

# RecWings

The Magazine of the Canterbury Recreational Aircraft Club



*Sopwith Camel*

*100 Years*

**June 2017**

## Not just Microlights again

Brian Greenwood

For the second time in a row the cover features an aircraft which is neither a microlight nor a Light Sports Aircraft. I must admit that there was a bit of a groan at the committee meeting (hopefully in good humour!) when I disclosed this month's main theme. Apparently not everybody agrees with non-microlight/LSA content in the club magazine.

I strongly disagree with this – whilst the magazine **must** be a vehicle for club communication and news (however the weekly e-mails do a much better job of the urgent and immediate notifications) we're all in this because we have a passion for aviation and flying in general. Microlights and LSAs are just our chosen route to the sky. Fantastic as they are, there's a bigger world out there that we mix with daily.

Added to this is a personal interest and respect for our history. It shapes who we are today, both in technology and attitudes. Our aviation history is the biggest contributor to flight safety, we analyse accidents in minute detail and learn from them. Every time you recite a preflight checklist you're receiving the benefit of thousands of hours flying.

There's also no definition of RecWings, it's a club freebie that shapes itself as content becomes available. We've had some fantastic contributions over the past few years (such gems as the North Island circumnavigation, reports on flying courses, cross-country articles, aircraft build stories, and fly-ins spring to mind) and I hope that these continue. If you're relying on my own personal flying experiences to fill the magazine then you'll be limited to a boring six monthly edition!

Finally, our audience generally receives the magazine positively, I get very few complaints about content – but if you have a suggestion for an article, send it through and I will see if I can find someone with the technical knowledge to write it.

Two areas that have been lacking – acknowledging first solos (Thanks to Michelle Polglase for remedying this) and acknowledging those individuals and organisations which have gone to special lengths to help the club.

Finally, as I have said in the past, if you don't like the club magazine – ask for your money back!

*Cover, TVAL's Sopwith Camel at Warbirds Over Wanaka 2004*

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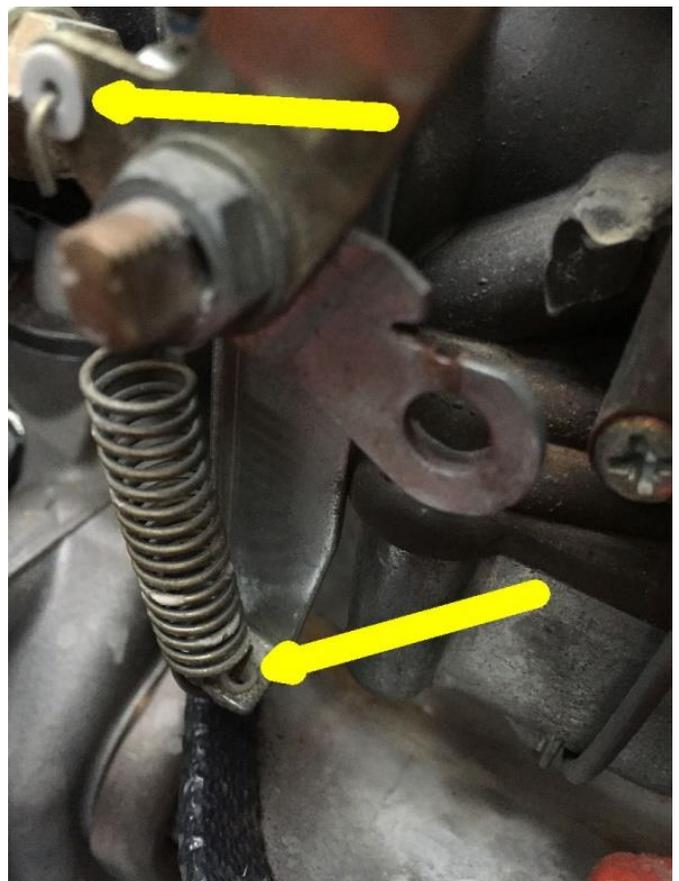
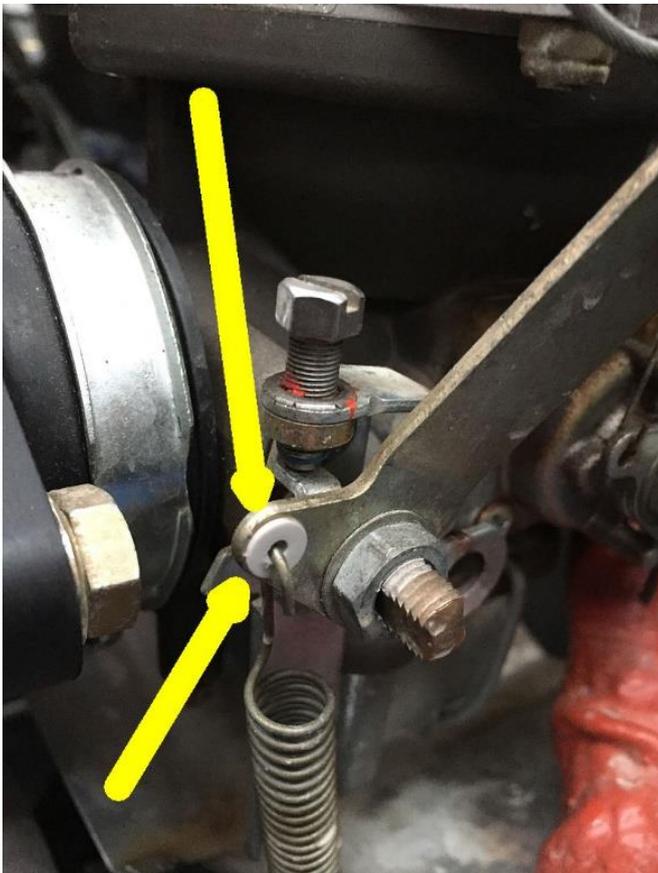
## Rotax Four stroke carburettor bushes

