

Aerobat -

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



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COVER PHOTO

*Good to see
the newly acquired club
house being used by
members.*

Photo by Perter Denison

H.C.R.F. Calendar 2019

**Our fixed flying times are every
Wednesday, Saturday and Sunday morning**

Date	Day	Event	Where/When
2 Feb	Sat	Winch Gliding	Wainui 8.30 am - 12.00 noon
4 Feb	Mon	Club Night	Pinewoods Hall 7.30 pm 23 Marie Ave
6 Feb	Wed	Twilight 3 Rain Date	Wainui 5-00 pm
2 Mar	Sat	Winch Gliding	Wainui 8.30 am - 12.00 noon
4 Mar	Mon	Club Night	Pinewoods Hall 7.30 pm 23 Marie Ave
6 Mar	Wed	Twilight 4	Wainui 5-00 pm
13 Mar	Wed	Twilight 4 Rain Date	Wainui 5.00 pm
1 Apr	Mon	Club Night	Pinewoods Hall 7.30 pm 23 Marie Ave
6 Apr	Sat	Winch Gliding	Wainui 8.30 am - 12.00 noon



From the Editor's Desk



It's a new year and anything is possible!
(OK try to fly with the CoG 1 inch too far back!)

The weather, apart from the wind, is now looking great. I seem to remember telling people to practice landings constantly in winter. The wind in Auckland sure picks up in summer.

One thing we all should be thinking about is the AGM. (Annual General Meeting.) This is the time to put forward idea's for changing things in the club, and get them either looked into or put into practice. The more notice the more intellegent discussion that can be held, and hopefully the better the outcome.

I will be putting forward a remit is that the Areobat magazine may have had its day and should be discontinued.

The reasons for this are:-

- The aerobat, like so many other things, seems to be a financial burden on the club.
- Other magazines, even commercial ones, now no longer have their relevance and have been stopped.
- With the move to online distribution, the Areobat has lost an estimated 70% of it readership because friends family no longer have easy access to it. (i.e. It no longer sits on the coffee table and is read by the whole family between the advert breaks.)
- If it has lost its readership it no longer does what it was originally set up to do, inform members and family about the club.

Ross McDonnell
Editor

Women spend more time wondering what men are thinking than men spend thinking.

From the President's Desk

Happy New Year to you all. Hope that you all had a lovely Christmas and New Year.

Well, as I'm writing this, the hay is being cut and baled so the field will be in pristine condition for a few weeks as the grass starts to grow again, so we had better make the most of it hadn't we?

We have finished upgrading the inside of the toilets so the next job will be painting the outside along with (as Richard has given us permission to use it) the old storage building alongside them. This is not a big job and we have the paint donated by members so we are ready to start.

Obviously you have probably guessed that that's a not too subtle a hint to you retired lot to put up your hands with a paint brush. Norm Burns is showing a little bit of interest in this regard, so please it's a lot of work for one lad, make him happy and ask him how you can help. (Don't forget the photos! Ed.)



Plus the one thing we have been eagerly waiting for and constantly harping on about is the Pony club. Now that the field is as dry as it will probably ever be, hopefully we can, at long last, move all their gear out of the Club rooms into the container so we can make our club room our own.

So that begs the question of what do you want, (apart from the bunk beds along the back wall ;-) so please give it some thought come along to our meetings or drop Henny a line with suggestions .

