BRISBANE VALLEY FLYER

March - 2021

BRISBANE VALLEY SPORT AVIATION CLUB INC

www.wattsbridge.com.au
www.bvsac.org.au

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1935 Cessna C34 at YWSG. Caring for your wooden propeller(See page 8).

Contents

From the Club

Hello everyone,

With this notice the Committee advises our members of our intention to hold the BVSAC AGM on Saturday 6th March 2021 at 10am.

Nominations are sought for the following positions which will become vacant at the AGM - President, Vice President, Secretary, Treasurer and Technical Officer.

Nomination forms and Proxy forms will be sent out to all members via email.

See you at the meeting on the 6th, at 10am.

Peter Ratcliffe

BVSAC President

The Fridge in your Plane

By Rob Knight

Unless you are operating a fuel injected or a turbine powered aircraft you are flying around with a refrigerator in your aircraft everywhere you go. That's a fact, and your airborne fridge has all the trimmings and trappings of its ground-borne kitchen counterpart.

In answer to your unspoken question, I am talking about the carburettor and how it is really a cleverly disguised fridge.

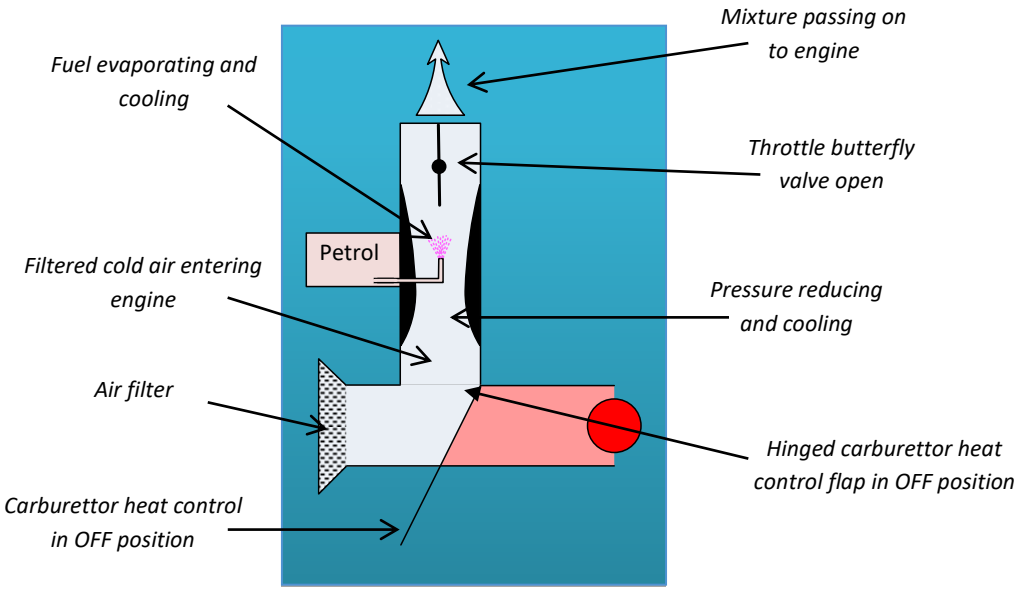
Fridges cool things, and carburettors supply a gaseous mix of petrol and air to feed an internal combustion engine – one could be excused for wondering what on earth they have in common. However, despite their obvious design outcome differences, fridges and carburettors rely on the same two fundamental processes to function - evaporating a liquid to change its state to a gas, and subjecting a gas to a decrease in pressure. Both these processes draw heat from their surroundings as they take place.

Your fridge compressor punches the gas in its tank into a smaller and smaller volume until it changes state and becomes a liquid, then it squirts the pressurised liquid out through a jet or tiny nozzle. As the exiting liquid evaporates and turns back into a gas, it needs heat to complete the process and it draws that heat from its surroundings. The second process occurs at the same time as the liquid is reverting to a gas, it expands into the low-pressure region outside the jet, an action drawing further heat from its immediate environment. This is the action that lowers the temperature to preserve the food stored in your fridge.

Ice, built up in a carburettor throat

In the carburettor it is the vaporisation of the petrol we want; the cooling is just an undesirable side effect. As the liquid petrol exits the carburettor jet and evaporates, just like the system in your fridge, it too absorbs heat from its surroundings, just as effectively as your dear old Kelvinator. Also, as existed with the fridge venturi, the venturi in the carburettor throat is engineering a pressure drop to suck fuel through the carburettor jet and this, too, further lowers the temperature inside the carburettor where these processes are occurring. So, in both your fridge and your carburettor there exist two processes – a fall in gas pressure AND cooling due to evaporation. So why are you surprised to experience ice in your carburettor? It forms in your fridge doesn't it?

Can you eat a hearty meal with a choked throat? Of course not, and neither will your engine run properly when its throat is all iced up. This ice, formed by a process called deposition, does not pass through a liquid state – it short-circuits the liquid process and changes directly from a gas to a solid that sticks to the interior metal surfaces. This solid deposit builds up inside the venturi, roughening it and reducing the airflow so the engine is malnourished. It can also form around the main jet and interrupt the flow of petrol, again reducing power. Or it can quickly block so much of the intake system the engine is choked to death.



