its operation, remove the primary distributor wire (to prevent spark and/or fire) and the rubber air duct mentioned in (2) above. While a second person

holds the accelerator down and cranks the engine with the ignition key, observe (hopefully) a generous spray of fuel below the throttle plate. If there is no fuel spray, check the electrical feed (via starter solenoid) or replace the injector. If stranded in the boonies, a fast push start or manual activation of the throttle sensor plate will suffice.

All of the above have been rare in occurrence. On '74 models, the injectors were moved up into the intake manifolds, a cooler environment.

The technically oriented PCA'er is cautioned about making experimental and/or exploratory adjustments to the idle air flow and mixture. These are the only two adjustments on the system, they only affect the idle range of the engine, and are very sensitive. If the engine does not run well, and the CIS is suspect, it may be checked with a special test pressure gage and valve assembly which will readily diagnose and pinpoint trouble.

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