BRISBANE VALLEY FLYER

MARCH- 2020

BRISBANE VALLEY SPORT AVIATION CLUB INC

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Cessna O-1 Bird Dog on Display at Watts

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PLAN to Remain in VMC

By Rob Knight

There are only two actions a pilot can undertake to avoid losing VFR minimas and being forced into IMC. They are good planning to reduce the opportunities for fate to deliver them in the fateful hands of IMC, and sound strategies on handling a deteriorating situation where IMC is visited upon them.

Many clues as to the likelihood of VMC remaining viable along (or reasonable close to) a track can be gleaned from the aviation-oriented forecasts available to pilots for planning purposes. However, I observe a serious lack of knowledge in regard to the current Graphical Area Forecasts and the Grid Point Wind and Temperature tables. In respect of the former, in recent times I heard a pilot expressing difficulty in gathering a real-time mental image of forecast weather from a GAF, mentioning that he got a GAF to comply with the law but took his understanding of relevant and future weather along his route from Windy.com. Another pilot, completely serious, asked me to explain why wind in the north of the box in a given GPWT was always stronger than wind in the south, and then dropped greatly at the bottom of the box above. This is in spite of the instructions on how to interpret the forecast details being provided at the top of the print-out. Both these pilots were licensed or certified to carry passengers, one was GA PPL and the other held an RA-Aus Pilot Certificate. It says a lot for the training in both GA and RA divisions of the industry, doesn't it?

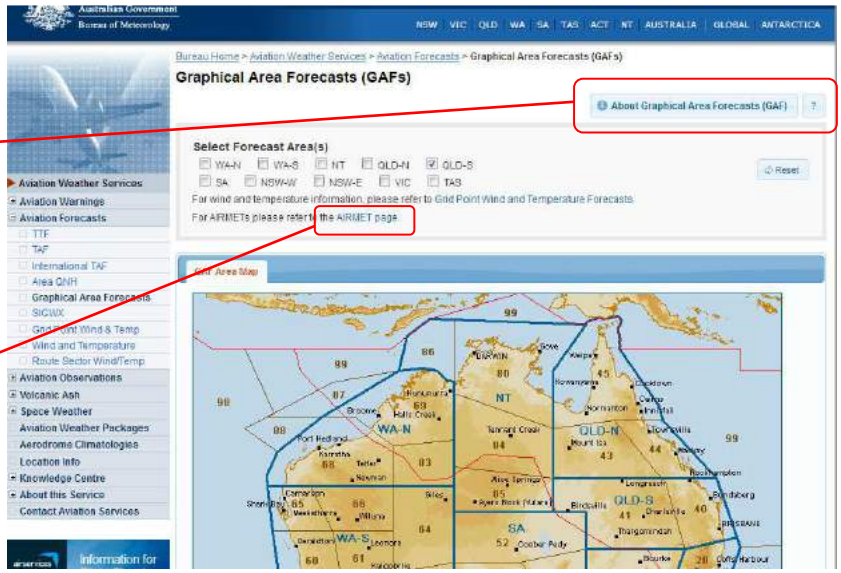
I, personally, have no difficulty with interpreting a GAF. In fact I wrote an article on it for this magazine in February 2018, in Issue 55. If in doubt – check it out, it's available on the BVSAC website, but I'll do a précis here.

A **GAF** provides information on weather, cloud, visibility, icing, turbulence and freezing level in a graphical layout with supporting text, An **AIRMET** advice is complimentary to the routine issue of the GAF and provides information on the occurrence and/or expected occurrence of specified meteorological phenomena that are not included within a valid GAF

My observations concerning the lack of expertise in reading GAFS and GPWT forecasts lead me to believe that many pilots are unaware of the excellent instructions detailing accurate interpretation of each of these documents available at the click of the mouse.