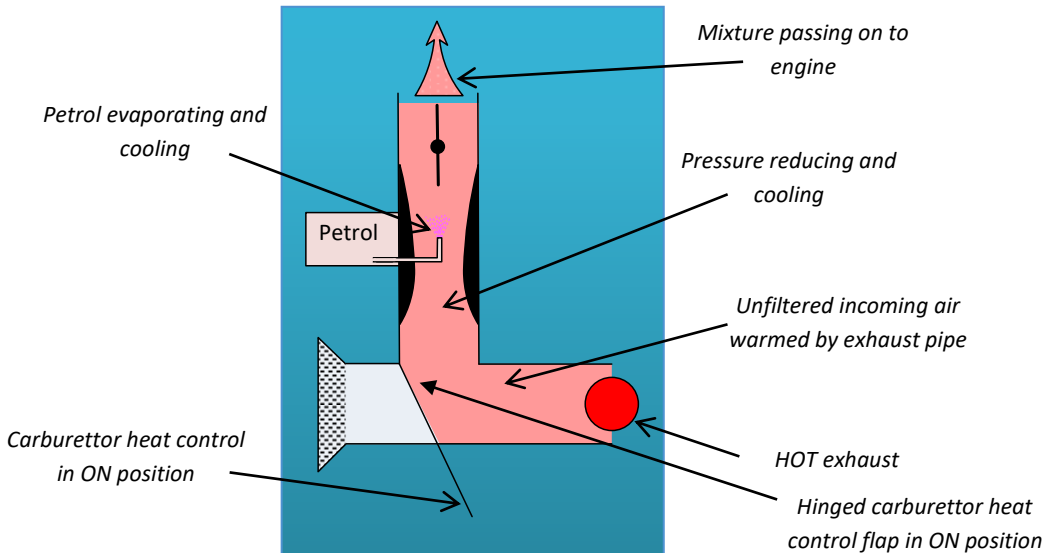
Normal position - cold air selected. Cold, filtered air, enters carburettor

So how do we know when we have carburettor ice? Obviously one answer is when the engine loses power, runs rough and stops! The sudden silence would be a good clue to most pilots that something was amiss. However, it doesn't have to get that bad; there are symptoms that an alert pilot can identify and use to trigger remedial action to eliminate the problem.

To examine the symptoms, we need to be specific about the engine and propeller system powering the aircraft. Most Rotax drivers can stop reading here because the manufacturer provides a collar around the carburettor area through which runs hot coolant fluid. This keeps the metal parts too warm for ice to adhere. But Rotax is an exception.

Inevitably, carburettor ice will cause a mixture change and the engine will run rich – there are not enough parts of air compared to parts of petrol being drawn into the engine. On any aircraft without a constant speed propeller unit (CSU), this results in a power loss so the RPM will reduce without the pilot having moved the throttle. Also, the engine will run rough. An aircraft fitted with a CSU is likely to display the same rough running, but the propeller RPM will continue as set by the CSU governor, only the pressure shown on the manifold pressure gauge will fall as the restriction in the carburettor reduces the airflow.

So, once we notice the symptoms of ice forming how can we stop it? We said above that it was a temperature issue that led to the formation of carburettor ice. And yes, I know, I can hear you saying, "Then why don't we just heat the incoming air?" This is indeed a most elegant solution and that is exactly what we do. There is a control in the cockpit, usually a knob to pull, or a lever to slide, that changes the source of air entering the carburettor. The normal air source allows outside air to be drawn through a filter and then into the carburettor. This alternative air source draws air from around the exhaust pipe and ducts the warmed air into the carburettor so the heated air can deal to the malignant ice.



Carburettor heat applied. Warmed but unfiltered air enters carburettor

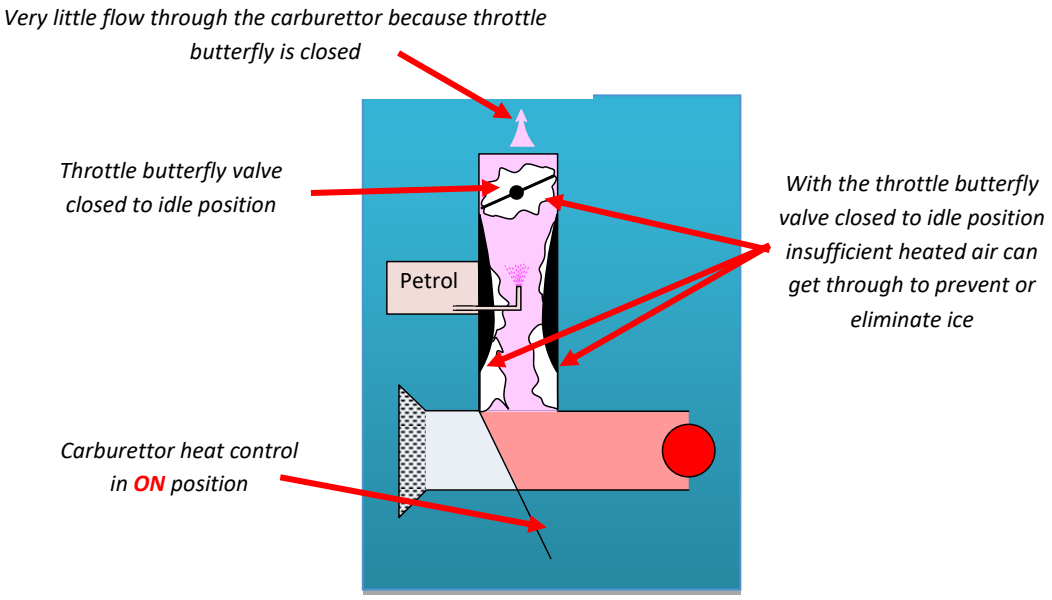
However – note well that air entering the engine from this source is not usually filtered and, if carburettor heat is used in dusty conditions, grit and dust entering the engine is likely to severely shorten its life.

So where does that leave the pilot? It leaves them experiencing a short period of rougher running and a possible further drop in RPM before sweetness returns along with the RPM. At this point the pilot can smile smugly and push the carburettor heat back to cold, secure in the knowledge that they have averted yet another disaster for Aircraft accident investigations on TV. But have they?

