ALERT BULLETIN DA-09-01

subject: Perform fuel test before each flight.

Reason: Several aircraft encountered vapour lock during operation, on the first warm days of the season when using MOGAS.

background:

The most important thing to consider when using auto fuel in aircraft concerns vapour pressure or volatility. The fact that approved engines operate quite well on auto fuel is not in dispute. But given the right set of circumstances **any** airplane can vapour lock.

During the winter, an additive (seasonal blend) may be put in the fuel for better “cold operation”. This is added by the supplier, not the end user or airport authority.

Fuel containing this winter additive is not safe for flight on a hot day.

A simple fail-safe portable tester is available in all aircraft. The Tester is small enough to be carried in the airplane and will tell you at a glance whether or not the fuel has any serious vapour lock potential, given the current outside air temperature. It immediately tells you if the fuel could cause vapour lock, regardless of contributing factors such as, temperature, altitude, seasonal blend, weathering history, or blends with avgas or ethanol. The operation of the tester is fail safe since air leaks cause low ("unsafe") readings.

This tester has become standard equipment for many people who use auto fuel and desire a preflight safety check of the fuel. Operating the tester is quick and simple. A sample of fuel is drawn into the syringe; the syringe is then coupled to the gage and the plunger is drawn down. This creates a vacuum in the syringe, the fuel boils, evaporates, and a reading is obtained on the gage which indicates whether the fuel is "safe or unsafe". Complete instructions are, of course, included with the tester.

The Volatility Tester gives an on-the-spot answer to the question - "could the fuel cause vapour lock?" - and unlike all other standard tests it does not give an answer that needs further interpretation. If the fuel has weathered to a lower Reid Vapour Pressure (RVP) than normal, the equipment automatically accounts for the current vapour pressure, and registers a "safe or unsafe" result dependent only on the current value. This capacity to read current value gives the pilot the option of blending fuels until a safe reading is obtained, or of delaying the flight until a cooler part of the day when a "safe" reading can be obtained.

Furthermore, samples for testing must be fresh, since any sample collected in an open jar or blends tested that are not properly mixed won't give a true result.

Action:

During each prelight, a fuel sample must be tested on vapour lock by the pilot by aid of the volatility tester.
If the tester shows a “NO GO” reading, add AVGAS to the fuel on board and do the test again.
Record amount of AVGAS added for safe operation in the flight log.