BRISBANE VALLEY FLYER

June 2023

BRISBANE VALLEY SPORT AVIATION CLUB INC

Watts Bridge Memorial Airfield, Cressbrook-Caboonbah Road, Toogoolawah, Q'ld 4313.

Rob Knight (Editor) Tel: 0400 89 3632, Email kni.rob@bigpond.com

The **RV-1,** a Stits Playboy constructed with modifications by Richard VanGrunsven. The aircraft was the first of a series of Van's aircraft that became the most popular homebuilt aircraft produced. See page 10.

Peter Ratcliffe (Pres.) 0418 159 429
John Innes (Vice Pres.) 0417 643610
Ian Ratcliffe (Treasurer) 0418 728 328
Acting Secretary 0418 159 429

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Greetings members,

Well, we are now in May, how the year is going by fast.

Our last meeting was well attended and after the meeting we had a small working bee. There were a lot of small jobs to be done from cleaning both internal and external, and some small painting jobs. All of the jobs were just a little maintenance to keep the clubhouse looking spick-and-span. With the number of helpers available, the load was very small on each member and I would like to thank everyone who came along and helped.

We managed to get just about everything finished. Just a few little bits left to do and we will get them done very soon.

Our next meeting will be an away day and it will be held at Cormorant Bay Reserve Wivenhoe Dam. So please come along for a great day with family and friends. Please see the map of access to Cormorant Bay overleaf.

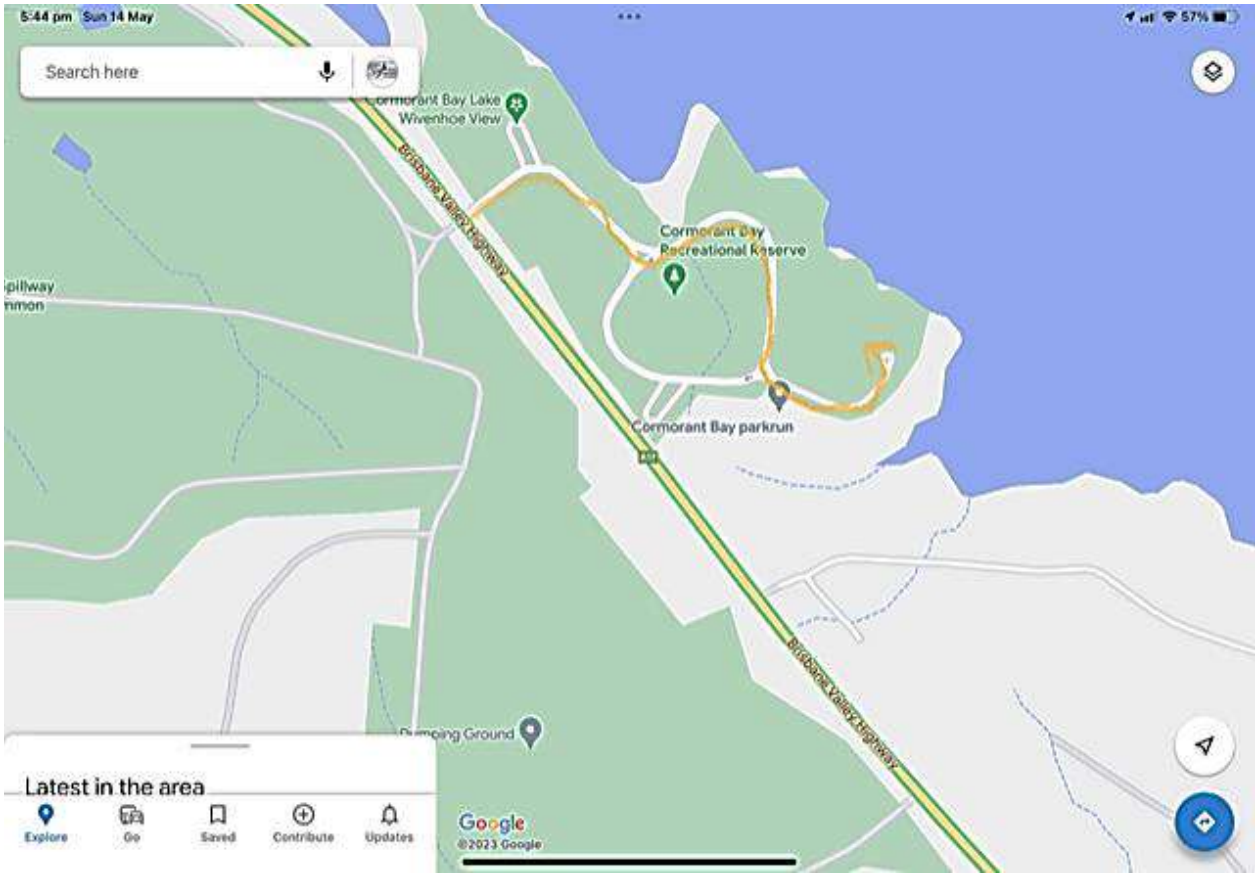
Please let us know if you are coming for catering purposes.

