

# ***Aerobat -***

**Official Magazine  
of the  
Hibiscus Coast Radio Fliers Club**



***April/May 2018***

**Issue Number 6 Volume 17**

# **CLUB** **INFO**

## Web Site

[www.hcrf.co.nz](http://www.hcrf.co.nz)

## Contacts

### President

Peter Denison

[president@hcrf.co.nz](mailto:president@hcrf.co.nz)

(09) 426-2455

### Secretary/Treasurer

Henny Remkes

[Secretary@hcrf.co.nz](mailto:Secretary@hcrf.co.nz)

027 441-1484

### Club Captain

Nigel Grace

[clubcaptain@hcrf.co.nz](mailto:clubcaptain@hcrf.co.nz)

027 420 3182

### Frequency Officer

Jim Hall

[jimh.geo@xtra.co.nz](mailto:jimh.geo@xtra.co.nz)

(09) 426-1478

### Editor

Ross McDonnell

[editor@hcrf.co.nz](mailto:editor@hcrf.co.nz)

(09) 426-0840

021 216-0702

## **COVER PHOTO**

*Photo by Henny Remkes*

Stan Somerfield Flying his old school rubber powered Vic Smeed Junior Miss.

*If you can trim your plane out as well as this model your radio flying will be so much easier  
Ed.*

# H.C.R.F. Calendar 2018

Pony Club events Yellow highlight have been confirmed by the pony club 19 Jan 2018

Pony Club Rally days are every Tuesday afternoon at the field restarting 16 Jan 2018.

As usual our fixed flying times are every Wednesday, Saturday and Sunday morning.

Date	Day	Event	Where/When
02-Apr	Mon	Club Night	Whangaparaoa Guide Hall 7-30 pm
07-Apr	Sat	Winch Gliding	Wainui 8.30 am - 12.00 noon
21-Apr	Sat	Show jumping day	Wainui All Day
05-May	Sat	Winch Gliding	Wainui 8.30 am - 12.00 noon
07-May	Mon	Club Night & A.G.M.	Whangaparaoa Guide Hall 7-30 pm
02-Jun	Sat	Winch Gliding	Wainui 8.30 am - 12.00 noon
04-Jun	Mon	Club Night	Whangaparaoa Guide Hall 7-30 pm
17-Jun	Sun	Mid-year Christmas Lunch	To be advised 12 Noon



## From the Editor's Desk



Yes we got a twilight at long last!!!!

It was great and Ngaire and I had a great time catching up with all the old friends. I was starting to wonder if I would remember how the twilights went. The flying was excellent also.

Lots and lots of input this month which makes the whole process of putting the magazine out easier. Thank you everyone.

There are still some members that are doing really interesting stuff but don't contribute. This is a great pity as the Aerobat is seen all over the world and the more stuff from the club the better the club looks. Not only that but some of the stuff out there is really interesting. And we are just not seeing it. Some photos and half a dozen paragraphs and that's it. It's not rocket science. *(Well it could be. Ed.)*

Ngaire and I have been busy chasing the witch around the country as she puts on demonstrations for the public. Well received and lots of fun.

Well that's it. Don't forget to switch on before you launch.

Ross McDonnell Editor

# From the President's Desk

Greetings everyone. I hope you are all fine and have been enjoying yourselves trying to make the most of our so called summer.

Thank goodness our rain date for our last Twilight turned out to be a beauty. I am sure those of you who were able to make it down to the field would have really appreciated being there as the weather was lovely the wind dropping away so it was good flying. The BBQ, thanks again to Nigel, was up to his usual high standard, and it was so nice to see everyone enjoying themselves in great company on a lovely evening. It was nice to catch up with Ross Mc and our lovely ray of sunshine Ngaire again hopefully now he has finished their new home we will see a little more of them .



Just been down to the field today being a Wednesday a nice sunny day with a building breeze up to around 15 knots but we have got used to it though one of the problems we are having is we are trying to get a couple of lads through the Wings programme and anything over 10 knots is not really fair on the lads being tested. So let's hope for a few weeks of settled weather and that it lasts through the weekend and onto the next few weeks I am sure we deserve it