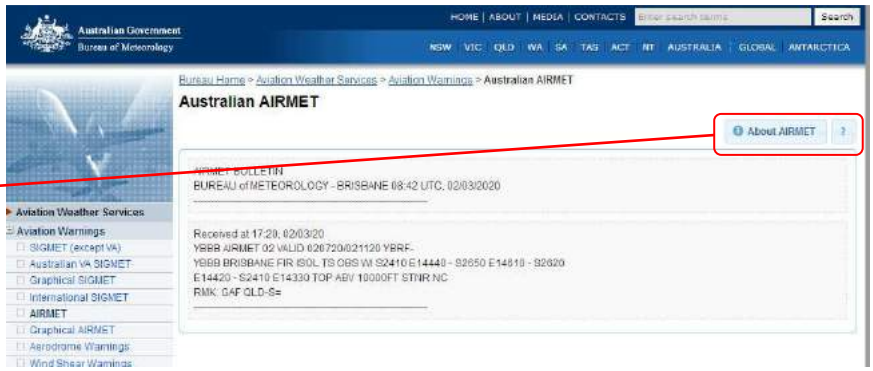
How to read, interpret, and understand a GAF

Where to get an AIRMET with a click

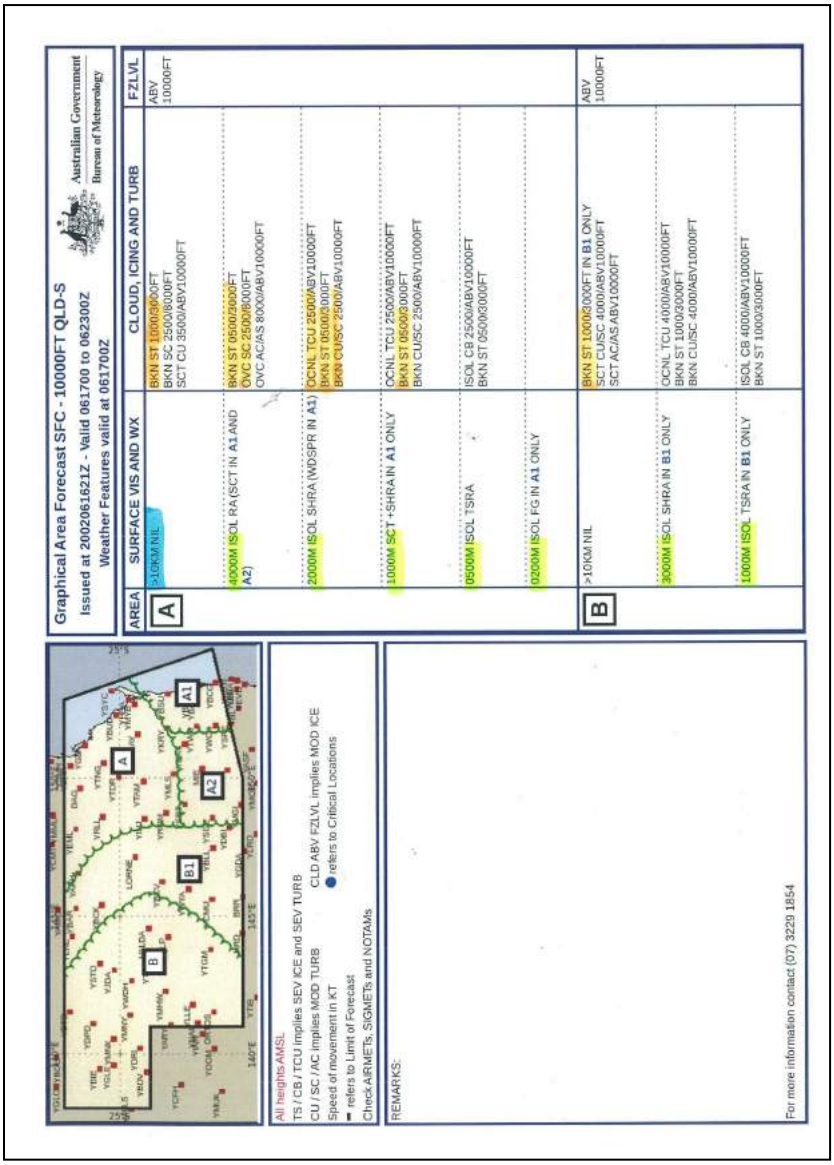


Below is an example of an AIRMET after clicking in the link as shown on the previous page

Click on this link to get details on reading and interpreting AIRMETs



Why am I telling you all this? Because reading a forecast intelligently is your first line of defense in avoiding IMC whilst VFR. Some argue that forecasts are not accurate, but, let's face it, they are better than wishful thinking, and that's what too many pilots are relying on in this regard.