Thank you

Best wishes

Peter Ratcliffe
President BVSAC

Brisbane Valley Flyer -



Birds Don't Scud-Run

By Rob Knight

It was December 1973. I was 24 and an enthusiastic "C" Category instructor determined to teach the world to fly. That, on top of my past ag flying gave me just the faint glimmerings of aviation maturity that was probably the reason I successfully concluded the flight that I am about to relate.

ZK-BWN, painted red and white

I was part-time instructing for the Pukekohe East Flying Group (PEFG) for which home was a crop-dusting strip that ran along the edge of an extinct volcanic crater just east of Pukekohe, south of Auckland, New Zealand. The strip owner, Bill Priest, was a senior citizen holding a PPL. He was also gracious and gentlemanly and provided the strip and the hanger free of charge to the Group. PEFG's single aircraft was a 1960 Cessna 172A, ZK-BWN, powered with a 145hp Continental 0300 engine. Whiskey November still had the full turtle-deck behind the cabin but sported the new Cessna-design swept tail. All the Group's activities took place in this machine, dual training, solo practice, and member hire. In accord with the PEFG's policy, I was not paid for my instructing time but was, instead, given free private flying in Whiskey November as recompense. Maggie and I decided to take advantage of this policy and fly to Kaitaia to visit my parents so I set about accumulating sufficient time.

The far north area

The weather when we left could best be described as "moody". A high ceiling, around 10,000 feet, and the cloud that provided it was unusually thick giving the world a dull, diffused, and subdued light. You could say it looked threatening, but there was little definable threat. The area forecast was perfectly adequate for VFR fight, the viz value for the entire 155 nm journey was nowhere less than 30 miles with no cloud forecast below 5000 feet. The wind was light and variable up to 7000 and I had no intentions of scaling that height. The aerodrome forecasts for Kaitaia and Whangarei listed SCT AS at 7500, and SCT CU at 4500. What could be better except some sunshine?

The plan I filed took us via the Manukau Heads on the West Coast to duck underneath the controlled airspace that crossed the Island at that point. With Auckland International airport at Mangere on the Manukau Harbour, and RNZAF Whenuapai on the northern edge of the Waitemata Harbour, it was easier to traverse the transit lanes than dodge biggies in the controlled airspace above. From the Heads, it was a straight-line track to Kaitaia 132nm further on. This track passed us just west of Dargaville, and a little further west of Kaikohe, both with airfields I knew well as handy alternates. This whole area was my back-yard: I had grown up in the far north and all my PPL training, plus most of my CPL had taken place there. I pre-flighted, loaded whiskey November, and used the phone in the hangar to file my plan. I also planned a direct track if I could get a clearance across Auckland City.

According to the notes I still have, we got airborne from Pukekohe East at 1010 NZST. The tanks were absolutely full; fuel was expensive at Kaitaia so I planned not to refuel. I turned the nose to the Heads called Auckland Information and my initial position report with an ETA Kaitaia of 1155. That set me up for the planned flight but I then changed to Auckland CTA[1] and requested a clearance direct across the city and use my secret plan B to fly direct to Kaitaia. They gave it, with the qualifier

[1] Auckland Control Area

that I had to be level at 6000 feet and call before I entered their Zone. I pulled the nose around and pushed the throttle forward. Flight plan B, the direct track, was now operational.

At 6000 we could see for many miles. Whilst the distance was hazy and dull, the air was clearly VMC[2] ahead. Hell, I could even make out the shape of the Brynderwyn hills in the distance. Even better, with the new direct track we'd cut 16 minutes off our time and be at Kaitaia at 1139. From our 6000-foot vantage point we could easily see both the West Coast to port and the East coast to starboard.

I called departing the CTA and was advised of an Area Forecast update. I grabbed my pen and wrote the new details along the bottom edge of my flight plan. There was now a rain band moving in from the west, from the Tasman Sea. The cloud base was expected to fall to 3500 feet, and frequent showers would appear. Visibility was down to 20 nm in light rain. In the dull light and haze all I could see was a darkening of the sky to the west. Ahead it was still clearly VMC safe for VFR ops.

