THE STAMPE CLUB

STAMPE CLUB NEWSLETTER

New Year 2015

HAPPY NEW YEAR!

Happy New Year to all Club members and their families and friends. May your skies stay blue and your landings stay safe!

A big thank you to Club members for their vote of confidence in deciding to keep the present Steering Committee in place for the next three years.

Thanks also to those members who made contact with words of encouragement and support and, more recently, sympathy.

With the resurgence of interest in Stampes, membership of the Stampe Club continues to increase from all around the world. This is particularly satisfying and emphasises the advantages of the 'world wide web' in respect of global communication. Club members can now share ideas as well as parts and spares. The casting of the new Renault engine blocks in France and the manufacture of new oil tanks for Gipsy engined Stampes in Hong Kong are good examples and positive signs for the future.

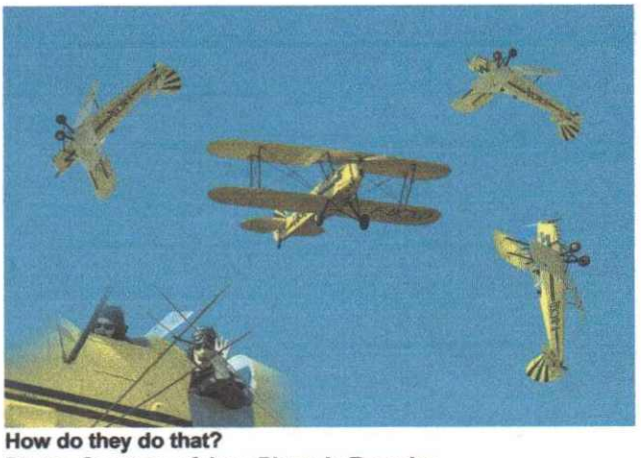
Finally, Club members are reminded that now is the time to pay their subscriptions for the coming year. Details are provided on the next page.

THE STAMPE CLUB'S WEBSITE

The overwhelming objective of the Stampe Club website has been to build something that is a real asset to members. The opening pages are available for anyone to see. However, we have created a login for members – which gives access to the 'real secrets' within... A Library of Technical Information, a Bazaar where you can advertise or request parts from members, an Events Schedule and an Ops Board.

These are beginning to be populated, but will work best if you join in and upload any information to which you have access. The Club's objective is that this central resource becomes 'the place' to find what you require. Getting good and reliable information is the biggest challenge (and will become more so) – please share what you have for the mutual benefit of other Stampe owners.

Contact: Angus Buchanan – secretary@stampeclub.org



How do they do that?
Photo: Courtesy of Jean Pierre le Bouedec

MEMBERSHIP

The Stampe Club is open to anyone of any nationality who owns or flies a Stampe or is simply just interested in the aircraft for its own sake as well as those engaged in offering services for the upkeep of Stampes. In other words, the Stampe Club should include a wide range of membership, but all with the objective of preserving the type.

The Stampe Club has members in some twelve different countries within Australasia, Europe and the Far East. Consequently, whilst the Stampe Club is presently based in the UK, the content of this Newsletter is intended to serve an international readership.

Contact: Angus Buchanan - secretary@stampeclub.org

Winter flying at Headcorn, England some years ago
Photo: Courtesy of Angus Buchanan

INTRODUCTION

OBJECTIVES OF THE STAMPE CLUB

To enjoy Stampe aircraft by promoting the safe flying, upkeep, preservation and restoration, as well as to provide a forum for discussion, exchange of ideas and information and to act as a focus between Stampe Club members and international organisations responsible for licensing and flight safety etc.

NEWSLETTER CIRCULATION

Whilst the Newsletter is sent to the majority of Club members by email, hard copy versions are also sent to many members. It is simply a matter of choice. You decide!

Contact: editor@stampeclub.org

CLUB CONTACTS

Austin Trueman	chairman@stampeclub.org
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Jo Keighley	treasurer@stampeclub.org
Guy Solleveld	technical@stampeclub.org
Editor	newsletter@stampeclub.org

SUBSCRIPTIONS

Members should be aware that the subscription runs from January of each year. Consequently, now is the time to pay.