Ice can come back, any time it likes. So, why don't we leave the carburettor heat on? The answer is simple – the engine loses power when the carburettor heat is on. This is because it runs over-rich which also affects the fuel burn rate. In some sophisticated aircraft, carburettor throat temperature gauges are fitted that have a coloured range to indicate the critical temperature for carburettor ice in the prevailing conditions. The carburettor heat control is used to keep the instrument needle out of that range.

Carburettor ice is most likely to form when the pressure in the carburettor is low, such as when running at low power settings. This means that simply closing the throttle can precipitate ice when none existed when the throttle was more open. Also, if you think about it, how will you get hot air into the carburettor throat if the throttle is closed? This means that the pilot timing in applying the carburettor heat can be critical.

Carburettor heat should be applied BEFORE closing the throttle. A few seconds of lead time before pulling the noise knob back will allow the hot air from around the exhaust to warm the metal throat and manifold, and greatly reduce the chance of ice. It will also tend to eliminate any minor ice that might be present but going un-noticed.



Carburettor heat applied AFTER closing throttle inhibits warm air entering the carburetor to prevent or eliminating ice.

In the event of a go-around, the carburettor heat should be moved to the OFF position as soon as possible after power is applied. Remember, you won't get the full amount of available power when the carburettor heat is on because the mixture is too rich.

It is a normal procedure to change the carburettor heat to full cold on short final. There are two reasons – a go-around after a failed landing might well occupy so much of the pilot's attention, they forget to remove heat and suffer the reduced power. Another reason is that the aeroplane will soon have landed, and it is particularly unwise to run unfiltered air through the carburettor where there is likely to be dust – i.e. on the ground.

So, there it is. Anytime the air has a high moisture content (the relative humidity is high), carburettor ice is something most pilots have to consider. And don't think a warm day holds any protection, carburettor ice can form even up to 37°C. The carburettor heat control is an important tool in a pilot's toolbox but, like everything else in an aircraft, it must be used correctly or it may not function as designed.

Happy Flying

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Houston – we have a problem!

Prolong the Life of Your Wooden Propeller.

Adapted from an article by Arthur W. J. G. Ord-Hume.

A large number of people seem uninformed in regard to basic care of their wooden propeller. Such people may gain advantage from reading the following article.

A wooden propeller is a beautiful thing to behold, is a fascinating thing to make and represents the vital link between a stationary, lifeless aeroplane and a sleek, fast-moving machine. Without the propeller, all is useless. Although the prop is of such enormous value as regards service (and initial cost), many private fliers sadly neglect this vital part and know it purely as the bit to be avoided when the engine is running, or the thing they strike their heads on in the hangar when it is dark. Oddly enough, these people usually are only too keen to hang an old prop on the den wall for spectators and girl-friends to admire.

When hand-swinging an engine, the propeller comes in for much abuse which should rightly be directed elsewhere. On an airplane with a starter, even this albeit dubious personal contact is lost. Your propeller is vital! If you have ever been stranded miles from home because you have accidentally broken or damaged your prop, had it come loose in flight or stripped the leading edge in a hailstorm, you know what I'm getting at and you need read no further. You have obviously learned your lesson!

A wooden propeller has three main enemies when it is being used — grass, stones and hail. Each of these can cause damage—sometimes severe damage—to a lightplane propeller. Each can thus cost you a new fan, a long delay far from home and, possibly, as a result of indirect causes such as a forced landing in rough terrain, your airplane.

Taxiing through long grass, the prop cuts into the weed. Each blade of grass, each heavy grass head offers resistance to the passage of the prop. In the same way as a soft wax candle can be fired through a thick wooden door, or a straw driven through a telegraph pole by a hurricane, the grass virtually bombards the tips of the propeller blades. The varnish is rapidly torn off, leaving the bare and vulnerable wood, denuded of its hard varnish sheath.

Many airplanes are started and run up on hard standing or waste land. Any small stones, nuts and bolts or similar loose material can easily be sucked up by the propeller vortex. If the prop blade has a metal sheath, the object, acting as a missile, can severely damage the covering, loosening and distorting it and putting the whole fan out of aerodynamic balance. This can set up vibration which, over time, might shatter the prop, crack the engine mount or damage the motor itself. If the blade is not sheathed, the object will bite deeply into the wood, splintering it locally. Your propeller blade is virtually a little wing. Any irregularities in the leading edge are detrimental to efficiency and will set up turbulence and shock waves around the area of damage.

The third evil is hail. A flight through a storm can finish an un-sheathed prop very quickly. The damage will be noticed by a gradual slowing down of speed and changing engine note as the engine has to work harder to drive the "dirty" blade through the air. A sheathed prop will survive — a fabric-covered propeller may sustain damage to the varnish but little else. The droplets of ice act as shot-blast — remember that the tip speed of the blade is not very far short of the speed of sound.

Commercial wood propellers invariably have a protective sheath which can take the form of metal-capped leading edge, fabric covering or a process where by a mouldable plastic finish is applied and bonded to the wood. Additionally, large commercial wood props are made either of very hard, durable wood, or compressed wood which is so tough that a blow from a hammer will not dent it. The whole point is that an unsheathed propeller must be carefully maintained.

A damaged prop cuts your speed, diminishes your airplane's performance and increases your take-off distance.

How can the amateur preserve his wooden prop? The points are simple and easy to follow.

The three rules are:

1) Never run-up the engine on loose earth, broken-surfaced concrete, waste land or sand. Try always to run-up on a clear asphalt surface or, just as good, on short grass. As a corollary to this, avoid standing in line with a propeller whilst the engine is being run in case anything should be thrown out by the blades. A small pebble could blind a person 20 yards from a running prop.

