It is worth noting that operating the engine on one mag for as little as 30 seconds can lead to fouling of the inoperative plugs.

Moisture, which finds its way into a magneto simply by condensing when the temperature changes, can leave corrosive acids behind. These acids act as carbon trails begging electricity to flashover. It is a good idea to reduce the problem as much as possible by checking for cracks, loose cover plates, or other preventable methods of moisture entry.

TROUBLESHOOTING

On a hot day, when you attempt to start a fuel-injected engine that recently has been flown, it is common for it to come to life only to die swiftly. When the aircraft is parked after flight, residual engine heat "cooks" the fuel lines and metering devices under the cowling like thawing dinner by leaving it on the stovetop directly above the pilot light. This causes the fuel to expand, which forces it back into the fuel tank, leaving only vapor in the lines. Because a little fuel remains in the lines, the engine roars briefly to life, but the fuel pump is incapable of moving enough vapor to keep it running, so the engine quickly dies.

To avoid this problem, before attempting the start, you should purge the fuel lines by placing the mixture control at cutoff, putting the throttle at full open (some throttle linkages prevent high pump action with throttle retarded), and turning on the auxiliary fuel pump to high pressure for about 20 seconds. This procedure pumps cool, fresh fuel through the lines, purging the vapor and cooling the system. The fuel return system routes first the vapor, then the fuel back to the tank, leaving the lines filled with fresh fuel. To start the engine, turn off the fuel pump, place the mixture at full rich, open the throttle partially, and engage the starter; the engine should start easily.

Rough engine idle could be due to either an excessively lean/rich mixture, which would respond to adjustment, or to a mechanical problem, which should be referred to a mechanic. Possible culprits are an induction air leak, improper fuel pressure, bad compression on one or more cylinders, fouled plugs, ignition system problems, or plugged injector nozzle(s).

If the tachometer indicates an excessively low ground-idle RPM, check the carburetor heat or the prop control setting. Other possible problems are a restricted air inlet or governor out of adjustment.

If your engine consumes too much oil, one problem easily could be use of the wrong type of oil. That is tough to figure out once it is added, so never allow anyone else to add oil to your airplane. Other problems that may cause high oil consumption include worn valve guides and bad or improperly seated rings. The obvious problem in the case of a low oil pressure indication is insufficient oil quantity. More difficult problems might include failure of the pressure-relief valve or a clogged oil pump inlet.

When an engine will not develop rated power, improper use of carburetor heat and mixture top the list of likely causes. Too low a fuel grade runs a close third. If all three check out, there are several other possibilities, such as insufficient air induction or fuel flow, low cylinder compression, or incomplete ignition.