

Unleaded avgas spreads

Robust discussions on the future supply of aviation fuels set some European AOPA members against their American counterparts as the issue was classed as a battle in the continuing trade war between the two continents. While unleaded avgas has been available in parts of Europe for more than 20 years, America wants to "reinvent the wheel" in order to dominate the global market, according to AOPA Sweden's Lars Hjelmberg.

Lars owns the Swedish oil company Hjelmcö Oil, which pioneered unleaded avgas 30 years ago and has 70 percent of the Swedish market. The US Environmental Protection Agency's recent demand that the lead be got out of avgas in short order has caused a frisson in America, but they are not prepared to look at what has already been achieved beyond their shores, Lars said.

Unleaded avgas was spreading across Europe, he added. "This year it will be produced in Poland, Sweden and France. Total in France has decided to launch a 91 octane unleaded, a similar fuel to that which has been produced in Sweden for 20 years, but slightly less quality. That is based on a US military standard used for UAVs with Rotax engines, which have problems if they use 100LL.

"In Sweden we produce unleaded avgas to a US civil standard, while Poland is producing 91 octane, too. So we've got three producers, one in the south, one in the centre of the continent and one in the north which can provide for the entire European Union. Swedish fuel has approvals for use in Continental, Lycoming and Rotax engines. The military grade as yet only has Lycoming and Continental approval, but others will come.



Louis Rousseau

Above: engines like the Continental IO-240B can run on unleaded

"The problem has been that you are required to follow the Pilots Operating Handbook on which fuel you use, regardless of what the engine manufacturer approves. If Piper or Cessna say in the POH that leaded avgas must be used, then it doesn't matter what Lycoming allows. Quite often the POH and the engine plaque disagree on what you can use. The aircraft manufacturers have not co-operated to change the fuel requirements in their POH. Piper says they don't have the resources to change all old POHs, Cessna says the same.

"But EASA is going to take a lead in this, and will soon issue a special Airworthiness Bulletin in which they will say the Swedish fuel is useable in all aircraft with the approval of the engine manufacturer, regardless of what the POH says. This is also assumed to apply to

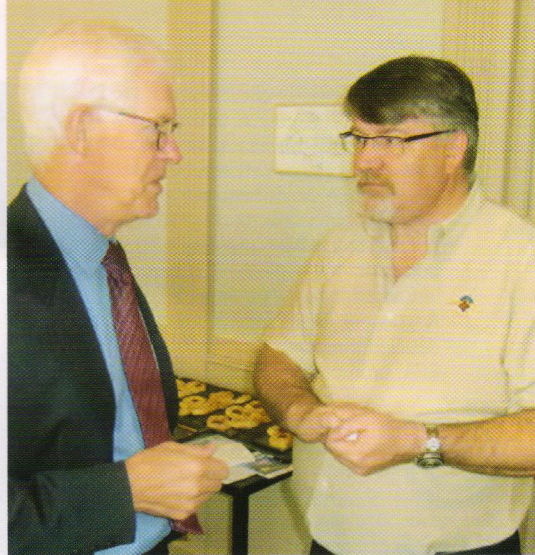
the Total unleaded, and I presume in time to the Polish product."

(See separate story on EASA's fuel SIB.)

Some countries were also looking at encouraging the switch to unleaded avgas with tax incentives, he added. "The Swedish Environment Agency has been trying to get lower taxes on unleaded – today the tax on both fuels is the same. Because the military standard is classed as a new product, there is the possibility of having it tax-free for five years because of its environmental benefits. I have tried to co-ordinate this with Total in France, but they seem little interested in end-user taxes and they have directed me to the French finance ministry.

"But the Swedish Environment Ministry requested a report from the Swedish CAA, which is now out for comment, and it looks like at least in Sweden, we are making good progress."

Mogas as a substitute is not promising, partly because power is compromised by Europe's stipulation on ethanol content. Blazej Krupa of AOPA Poland, himself an oil industry executive, said: "Mogas in Germany has high content of ethanol, which is forbidden in other countries, and by Rotax for use in their



Above: Lars Hjelmberg (left) of AOPA Sweden with IAOPA Senior Vice President Martin Robinson

engines, so they are withdrawing mogas in Germany and will be refilling mogas tanks with 91 UL."

The main difference between Europe and America is the relative number of aircraft that can use unleaded without modification. In Europe, the JAA largely killed off the high-performance light twin and more than 90