Brian Greenwood

Thanks to **Roy Waddingham** for the heads-up on this issue. It was also published in the March 2017 edition of the RAANZ Magazine, **RecFlyer**.

The bushes at either end of the springs on the throttle lever of Rotax four-stroke engines do wear through, and should be inspected frequently. **RecFlyer** reports that pre-2004 engines do not have the bushing ex-factory but they can and should be installed. It has a photograph example of the throttle lever metal being worn through by the spring.

Apparently Rotax four strokes (unlike the two strokes) are sprung so that the engine goes to full throttle if the throttle cable breaks. I believe that the bushing, when worn through, will jam the throttle either in its current state (not nice on short finals if you do a go-around) or at full throttle.



These photos are of a healthy set of bushes, simply to illustrate how easy they are to check.

I recommend you read the full text in the March RecFlyer (<http://raanz.org.nz/wiki/pmwiki.php?n=Main.RecPilot>) which has detail photos of a worn bushing – and check yours regularly.

## A day out in Controlled Airspace

Iain Blyth

Friday 14 October 2016

(It was obviously the 13<sup>th</sup> somewhere in the World from this sad tale)

A bright day with a little breeze from the east and I decided to spend the morning on a tour around Christchurch in Controlled Airspace. Commencing Rangiora, 045 to the Coast, South hugging the Coast to Godley Head, Lyttleton, Leeston, Kirwee and return to Rangiora.

Frequencies pre-set, transponder set to ALT and take off from 07 climbing to 2500 and heading to approx 2 nm North West of the Chipmill. After levelling off, cruising at 75kts getting an ATIS report and just before the Chipmill I made the standard call to CHCH TWR and received a call back. I stated all of the usual details, CCB, 2 nm North West of the Chipmill at 2500, in receipt of information Lima, requesting assisted VFR through your area.



The Controller came back to me and I simply could not understand one word of what he said as he had a very strong accent. I asked "say again" and could not understand that either so I told them that. Being aware that I was heading towards controlled airspace at 75knots and was too high (also getting a bit flustered) I turned North away from the airspace but did not reduce altitude.