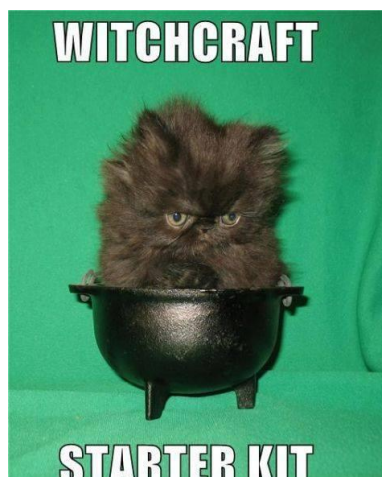
Me? Well after spending 3 weeks building my Fun 51 over Christmas and been happily flying a few times until ?? Yes, I had one of those just one more flight urges. So after 10 minutes flying it around, my self-confidence growing to a yippee this is great scenario, it started to fly itself ignoring what I was directing it to do though the engine continued to run on half throttle well until it eventually ploughed into the ground in the usual graveyard for our models just over the hill North of the runway. Luckily I had my hiking boots on. So after we "Ian Mc joined me on the trek North" which was rather brave of him, as his centre of gravity is somewhat higher than mine, and trying to be a Kiwi wearing good old sandals (though on reflection not overly brave as he backed out of following me through the fence over the hill (it was an electric one and live) we managed to return with all the bits.

We then had to have one of our famous coffee breaks to have a think and could only assume that I didn't switch the on /off switch on properly or it's faulty. I have the sneaky suspicion that it's the former. (*Toughen up. You can't be a modeller and admit it was your fault! Ed.*) So its back on my building board again to check everything out, make a new fuselage, repair the wing and hopefully will be back flying mid-April. :-) Even though my good lady mentioned something about model boats ouch !!!!!

So that brings me to our next month's meeting the AGM Monday May 7<sup>th</sup>. All the committee members are willing to carry on for another term subject to the votes of course. The AGM agenda will be emailed to members through Henny.

That's about all from me folks. Happy Landings and lots of them.

Pete



Now Ngaire (The weather Witch) Ladd is no longer in the district something needs to be done regarding the weather.

As you will know the last twilights have been postponed and Ngaire thought that the club could consider a replacement.

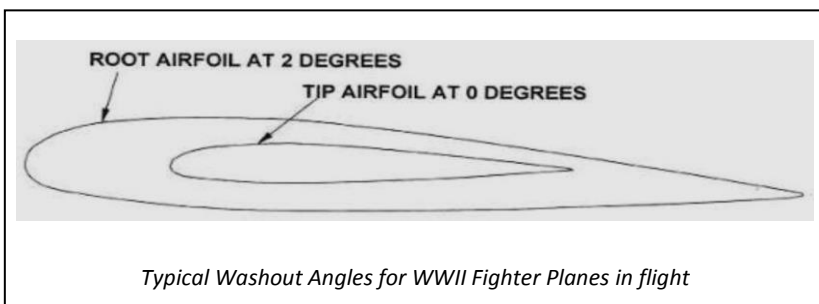
With a small deposit and a large monthly payment Ngaire is offering this one of a kind kit that could overcome the problems.

*I like to play chess with bald men in the park, although it's hard to find 32 of them.*

# Washout

**WHY?**  
**How much**  
**and where**  
**by; David Anderson**

Washout is a twist in a wing that causes the wingtip to meet the airflow at a lower angle than the root in normal upright flight. Some planes don't need it; some planes can't fly without it. It's not just to prevent tip stalls!



**Why ...** Washout causes the root of the wing to stall before the wingtips stall. The subsequent loss of lift in the root area gently lowers to the nose or prevents it from rising further, preventing the entire wing from stalling suddenly and provoking an unwanted snap roll. Stalls do not always occur at low airspeeds. Pylon racers, for example, can stall in high-G turns, sometimes with disastrous results. (Think GB Racer.)

At high angles of attack, ailerons become less effective because they are both lifting, and the difference in lift becomes less with increasing angle of attack. Washout causes the ailerons to meet the air at a lower angle. This improves aileron effectiveness at all attitudes, especially at low airspeeds.

In a banked turn, the down aileron increases lift and drag while the up aileron reduces lift and drag. The difference in wingtip drag tends to yaw the airplane in a direction opposite to the turn - "adverse yaw." Washout tends to reduce the effects of adverse yaw but only in the portions of the ailerons that are close to zero angle of attack. Some airplanes are trimmed so that there is less down aileron travel than up travel, called "aileron differential."

But aileron differential is only a partial cure. Other designs include engine offset - a solution that causes problems elsewhere. The best solution is for the pilot to counteract adverse yaw with rudder even when flying inverted. The result is called a "coordinated turn."