OK let's get flying :-)

Happy landings

Pete Denison

Its that time again,

Subs are due to be paid by end of March 2019

MFNZ FEES 2019 TO 2020			HCRF 2019 TO 2020			TOTAL
	2018	2019		2018	2019	
SENIORS	\$75.00	\$88.00	SENIORS	\$40.00	\$50.00	\$138.00
SUPER	\$75.00	\$88.00	SUPER	\$35.00	\$45.00	\$133.00
FAMILY	\$80.00	\$93.00	FAMILY	\$40.00	\$50.00	\$143.00
JUNIOR	\$20.00	\$25.00	JUNIOR	\$20.00	\$20.00	\$45.00
ASSOCIATE	\$0.00	\$0.00	ASSOCIATE	\$40.00	\$40.00	\$40.00
			JOINING FEE NEW MEMBER	\$35.00	\$35.00	

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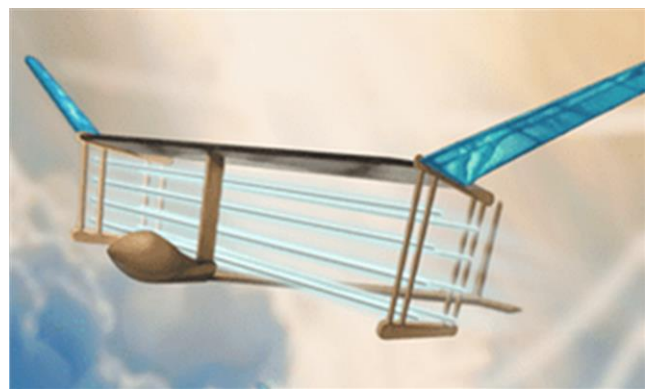
Henny Remkes
Secretary HCRF

The dinner I was cooking for my family was going to be a surprise but the fire trucks ruined it.

'Sci-fi' plane with no moving parts flies successfully

The blue glowing jets of science fiction spacecraft came a step closer to reality on Wednesday as US physicists unveiled the world's first solid-state aeroplane powered in flight by supercharged air molecules.

Ever since Orville and Wilbur Wright's momentous glide in the winter of 1903, aircraft have been driven by propellers or jets that must burn fuel to create the thrust and lift needed for sustained flight.



The inspiration for the project came straight from Steven Barrett's, (an aeronautics professor at MIT)

A team of experts from the Massachusetts Institute of Technology managed to unlock a process known as electroaerodynamics, previously never seen as a plausible way to power an aircraft. They were able to fly new plane, with a the 2.45kg and a wingspan of five metres (16 feet), a distance of 55 metres at a speed of 4.8 metres-per-second. That's hardly supersonic, but the implications of this unprecedented mode of flight could be stratospheric. "The future of flight shouldn't be things like propellers and turbines," said Steven Barrett, who designed the prototype. "It should be more like what you see in Star Trek with a kind of blue glow and something that silently glides through the air."

At first glance, the plane itself doesn't look light years away from other renewable aircraft, such as the Solar Impact II craft that in 2015-16 used energy from the Sun to fly around the world. Unlike Solar Impact, Barrett's plane doesn't have any propellers or solar panels — or any moveable parts whatsoever.

Instead of engines, it is powered by a system comprising two main sections. At the front of the plane sit a series of parallel electrodes made up of lightweight wires that produce an enormous voltage — +20,000v — supercharging the air around it and splitting away negatively charged nitrogen molecules known as ions. At the plane's rear are rows of aerofoils set to -20,000v. The ions automatically move from a positive to negative charge, dragging with them air particles that create the so-called "ionic wind" to provide the aircraft with lift.

The technology to create ionic wind has been around since the 1960s, but it was previously thought nowhere near efficient enough to prove useful to aeronautics. The team not only showed that it was possible for ion-driven craft to fly but also — due to the relative lack of drag created by the electrodes — predicted that efficiency would increase in lockstep with speed, potentially opening the way for bigger, faster planes in future.

"It's clearly very early days: but the team at MIT have done something we never previously knew was possible, in using accelerated ionised gas to propel an aircraft," said Guy Gratton, aerospace engineer and visiting professor at Cranfield University, who was not involved in the study.

Barrett said he believed the current prototype could be scaled up "a significant amount" but cautioned that their may be a limit to how much propulsion the technique can produce.

"We don't yet know if there is such a limit and we will certainly try to scale up as much as possible," he said.

"I don't yet know if you'll see our vehicle carrying people any time soon but obviously I'd be very excited if that was the case."