Then an English speaking controller took over. He asked me to IDENT and what was my course. I told him of my intentions, and he gave me the instructions "stay on this frequency until advised and reduce altitude to 1500", including finishing with "you are infringing controlled airspace at the moment". I did as was told and called back after completing the instructions.

He kept me on TWR frequency until he called back when I was at Godley Head and told me to change frequency to 120.9

I continued enjoying the flying and the scenery at 1500 until overhead Leeston where I turned north towards Kirwee and home. Not being too familiar with that part of Canterbury and trying to identify various landmarks, my altitude crept up to 1900. I suddenly got a call from my controller advising me of the fact and that I had infringed airspace at West Melton (oh no not again) To be honest I thought that I was slightly further West, just outside the 1500 LL and in the corner of the 2500 LL. However I did as I was instructed and continued to Rangiora without any further incidents. TWO of these in one day are enough for anyone.

Had a great day out... However !!!!

3 weeks later I received TWO notifications of Airspace Infringements.

This does not put me off at all, nor should it anyone else, as the Controllers are there for us, to keep us safe and

provide assistance when we require it.

What I have learnt from the above day out is:

#### First Incident

- Christchurch / Rangiora has some very special little “kinks” in the controlled airspace of which I must be more aware.
- Start making the TWR calls further away from controlled airspace and if departing from Rangiora NOT above 1500
- If struggling with the Controller (or unsure) turn away from the airspace, making sure my altitude is correct and taking my time.

#### Second Incident

- Do not fly so close to the LL Boundaries.
- Do not allow myself to be distracted looking for landmarks. Stick to the map reading and compass (which is what I was doing) or GPS
- Do not allow my altitude to increase while being distracted.

Iain Blyth

#### Editor's Note

I'd like to thank Iain for his frankness and honesty, a full disclosure such as this is a difficult thing to do – let alone publish it for the benefit of others.

Iain has written this in the hope that pilots can learn from his experiences; he has done so with humility and honesty.

This is how aviation safety is supposed to work.



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## Club Time Trial to Brighton Pier

Mike Sheffield



The first club day was held on 27th May and the aim of the day was for pilots to fly to either the Brighton Pier or Shag Rock in Sumner. Each pilot had to nominate the time in minutes it would take them to complete the round trip. There were to be no watches or GPS to refer to. Seven pilots registered and then referred to the map to see the distance and then they calculated their times.

The first pilot took off at 10.24am and the last at 10.57. It was good to see our newest solo pilot, Vanessa Martin, having a go in her new plane. Everyone was very enthusiastic as they were doing something different and being tested, lots of smiles on faces, nothing like a competition to get people motivated.

Once all the aircraft were away I had a little rest and looked around what other things were going on. It was not a bad day, weather wise, and there were a few other planes around having a bit fun. The BBQ was prepared ready for the hungry flyers. Right on cue, the first plane arrived back, Jeff Bannister was first back his single seat MGM followed by Roy in PAB. The others trickled in over the next half hour. Last one in was Stu in LSB (but he was last away!)



After a tally up of times Roy came nearest to his declared time being only 56 seconds out! Stu came in a very close 2nd by only 2 seconds!

We all then had a nice BBQ lunch.

Thanks to all who took part, I think everyone enjoyed the challenge.



## Building the HiMax Graeme Main

I had repurchased my old Sapphire in 2015 and carried out a restoration which involved recovering the wings, fitting a new Rotax 503 and complete repainting, but came the realisation that it wasn't going to be an aircraft that would be suitable for commuting from my home to Rangiora due to it having very sensitive controls, and with my advancing years I really wanted something a bit more forgiving.