*Martin Irvine's Aviatik D1 has washout confined to the ailerons. This common practice in WWI was a structural expedient that simplified assembly.*

At high angles of attack such as in a climbing turn, there is the danger that the down aileron, e.g., left aileron in a right bank, can provoke a stall in that wing tip. Such a stall creates a lot of drag in the stalled wingtip, pulling it back and yawing the airplane in the opposite direction of the turn. If the airplane has significant dihedral, a roll in the opposite direction develops as well. This phenomenon is called "aileron reversal" or "aileron snatch" (British). Unfortunately, a pilot's instinct to apply even more aileron deflection makes matters worse. The proper cure is to correct with rudder, not more aileron. Please beware of this when flying your war bird in an inverted climbing turn or victory roll. Despite its thin and pointed wingtips, Dave Szabo's Spitfire has excellent handling due, in part, to about 2 ½ degrees of washout, slightly more than the full-sized Spit. Low pass before a chandelle shown here. by: David Andersen.

*If you don't attend the funerals of your friends, they will certainly not attend yours.*





*Despite its thin and pointed wingtips, Dave Szabo's Spitfire has excellent handling due, in part, to about 2 1/2 degrees of washout, slightly more than the full-sized Spit. low pass before a chandelle shown here.*

Wingtip vortex is the tendency of the high-pressure air under the wing to curl around the wingtip and cancel the low pressure air above the wing. This further reduces aileron effectiveness. It also increases wingtip drag that must be controlled by the vertical stabilizer. Washout reduces wingtip vortex and its associated drag.

Although wing efficiency is generally not important in model aircraft, the reduction of wingtip drag via washout improves yaw stability. This is especially important at low speeds and high angles of attack. Washout, therefore, improves lateral stability and rudder effectiveness. But wingtip vortices cannot be eliminated entirely, so ailerons are not effective at the very tip of the wing. For

this reason plus the aileron reversal problem, ailerons rarely go all the way to the wingtip.

In highly swept wings, the washed-out wingtips act like a horizontal stabilizer, increasing pitch stability. When carried far enough, it is possible to eliminate the tail entirely. Some flying wings such as the Northrup N9M, are based upon this principle.

**Why not ...** Too much of a good thing can cause problems if overdone. All the good things that washout does in upright flight can become bad things in inverted flight—loss of aileron effectiveness, non-uniform roll rate, adverse yaw, surprise snap-rolls, aileron reversal. For these reasons, washout is rarely used in fully aerobatic aircraft. For these aircraft, it is important for the aircraft to behave in inverted flight as closely as possible to upright flight. In addition, aerobatic aircraft need to be snap-rolled predictably.

Constant-chord wings as found on the J-3 Cub or STOL aircraft benefit least from washout. They are built to maximize wing area and they need all the lift they can get. Instead of washout, they may use stall strips to soften the stall and shaped wingtips to reduce wingtip vortices in lieu of washout.

Typically, biplanes have their wing incidences adjusted so that the forward wing (typically the top wing in a Stearman or the bottom wing in a Beech Stagger wing) will stall before the rear wing. The ailerons are usually in the rear wing so that good aileron control is maintained even though the other wing is entirely stalled. This is one of the advantages of biplanes over monoplanes. Usually this configuration does not merit washout.

Leading-edge slats can prevent tip stalls too, but slats are usually combined with washout for an extra margin of low speed control.



*The thin wing of the Airbus A320 has lots of washout for safety.*



No washout and no incidence in Dave Deschenes' Wildcat, also typical of nearly constant-chord dive bombers.

***You know you're getting old when the candles cost more than the cake.***

Flaps increase the angle of attack of the wing in the flap area by rotating the chord line. In effect, flaps increase washout. Lowering flaps improves pitch stability and aileron control at low airspeeds.

Aileron-less models that steer with rudder use the dihedral of the wings for banking. As the rudder yaws one wingtip forward, the angle of attack is increased

while the other wingtip decreases its angle of attack. Wash-out would partially defeat this effect, so it is seldom used in aircraft of this type, except perhaps in scale models with very pointy wings.



*Washout provides good yaw control in Greg Hahn's B-17 in case of engine failure.*

Washout should be avoided in very lightweight wings that are not stiff enough to resist further twisting in flight. Imagine such a wing in a dive. The root is creating positive lift while the wingtip is generating negative lift due to washout. This twisting force tends to further increase washout if the wing is not stiff enough to resist it. As speed increases, drag increases but net lift becomes zero. A vertical dive equilibrium develops. If there is enough elevator authority to pull the nose up, the washout will suddenly reverse and the entire wing will be lifting, possibly enough to break the wing. If there is not enough airflow over the elevator to pull out, the plane will continue into the ground. Many RC gliders have crashed due to this principle.