Subscriptions can be paid by cheque or electronically. In the case of the latter, please include your name. Your password for the members section of the Stampe Club website will follow.

The Stampe Club, Lloyds TSB, Crewkerne Branch, 37 Market Square, Crewkerne, Somerset, TA18 7LR

A/C No	00327041
Sort Code:	30-92-40
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Contact Jo Keighley - treasurer@stampeclub.org

EVENTS

WHEN AND WHERE?

If you know of any Fly-Ins who would welcome Stampes (and who would not) why not send a note around to the other members? In any case, please take some photographs to show other members where you have been!

Contact: editor@stampeclub.org

25th Antwerp Fly-In
Antwerp, Belgium
Saturday 16 and Sunday 17 May 2015

If you have not been to one of these events before, you do not know what you are missing. You will basically have a bloody good time. Weather usually guaranteed!

Contact Danny Cabooter: stampe@skynet.be

Stampe Fly-In
Pithiviers, France
Saturday 20 and Sunday 21 June 2015

How about spending the longest day of the year in the middle of France.

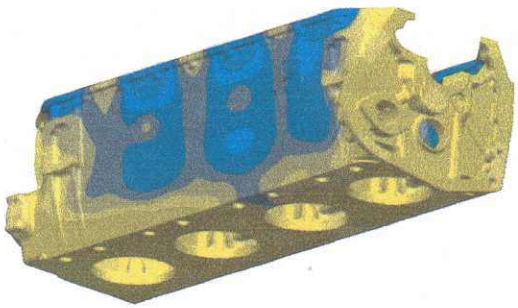
Contact: Jean Pierre Le Bouedec – jpm.lebouedec@wanadoo.fr

TECHNICAL

NEW RENAULT ENGINE BLOCKS WITHOUT THE OIL LEAKS

Laurent Stuck provides an update on his amazing project to produce new Renault PO3 engine blocks.

After the successful castings, the second block will arrive in the workshop for machining following position post heat treatment X-rays, crack detection and tensile tests. Such tests are a normal process for modern parts and, as a result, will raise the safety to the highest standards of today's engine manufacturing. Indeed, the quality check process is identical to jet engine castings.



A metal feeding simulation
Photo: Courtesy of Laurent Stuck

The next and most sensitive part of the job is to tap the holes for the bearing studs. The idea is to have them shrink fitted in their tap even with a 90°C surface temperature so as to avoid any matting or fatigue problems.

Now that the castings are finished, Laurent's team are working on other parts with the objective of achieving a 'significant' increase in MTBO/MTBF thanks to modern tri-metal bearings, cylinder ceramic coatings and improved piston seals amongst others.

This will spell the end of oil leaks!

Contact: Laurent Stuck – lf.stuck@gmail.com

AVIATION FUEL REQUIREMENTS AND GUIDANCE

Aviation Fuel Requirements and Guidance from the UK's CAA

Any type of fuel may be used in an aircraft providing it meets the specification(s) set out in the aircraft's approval documents and any associated operational limitations. For Type Certificated aircraft this information will be found in the Flight Manual, the Type Certificate, Supplemental Type Certificate, Airworthiness Approval Note or Operating Limitations document or associated referenced documents. For national Permit aircraft this will be found in the Airworthiness Approval Note, Permit Conditions, Permit Operating Limitations or associated referenced documents.

The fuel should obviously be of the correct grade, meet the performance and composition requirements of the specification and be free from contamination. For managed aerodrome fuel installations, there is a legal obligation to ensure that the fuel received is of the correct grade and specification and it is stored so as not to render it unfit for use.

Any person putting fuel into an aircraft is also responsible for ensuring the fuel is fit for use and is of a type approved for use in the particular aircraft.