So the search for a replacement project started, and after missing out on a HiMax on TradeMe, someone pointed out that there was a HiMax airframe hanging up in the next door hangar. It transpired that Jeff Bryant had constructed most of the woodwork some 25 years ago, and despite earthquakes and a number of shifts, the airframe was still in excellent condition – a tribute to Jeff's workmanship. The deal was done and in April 2016 we moved all the bits and pieces over to my hangar and I started work. The kit was pretty much all there, complete with an engine and prop, so it became a relatively simple matter of putting it all together as per the plans. Covering and painting were straightforward, an undercarriage was fashioned from a cast-off 701, Chris Anderson made an engine mount, Doug Anderson and Mike Sheffield helped with wiring, I made a cowl from fiberglass and sheet aluminium, and after a false start or two the motor roared into life after 25 years of inactivity, and the test flights were uneventful.

Sadly Jeff Bryant died just before the end of 2016 so he never got to see the Himax fly, but I am sure he would be pleased that a bunch of parts sitting in his hangar for so many years finally became a flying aircraft. The Himax now resides in my home hangar, because a new project was beckoning (more on that in due course).

Just to prove that aviation need not be an expensive occupation, the total cost of the Himax, (including buying out Jeff's interest) was around \$5000. Not much of an outlay to go flying in a safe, economical, and forgiving aircraft.

Some specs on the Himax:

Empty weight	- 154 kg
MAUW	- 280 kg
Cruise	- 70 mph (more when I do some go-faster mods)
Stall	- 27 mph
Take off roll	- 50 metres
Landing roll	- 50 metres
Fuel usage	- 10 l/hr

Starting could not be simpler, just prime the fuel, set the choke, 3 pulls on the starter and it's away. No brakes, no flaps, a handheld radio for communication (a good headset helps with the noise).

## Sopwith F.1 Camel Centenary

Brian Greenwood



You can mark the centenary of this remarkable aircraft on several dates – first flight on 22 December 1916; introduction to RNAS service in June 1917; or RFC service in July 1917.

The Sopwith F.1 was designed by a team lead by Herbert Smith as a replacement for the highly successful Sopwith Scout (a.k.a. the Pup). The Pup was becoming outdated due to the arrival of the twin-gun German Albatros and Pfalz fighters.

The new F.1 was initially known as the “Big Pup” during development and was designed around two 0.303” Vickers Machine guns. The single-

gunned Pup had been flown experimentally with twin guns but was not successful. Compared to the Pup, the F.1 had provision for larger engines (of which there were more choices), a stronger airframe, provision for the two guns, and dihedral on the lower wing only. This was a major recognition feature (compare the Pup, *Below right*, to the Camel, *above*).

The F.1 was nicknamed ‘Camel’ due to the hump over the twin guns (compared to the exposed single gun on the Pup) which was an attempt to keep the guns warm.

Initial reports from test pilots showed that the Camel was a good performer, with excellent manoeuvrability. However, the aircraft was very unstable and tail heavy with a full tank of fuel. In modern terms, the centre of gravity was too far aft with a full load of fuel.



*Above*, the Camel’s single-gun predecessor, the Sopwith Pup (officially the Scout). The family resemblance is obvious.

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Such was the need for the new fighter that it was placed into production after a contract for 250 was issued by the War Office.

The Camel entered service with the Royal Naval Air Service in June 1917, and the Royal Flying Corps the following month. It very quickly gained a reputation of being extremely manoeuvrable but very tricky (and indeed, dangerous) to fly. The causes were the rear Centre of Gravity, the aircraft weight being concentrated at the front, and the torque of a comparatively powerful rotary engine.



These early rotary engines had the propeller bolted directly to the crankcase, and the entire engine rotated around the crankshaft (**left**) which was fixed solidly to the airframe. This might seem a daft idea through modern eyes but it was a remarkably efficient way of designing an engine. The cylinder heads always had cooling air moving over them, which means the engine could be air-cooled and didn't have to push a heavy radiator through the air. Water cooled engines (such as the Hispano Suiza V8 of the Se.5's) had to be developed to produce more horse-power before they could be competitive.

Pilot conversion on to the Camel was tricky. The control column had to be held forward to counter the heavy tail, but one instructor reported "In spite of the care we took, Camels continually spun out of control when flew by pupils on their first solos". Some training units produced their own two-seater Camel conversions to help aid the process.