2) Where possible, avoid prolonged taxiing through long grass. If you do have to, take it slowly and try not to gun the throttle too much.

3) If you meet hail on a flight, throttle back as much as you can and try to get out of it — hail will fetch the finish off a metal-skinned wing leading edge at speed as well as stripping the prop.

In addition to points made in FAA/CAA/CASA Technical Manuals relating to wooden propeller servicing and maintenance, the following also apply

- Inspect your prop after every flight through hail or heavy rain. Make good any chipped varnish or other coating. If the wood itself is showing, or has become roughened by hail, let it dry out naturally, sand it smooth, and give it at least three coats of replacement coating appropriate to the original surface.
- Clean your prop between each flight. Not only does this make for best efficiency with the removal of bugs and sticky grass seeds, but defects are detected easily. However, use soapy water. The wrong solvent could strip your prop of its protective coatings and varnish and leave it vulnerable to attacking insects and moisture.
- If you have damaged the leading edge of a blade by picking up an object in the prop vortex which has done more than just bruise the blade, repair it before attempting to fly again. If in doubt, have an engineer look at it. A little wariness costs nothing and could save your life insurance company from having to make a payout. A good source of information on wooden blade repairs can be found in FAA Advisory Circular 43.13-1B. It is an excellent reference for understanding blade repairs.
- Check the security of the hub nuts at every engine inspection. Additionally, after fixing a new prop, check the nuts after the first flight. If you fly in a very damp climate into a very hot area, your prop will contract and could work loose. Always use a torque wrench on hub nuts to avoid crushing the wood. Over-tightening effectively shears the wood fibres and materially reduces the strength of your prop.
- When your aircraft is parked, be it in a hangar or otherwise, always leave your prop in a horizontal position, never inclined or vertical. Wood is a natural material and has a grain and fibres. These fibres still contain resin and over time the resin can migrate under gravity. A blade left vertical may see resin flow into the lower blade which will quickly unbalance your blades. A wet blade or a blade in humid conditions, may absorb moisture and this, too, can migrate to the lower blade aggravating any resin balance issue. Note that a horizontal prop is less likely to suffer damage in a nose-over if the wind changes.
  If possible, when parked or hangared, fabric sleeves should be slid over the prop blades. These provide some protection for the blades due to hangar rash, but also assist in protecting your prop from bird droppings which are acidic with ph values of 3 to 4.5. Such

acid levels easily eat through most building materials and can strip protective varnish and other coatings from a wooden prop surfaces in short order.

- If the prop is fitted with a spinner, on every pre-flight inspection the prop should be placed in a horizontal position to ensure any condensation can flow from the spinner.

Additional references:
https://www.aopa.org/news-and-media/all-news/2013/july/08/propeller-care-preventive-maintenance

https://www.avweb.com/ownership/wooden-props/

https://www.legislation.gov.au/Details/F2007L04873

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When insults had class - these glorious insults are from an era before the English language got boiled down to 4-letter words.

Winston Churchill:
"He has all the virtues I dislike and none of the vices I admire."

Lady Astor:
"If you were my husband, I'd poison your coffee."
Winston Churchill:
"Madam, if you were my wife, I'd gladly drink it."

A Member of Parliament to Disraeli:
"Sir, you will either die on the gallows or of some unspeakable disease."
Disraeli:
"That depends, Sir, whether I embrace your policies or your mistress."

Walter Kerr:
"He had delusions of adequacy."

John Bright:
"He is a self-made man and worships his creator."

Clarence Darrow:
"I have never killed a man, but I have read many obituaries with great pleasure."

Irvin S. Cobb:
"I've just learned about his illness. Let's hope it's nothing trivial."

Moses Hadas:
"Thank you for sending me a copy of your book; I'll waste no time reading it."

Paul Keating:
"He is simply a shiver looking for a spine to run up."

Mark Twain:
"I didn't attend the funeral, but I sent a nice letter saying I approved of it."

The Bristol 188 – A British Aircraft Experiment

Compiled from various sources by Rob Knight

The Bristol Type 188 was an experimental twin engine aircraft designed and built by Bristol Aeroplane Company for sustained flight in excess of twice the speed of sound (Mach 2).

Its primary construction was of stainless steel, to avoid the potential kinetic heating limits of aluminium alloy. Predominantly a research aircraft, the Type 188 was often affectionately referred to as 'The Flying Pencil'.

The Bristol 188 in Flight. An exercise in drag reduction

In 1953, two prototypes (XF923 & XF926) and one static test airframe were ordered under contract and their construction and development continued alongside the Avro730 programme (another high-speed research aircraft expected to reach Mach 3).

An order was also placed for 3 additional aircraft to support the further development of an Avro 730 Reconnaissance Bomber although this was withdrawn upon cancellation of the whole Avro 730 project in 1957. The Bristol 188 programme continued however.

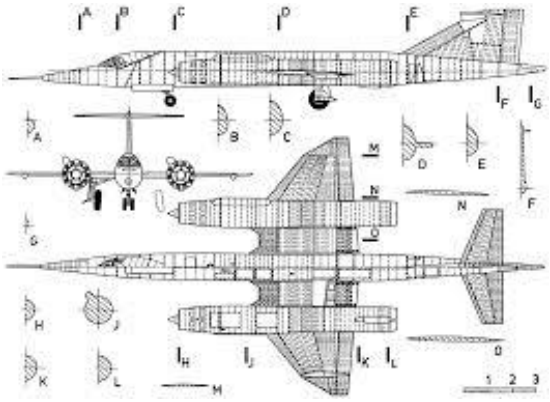
New construction methods and materials were developed including the use of titanium and stainless-steel fuselage panels because of the expected heat generation at high speeds. The cockpit was also fitted with a refrigeration system although this was never used. Frontal area was minimised with a long slim fuselage and a very thin (4%) wing section was employed.