**How much ...** The optimum amount of washout varies from zero to several degrees depending on the following factors:

- High aspect ratio (span/chord) wings need more washout because their thin wingtips tend to stall abruptly.
- Tapered wings need more washout in proportion to the amount of taper.
- High wing-loading requires more washout because it is more prone to tip stalls. Underpowered aircraft need more because they must fly at higher angles of attack. Thin wings need more washout because they stall abruptly at low angles of attack.
- Multi-engine airplanes need lots of washout for rudder effectiveness in the event of engine failure. Biplanes need less (*see Why Not above*).
- Aerobatic airplanes need none in order to be symmetric in flight.
- Washout becomes less effective as dihedral increases. The effect is small enough to be ignored, e.g., 6 degrees of dihedral requires an increase in washout of only 10%.



*Washout can be added after construction by raising both ailerons a small amount. Recommended for the initial flights of a new model.*

For scale models, use at least the amount of washout of the full-sized aircraft. In general, RC warbirds use 1 or 2 degrees of washout, adjusted up or down by the factors listed above. Rarely does an RC airplane need more than 4 degrees.

**Where ...** In most cases, the angle of attack should be close to zero in level flight, generating lift in normal level cruise position, so the washout equals the root angle. Typically, washout is distributed uniformly from root to tip.

*I said to my mother-in-law 'My house is your house'. She said 'Get the hell off my property.'*



But not always. Consider the following exceptions ...

- The three-piece wings of the Mitsubishi Babs, AT-6 and the Stuka have no twist in their center sections but begin outboard of the landing gear.
- The Focke-Wulf TA 152H high-altitude fighter's high aspect ratio wing has 2 degrees of washout, all of it in the aileron area.
- or some models, such as the nearly constant chord Howard Pete, very little washout if any is needed. But a small amount is included in the wingtips by shaping the leading edge of the outermost rib bay.



There are several methods of building in wash assembly: temporary tabs on each rib to hold required angle; shims of varying height support tapered full-span sticks upon which the ribs re assembly; or setting twist after assembly. Sometimes the ribs and spars can be assembled on a flat surface without washout, then the trailing edge of the end ribs are raised twisting the structure before the sheeting is applied. Open-structure wings can sometimes be completely built and covered shrink plastic film; then the wing is twisted which applied with a hot-air gun.

What if you forgot to build in enough washout in your model? Or flight tests suggest it needs more? Or maybe you want to play it safe and temporarily include extra during those first few flights? Unless the airplane has full span ailerons, washout can be increased effectively by raising the trailing edge of both ailerons slightly. For giant scale model, this is less than 3/16 inch. Later after stalls and tight turns have been found to be acceptable, lower the ailerons in small increments until they are back to neutral.

**####**



*Bob Patton's Cessna Aerobat uses drooped wingtips for stall control, typical of Short Take-Off and Landing (STOL) aircraft.*



*The author's Howard Pete has washout in only the last rib bay enough for a nearly constant chord wing. Washout in the Pete wingtip is formed by shaping the leading edge in the outer rib bay.*



*A 90-degree sharp edge stall strip is added to the leading edge of the Grumman Lynx leading edge to lower the stall angle in the root area of the wing. This alternative to washout works when inverted too.*



*The Northrup N9M flying wing depends upon sweep-back and wash-out for all of its pitch stability. Note the leading-edge slats for an extra margin of stall control at the tips.*

*Special thanks to Joe Grice, Scott Russell, Tony Paladino, and Jon Bomers for their individual technical assistance  
Article recommended by Nigel Grace*

***I think it's wrong that only one company makes the game Monopoly.***

Hi Club Secretary!

The MFNZ Aerobatics SIG is pleased to announce our Loop, Roll and WIN promotion.

Would you please be kind enough to include the attached flier in your next couple of issues of your club magazine? The competition is open all year, and the winner will be drawn at the next Nationals in Matamata.

We are trying to encourage pilots to get out and give some simple manoeuvres a go – even just doing a loop and a roll! Maybe you have a fun fly coming up – it could be fun to get everyone to do a loop and roll during their flights, and then take a picture of each pilot and their model so they can send it in to us ☐ It's a great prize they could win!

Thank you for your time

Andrew Palmer  
Aerobatics SIG



**LOOP ROLL  
WIN  
COMPETITION**

**WE WANT YOU!!  
WE'LL A PHOTO OF YOU  
AND YOUR  
MODEL AT LEAST**

This could not be easier! Take your model, do a loop and a roll (in any order!) and after you land send us a selfie of you and your model together with your name and contact details. Your picture will be posted on the Aerobatics SIG website and each accepted picture will put you in the draw for a chance to win the awesome prize of an AJ Aircraft 62" Acuity, Castle Creations Talon ESC and 4x Savox 1251mg servos!