In combat with an experienced pilot, however, the Camel gained a reputation as a dogfighter. It was unbeatable (when flown correctly) in a turning fight against the Albatros and the Pfalz. In fact, the Albatros D.V model had a structural weakness which could be exploited in a tight turning fight. The lower wing was known to collapse which caused quite a few German casualties. The Pfalz D.III was less popular because it was a little heavier and slower, but had no such issues. It was also a very pretty aircraft!

The classic rival for the Camel was the Fokker Dr.1 Dreidecker (Triplane) which was based on the success of the Sopwith Triplane (a contemporary of the Pup). Even the Fokker Dr.1 could not keep up with the Camel in a right-hand turn (left hand turns in the Camel were slower because they were against the torque of the rotary engine).



*The Camel's main protagonists were the Fokker Triplane (**Above**) and the Albatros series of fighters (**Right**)*





Nieuport 17 'Bebe' and Sopwith Pup replicas flying in a golden evening light at Classic Fighters Omaka 2015

Sopwith Aircraft were used extensively by the Royal Naval Air Service to develop tactics and methods for ship-borne operations. The Camel was no exception to this, being operated off flying platforms laid over battleship gun turrets, from towed lighters (similar to a barge), and the first ever recognisable Aircraft Carrier. The Naval version was called the 2.F1 and mounted a single Vickers gun in front of the cockpit and an over-wing Lewis gun similar to the Se.5a.

One of the many notable actions by Camels was one by a 2.F1 which destroyed Zeppelin L 53 on August 10<sup>th</sup>, 1918. Flown by Lieutenant Cully, it took off from a lighter towed behind the destroyer HMS Redoubt. This was a fairly perilous task in itself, and Lt. Culley managed to destroy the Zeppelin which was at the Camel's maximum ceiling, and the ditch back beside HMS Redoubt. Both the



aircraft and the pilot were recovered safely, and the aircraft now resides in the Imperial War Museum in London (Left).

In the mainland U.K., Sopwith Camels and SE.5a's battled German bombers and Zeppelins attacking Britain, giving an eerie foretaste of the Battle of Britain a few decades later. Camels were also used as night fighters with some success.

However, it was over the trenches of France and Belgium that the Camel earned its reputation as a dog fighter. Pilots still regarded the handling as difficult, and quipped that you would either earn "a wooden cross, Red Cross, or Victoria Cross".



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The fledgling USAS was equipped with Sopwith Camels as the USA increased its contribution to World War One. **(Below)**. These aircraft seem to have flown with standard RAF markings.

By mid-1918 the Camel was outclassed by more advanced German machines specifically the superb Fokker D VII. Such was the pace of development in World War One that a legend was born and was outclassed in around 12 months.

The SE.5a was still reasonably effective against the D.VII, so the Camel was gradually relegated to trench strafing



and ground attack for which it was equipped with four 20lb 'Cooper' bombs. However by the end of hostilities in November 1918 many front line squadrons were still equipped with the Camel. Its replacement, the Sopwith Snipe, had only just entered service and was equipping two squadrons by the thankful end of hostilities.

Post-war, the Camel saw service with the Allied intervention against the Bolshevik forces in Russia. It was eventually replaced in RAF service by the Snipe, but equipped a few other air forces including Poland, the Imperial Russian Air Service (and later the Soviet Air Force), the Netherlands, Latvia, and the Royal Canadian Air Force.

The Sopwith Company didn't survive the post-war downturn, it was bankrupted by punitive anti-profiteering taxes. A few years later Thomas Sopwith formed the Hawker Aircraft Company, named after his best friend and Sopwith's Chief Test Pilot, Australian-born Harry Hawker.

Sir Thomas Sopwith continued to be a consultant to Hawker Siddeley right up until 1980. He died in late January 1989 at the ripe old age of 101. Harry Hawker had sadly been killed in 1921 in an aircraft crash.