When asked what does the future hold Barrett told AFP that the technology could be used on the skin of commercial aircraft, reducing drag and therefore the energy needed to power modern passenger jets. “This would be much more efficient than the current situation where you have concentrated engines that generate thrust, which have to fight against a large passive airframe that generates drag,” he said.

commercial aircraft, reducing drag and therefore the energy needed to power modern passenger jets. “This would be much more efficient than the current situation where you have concentrated engines that generate thrust, which have to fight against a large passive airframe that generates drag,” he said.



The plane in flight.

In an editorial, the journal Nature, which published the study, said its success would encourage other sectors to re-visit technology that was long thought to be confined to sci-fi films. It listed possible military applications including the development of silent drones and aircraft, and engines with no infrared signal and thus impossible to detect. The prototype flight “will stimulate both awe and anxiety,” it said.

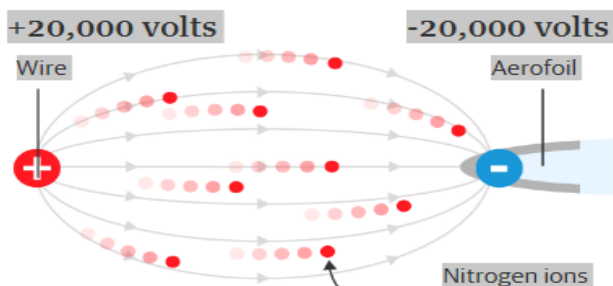
A hundred and fifteen years ago, Nature published a short news item on the Wright brothers’ “first successful achievement of artificial flight.” Barrett and the team noted a pleasing parallel with their revolutionary test and the one that sparked the aerial age: both flights lasted all of 12 seconds.

How the world’s first solid-state aircraft used ‘ionic wind’ to fly

The aircraft’s engine contains an array of high voltage electrodes

1

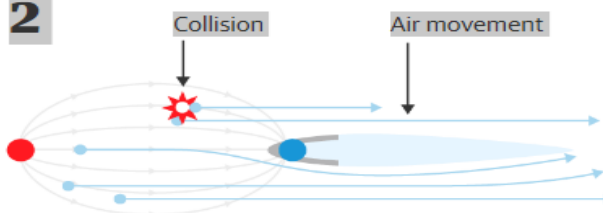
Each electrode is comprised of a thin wire which carries a high positive charge followed by a negatively charged aerofoil



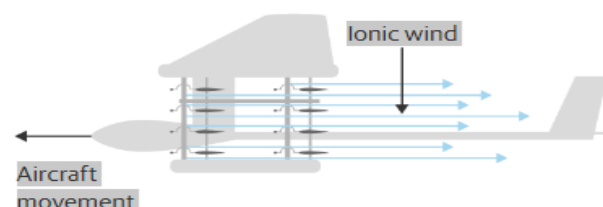
Atmospheric nitrogen is ionised and the electric field carries these ions from the wire to the aerofoil

Guardian graphic. Source: Steven Barrett, MIT

2



The ions collide with neutral air molecules and push them behind the aircraft; this ionic wind generates thrust



Recommended by Linton

Don't let your worries get the best of you; remember, Moses started out as a basket case.

How to behave after a crash.... 101

Let's face it, we all have a crash from time to time. Gravity is an unforgiving beast!

However, all is not lost if you can retain your pride and dignity afterwards. The most important thing to remember is that it is NEVER your fault! This means your piloting ability will always be held in high regard by your club mates and any onlookers.

So, to help you with this here is a list of excuses to use after the crash has occurred.