Clearly the full requirements and obligations of a managed aerodrome fuel installation may not be applicable in some situations, for example it does not apply to road transport fuel obtained from a garage forecourt and stored in jerry cans but reasonable care should still be taken before use.

Every country will have its own requirements. It would be sensible to check with your regulatory authority.

For UK registered aircraft:
Contact: caa.co.uk/ga

BITS, PARTS AND PLANES

SPARES FOR SALE?

If you have any spare bits and pieces, no matter how big or small, you may wish to make them available to other Stampe Club members via the Stampe Club website.

To expedite matters, details of any bits, parts and spares can be posted directly on the website. Club members should then make direct contact with the vendor to transact the deal. Please note that, whilst the Stampe Club wishes to promote more inter-action between members, the Club does not wish to act as a broker and/or be involved in any negotiations financial or otherwise. Caveat Emptor always applies.

Contact: www.stampeclub.org or if you have difficulties technical@stampeclub.org

GENERAL INTEREST

GUIDANCE ON RESTORING VINTAGE AIRCRAFT

The UK's CAA's General Aviation Unit has created a 'one stop shop' website containing everything a vintage aircraft owner needs to know when starting a restoration project.

The information, which only covers aircraft on Permits to Fly, suggests arranging an early inspection by a CAA airworthiness surveyor to establish if the aircraft is an original or a replica. The CAA pointed out that if owners do not contact the regulator until the project is well underway, it could result in the aircraft having to be dismantled to allow an inspection of work already undertaken.

Advice is also given on using newly manufactured replacement parts, where original parts are unavailable, as well as how to establish an aircraft's original identity. The CAA said it will check that a restoration has not previously been approved for the same identity.

Guidance is also given on approving ex-military replicas and reproductions.

As every country will have its own requirements, it would be sensible to check with your regulatory authority.

For UK registered aircraft:
Contact caa.co.uk/ga

Praying always helps!
Pithiviers, France
Photo: Courtesy of Jean Pierre le Bouedec

AIRCRAFT INSURANCE

It would seem that an increasing number of Club members are becoming dissatisfied with the poor service and high premiums associated with the aircraft insurance market. Consequently, several members have turned to the 'on line' alternative called 'Visicover Ltd' (do not be put off by the name) who are able to offer considerable reductions in premiums.

Contact: www.visicover.com

SOUTHEND'S RADIO ZONE

The imposition of a Radio Monitoring Zone (RMZ)

A thinly veiled suspicion now exists for the reason why a large swathe of Class G airspace has now become an RMZ. Quite simply, Southend is trying to get Class D controlled airspace to protect its commercial operations, many of whom they 'tempted' to Southend from other nearby airports. Fine, everyone understands the commercial realities, but why at the expense of GA? Where is the proof that GA poses such a direct danger and why over such a large area? Quite Ridiculous!

FURTHER CONTROVERSY ABOUT NEWSLETTER CONTENT

The Editor continues to encourage contributions from Club members who wish to 'air' their own views and/or expressions, without fear or favour and to offer advice on technical matters with latitude in expressing opinions on controversial subjects, so that Club members can be better informed. As a result, the views expressed are not necessarily those of the Editor or the Stampe Club.

Inexplicably, one UK Club member has taken great exception to the recent views of other members. This resulted in a rather angry response claiming that their views were disrespectful to licensed engineers. This is a pity as no disrespect was intended. Having said that, the Stampe Club newsletter is intended to serve the interests of Stampe owners and/or operators. No-one else! Furthermore, the Editor takes the view that Stampe Club members are intelligent people who can draw their own conclusions about anything they read. Enough said!

It should be emphasised that all comments are welcomed. However, in order to preserve some dignity these should be directed to the Editor, in (hopefully) a good natured, mature and considered manner which encourages debate and further understanding. No one Club member has a monopoly on good ideas. Your views are as important as anyone else's.