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Herbert Smith, the man who designed the Camel (and the Pup, Triplane, and Snipe) worked for Sopwith until it went bankrupt. In 1921 he (and several other Sopwith Engineers) assisted the Mitsubishi Internal Combustion Engine Manufacturing Company in Nagoya, Japan, to set up an aircraft manufacturing division. I wonder what ever happened to that...?

Herbert Smith returned to England in 1924, and retired from the aircraft industry.

The Camel's reputation is based on claims of shooting down 1,294 enemy aircraft, however post-war analysis has thrown some doubts on these claims. The confusion of combat seems to have inflated these figures; knowledge of this was put to



*Above, Sopwith Snipe (top) and Camel*



good use in World War 2 by the RAF when evaluating combat claims. Nonetheless, the Sopwith Camel was an extremely capable and well-liked aircraft by those pilots who could handle it.

*Left and below left, The Vintage Aviator's Sopwith Camel Replica in the markings of Kiwi ace Clive Collett, who was sadly killed in October 1917 when test flying a captured German Albatros, diving into the Firth of Forth for unknown reasons.*

*This aircraft is fitted with an original rotary engine (a Clerget, I believe) and is always displayed by Gene DiMarco.*



## CRAC First Solos

Brian Greenwood

Here's a new feature where we try to celebrate our successes. First solos are a major life event, you never forget the first circuit and the feeling of empowerment you get from controlling that aircraft all by yourself – not to mention the extra performance you get without the ballast beside you!

Actually our instructors seem to have god-like abilities to control aircraft and navigate our complex airways, but some of them are a little shy on the smart phone front. When you achieve first solo, feel free to get your Instructor to take a photo on your phone and e-mail it (along with your name and the date of course) to [editor@crac.co.nz](mailto:editor@crac.co.nz).

In the meantime, here's a partial selection of some of the recent first solos.

First off, although there are no photos, congratulations to **Don Weaver** and **Liam Wedlake**, who soloed in early May.

*Right, James Fleming*



*Above, John Hollings soloed April 24th*

*Right, Venessa Martin*





## Modeller's Corner: Wingnut Wings 1/32 Sopwith Pup

**Brian Greenwood**

I don't have a completed Sopwith Camel in the stable but have recently finished a Wingnut Wings Sopwith Pup, the Camel's predecessor. If you haven't yet heard of Wingnut Wings, you're missing out on a treat! These superb 1/32<sup>nd</sup> scale World War One aircraft kits are produced in New Zealand, the company is owned by Sir Peter Jackson. You may have heard of Wingnut Films! Wingnut Wings often works in with one of Sir Peter's other companies, The Vintage Aviator Limited, since the research for producing a real aircraft can be used for producing a model.

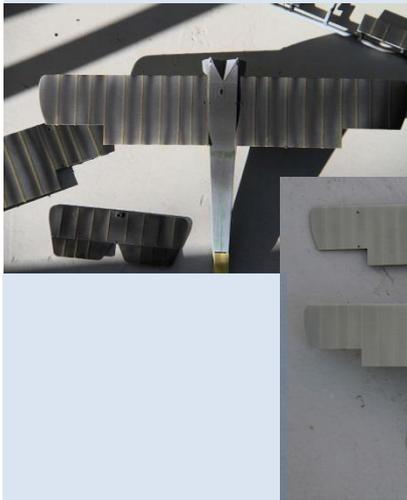
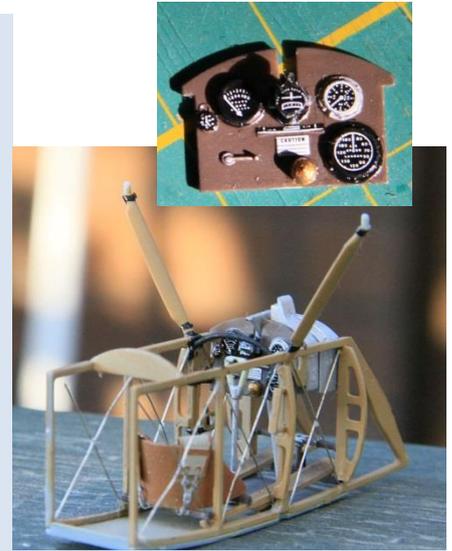
Generally the reviews of these kits use the word "beautiful" a lot, I will try and avoid that. When you buy a WNW kit, you're aware that you're buying a premium product the minute you see the box. Beau... sorry, gorgeous artwork (by renowned American Artist Steve Anderson), in a sturdy box trimmed with silver. Opening it reveals the beau... stunningly crisp mouldings, large decal sheet(s), etched brass seatbelts and details, and an instruction book that is a high quality full colour publication. The instruction book has some fantastic Ronnie Bar artwork showing the (generally six) markings options, and detailed photographs of the original aircraft. The whole philosophy seems to be to give the modeller enough information to complete an accurate miniature without having to purchase additional reference material.