Please email your photos to [looprollwin@nzrcaa.co.nz](mailto:looprollwin@nzrcaa.co.nz)  
The competition winner will be drawn at the next Nationals Aerobatic AGM.

- One complying entry = 1 chance to win.
- Be sure to have completed at least a loop and roll before emailing in the picture of you and your model
- One model can be used by multiple pilots
- One pilot can send in multiple entries with different models
- The Aerobatics SIG may use the photos to promote aerobatics in NZ
- The winner need not attend the 2019 AGM, but would be great if they did!
- The winner will be notified by return email.

The prizes have been kindly donated to assist the Aerobatic SIG in promoting and developing RC aerobatic flying in New Zealand. Our sponsors are: Andrew Jesky Aircraft, HOT Ltd and Galloway Enterprises.

**AJ Aircraft**  
**H.O.T. LTD**  
Distributing the worlds finest in RC since ages ago

## A TIMELY REMINDER

As everyone knows – “Keep your fingers out of the spiny bit.”

This is a lesson reinforced to our president Peter Denison by the club lawn mower.

Luckily just a bruise.

### REMEMBER

**ALL BLADES AND PROPELLERS  
MUST BE TREATED WITH  
RESPECT**



*First the doctor told me the good news: I was going to have a disease named after me.*



# MY OLD GIRL GETS A FACE LIFT

By Ross McDonnell



The "Old Girl" has just turned 16 and has led a very hard life with not too much in the way of care and attention. As she was about to do a few demonstrations at the Mangawhai Wings and Wheels, we convinced her she most probably needs to put on some make up at least.

When we started the makeover we realized it was going to take a lot more than makeup.

First thing was to cut a block of foam and then remove the loose bits on her face to fit the new block. Use whatever you want to do this. I found a rough file worked very well.



Next the block was glued in place, and then when the glue was dry it was shaped



Finally with a little bit of sanding and filling she was almost ready meet and greet.

Time for an bit of paint, or as Henri Mignet of flying flea fame so elegantly put it, "Paint, like rouge on the lips of a pretty lady, it finishes the toilet. (Bloody French.)

Wanda should now be ready for another 16 years.



to

*Someone once told me, "Go for broke." I can honestly say I have succeeded.*

# Yep it's that time again

Henny Remks  
Secretary H.C.R.F.

## **A.G.M.**

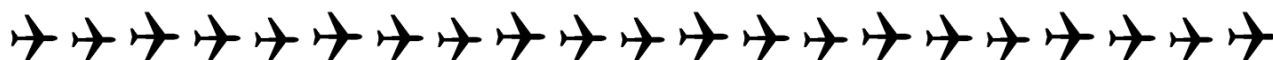
AGM will be May 7th at 7.30 at GirlGuiding NZ Hall 45 Stanmore Bay Road, Whangaparaoa

## **SUBS**

Subs are now due and if yours have not been paid

Senior	\$115.00
Super	\$110.00
Family	\$120.00
Junior	\$40.00
Associate	\$40.00
New member joining fee	\$35.00

Bank account number: Hibiscus Coast Radio Fliers 12 3084 0191089 00



## ***BLESS ME AND MY AIRCRAFT***

*Now I lay down to sleep  
My Aircraft by my side  
There is no room for my wife  
The bed is not that wide*

*I pray that when I'm sound asleep  
I'll dream about my plane  
I hope that God is good to me  
And will cancel any rain*

*It doesn't really matter that next month  
I'll be seventy four  
Because tomorrow I'll be feeling  
Like a kid once more*

*God forbid my plane to crash  
What an awful dread  
However if it has to be  
Make it JOHN's instead*

*(Author Anon)*

*Strip mining stops forest fires.*



# AROUND THE CLUB



OK so we do spend a lot of time having cups of tea and good food. *Peter D photo.*



So why are 50% of the pilots facing the wrong way? *Peter D photo*



Can't have twilight without Bee's. *Peter D photo*



The presidents cross between a Das Stick and a Kwik Stick is a great flyer and so very quick to build *Ross Mac photo.*



So is it better to be in a motor glider or a power plane if they collide?

Well as it turns out neither.

Ian Mulquiney's Bixler and Baz Corbett's Corsair collided midair.

I have to point out that they were the only two planes in the sky at the time.



*Photos By Henry R*

*In filling out an application, where it says, "In case of emergency, notify"... I answered, "A doctor."*