The initial prototype (XF923) flew for the first time at Filton on 14th April 1962 with Test Pilot G.L. Auty at the controls. However, at the termination of that flight, it landed at Boscombe Down from where it made a further 16 flights before returning to Filton for its last two flights. The second flying prototype (XF926) utilised XF293's de Havilland Gyron Junior PS50 engines for its first flight on 26th April 1963 before later Mach 2 engines were fitted. The whole of the flying programme was from Filton, the last flight being on 11th January 1964.

In all, 70 tests flights were carried out, the fastest being to 1,430 mph (purely coincidentally the equivalent of Mach 1.88) whilst the longest flight was just 48 minutes in duration. The Bristol 188 made its public debut at the SBAC Farnborough Air Show in September 1962.

The project suffered a number of problems, the main being that the fuel consumption of the engines did not allow the aircraft to fly at high speeds long enough to evaluate the "thermal soaking" of the airframe, which was one of the main research areas it was built to investigate. Combined with fuel leaks, the inability to reach its design speed of Mach 2 and a take-off speed at nearly 260 knots (300 mph, 480 km/h), the test phase was severely compromised. Nonetheless, although the programme relating to the 188 was eventually abandoned, the knowledge and technical information gained was put to some use for the future Concorde program. The inconclusive nature of the research into the use of stainless steel led to Concordes being constructed from conventional aluminium alloys with a Mach limit of 2.2. Experience gained with the Gyron Junior engine, which was the first British gas turbine designed for sustained supersonic operation, additionally later assisted with the development of the Bristol (later Rolls Royce) Olympus 593 powerplant which was used on both Concorde and the BAC TSR-2.

Various proposals to further develop the 188 were considered including incorporating ramjets and rocket engines as well as considering fighter and reconnaissance variants. One serious proposal involved the fitting of “wedge” type intakes.



The announcement that all development was terminated was made in 1964. By the end of the programme. The project had cost £20 million, the most expensive research aircraft to that date in Great Britain. So great was the cost that, aircraft had to be "cannibalised" to keep the designated airframe ready for flight.

Although the aircraft was designed for speeds above 1,200 mph, its utility was limited due to its very restricted endurance at these speeds. With typical flight times in the order of only 25 minutes, and with the two aircraft combined only completing a total of 70 flights (not all flights were test flights), the project was abandoned in 1964, with the last flight being on 12th January of that year.

Whilst some of the materials and construction knowledge gained through the Bristol 188 programme proved useful during the development stages of Concorde, a lot of the data gathered proved inconclusive for the advancement of Mach 2 and Mach 3 aircraft.

The Bristol 188 XF923 at Filton in 1963

The Bristol 188 was a failure. It was an aircraft that never achieved its target and was dogged by problems throughout its design, construction and testing. Partially this was caused by external pressures such as the request to use the de Havilland Gyron Junior engines intended for another aircraft which were the 188’s main source of problems. It’s interesting to speculate what the 188 could have done had it been a success. At the time it would have been the fastest aircraft in the world that could take off and land (the North American X-15 was launched from a bomber) giving Britain a valuable research tool for high-speed testing.

The second prototype is preserved at the RAF Museum, Cosford, the first having been scrapped after use as a target at Shoeburyness Ranges.

Specifications

Powerplants	Two 14,000 lbst DH Gyron Junior DGJ 10
Span	10.7 metres (35 ft 1 in)
Maximum Weight	17022 kg (37,527 lb)
Seating Capacity	Pilot only
Maximum Speed	Mach 1.88

Number Built

2 plus one static test airframe	XF923, XF926

Survivors

One aircraft	XF926 is displayed at the RAF Museum, Cosford. Link - http://www.rafmuseum.org.uk/cosford/

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Rest Your Mind

I know you have been laying awake at night wondering why baby diapers have brand names such as "Luvs", "Huggies," and "Pampers', while undergarments for old people are called"Depends".

Well here is the low down on the whole thing.

When babies crap in their pants, people are still gonna Luv'em, Hug'em and Pamper' em. When old people crap in their pants, it "Depends" on who's in the will!

Glad I got that straightened out so you can rest your mind.

An AD from Hell for Piper PA-28s and PA-32s

The newly published Airworthiness Directive is draconian. It could send a lot of planes to the wrecking yard.

By Plane & Pilot UPDATED JANUARY 22, 2021

PA28-161 Warrior

If you thought the AD the FAA published last month on many thousands of Piper PA-28 and some PA-32s was harsh, you ain't seen nothing yet. The latest from the FAA calls for repetitive testing of the wing spars of affected PA-28s, which means many Warriors and Cherokee 140s, and Arrows and Dakotas, and so on.

The AD was created in response to the fatal crash of a PA-28 in Florida in 2018 after the wing separated in flight, killing the two pilots aboard. After the accident, the FAA discovered cracks in the wing structure of the accident airplane and, subsequently, in other PA-28s.

The testing will have to be done for affected PA-28s with more than 5,000 hours of adjusted time on them. The method the FAA prescribes uses a complicated formula that involves the plane's service history.

The testing method is eddy current, and the agency estimates that it will cost just over $1,000 per airplane, not to mention the down time. There are a lot of PA-28s out there.

But an even tougher issue is what an owner needs to do if cracks are found. The replacement of just one of the wing spars is estimated to cost $12,000. Who knows how much shop time that would mean? If both spars are affected, which is a distinct possibility, then the costs associated with repairs would effectively render the fix economically unfeasible for many of these planes.

And the even scarier news is that the mandated time for inspection could go down after the FAA gathers data from planes that have undergone the inspection.