But the greatest gem lies in the GAF itself, it gives the expected visibility, and the expected cloud base in feet AMSL in every sector it contains. Plain to see, it appears that some pilots are completely oblivious these tiny yet vital details.

The lower image on the previous page is of an actual GAF that I collected specifically for this piece. Note the highlighted text.

Highlighted in orange are the cloud types and their base/tops heights. The cloud is very extensive and forecast to not be very high for VFR operations, but, nevertheless, subject to terrain height, not inhibiting to VFR operations. On the other hand, considering that the visibility limits (highlighted in yellow) are all listed as below minimums, VFR operations in the areas depicted would be hazardous at best.

The mistake made by too many is that they look at only a single point in time when viewing a forecast. But the conditions that are really relevant are those anticipated at the time the aircraft is in that vicinity. Planning any flight means considering all the points along the desired route at the expected times they will be the aircraft's locality. A destination that is two hours flight away needs its forecast met conditions assessed at a time two hours after the planned departure time. It's not a matter of a pilot ensuring that the route is weather-good all the way at the time of departure – but is weather-good at the time and each point along the track as the flight progress towards its destination

The time actually needed to plan a flight is also very often grossly underestimated. Most of my life I've heard pilots boast about how quickly they can plan a flight and, when a whole flight will take place within an area experiencing settled weather, it's no real contest. However, flight-planning in these conditions becomes the norm and when the Weather Gods throw down more challenging conditions, no added time is allowed to really assess and reflect on the hazards adequately. For example, because of potential air-lifting processes, hills often attract more cloud that less hilly areas. A track direct to a destination over high terrain may raise issues of cloud preventing safe flight whereas a dog-leg track, avoiding the high ground, might be appropriate and far safer.

Departure time is another issue that may be determined by reading a forecast. It might be obvious when you read about it here, but I personally know several pilots who became so obsessed with departing at the time they decided in days previous to the flight taking place either ended up returning or landing elsewhere from their planned destination. Had they waited for the forecast conditions to improve as they stated they would, the flights would likely have been more successful and less eventful. As an afterthought – it's also worth mentioning here that waiting for weather might be the best plan of action but such a decision must also be tempered with planning around the end of daylight. It's no good arriving after "lights-out" it could likely be a last curtain call for a VMC operating pilot.

However, let's face it – the greatest hazard to the safety of any flight is the pilot's attitude. As I have mentioned in earlier articles, successful flights build confidence and an attitude that the destination will always appear in the centre of the windscreen and exactly on time, just like the cavalry saving the hero in a B Grade movie. Unfortunately, this is ***REAL LIFE*** we are talking about now, and the good

guys are sometimes elsewhere; and shit happens. Our best aim is to accept we aren't Gods, even though we can look down on others as Gods do, and use our brains, tempered with a lowering of ego and a raising of caution to minimize the need for the cavalry to come and save us.

It's really up to every pilot as to how safe they fly. Those with ego issues won't listen to friendly advice - discrete or otherwise - and pilots without over-bolstered ego don't, as a rule, need to be told.

THINK – THINK – THINK

about what you are doing. Just because you have got there the last 30 times out of 30 doesn't mean the 31st can't be a disaster, and leave you with quite a different look on life – if you still have one.