Approaching Warkworth, about 20 minutes later, the rain began. Just tiny exploding spots on the windscreen but it developed into heavier drops streaking across the screen and spreading in streams down each side window. Cloud forming ahead directed me to drop down to about 2500 feet to be under the newly forecast cloud. I was not yet alarmed; it was still comfortable VMC.

But the cloud continued to form as the cold rain cooled the air around us. I restarted my descent to remain beneath it levelling out at 1500 feet QNH, about 1000 AGL generally in that area. To port the visibility was fading and the sky was darkening by the minute. It really did look ominous now. This was not going to remain VMC so I decided to turn back and perhaps wait it out at Dairy Flat, an airfield not far behind us that I could easily find in deteriorating conditions.

Back on 118.5 MHz on the VHF, I called Auckland Information requesting a weather update. The response was horrifying – no airfields in the Auckland area were available for VFR. Ardmore was closed, and Whenuapia. The Met conditions had deteriorated quickly and now only Auckland International was still open, and that was for IFR only, conditions there were below even Special VFR minima. Dairy Flat was no longer a safe bet.

Bugger! With the rain ever increasing in density, I changed to 118.1 for Whangarei. Surely I could sneak into the Whangarei Harbour for Onerahi, the airport there. On the harbour shoreline, it was easy to find and only 133 feet AMSL. However, in my then location, at the altitude I was holding, the Brynderwyn hill blocked VHF radio transmissions and my calls were unanswered.

The cloud base was still descending, actually forming around us, so, going down, with power and carburettor heat ON, I headed east to the coast. The wind had risen and now mechanical turbulence made itself felt. I could see the colour change where the surf met the beach at the coast so I picked out where Waipu was likely to be and pointed the nose at it. Perhaps I could make a beach landing. There would be little shelter for the aircraft but I was not really worrying about that. The conditions were about as bad as you could get and still fly visually – borderline bottom-end VMC. I checked the engine for carb ice again, pulled the power back a little and lowered two notches of flap. Slowed to 70 knots and trimmed in the bad-weather configuration for Whiskey November.

Alas, I hadn't thought of the tide and it was right in. Surging surf swept into the sand dunes and hills; there was no real beach. Just a surging white chaos of water with streams of spume being spread across the tops of the swells and waves. Double bugger! Better continue to Whangarei. I turned to port and, now laying off about 20 degrees for starboard drift, and tracked north for the entrance to Whangarei's harbour, the oil refinery's flare just visible on the southern side.

No chance there, either; the whole harbour was blacked-out in dense, pouring rain, and even though I was now at about 500 feet above the sea, I could see the cloud base up the harbour was descending to a point well below where I was, Now, with straight-line transmission signals available, I raised Whangarei Radio and gave the operator a new position report. When I asked for local

[2] Visual Meteorological Condition – weather suitable for Visual Flight Rules operations.

conditions, his news was as bad as the details I had received earlier. Whangarei was totally and absolutely closed to all operations. He couldn't even see the airfield boundaries in the low cloud and streaming rain. His estimate of the cloud base was 50 feet, and visibility about 100 yards maximum. The surface wind was swinging 330 to 350 at 30 knots, with gusts to 45 knots. Interesting – if I could get there, I might have a straight-in approach for 24 available, but coming with that was a 30-45 knot crosswind? Strike that option out, too!

As I still had a cloud base of around 400 feet, and could still see a little ahead, I was better off here than trying to IFR my way in a VFR equipped aircraft into an airfield that I was unlikely to find anyway. At times like these there's a feeling of desperation to give the aeroplane to someone else – but there's no-one to give it to. As the pilot-in-command you stand alone and it is bloody lonely!

I headed seaward, towards base of the looming and towering cloud-hidden pinnacle that forms the north head of the Whangarei Harbour. I was committing us to head into the appalling weather that lay ahead. The remaining fuel levels were about the only thing that was good. As an extra precaution, I pulled down the two old fashioned solid sun-visors with which BWN was fitted. If there were Cbs with lightning about, they might just reduce the flash effects.

Maggie and I pulled the life jackets from their under-seat hidey-holes and struggled to put them on – the first time I had ever done it. *(Message to readers – do it yourself sometime soon – you'll learn a lot about contortionism in confined spaces.)* Cold, sharp-cornered, and prickly, they did nothing to make either of us feel any better but they did make it a little safer if we had to ditch off the coast, or a downdraft put us into the drink. Rounding Bream Head, I again set 350 on the compass and headed up the coast.

