

# WHY AVGAS WA UL91 ?

- It is designed for aviation and aviation only
- It is safer – to the pilot and the environment
- It is pure – all components are thoroughly checked and examined pre-during-post production
- It is widely approved by the engine manufacturers such as Rotax, Lycoming and many more. LAA Approval Note LAA-999-413 Supplement 5 outlines the use of AVGAS WA UL91 for the UK. The Lycoming SI 1070Y – approved by the FAA specifies the types of the engines approved for AVGAS WA UL91

**AVGAS WA UL91 was designed with the General Aviation market safety in mind. Essentially it is a fuel very similar to AVGAS 100LL, without the addition of tetraethyl led. It results in a reduced anti-knock rating which is similar to the one found with MOGAS, only without the many risks associated with the use of motor gasoline in aviation engines.**

## WHY NOT MOGAS?

**Alcohol use.** A common practice used in order to boost the octane number is the use of ethanol or ETBE. Use of alcohol in fuel has many negative effects on the aviation engine and its parts such as rubber, plastic and composite elements. These can not only cause the damage to those elements but allow the plastic and rubber particles into the fuel system. The fuel filtration system can quickly become compromised therefore it is vital for all MOGAS users to focus on throughout checks of those elements.

**Vapor lock.** Carb Icing. Because of the increased volatility of MOGAS a vapor lock is much likely to happen, especially after running the engine at maximum operational temperatures. Due to the same reason the carb icing can occur – much faster than in AVGAS WA UL91. MOGAS absorbs much more heat during the air/fuel mixture process and because of that it can be a subject to greater cooling during the vaporization. The result of it is the ice gathering at higher ambient temperatures,

**Fuel quality** - one of the many problems of MOGAS is the fact that the fuel cannot be thoroughly checked for cross-contamination and general contamination. AVGAS is always transferred in an AVGAS only and dedicated transfer pipes and properly cleaned and prepared containers. With MOGAS it is likely that fuel can be contaminated with another type or motor gas or other chemicals. Water contamination is also very possible. This is not a case with AVGAS where all fuel is checked for cleanliness and purity at all stages of production and unloading.

**Transport** – MOGAS, at many cases is stored in a containers not designed for aviation such as plastic cans. There were multiple cases of an electrostatic charge arching during the fueling as the plastic container cannot be bonded to the aircraft.

**DON'T RISK IT WITH MOGAS. YOUR SAFETY IS OUR PARAMOUNT.**

# CHECK IF YOU ARE ALREADY USING A UL91 COMPATIBLE ENGINE AND WHAT BENEFITS ARE THERE FOR YOU!

Can your engine work with UL91?  
Check what advantages this brings for your unit.

## ◆ Step 1

Can you use UL91 with your Engine?  
Check it on the official Lycoming website in the Technical Publications section (SI1070)

If yes?

## ◆ Step 2

Check what advantages this brings for your unit.

## Extended Maintenance Intervals for Spark-Ignited Engines Operated on Unleaded Fuels

Maintenance Task	Operating Hour Maintenance Interval	
	Leaded Fuel	Unleaded Fuel
On engines with an oil filter, after the initial transition 50- hour change, complete subsequent oil change	50 hours*	100 hours*
Oil filter replacement (after initial transition change)	50 hours	
On engines with an oil pressure screen, after the initial transition changes, complete subsequent oil change	25 hours*	50 hours*
Oil pressure screen /removal/inspection/cleaning (after initial transition changes)	25 hours	

\*Or every 4 months, whichever occurs first; also, remove, examine, clean and re-install/safety the oil suction screen. Refer to the latest revision of Service Bulletin No. 480 for guidance on inspection of oil filter and oil pressure screen contents.

### Lycoming Service Letter No. L 270

This Service Letter identifies extended maintenance intervals as benefits of routine exclusive use of approved unleaded fuels identified in the latest revision of Service Instruction No. SI-1070 for Lycoming engine models.

# AVGAS WA UL91

## Guaranteed technical properties

Unleaded aviation gasoline WA UL91 is produced according to ASTM D 7547, DEF STAN 91-90.

<b>Colour</b>	Colourless natural	
<b>Knock rating</b>		
Motor Octane Number, MON		Min 91
Research Octane Number, RON		Min 96
<b>Distillation</b>		
Initial boiling point	°C	Report
10% vol. at	°C	Max 75
40% vol. at	°C	Max 75
50% vol. at	°C	Max 105
90% vol. at	°C	Max 135
Final boiling point	°C	Max 170
Productivity	% (v/v)	Min 97
Residue	% (v/v)	Max 1,5
Loss	% (v/v)	Max 1,5
Sum of 10% + 50% evaporated temperatures	°C	Min 135
<b>Total sulphur</b>	% m/m	Max 0,05
<b>Density at t=15 °C</b>	kg/m <sup>3</sup>	Report
<b>Specific energy</b>	MJ/kg	Min 43,5
<b>Freezing point</b>	°C	Max (-58)
<b>Copper strip corrosion</b>		
2h at t=100°C	Corrosion level	Max 1
<b>Water reaction</b>		
Volume change	ml	
<b>Electrical conductivity</b>		
at 20°C	pS/m	50-450
<b>Reid vapour pressure at 37,8°C</b>	kPa	38-49
<b>Oxidation stability</b>		
16 h at 100°C		
potential gum content	mg/100ml	Max 6

## Characteristics

Aviation gasoline WA UL91 (unleaded) is a mixture of hydrocarbons prepared by the processing of crude oil. It contains anti-oxidant and anti-static additives.

## Application

Aviation gasoline WA UL91 is used to power piston-engine aircraft.

## Stability

Properly stored aviation gasoline meets requirements of the above specification in a period of not less than 24 months from the date of manufacture.

## Storage

Gasoline should be stored in containers that protect the fuel from air, moisture and mechanical impurities away from direct sunlight and heating (underground and above ground tanks with limited air exchange). These restrictions limit both the loss associated with evaporation and loss of the lightest elements, which may change the two key parameters of gasoline: vapour pressure and fractional composition. We work closely with our customers to ensure storage solutions are both suitable and safe.

Visit our specialized website at [UL91.info](http://UL91.info)

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