Rob Knight

Remember – to depart into less that legal weather conditions may see that flight take the rest of your life and you still don't get there. Is it really worth the risk? (Rob Knight - 2020)

Happy Flying

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Fossil Fuel-Free Air Travel Gets Closer With a Short Electric Flight

By Josh Petri (11 December 2019)

In Canada, Harbour Air's seaplane flew for five minutes, but the limits of current battery technology still mean mass adoption is way off.

CEO Greg McDougall pilots a Harbour Air prototype electric DHC-2 Beaver during a test flight near Vancouver on Dec. 10 2019.
Photographer: Darryl Dyck/Bloomberg

Vancouver-based Company, Harbour Air, just flew an all-electric commercial aircraft—for five minutes.

The neon green and indigo blue seaplane took off from the Fraser River in Richmond, British Columbia, early Tuesday morning as a small crowd cheered from the dock. The propeller aircraft, a six-passenger de Havilland DHC-2 Beaver prototype, was powered by a magniX magni500 electric motor and piloted by Harbour Air Chief Executive Officer Greg McDougall.

It was a small but significant step in the broader quest to replace fossil fuel-powered aircraft, a mode of transport increasingly viewed through the prism of global warming.

The test was "far more than the laboratory exercises we've seen in the past," said Robert Mann, the New York-based head of aviation consultancy R.W. Mann & Co. "It's a real serious, practical test."

Harbour said it plans to spend the next two years getting its new plane approved for commercial flight. The carrier, which flies to a dozen destinations on the West Coast, has 53 planes and 450 employees spread between British Columbia and Seattle.

There are about 170 different electrically-propelled aircraft programs in development worldwide, up 50% since April 2018, according to consulting firm Roland Berger. Much of that development is in the urban air taxi category and general aviation segments. Current electric technology favours these aircraft, which have lower power needs than large commercial aircraft.

The long electric motor nose

Harbour's electric Beaver can fly about 60 minutes on one charge. But regulators require aircraft operating under visual flight rules (of the smaller, non-commercial variety) to have the ability to fly 30 additional minutes, which gives Harbour's new plane a mere 30 minutes of flight time. The relatively short timeline isn't a problem for the airline, however, said magniX CEO Roei Ganzarski.

"The majority of Harbour Air's flights are less than 25 minutes in length," he said, adding that once the plane is certified, the companies will focus on extending the flight envelope.

Larger, fully-electric aircraft are still about a decade off. The near term is likely to see hybrid aircraft pairing electric and conventional power.

Those singing the gospel of electric vehicles often point to decreased operating costs. A fossil-fuel powered Beaver burns anywhere between $300 and $400 worth of fuel during a 100-mile flight, said Ganzarski. That same trip in the electric Beaver will cost anywhere from $4 to $10 in electricity, depending on the source, he said.

The electric Beaver is theoretically cheaper to maintain than its combustion engine predecessor, too. Electric motors are sealed units, with a minimum of moving parts. Of course, since there has yet to be a commercial electric aircraft maintenance program, there may be unforeseen expenses.

"The cost of being a pioneer is a relevant problem," said Mann. "We don't know the actual costs of operating electric airplanes."

The near term is likely to see a generation of hybrid aircraft, pairing electric and conventional power systems along with smaller all-electric craft. Larger, fully electric aircraft are still about a decade off.

"This is a great milestone for electric aviation."

Joby Aviation Inc. Is targeting the air-taxi market with a plane that would carry four passengers and travel 150 miles. Uber Technologies Inc. plans to start an electric flying-taxi service, with pilot programs in Dallas, Los Angeles and Melbourne as soon as next year. Israel-based Eviation plans test flights next summer of its all-electric Alice, a nine-passenger plane powered by a smaller version of the magniX motor in Harbour's Beaver.

"Eviation is excited to congratulate our partner, magniX on its successful test flight of the magni500 propulsion system, "Eviation CEO Omer Bar-Yohay said Tuesday in a statement, "This is a great milestone for electric aviation."

Siemens AG, Airbus SE and Rolls-Royce Holdings Plc are working on a hybrid system, the E-Fan X, that would power a relatively large aircraft. Airbus said it's targeting an initial flight of its demonstration aircraft in 2021 and expects to eventually phase in new electric technologies by about 2030.