It certainly worked for me, the colour advice was on paints that are available locally (Tamiya and Humbrol) and showed everything I needed. I hate rigging models and didn't intend to, however this one was a training kit for me so I ended up completely rigging it using different techniques to see which worked for me.



In the end, I settled on drilling a 0.5mm hole completely through the structure, super-gluing the light fishing line (later "Invisible Cotton" was used) and trimming. I must alter my painting order to do this for future models. A 0.3mm drill bit (or several!!) might also improve the process.

Construction is generally conventional, starting with the interior. I did try to rig some of this using the finest fuse wire to cross-brace the internal structure. All parts fit together perfectly, the only filler required was a dash on the lower fuselage wing join. Honestly things fitted together so well that this was probably of my own doing! The tolerances are very fine and occasionally I found myself scraping a layer of paint away from the joining surfaces to achieve the design potential of the kit.



The most fun I had (seriously) during the build was trying to replicate the semi-opaque Clear-doped Linen (CDL) on the lower surfaces. Using a technique learned off the Britmodeller and KiwiModeller forums I had a go at pre-shading and lightening the fabric tape strips. The effect is OK for a first attempt but I've seen much better!

The second most fun was attempting to make fake wood-grain. This involved painting the item with a very light brown and then streaking a suitable artist's oil colour across it - I used Burnt Sienna. You can see the results on the propeller. It's no Brent Thompson prop but acceptable by my standards. The inter-wing struts

and top fuselage decking was treated in this way.

Any Wingnut Wings model is superb; there hasn't been a single dud. A 1/32<sup>nd</sup> World War One fighter takes around the same shelf space as a 1/48 World War Two fighter, and the detail is exceptional. This manufacturer has also just released a series of Sopwith Camels as well, which simply look...beautiful.



## Aircraft Syndication

I was going to write an article this month on the various methods of sharing aircraft between multiple owners, but will keep researching and hopefully publish next month. Thanks to those who have already offered information, if you have anything to add please e-mail [editor@crac.co.nz](mailto:editor@crac.co.nz)

## Hanging Around the Club House

I can only echo the comments at the Committee Meeting – I encourage everybody, but especially new members, to hang around the club house when they get time. I've learned a lot and made some good friends just by having a coffee (free) and chocolate (cheap!).

Likewise, it's important for all club members to engage with and make new faces welcome into our world. Thanks to those of you who already make the effort.

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## Committee Meeting Notes June 2017

- Hangar door repairs completed – vote of thanks to Stewart Bufton and others for their hard work
- Some big payments this month – insurance, hangar door repairs
- Club funds \$45K plus engine and fuel reserves.
- Next \$20K payment of RGB loan authorised
- Still many unpaid subs, to be chased
- RGB has passed 400 hours in service!
- Fuel on field – good progress with installation
- Airfield Safety manual being produced
- President and Secretary to review web site
- Removed the 0.2 warm up allowance
- Instructor ground training fees set at \$30, or \$50 for longer cross countries and flight tests
- Current club instructors: Stewart Bufton, Scott James, Glenn Martin, Tony denHaan, Basil Bulwalda, Dave Mitchell, Iceman. CFI Doug Anderson
- Additional ATO discussed
- CRAC participation in Rangiora Festival discussed, volunteers needed for July 29<sup>th</sup>. Pamphlets and AV to be produced
- Club to sponsor Safety Officer to CAA Club Safety Officer Seminar in Dunedin, and CFI to CAA CFI Seminar in AshVegas.
- Club members encouraged to hang around club house for conversation, and learning. Mainly of the “don't do what I did” variety! Some seriously good learning comes from coffee conversations!.



