



INSPECTION CHECKS

APPLICABLE TO THE INSPECTION OF LAA AIRCRAFT FITTED WITH CONTINENTAL ENGINES TO CHECK SUITABILITY FOR USE OF UNLEADED MOGAS

LAA/IC-ULM-CONTINENTAL
Issue 3

A/C Type:

Reg:

Engine Model:

This checklist is to be completed by a suitably approved LAA inspector. LAA inspectors are only acceptable for carrying out this task if their LAA approval includes the ability to carry out LAA Permit renewal inspections on the aircraft concerned. This checklist should be used in conjunction with CAP 747, Section 2, Part 4, General Concession 5, and 'Operating Information – Unleaded Mogas' issue 7 dated 18th November 2010.

Item	Description	Inspector's Signature
1	<p>Check that engine / airframe combination is listed in Appendix A to Airworthiness Approval Note PFA-999-413 supplement 3.</p> <p>Check that the engine is fitted with a standard Stromberg or Marvel – Schebler carburettor.</p>	
2	Check that the engine's cooling baffles and baffle seals are in good condition, and that the gascolator is not located in a likely 'hot spot' near to exhaust pipes or oil tank.	
	Tank vents are unobstructed. Check condition of filler cap seals and vent pipes.	
	Inspectors should ensure appropriate fuel filtration is provided. Normally this is achieved by a finger strainer at each fuel tank outlet, together with a filter in the gascolator.	
	For pump-fed installations, fuel pressure gauge must be fitted.	
	Fuel system fitted with provisions for draining and water sampling.	
	On Marvel-Schebler carb, no evidence of rich running due to sinking moulded carb float (Facet Service Bulletin A1-84) or on Bendix carb, no evidence of lean running due to swollen neoprene tip on float needle (Bendix service bulletin ACSB-84).	
3	Check that the fuel system installation is configured in such a way as to make vapour-lock problems unlikely, in particular:	
	All the fuel lines are secured against vibration and routed well clear of hot engine components.	
	'S bends' (local high-points and low-points) in fuel pipe runs should be avoided wherever possible as these will tend to trap vapour bubbles, as will any extra 90 degree angle fittings and any partial kinks in rubber pipes around tight bends.	
4	Check that each fuel tank and its cap is not made of a material likely to be chemically attacked by components within unleaded fuel. Whilst polythene tanks, and those moulded using polyester resin or vinylester resin are reputed to be satisfactory with unleaded fuel, some tanks laminated using epoxy resins are known to be attacked. If in doubt, consult the aircraft manufacturer and/or carry out a sample test (two weeks duration suggested) to check for signs of the surface becoming 'gummy'.	

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5	Check that fuel tanks are not treated with a 'sloshing sealant' or other coatings likely to be chemically attacked by components within unleaded fuel, detach from the tank inner surface and block the fuel outlet. If in doubt, immersion test over a two-week period and check condition.	
6	Check that fuel system components such as rubber or plastic pipes, seals and gaskets, fuel cocks, sight gauge tubes, fuel tank floats, filters, drains, primers, etc, are not made of a material likely to be chemically attacked by components within unleaded fuel. Any fuel system components manufactured for the automotive industry since around 1990 or so are likely to have been made compatible with unleaded fuel. If in doubt, test components in a jam jar of fuel and observe results after appropriate period (two weeks). Cork floats treated with varnish have been known to cause problems in the past.	
7	Check carburettor ice protection provisions, heat mufflers, carb heaters etc for satisfactory operation.	
8	Check that fuel level is visible in sight-gauges. Unleaded fuel, being almost clear in colour, may be hard to see in sight-gauges that have become stained with age, in which case sight-gauge tubes will need to be replaced. A card marked up with diagonal close-pitched lines inserted behind the gauge will help to show up fuel level due to refraction effect – fuel in the sight-gauge appears to alter the angle of the lines. Alternatively, a thin vertical line has the same effect – it appears to 'broaden' with fuel in front of it (mercury thermometer effect)	
9	Carry out engine ground run using 95 UL unleaded Mogas fuel to BS EN228 and check that running and instrument indications are normal. Mixture strength should not need adjusting. Note that it is normal to find a slightly different grey exhaust pipe deposit with unleaded fuel than with leaded fuel which may give a false impression of changed mixture strength. Check fuel system for leaks and filter(s) for contamination	
10	Fit cockpit placard regarding unleaded Mogas Use, containing restrictions on operating fuel temperatures and operating altitude, requirement to check fuel for contamination etc.	
11	Fit placard adjacent to each filler specifying: 'Unleaded Mogas BS EN228.95 RON'.	

After completion, this checklist is to be signed, dated and stapled into the aircraft's airframe logbook, together with the LAA covering letter to owners. The inspector is to add declarations in the engine and airframe logbooks stating:

'With effect from (date) this aircraft/engine may be run on unleaded petrol to BS EN 228 95 RON in accordance with CAP 747, Section 2, Part 4, General Concension 5.'

DECLARATION BY LAA INSPECTOR

I declare that the aircraft, registration **G-**_____, has been checked against items 1 to 11 listed above and has been found to comply in all respects.

Name:	Signed:	Insp. No.:	Date:
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