"Airbus has been flying electric for a couple of years," Mann said. "But they've all been laboratory exercises as opposed to practical."

And a new era is being born,

Consulting firm Roland Berger expects the first flight of such commercial aircraft to occur by 2032. Easyjet Plc has partnered with U.S.-based Wright Electric to develop a full-sized battery-powered airliner within a decade for flights of less than two hours.

Harbour Air's test flight concludes on the Fraser River. Seaplanes require much more power to take flight than normal planes.

While manufacturers and airlines alike plan for an electric future, they're still dealing with the politics of the present. Europe's top airlines on Tuesday attacked European Union plans for a planned kerosene tax, part of the bloc's sweeping new environmental strategy. Airlines called the duty both unnecessary and unfair, arguing that an investment in sustainable fuels and electric planes would ultimately be more effective in reducing carbon emissions.

For its part, Harbour Air is likely to run into some infrastructure issues in the near term, Mann said, since most major airports lack fast-charging capabilities. Ganzarski said they will rely on existing infrastructure for now, but may attempt to build their own renewable infrastructure in the future. The company reported revenue of CAD $69.9 million ($52.8 million) in 2019. McDougall didn't return a request for comment.

But there are other challenges. Seaplanes, as the name implies, operate from bodies of water rather than land. Unlike meticulously paved and maintained runways, open water is a high-friction surface which requires a far greater amount of energy for a plane to gain enough momentum to take flight.

Salt water is another issue. It's naturally corrosive, eating away at a plane's surfaces and parts. Finally, the Pacific Northwest isn't exactly pleasant in December: Cold temperatures have a negative effect on power density and power conversion in batteries.

"If you were thinking of the toughest case for electric flight, it would probably be a seaplane in salt water," said Mann.

Electric Airliner (Batteries included)

OCTANE DOES MATTER

This is a declassified article by the British Society of Chemists (Declassified in 2014)

This article has been kindly provided by Clive Ryan

Since the late 1940s it has puzzled many as to why the German Luftwaffe kept on using 87 Octane Aviation Gasoline while the Americans and British used 100 Octane Gasoline in their Spitfire Fighters and Americans used 130 Octane in our P-51 and other fighters. This morning I discovered the reason!

It seems that the German and British aircraft both used 87 Octane Gasoline in the first two years of the war. While that was fairly satisfactory in the German Daimler-Benz V-12 engine, It was marginal in the British Rolls-Royce Merlin XX engine in British aircraft. It fouled the spark-plugs, caused valves to stick, And made frequent engine repair problems.

Then came lend- lease and American aircraft began to enter British service in great numbers. If British engines hated 87 Octane gasoline, American, General Motors Built, Allison 1710 engines loathed and despised it. Something had to be done!

Along came an American named Tim Palucka, a chemist for Sun Oil in their South East Texas Refinery. Never heard of him? Small wonder, very few people have. He took a French formula for enhancing the octane of Gasoline, and invented the "Cracking Tower" and produced 100 octane aviation Gasoline. This discovery led to great joy among our English Cousins and great distress among the Germans.

A Spitfire fueled with 100 Octane gasoline was 34 miles per hour faster at 10,000 feet.

The need to replace engines went from every 500 hours of operation to every 1,000 hours. Which reduced the cost of British aircraft by 300 Pounds Sterling. Even more, when used in 4 engine bombers. The Germans couldn't believe it when Spitfires that couldn't catch thema year ago started shooting their ME-109 E and G models right out of the sky.

Of course, the matter had to be kept secret. If the Germans found out that it was a French Invention, They'd simply copy the original French patents. If any of you have ever wondered what they were doing inthat 3 story white brick building in front of the Sun Oil Refinery on Old Highway 90, that was it. They were re-inventing gasoline.

The American Allison engines improved remarkably with 100 Octane gasoline, but did much better when 130 octane gasoline came along in 1944. The 130 Octane also improved the Radial Engine Bombers we produced.