Some owners are pointing out there have been only a couple of wing separations of PA-28s in the many millions of hours that they have flown. That said, every one of these airplanes is old, and getting older, and the plane that crashed in Florida three years ago was of fairly recent vintage.

The actual models affected are the Cherokee series including Cherokee sixes

Models PA-28-140, PA-28-150, PA-28-160, PA-28-180, PA-28-235, PA-32-260, and PA-32-300

To view the actual document see

Federal Register :: Airworthiness Directives; Piper Aircraft, Inc. Airplanes

For the Australian CASA equivalent directive, see

file:///C:/Users/kniro/Downloads/awb_57-017_issue_1_-_piper_pa-28_and_pa-32_wing_spar_fatigue.pdf

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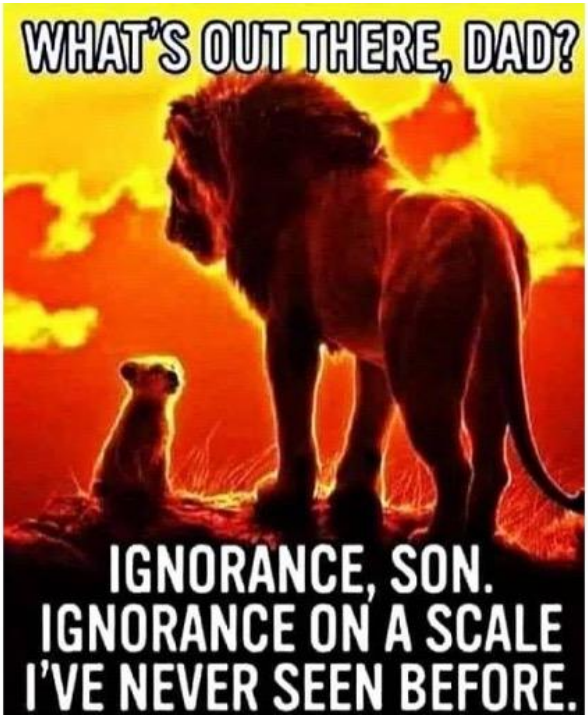

FLY-INS Looming

14 February 2021	Murgon (Angelfield) (ALA)	Burnett Flyers Breakfast Fly-in
11 April 2021	Murgon (Angelfield) (ALA)	Burnett Flyers Breakfast Fly-in
23 April 2021	Shute Harbour (YSHR)	2021 Air BP Whitsunday Fly In

Jokes

My Father laughed when I said that I wanted to be a comedian. Well, he's not laughing now!

INTERESTING QUOTES

"Sometimes, when I look at my children, I say to myself, 'Lillian, you should have remained a virgin." - Lillian Carter (mother of Jimmy Carter)

"I had a rose named after me and I was very flattered. But I was not pleased to read the description in the catalogue: - 'No good in a bed, but fine against a wall." - Eleanor Roosevelt

"The secret of a good sermon is to have a good beginning and a good ending; and to have the two as close together as possible." - George Burns

"Be careful about reading health books. You may die of a misprint." Mark Twain

"I was married by a judge. I should have asked for a jury." - Groucho Marx

"We could certainly slow the aging process down if it had to work its way through Congress." - Will Rogers

"Don't worry about avoiding temptation. As you grow older, it will avoid you". - Winston Churchill

Report on Swiss JU52 Crash That Killed 20 is Damning

Investigators detail pilot and maintenance errors that led to tragedy.
Adapted from Plane & Pilot - FEBRUARY 2, 2021

Swiss investigators have concluded, in a damning inquiry, that a Junkers Ju 52 on a pleasure flight stalled after the crew flew it into a narrow valley at low altitude, at a dangerously low airspeed and with its centre-of-gravity out of limits.

The Junkers 52 Trimotor

Investigators from the Swiss Transportation Safety Investigation Board have released their findings on the horrific crash of a vintage Junkers Ju 52 tri-motor operating on a commercial passenger-sightseeing flight on August 4, 2018. The plane crashed in high terrain in the Swiss Alps, killing the three crewmembers and 17 passengers, following an encounter with turbulence that caused the plane to stall. The turbulence, investigators found, was entirely normal for the conditions, and the pilots disregarded the risk in making the flight as they did, part of a pattern of reckless behaviour, the report found. The report also concluded that the Centre of Gravity at the time of the accident was 110 mm (nearly 4 inches) behind the point calculated by the pilots.

It was an accident that never should have happened, but to hear the investigators tell it, it was one that was likely to happen given the pilots' flying behaviour, both that day and previously, and what they indicated was shoddy maintenance on the aircraft.

The plane was operated by Ju Air, one of three Ju 52s the airline had in its fleet. (It has since gone out of business and the new owner has not been able to get operating authorization to resume service.) The airline gave sightseeing flights in the plane, manufactured in 1939.

Investigators ruled that the pilots flew recklessly, “at low altitude with no possibility of an alternative flight path and at an air speed that was dangerously low for the circumstances.” It went on to say that the aircraft was not in an airworthy condition, that its engines had not been properly maintained and that they were not capable of producing rated power, contributing to the stall and the crash.

Links to internet articles and video presentation

https://www.flightglobal.com/safety/ju-52-fatal-crash-probe-uncovers-atrocious-catalogue-of-safety-violations/142185.article

and/or

https://youtu.be/jGF4ovuSrK0

> Engines not producing full power, low flying, a high pressure-altitude, and a C of G aft of it’s understood position – just cowboys, and they stuffed up.

Did I read that sign right? Spread the stupidity!!