Contact: editor@stampeclub.org

MEMBER VIEWS OR DISTORTED OFFERINGS

RENAULT AERO ENGINES

Club member, John Smith, provides, in this first part, a fascinating (and hopefully non-controversial) history with a mechanical description of the Renault engines as well as outlining the differences between the PO3 and PO5 engines.

According to the information supplied in the pages of Reginald Jouhaud's 'Les Avions Stampe', the Renault 4 PO series of 4 cylinder in line air cooled aero engines came into being in about 1925, reputedly derived from the 1917 Renault V8 130 hp (water cooled) aero engine, which was itself based on the 1915 Mercedes D1 80 hp V8 engine.

I am certainly no engineer, but I do wonder what a 4 cylinder air cooled engine might have in common with a water cooled V8, other than some small internal components of which there may have been a surplus stock at the factory. Perhaps the engines were the product of the same design team, or individual.

What I have learnt during my time with the Renault is that all air cooled engines potentially experience cooling problems which render them inherently less durable than comparable water-cooled engines, and the more power any given air cooled engine is required to produce, the greater the problem and the shorter the life of the engine.

At the end of the second world war production of 4PO engines was resumed, initially by Renault at their factory in Boulogne-Billencourt, before being transferred to the SNECMA aero engine company.

Interestingly, the post war engines proved to be less durable than their pre-war antecedents, as the metal used in their construction was of inferior quality.

All Stampe SV4 aircraft built under licence by the French at the SNCAN factory in Sartrouville, near Paris, and the 150 built in Algiers, were fitted with Renault 4PO engines. Interestingly, the Algerian Stampe airframes are generally considered to be more carefully built than the French ones.

The majority of these engines were designated 4PO3, and a lesser number, possibly seventy in total, 4PO5. The latter can be identified by the bulge at the rear end of the top cover, which contains the inverted oil scavenge pump.

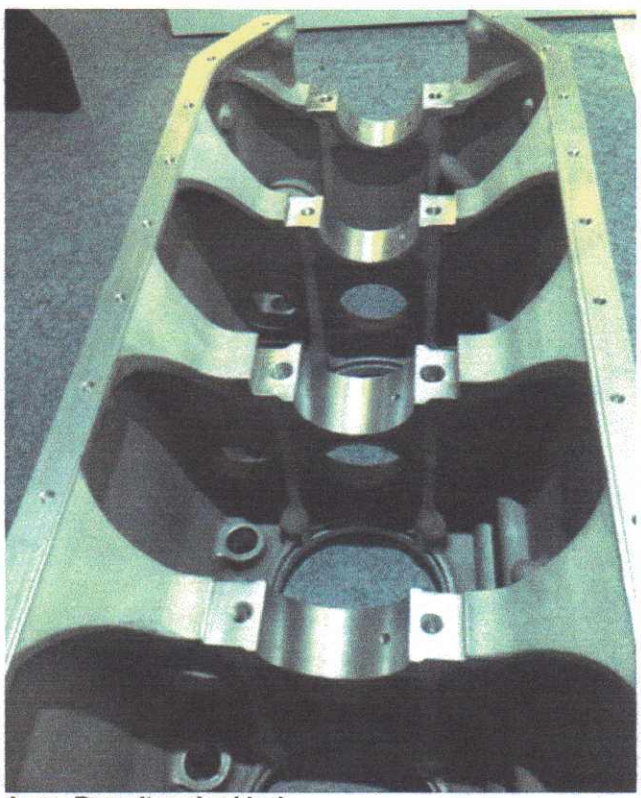
The oil circulation system for both types of engine starts at the external oil tank, from which oil is drawn by a gear oil pump located internally at the rear of the engine and driven by a gear train from the crankshaft.

The oil is fed under pressure into a tube pressed into the engine block on the right side (with the cylinders down) which forms the main oil gallery.

From this gallery the oil goes through drilled holes to the five main bearings. Each hold has a small brass restrictor screwed into it at the outlet to the main bearing shell. These restrictions are similar to the main jet in Amal carburettors fitted to many 1950s British motorcycles. I mention this on the assumption that older Stampe owners did their own motorcycle maintenance in that era, as I did.