1. Interference
2. Wind shear
3. Crosswind
4. Sunscreen in eyes
5. Insect in eye
6. Sun in eyes
7. Glitching servo
8. C of G moved
9. Distracted by other pilots (idiot!)
10. Flat rx battery
11. Flat tx battery
12. Wrong rates (someone must have changed it while I was flying)
13. Wrong switch (probably the same guy as above)
14. Out of trim (that guy still here?)
15. Flutter
16. Sink
17. Runway too short/narrow/facing wrong way/downwind etc.
18. Out of range
19. Hit a thermal
20. Avoiding another plane (idiot should get out of my way!)
21. Someone moved the landing strip while I was flying
22. I was just testing my failsafe
23. It worked fine at home on the bench
24. These ARF's are not made properly
25. That tree must have grown taller after I took off
26. You guys were all flying the wrong circuit (head-on)
27. I was avoiding a full size plane (it went through that fast I was the only one to see it)
28. I was sick of this plane so I decided to destroy it
29. Thought I heard my phone ring so decided to answer it
30. I was demonstrating to these new guys what not to do

Of course this list is far from comprehensive, there are plenty more that you can come up with and customise to suit the particular situation. (Keep this list handy, preferably taped inside of the lid of your pit box for quick reference. It's easy to get a bit flustered after a crash)

The important thing is to work your way right through the list in no particular order. Never use the same excuse twice in the same year but keep rotating them around. Remember, lots of your club mates are getting old so probably can't remember back more than a couple of months anyway!

I hope this will be of some help next time the inevitable crash happens, so you can walk away with your head held high secure in the knowledge that it was NOT your fault!

By Gordon - The Perfect Pilot (Plagiarised from Hamilton Model Aero Club - December 2018 Bulletin)

I just asked my husband if he remembers what today is... Scaring men is easy.

American Wire Gauge (AWG) and Voltage Drop

(#AWG)	(inches)	(mm)	(mm ²)
7	0.144	3.67	10.6
8	0.129	3.26	8.36
9	0.114	2.91	6.63
10	0.102	2.59	5.26
11	0.0907	2.30	4.17
12	0.0808	2.05	3.31
13	0.072	1.83	2.63
14	0.0641	1.63	2.08
15	0.0571	1.45	1.65
16	0.0508	1.29	1.31
17	0.0453	1.15	1.04
18	0.0403	1.02	0.82
19	0.0359	0.91	0.65
20	0.032	0.81	0.52
21	0.0285	0.72	0.41
22	0.0254	0.65	0.33
23	0.0226	0.57	0.26
24	0.0201	0.51	0.20
25	0.0179	0.45	0.16
26	0.0159	0.40	0.13
27	0.0142	0.36	0.10
28	0.0126	0.32	0.08
29	0.0113	0.29	0.06
30	0.01	0.25	0.05
31	0.0089	0.23	0.04
32	0.008	0.20	0.03
33	0.0071	0.18	0.02
34	0.0063	0.16	0.02
35	0.0056	0.14	0.01
36	0.005	0.13	0.01
37	0.0045	0.11	0.01
38	0.004	0.10	0.01

26 & 28 are normal RC servo wire sizes

The larger the "gauge" -> the smaller diameter and thinner wire

AWG - American Wire Gauge - is an U.S. standard for wire conductor size. The "gauge" is related to the diameter of the wire.

Note! - The diameter of a solid and stranded wire with the same AWG is not identical. The diameter of a stranded wire is larger than the diameter of a solid wire.

Voltage drop - Low voltage power systems often operate at rather high current levels. If the interconnecting cables are too small, a large proportion of the power available will be wasted in the cable itself. This loss can be reduced by using a larger cable, but this increases costs. The acceptable maximum voltage drop for DC loads is 5% of nominal battery voltage.

The chart and the formula on this page are provided to help you in selecting the best cost / power loss compromise.

The Formula - If you need to calculate the

voltage drop under a given set of circumstances, there is a formula by which it can be determined.

A = cross sectional area of cable in (mm²).

L = route length in metres.

I = current measured in amps.

R = resistance of cable. Resistance of copper = 0.017 aluminium = 0.028 steel = 0.18 ••

Voltage Drop = 2 x L x I x R ÷ A

Example - You have a servo connected to a receiver. The route length is 1 metre. If the wire is 26awg multi-stranded copper cable and the expected current is 2 amps, then you have:-

$2 \times 1 \times 2 \times 0.017 \div 0.13 = 0.5$ volts.