- "Toilet out of order. please use floor below."
- Automatic washing machines: please remove all your clothes when the light goes out.
- Would the person who took the step ladder yesterday please bring it back or further steps will be taken.
- After tea break, staff should empty the teapot and stand upside down on the draining board.
- We exchange anything - bicycles, washing machines, etc. why not bring your wife along and get a wonderful bargain?
- For anyone who has children and doesn't know it, there is a day care on the 1st floor.
- If you cannot read, this leaflet will tell you how to get lessons
- Something went wrong in jet crash, expert says
- Police begin campaign to run down jaywalkers
- Panda mating fails; veterinarian takes over

What the Hell is THAT – It's a BlackFly!

The Opener BlackFly. A Silicon Valley startup has unveiled an all-electric flying vehicle that can travel up to 25 miles at a speed of 62 mph. The BlackFly aero car requires no special skills to operate and no formal licensing in the US.

The futuristic-looking personal aviation vehicle designed purely for consumer needs was developed at the Silicon Valley-based Opener, by a team led by Canadian entrepreneur Marcus Leng.

Leng made the first flight of a *"proof-of-concept vehicle"* in his front yard in Warkworth, Ontario, Canada back in 2011, before relocating his company to California to pursue his dream of creating the *"world's first ultralight all-electric fixed-wing vertical take-off and landing (VTOL) aircraft."*

Seven years on, the startup has developed a fully functional dual-wing, eight-rotor craft which has been tested in the air more than 1,400 times, covering a distance of more than 12,000 miles. BlackFly is even packed with *"full amphibious capabilities"* and can ideally take off from any small patch of grass.

Capable of covering distances of up to 25 miles at a speed of 62 mph, the zero-emission vehicle comes with a lot of high-tech features as well as a supercharging mode to repower the flying machine in less than 30 mins.

While the developer claims the BlackFly is simple to master and requires no formal licensing in the States, operating the VTOL will require captains to complete the FAA Private Pilot written examination and pass vehicle familiarization and operator training. While the cost of the unit has not yet been made public, the developer claims the price will be competitive.

BlackFly Details

Data from O'Connor and manufacturer.[1][5]

General characteristics

- **Crew:** one
- **Length:** 13 ft 5 in (4.09 m)
- **Wingspan:** 13 ft 7 in (4.14 m)
- **Height:** 5 ft (1.5 m)
- **Empty weight:** 313 lb (14 kg)
- **Gross weight:** 563 lb (255 kg)
- **Fuel capacity:** 12 KWh
- **Powerplant:** 8 × 112 lb thrust/engine electric motors, 42.0 hp (31.3 kW) each
- **Propellers:** 2-bladed, 3 ft (0.91 m) diameter composite, high aspect ratio

Performance

- **Cruise speed: 70 KN** (130 km/h, 80 mph
- **Range:** 35 nm (64 km, 35 mi) plus reserves
- **Rate of climb:** 1000 ft/min (5.1 m/s)

Avionics

- Full authority autopilot
- Remote controls
- VHF airband radio

Links to BlackFly operations and Features

https://youtu.be/FI8AemQcclY

https://youtu.be/l53JKod9yfA

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

1. In regard to a stalled aeroplane:
   A. Its nose attitude is high, its angle of attack has exceeded the stalling angle, and its airspeed is low.
   B. Its nose attitude is low, its angle of attack on at least one wing is low, and its airspeed is low.
   C. Its nose attitude is high, its angle of attack on at least one wing has exceeded the stalling angle, and its airspeed is low.
   D. Its nose attitude is not relevant, its angle of attack on at least one wing has exceeded the stalling angle, and its airspeed is not relevant.

2. An aircraft flies on a track of 360° at a TAS of 100 knots in still air. How long will it take the aircraft to fly from 28° South to 27° South?
   A. 36 minutes.
   B. 40.5 minutes.
   C. 42 minutes.
   D. 43.5 minutes.

3. If the compass turning error is overturn 30° on North and 0° on West, what will be the turning error on 330? Assume a rate 1 turn.
   A. 10° over turn.
   B. 20° over turn
   C. 10° under turn.
   D. 20° under turn.

4. An aeroplane manufacturer limits their aircraft to 6G positive at its MTOW of 1200 kg. What would be the limit load factor be if the MTOW used was reduced to 600 kg?
   A. It would increase by 100%.
   B. It would increase by 50%.
   C. It would decrease by 50%.
   D. The limit load factor would remain the same.

5. Which combination of the following factors would diminish an aeroplane take-off performance the greatest?
   A. Low QNH, and low ambient air temperature.
   B. A high QNH, and low ambient air temperature.
   C. Low QNH, and high ambient air temperature
   D. A high QNH, and high ambient air temperature.

See answers and explanations overleaf

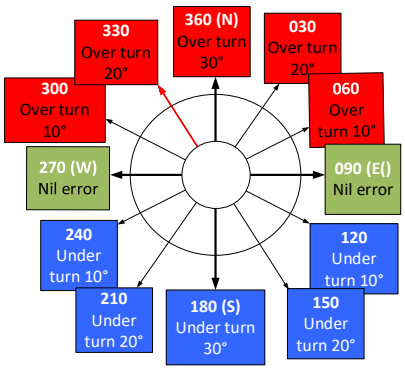
Answers: 1, D, 2, A, 3, B, 4, D, 5, C.

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. D is correct. Neither nose attitude nor airspeed are relevant to a stall. In most deliberate stalls, these appear to be consistent because of the way we carry out the stalling exercise BUT, as the stall is purely a factor of an excessive angle of attack which may be achieved at any stage of flight, only the angle of attack is relevant.
   See
   https://www.skybrary.aero/index.php/Stall#:~:text=A%20stall%20occurs%20when%20the,is%20typically%20around%2015%C2%B0

2. A is correct. The distance between any two parallels of latitude is 60 nautical miles. As the air is still, the TAS and groundspeed will be the same (100 knots) so the time can be easily calculated as distance/speed or 60/100 = 36 minutes.

