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What Not to Burn

At a time when sky-high prices for avgas are keeping many general aviation (GA) pilots tethered to earth, you may find yourself looking more closely at airplanes with a supplemental type certificate (STC) for unleaded automotive gas. Even with prices at the gas pump that leave auto drivers reeling and increase the cost of your commute to the airport, auto gas is still considerably cheaper than avgas.

You may also be interested in this option because installation of an auto fuel STC on a low compression (80/87 octane) engine is neither complicated nor expensive—no major modifications are needed. Even for the higher compression engines (e.g., Lycoming 0-360 and 0-320), installation of the STC may not require more than getting the right paperwork and placards.

Whether you already fly an aircraft with the auto gas STC or are just considering that possibility, there are a few things you need to know about operating with auto gas.

Can You Avoid Ethanol?

If you choose to buy, or if you already fly, an aircraft with a legitimate STC for auto gas, you will need to be sure that the auto gas you pump into your aircraft's fuel tanks does not contain ethanol. Gasoline containing ethanol, which is sometimes known as "gasohol," can damage aircraft fuel systems, decrease range, and significantly increase the tendency toward vapor lock. It also greatly increases the carburetor icing range. In addition, "gasohol" has an affinity for water and can pull enough moisture from inlet air on humid days to cause engine malfunctions. Consequently, you need to use avgas, unless you are certain that the auto gas you are pumping is free of ethanol.

Therein lies a challenge. In some parts of the United States, it is nearly impossible to find non-ethanol blended gasoline. Although pumps at many filling stations now sport placards noting the presence of up to 10 percent ethanol in the gasoline being dispensed, it is still possible to find ethanol traces in non-blended gas, since tanker trucks may switch between ethanol blends and non-ethanol gasoline at any time. FAASafety Team (FAASTeam) notice number NOTC1221 (available at http://www.faasafety.gov/SPANS/notices_public.aspx?nid=1221&page=1) included information from a pilot who purchased ethanol-blended fuel from unlabeled pumps. For this reason, each STC for auto gas includes instructions for constructing an alcohol tester, and the STC holders also offer a reusable alcohol test kit.

Do You Have the STC?

According to the Experimental Aircraft Association (EAA), there have been several recent cases in which aircraft sellers have told prospective buyers that the aircraft has an STC for auto gas, but records kept by the two STC holders (EAA and Petersen Aviation) did not agree. As always, buyer beware! If you are considering the purchase of an aircraft that allegedly has the auto gas STC, it's a good idea to verify directly with EAA or Petersen Aviation.

If there is a legitimate STC, you should see placards (issued by EAA or Petersen) on the wings next to the fuel inlets. You should also find a complete set of STC-related documents, including an information packet, possibly with Field Information, Instructions, an Authorization Page, Airplane Flight Manual Supplement (required to stay in the aircraft), Instructions for Continued Airworthiness, STC for the airframe, and STC for the engine. You should also see Service Bulletins and other information.

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