So if you are running 4.8 volts it's only going to be 4.3 volts at servo, or 89%. If this figure is considered to be acceptable it would avoid spending more money on larger gauge wire.

This is a new thing I am trying. This chart is the first, hopefully, of many. They are meant to be useful ready reference and I suggest they get printed and hung on the hanger wall or inside a cupboard door so you know where to find them. You could start with the tank size article from last Aerobat. Hope you find them helpful. Ed.

AROUND THE CLUB



Peter D's Typhoon being worked on. It's good to see how much expertise we have in our club. (Photo Henry)



Henny Remkes's Dynam Tiger Moth. Note the rigging wires. (Photo Henry)



Another successful Christmas Lunch at Valentines.

(Photos Henry)

I was worried that my mechanic might try to rip me off, I was relieved when he told me all I needed was turn-signal fluid."

Scale Weathering Tutorial for RC Planes

One of the best ways to make your airplanes come alive is to weather them. It may seem strange, distressing a shiny new aircraft, but injecting a little character also injects new life. Here's a quick guide to making your planes look more realistic through weathering.



Let's start by focusing on one particular model. This is a Duraflly P-40N I picked up a while ago. Out of the box, it had a nice looking olive green paint scheme, but it looked a little too perfect.

Here's what you'll need at the most basic level: it's as simple as having a fine brush and a small pot of metallic paint. You don't need a fancy airbrush. Although this would be helpful for more advanced level weathering, you can get some fantastic results with just a few carefully placed blobs of paint. Without breaking the bank, you could also get yourself a couple of larger brushes and some black, grey and brown colours that may come in useful for adding exhaust smoke and that sort of thing.



Before beginning to slap paint on your model, you may want to check out some photos of real aircraft for reference. To get that realistic appearance, it's useful to see what you're trying to capture on a smaller scale. Browsing sites like [Pinterest](#) may be a good place to start for some inspiration.

Starting with the wings, some metallic paint was dabbed along the panel lines to simulate paint chipping. This gives the model a little more depth whilst accentuating this molded detail. The paint gives the impression that the panels have been removed and reattached at some point during this P-40's life.

This effect can also be applied to a physically damaged area of the airplane in order to mask it or actually make it a characterful feature of the model. This plane crashed on its first flight due to being tail heavy. Thankfully there was only minor damage to the wing and tail which could be disguised.

You can make a water-bed more bouncy by using spring water.

This damaged wing of a **foam board BF-109**, also received this treatment. A drawn line with black permanent marker combined with some silver paint gives the impression of a flap, even though it doesn't exist!

Black paint can be dry brushed onto areas to create gun smoke or engine exhaust soot. It always looks cool to make your warbird's guns appear to have been fired in combat. The key here is to build up faint layers of paint until you have a smooth finish. You can also use this technique to simulate dirt and grime that has been streaked across a wing or other surface. Sometimes, you'll see on real aircraft that certain raised panels have streaks behind where water or oil has accumulated and stained.



The wheels on this model were weathered using a 'wash' technique. This is where the paint is thinned down, applied liberally to the surface (so it goes into all of the recesses) and then mostly wiped off with absorbent tissue. This gives the effect that dirt has gone into the crevices of the rim whilst highlighting and contrasting with the raised areas.

And that's about it! A very limited amount of work can seriously take your scale model to the next level. You can try this on all sorts of types of RC plane, including our **Flite Test DIY foam board aircraft**.

Make sure to show us your weathered warbirds by posting pictures of them in the Facebook Flite Test Fans Group - it's a great place to share your work and get feedback.

Article by James Whomsley Editor of FliteTest.com



***My girlfriend is always stealing my t-shirts and sweaters,
but if I take one of her dresses, suddenly "we need to talk".***