Green light for unleaded from EASA

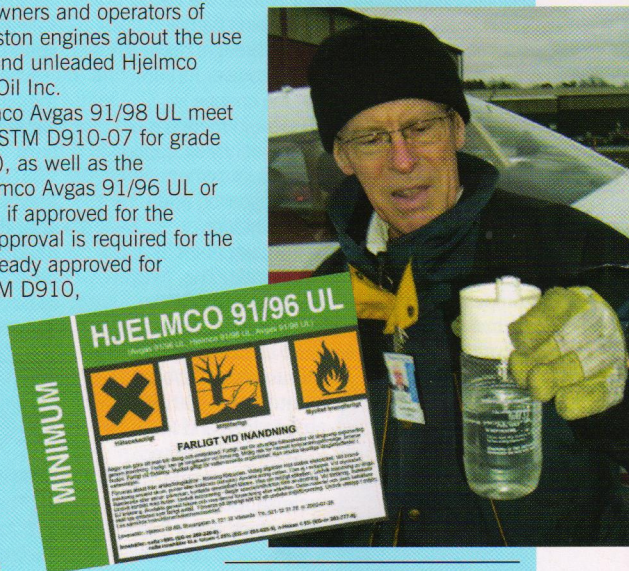
EASA has authorised the use of unleaded avgas in all engines where it is permitted by the engine manufacturer. EASA Safety Information Bulletin No 2010-31, issued in November, concerns Hjelmcö 91/96 UL and Hjelmcö 91/98 UL and reads:

"This SIB is published to inform all owners and operators of aeroplanes powered by spark-ignited piston engines about the use of unleaded Hjelmcö Avgas 91/96 UL and unleaded Hjelmcö Avgas 91/98 UL produced by Hjelmcö Oil Inc.

"Hjelmcö Avgas 91/96 UL and Hjelmcö Avgas 91/98 UL meet the requirements of MIL-G-5572 and ASTM D910-07 for grade 91/96 and 91/98 fuel (except of colour), as well as the requirements of ASTM D7547-09. Hjelmcö Avgas 91/96 UL or Hjelmcö Avgas 91/98 UL may be used, if approved for the particular engine types. No additional approval is required for the aeroplane, provided the aeroplane is already approved for operation with Avgas (according to ASTM D910, Def Stan 91-90, Mil-G-5572, GOST1012-72 or equivalent) and the engine is already approved to use Avgas 91/96 UL, Avgas 91/98 UL, Avgas 80/87, Avgas 80, Avgas 78 or, for Kalisz engines only, Avgas 91/115. This is information only. Recommendations are not mandatory."

The SIB warns that use of unleaded avgas in non-approved engines could lead to damage or ultimately failure due to the lower Motor Octane Number of the fuel compared to avgas 100LL. It makes a number of recommendations:

- Verify that the engine is approved for use of avgas 91/96 UL, Avgas 91/98 UL, in certain cases Avgas 91/115 or lower octane.
- Verify that the engine has not been modified or altered and meets specifications of the original engine type certificate.
- Check the engine data plate for octane requirements and confirm stamped 91/96 or less.
- Check the temperature limitations in the engine operating manual.
- Check the engine temperature limitations in the POH or Aeroplane Flight Manual. These values should be equal or lower than the temperature limitations of the engine operating manual.
- Install on each fuel cap a label from Hjelmcö Oil or make your own placard identifying that Hjelmcö Avgas 91/96 UL and Hjelmcö Avgas 91/98 UL are acceptable fuel for the aeroplane.
- For Lycoming engines only, when using unleaded avgas, update POH and engine manual specifying that engine oils must be used as detailed in Lycoming SI 1409A.



Above: Lars Hjelmberg's company has 70% of the Swedish market

→ percent of aircraft can take unleaded. In America, however, high-performance twins are alive and well in large numbers. And even though aircraft which need leaded avgas make up only 30 percent of the fleet, they burn 70 percent of the avgas.

Craig Spence, Vice President of Regulatory Affairs for AOPA US, detailed the current moves by the EPA, prompted by Friends of the Earth, to outlaw leaded fuels. While the amount of lead in the air is a minuscule fraction of what it was when all cars ran on leaded fuel, general aviation now produces about half of that fraction, and AOPA in the US is

pushing an industry-wide replacement initiative.

Craig said: "There are a number of alternatives, but the bottom line is that an agreement with industry to move towards a drop-in replacement, not requiring modifications, is what is needed now. The industry is committed to work with the EPA, and we hope to forestall any finding of 'hazard' which would cause major problems."



Left: AOPA delegates from Italy, Ireland, Greece, Germany and France

about 100 octane, we tested it in Switzerland in 2005; it's been stalled by the US oil companies, and by some aircraft and engine manufacturers. There is already an alternative, but it's not American, and they want the global market. The coalition in the US that is working towards a solution excludes non-American refiners. Unfortunately, all engine manufacturers are in the US, which means solutions

Lars said he believed the American oil majors were determined to stitch up an American solution which, given that 80 percent of global GA happens in America, they could impose on the rest of the world. The currently available Swedish fuel could power 90 percent of the global fleet and could account for 70 percent of consumption. "There is no co-ordination between US and Europe," he said. "We have flown an avgas with 95 octane unleaded which can be expanded to

from elsewhere will come to nothing because they're 'not invented here'. But Europe will make its own decision."

Martin Robinson suggested a European task force led by Lars Hjelmberg and Blazej Krupa, both oil industry executives, but there was little appetite for the idea; instead, Lars Hjelmberg has been asked to report to IAOPA on developments in Europe. Blazej Krupa will also provide a position paper which IAOPA will take to the EC. ■