The Germans and Japanese never snapped to the fact that we had re-invented gasoline. Neither did our "Friends" the Russians. 100,000 Americans died in the skies over Europe. Lord only knows what that number would have been without "Super-Gasoline". And it all was invented just a few miles west of Beaumont, and we never knew a thing about it.

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Sometimes we Seniors don't Understand Directions...

I went to my nearby Amcal Pharmacy, straight to the back, where the Pharmacists' high counter is located. I took out my little brown bottle, along with a teaspoon, and set them up on the counter.
The Pharmacist came over, smiled, and asked if he could help me.
I said, "Yes! Could you please taste this for me?
Seeing a senior citizen, the Pharmacist went along. He took the spoon, put a tiny bit of the liquid on it, put it on his tongue and swilled it around. Then, with a stomach-churning look on his face, he spat it out on the floor and began coughing. When he was finally finished, I looked him right in the eye and asked, "Now, does that taste sweet to you?" The Pharmacist, shaking his head back and forth with a venomous look in his eyes yelled, "HELL NO!!!"
I said, "Oh, thank God! That's a real relief! My doctor told me to have a Pharmacist test my urine for sugar!

I'm not allowed to go back to that Amcal, but I really don't care, because they aren't very friendly there anymore

Church Bulletin Board Advisories

- Scouts are saving aluminium cans, bottles and other items to be recycled. Proceeds will be used to cripple children.
- The sermon this morning: 'Jesus Walks on the Water'. The sermon tonight: Searching for Jesus'
- Ladies, don't forget the rummage sale. It's a chance to get rid of those things not worth keeping around the house. Bring your husbands.
- Don't let worry kill you off - let the Church help.
- Miss Charlene Mason sang 'I will not pass this way again,' giving obvious pleasure to the congregation.
- For those of you who have children and don't know it, we have a nursery downstairs.
- Next Thursday there will be try-outs for the choir. They need all the help they can get.
- Irving Benson and Jessie Carter were married on October 24 in the church. So ends a friendship that began in their school days.
- A bean supper will be held on Tuesday evening in the church hall. Music will follow.
- At the evening service tonight, the sermon topic will be 'What Is Hell?' Come early and listen to our choir practice.

FLY-INS Looming

08 March 2020	YCFN Clifton	2020 Clifton Fly-in. All Welcome
20 March 2020	YSHR Shute Harbour	Fortnight Dinner @ The Hangar Cafe & Bar
22 March 2020	YWSG Watts Bridge	Watts for Breakfast, breakfast fly-in
04 July 2020	YWSG Watts Bridge	Brisbane Air Show
19 July 2020	YWCK Warwick	Jumpers and Jazz Brekkie Fly-In

Mystery Aircraft (Last Issue)

Ford Model 15-P

The Ford Model 15-P flying wing was the last aircraft developed by the Stout Metal Airplane Division of the Ford Motor Company. After several flights resulting in a crash, the program was halted. Ford eventually re-entered the aviation market producing Consolidated B-24 Liberators under license from Consolidated Aircraft.

Maiden flight: 1935,

Manufacturer: Stout Metal Airplane

Number built: 1

2020 CLIFTON FLY IN

On 8th March 2020 Lone Eagle Flying School invites you to Clifton Airfield to its Annual Fly-In at Clifton Airfield and to celebrate International Women In Aviation Week. This Fly In has become an iconic event in the region and is the premier attraction for all types of aviation in southern Queensland. See various types, shapes, sizes and models of recreational, ultralight and homebuilt aircraft including sport, vintage, general aviation and any other flying machine. Come late pm Saturday, 7th for sit down dinner, drinks and hangar talk. Fly or drive in, see ERSA. On field camping, bring your swag or caravan. Advise for catering. For more information follow us on

website : http://www.loneeagleflyingschool.org.au

facebook : https://www.facebook.com/LoneEagleFlyingSchool/

email : admin@loneeagleflyingschool.org.au

phone : Trevor Bange 0429 378 370

Everyone is welcome,

Trevor Bange,

Surviving Covid-19

No magazine today is complete without some details on the effects of COVID-19 on the world and the people living on it. This issue of the Flyer is no exception.,

The Coronavirus (Covid-19) news is everywhere around the world and is of great importance to everyone. Daily, news items proffer new explanations on how it works and what it will effect but some deep mysteries continue to remain – like why so much toilet paper is being purchased that its local costs are now approaching a roll's weight in gold. I have pondered long on this and have reached the only possible explanation.