3. B is correct. Using a rate 1 turn (3° /second) the errors turning onto north and south are an overturn of 30° onto North and an under turn of 30° onto south. With no error on East or West, the error will then be 20 over turn onto 330 (i.e., 2/3 of 30).



Turning at rate 1 and a constant airspeed

4. D is correct. The Limit Load factors are set by the manufacturer and are calculated at the MTOW for that aeroplane type. Changing the operating weight has absolutely no effect on the aircraft limitations as specified by the manufacturer in the Flight Manual so the limit Load Factors as published in the Flight Manual will remain unchanged.

5. C is correct. Aircraft performance is dependent upon air density. A low QNH will diminish air density as will a high air temperature. Consequently, having a low QNH and a high ambient temperature will provide the poorest take-off performance.
   See
   https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/13_phak_ch11.pdf

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Aircraft Books, Parts, and Tools etc.

Books

Birch & Branson Vol. 1 Basic Flight Training	Pre-owned but excellent condition	**$65.00**
As the Pro Flies (by John Hoyt)	Used but "mint"	**$60.00**
Fate is the Hunter (by Ernest K Gan)	Pre-owned but very good	**$45.00**

Parts and Tools

Item	Condition	Price
VDO Volt Readout instrument	Brand New	**$70.00**
Toolpro 3/8 drive Torque Wrench	As new	**$50.00**
Altimeter. Simple – single hand	As new	**$50.00**
Oil Pressure indicator, (gauge and sender)	New – still in box	**$80.00**
Flight bag. 3 section (2 x zips and 1 x locking flap)	Used but good	**$100.00**

Tyres

1 only – 13cm X 5.00 – 6 tyre	Unused	**$20.00**
1 only – 13cm 4.00 – 6 tyre	Unused	**$20.00**

Headsets

AvCom headset. Functions perfectly	Excellent	**$150.00**

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

Altimeter for Sale

This simple altimeter I purchased at Oshkosh is now surplus to my requirements and I am seeking a new home for it.

Its face is absolutely clear, it has never been used, and the subscale is provided in "HG.

It is in as-new condition and certificated. For a copy of the certificate, and/or further details, contact

Colin Thorpe. Tel: LL **(07) 3200 1442**, or

Mob: **0419 758 125**

$120

Aircraft for Sale

¾ scale replica Spitfire

$55,000 neg

This aircraft is airworthy, flown regularly, and always hangared. Registered 19-1993, it is powered by a 6-cylinder Jabiru engine (number 33a-23) with 300 hours TTIS. The airframe has logged a mere 320 hours TTIS. This delightful aircraft recently been fitted with new mounting rubber, a new alternator and regulator, a new fuel pump, and jack stands

It handles superbly and is available for immediate collection or delivery by arrangement.

Kept at Kentville in the Lockyer Valley, interested parties should contact either:

Kev Walters on Tel. **0488540011** or

William Watson on Tel., **0447 186 336**

Aircraft for Sale

$ Make Me an Offer$

Cobham Cobra

An opportunity to buy a unique aircraft.

I now have a Foxbat, and can't to afford to keep 2 aircraft. The Cobra was advertised for about a year in Sport Pilot, with many enquiries, but no resulting sale. Rather than continuing to spend on hangarage and advertising I decided to de-register it, remove the wings, and trailer it home to my shed. I don't intend to ever fly it again so, make me an offer. It provides very cheap and enjoyable flying.

It is a one-off design, a single seater with a fully enclosed cockpit. It has a 24 foot wing-span, and is powered by a VW engine that provides sporty performance and superb handling. The airframe has logged 653 hours and the engine 553 since installation. It is easy to start, but requires hand-propping.

To see it in action, go to
https://www.youtube.com/watch?v=V5Qx4csNw_A&list=PLpBv2A6hk66Tg9DiCsjEtt4o4o8ygcTju&index=1&t=22s

It cruises at around 80 knots at 11-12 litres/hr. The tanks hold 48 litres so it has a very reasonable range. For my approaches I use 50 knots on my initial approach down to 40 knots on short final. You will want a fair bit of tailwheel time.

For further details contact Tony Meggs on (02) 66891009 or tonymeggs@fastmail.fm

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Slipstream Genesis for Sale **$14,000.00**

Imported and built 2001. Two seats side by side, powered by 80 hp 912UL Rotax, driving a Warp Drive 3 bladed prop. Cruise 70-75 knots. Empty weight 304kg, MTOW 544 kg, Payload 240 kg. Fuel tanks hold 78 litres. With fuel burn averaging 16 litres/hr, still air endurance (nil reserve) is theoretically 5 hours, or 350 nm. Aircraft always hangared. It has been set up for stock control/ mustering or photography, and is not fitted with doors. Registered until 13 October 2021, currently flying, and ready to fly away.

Total Hours Airframe: 144.6. Current, up-to-date, logbook.

Total Hours Engine: 1673.9. Annuals/100 hourly inspection done 01/09/20. Sprag clutch replaced January 2020, gearbox overhauled January 2020.Just undergone ignition system overhaul. One CDI Ignition unit replaced PLUS brand-new spare unit included in sale. Easy aircraft to maintain - everything is in the open. Comes with spare main undercarriage legs, spare main wheel, and nosewheel with other assorted spare parts included.

Fabric good, seats are good, interior is tidy. Fitted with XCOM radio/intercom. Basic VFR panel with appropriate engine instruments, and compass.

An article on this aircraft was published in Sport Pilot, June 2019 issue. See front cover and pilot report within.

Must sell: two aeroplanes are one too many. Quick sale - Fly it away for $14,000.

Contact **Rob Knight tel. 0400 89 3632**, **or email** kni.rob@bigpond.com for details and POH.