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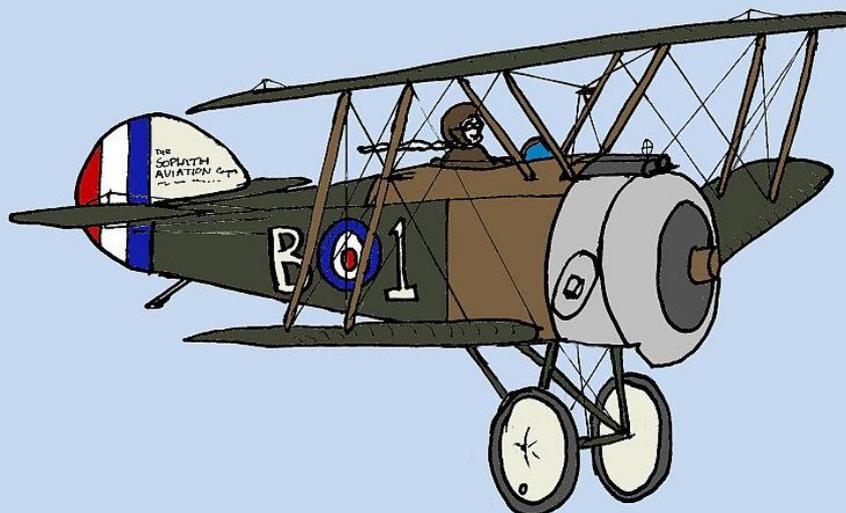
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Interested in joining us?

E-mail [secretary@crac.co.nz](mailto:secretary@crac.co.nz) or use  
the online application form.

We can send you an information pack  
which includes membership details,  
costs, and joining forms. Membership  
enrols you for the magazine, too.

## Upcoming Events

- 23rd June - Movie night - Pizza and beer
- TBA - CCC fly-in and BBQ lunch
- 14th July - Mid Winter dinner at 5 Stags in Rangiora
- 18th August - club run and picnic to Culverden Strip
- 7th September - Movie night - pizza and beers
- 20th October - Poker Run and BBQ lunch. Prizes.
- 23rd November - Tech night. GPS and Building with metal. Ray Corbett.
- 15th December - Club BBQ and kids fun day.

Keep your eye out for weekly club e-mails, join the **CRAC Drop Of The Hat** WhatsApp group for informal group fly-aways. Join **CRAC Revolutionary** for general chat and good humour.

### Contributions and Attributions

Iain Blyth, Graeme Main, Roy Waddingham

### Cool Links

RAANZ  
[www.raanz.org.nz](http://www.raanz.org.nz)  
NZ Civil Aircraft  
[nzcivair.blogspot.co.nz](http://nzcivair.blogspot.co.nz)  
Gert van Kruiningen's Bleriot project  
[www.bleriotxi.com](http://www.bleriotxi.com)

*Disclaimer: This Magazine is prepared by dedicated enthusiasts; the opinions expressed herein are not to be taken as official club policy*

## New Members

Welcome aboard to:

Jane Benton  
Gary Boulton  
Clint Bowles  
Kevin Haugh  
Rob Hoult  
Nick Hitchins

Please make our new friends feel welcome.

## Congratulations

Peter Aspell, Adv National

## Next Newsletter

Contributions requested, publishing deadline 12<sup>th</sup> July 2017 ("ish").

Next publishing date approx. 21<sup>st</sup> July 2017

Brian Greenwood, Editor  
([editor@crac.co.nz](mailto:editor@crac.co.nz))

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