As a retired Food Safety Technologist, I watched the recent sell-out of toilet paper (TP) in the major Australian bog-roll suppliers. My Food Safety training included instruction as a Chef to ensure I had the required understanding of safe food and the cooking. With mounting amusement I watch the fumbling attempts of officialdom to explain these runs on this fundamental item necessary in every household. Alas – there is such a poor understanding of basic foodstuff suitability; they have missed the porcelain by a mile, so to speak.

The reason for this sell out of TP is nothing short of the product of absolute genius. Australian preppers see the food chain as being under threat and are baring retailer's shelves to their bottoms of a very select variety of foodstuffs including long-life milk, canned soup and spaghetti, packeted biscuits and, of course, TP, to manufacture home-made survival rations.

The preparation is simple. Into a large saucepan put a litre of long-life milk, a can of spaghetti, and bring it to a simmer. When simmering, add two packets of crushed biscuits, preferably cream filled and chocolate. When the new mix again simmers, add (and herein lies the real genius) two rolls of TP finely chopped with a sharp knife after their cores have been removed. The cores can be set aside for further use or discarded. The mix is now brought to a boil before serving, preferably in a china bowl.

What sits in front of every consumer is a flavour-filled meal with great visual appeal – there's no need to slum it in survival rations. The sharpness of the spaghetti is countered by the smoothness of the milk in the thick brown sauce from the added biscuits and chopped TP. This meal is savoury and will appeal to every hungry eater. Also, if required, the set-aside cores can be halved and flattened, then toasted lightly and buttered to become a tasty addition to the meal.

The addition of the two rolls of TP holds another strong advantage – they add a great amount of fibre to the meal. We all need plenty of fibre to aid digestion and to add bulk to ensure our evacuations are solid and not loose. The fibre will ensure that stools are compact, firm, and self-adhesive, which makes them quick and easy to clean up afterwards. But wait – there's more. Such easy to clean actions means that less TP is necessary for cleaning purposes and this is a good thing because the TP has all been used in the meal preparation.

Genius – pure genius.

[redacted] *(Name withheld for security reasons)*

The Food ~~Bogger~~ Blogger

Keeping up with the Play (Test yourself – how good are you, really?)

1. What is the lowest flight visibility under which a VFR pilot may operate in Class G airspace?
   A. 2000 metres
   B. 3000 metres
   C. 4000 metres
   D. 5000 metres

2. What is the lowest altitude a VFR pilot may operate an aircraft in Class G airspace when not taking off or landing?
   A. 500 feet AGL
   B. 500 feet AMSL
   C. 1000 feet AGL
   D. 1000 feet AMSL

3. A pilot is waiting for fog to clear to depart on a local flight. What minimum visibility must exist at the airfield before the flight can take-off?
   A. 1500 metres
   B. 3000 metres
   C. 4000 metres
   D. 5000 metres

4. A pilot, on track for a destination and flying level at 1500 feet AGL and 4500 feet AMSL, has a single cloud ahead, also on the track. What horizontal separation distance does the law require to be maintained as the pilot skirts the cloud?
   A. 500 metres
   B. 1500 metres
   C. 4000 metres
   D. Remain clear of the cloud

5. A pilot, flying a 1000 foot AGL downwind leg, has a cloud closely adjacent to their intended flight path.? What horizontal distance must they maintain to lawfully fly past that cloud?
   A. 500 metres
   B. 1500 metres
   C. 4000 metres
   D. Remain clear of the cloud

See answers overleaf

Answers: 1, D, 2, A, 3, D, 4, B, 5, D

If you have any problems with these questions, See Notes BELOW or call me (in the evening) and let's discuss them. Rob Knight: 0400 89 3632.