The restrictors, as their name implies, restrict the flow of oil and thereby increase the pressure. Current thinking is that it is preferable to increase the flow of oil through the engine, which aids cooling, provided that adequate pressure can be maintained. Accordingly, the restrictors are removed and the oil pump is uprated, as will be described in the next Newsletter.

The oil which lubricates no. 2 main bearing via slots in the bearing shell, then enters the crankshaft through holes in the journal and travels inside the crankshaft to numbers 1 and 2 big end bearings, while the oil from no. 4 main bearing supplies numbers 3 and 4 big ends.



A new Renault engine block
Photo: Courtesy of Laurent Stuck

The main oil gallery terminates at the front of the engine where the oil feeds to the air compressor bearings and to the hollow camshaft where, from inside, it lubricates the five bearings. The cam lobes and cylinder walls are lubricated by oil splash as it

emerges from the crankshaft around the big ends, normal practice for most reciprocating engines.

The con rod little ends – phosphor bronze bushes around the hardened steel gudgeon pins – are also lubricated by splash oil which enters through a hole in the con rod and bush, supplemented by a groove machined around the inside circumference of the bush.

On both the PO3 and PO5 the main oil scavenge is through the tube pressed into the block at its lowest point (cylinders down), just below the pressure tube. The scavenge tube is open at the front, where the oil enters, and the opposite end goes directly to the suction half of the oil pump.

What not a Renault!
Pithiviers, France
Photo courtesy of Jean Pierre le Bouedec

Where the PO3 and PO5 engines differ is that the PO5 has an inverted oil scavenge pump, and also maintains oil pressure when inverted courtesy of its special oil tank.

When a Stampe is flown inverted even for a brief time, as during a roll or half Cuban, the PO3 will immediately lose oil pressure (like the very similar de Havilland Gipsy engine) because there is no longer a supply from the tank. Oil pressure returns immediately when the aircraft is upright, and aerobatics can be flown without harm to the engine, as we all know. However, sustained inverted flying would result in main and big end bearing failure. The Renault is considered to have a far lower tolerance of lack of oil pressure than the more robust Gipsy.

If a PO3 engine was to be supplied with oil from a PO5 tank it would maintain oil pressure when inverted, but without an inverted scavenge pump and the oil would not be returned to the tank, which would eventually discharge all the oil into the engine, there would be plenty of splash lubrication but the main and bit end bearings could run dry.

The PO5 has a scavenge pump bolted inside the top cover, in the bulge at the rear. It is driven from the crankshaft via an idler gear which is mounted on the rear main bearing cap. The gear pinion at the rear of the crankshaft also drives the camshaft and magnetos via a gear train. With the aircraft flying inverted and the engine 'upright' the inverted scavenge pump draws the oil through the open front end of a collector pipe which lies along the length of the top cover, in which the pump is located, and which acts as a sump.

The PO5 engine, therefore, has two oil return pipes to the oil tank: the normal one which returns oil from the crank case, which it shares with the PO3, and the inverted one. These two oil return pipes join at the collector, a cylindrical metal component which looks as though it might incorporate a non-return valve, but does not. It is nothing more than a junction piece, and any proprietary automotive T piece will do the job. From the collector a single oil hose discharges into the oil tank.

Finally, the PO3 crankcase breathes (depressurises) through an outlet spigot screwed into the crankshaft thrust bearing housing, with a rubber tube attached to this spigot and routed along the engine to discharge below the fuselage. The front of the PO3 crankshaft is blanked off with a plug.

John Smith will continue his mechanical description, including a 'non-CAA approved' uprated oil pump in a forthcoming newsletter.

PEOPLE

Standing in front of Didier Ferrand's LOM-engined Stampe at Mazamet in France during April 2014.
From left to right General Jerome Huret, chairman of the CAEA, Regis Jouhaud, Henri Fournier (who was the last French pilot to fly a Concorde) and Didier Ferrand

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