1. Standard Class G airspace met minima in VFRG list the lowest VFR minima as being 5000 M flight visibility, clear of cloud and in sight of the ground or water. This is provided for flights operating at or below 3000 feet AMSL (or within 1000 feet AGL, whichever is the higher).

2. A is correct. It is listed as 500 feet AGL

3. D is correct. 5000 metres is the lowest visibility any pilot may operate under VFR at any time.

4. B is correct. 1500 metres is the closest any pilot may fly to cloud when operating under VFR.

5. D is correct. Current aviation VFR rules require such and aircraft to remain clear of cloud because they are AT OR BELOW 1000 FEET AGL.

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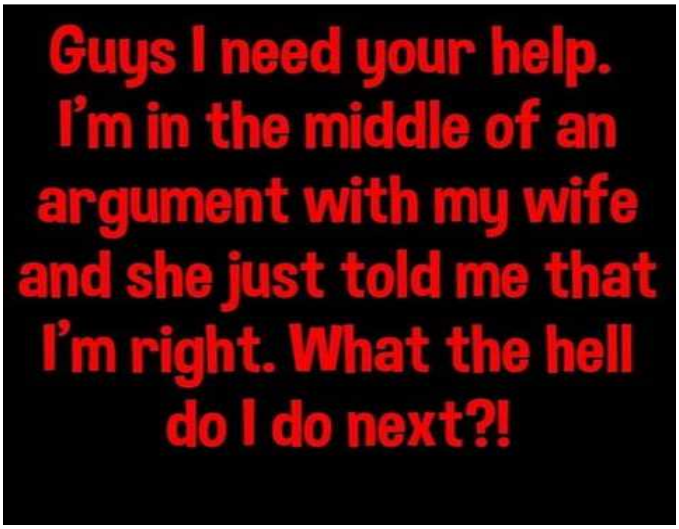
Aircraft Parts and Tools

Item	Condition	Price
VDO Volt Readout instrument	Brand New	**$70.00**
Skystrobe Strobe light for Ultralight	NEW – IN BOX	**$75.00**
Altimeter – non-sensitive with subscale in "Hg.	Brand new	**$50.00**
Brand New ¼ drive Torque Wrench (SCA)	Brand New	**SOLD**

Headsets

Lightspeed Headset. Stereo, recently re-wired	Excellent condition	**SOLD**
AvCom headset. Functions perfectly	Excellent	**$160.00**
Pilot (brand) headset in headset bag (Ideal spare)	Brand new condition	**SOLD**

Contact Rob Knight at either kni.rob@bigpond.com, or call **0400 89 3632**.



Aircraft for sale

¾ scale replica Spitfire **$60,000**

Powered by a 6 cylinder engine, this delightful aircraft has good performance and low hours. Available for immediate delivery.

It comes with a low flight time, excellent handling qualities, superb charisma, a brand new mechanical fuel pump and two jack stands.

For details contact Bill Watson. Tel., **0447 186 336**

95-10 Shuttle Mk2 for Sale.

Not registered, and dismantled for storage. Jabiru 1600 powered. Basic instruments & radio.

Sweet flying aircraft. Make a good project. Part of hangar cleanout-MAKE AN OFFER WE CAN'T RE$USE.

Ph. **0488 422 156** (Clyde Howard)

95-10 Colby Single seat aircraft for sale.

Airframe 202 hrs. Engine (503 SDCI) 37 hours on Rotax overhauled engine.

Instruments and radio. Registered and ready to fly away. Currently at Forest Hill. Could consider delivery for fuel cost.

GREAT FOR HOURS BUILDING - Ready to take home with you. Come and get it and see your logbook fill without draining your bank.

MAKE AN OFFER WE CAN'T RE$USE. Ph Rob on **0400 89 3632** for details.

The Lockyer Valley from the Colby