The rain further intensified and eventually there was no forward visibility at all, just a flooded screen. All my visibility was out to the sides and I could see the blurred surf though the streams of water scooting past. Inland, it might have been midnight – it was black, and no details were visible at all. I saw Awarua Rock, covered with sweeping seas and green sea-weed, but not any part of Kauri Mountain. In due course I saw the small dent of Awahoa Bay, but that disappeared, too, into the rain. I turned to port at Taiharuru for the next headland. Then a vague clearance let me see across its little isthmus and, when clear, I ran up to Ngunguru Bay. That altimeter was sitting on about 200 feet in the QNH given by Whangarei, but I had no idea what the local QNH really was. The pressure had probably fallen so I guessed I was a little higher than that. I was in the realm of the sea-birds, renown in this area, I hoped they were sheltering. A fuel check – still plenty – a small mercy

We never saw Ngunguru, or Tutukaka, both were hidden in the dark gloom inland. Matapouri I also missed even though I would have passed within half a mile of it as I crossed its little bay. I was very aware that a nasty trap was coming up at Whananaki. At the Bay's north end I would need to make a savage right turn of about 270 degrees to avoid the rising ground on the north side of the inlet. I watched the shore line and when I guessed I was about halfway along it, I turned right and flew into the gloom, out of gliding distance from the surf. I picked out the headland after just a few minutes of rising concern, and eased around the point. I re-set the nose to give 350 on the compass.

My next concern was getting around Cape Brett. This is a particularly foul section of the coast and much feared by yachties who generally maintained a good distance out to sea when rounding it to enter the Bay of Islands. However, cautiously staggering towards the Cape, I saw across to Parekura Bay and I turned left. This also put me back onto about 350 degrees and I dodged the Cape.

In the Bay the cloud base relented and I sneaked back to 500 feet. With slightly raised visibility, the Islands for which the Bay is named appeared ahead and I could confirm the distinctive silhouette of Roberton Island. Then, over to the left Russell appeared in the easing rain. I knew exactly where we were and we were OK.

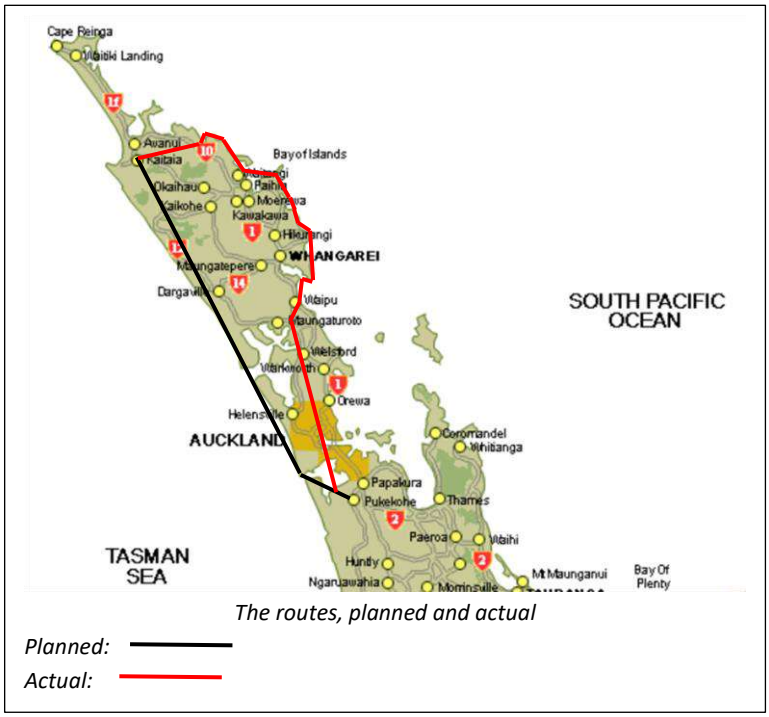
But the weather Gods were not finished with us yet. After getting across the narrow neck of the beginning of the Purerua Peninsular, we entered Takou Bay and the weather came down again, just

as bad as ever, I was back to no forward visibility and peeking through the rivers of water streaming past the side windows.

At the next headland we ran into severe mechanical turbulence which, at 200 feet was really alarming. Then, a bright ray of sunshine streamed through the murk. And it was right ahead. Ah, icing on the cake – there's a headland shining like the Bethlehem Star directly ahead. Then I looked at the compass. It was indicating a new heading of about 010 degrees. That wasn't right. The map, when I looked at it, showed it was the Cavalli Islands I was heading for, a series of jagged rocks that are so rough and inhospitable in many places that even landing from a boat has problems. Had I continued and the weather remained with low visibility, I could have orbited the islands, lost, until my fuel ran out. Nasty thought. I steered the nose back into the dim light on my heading of 350 degrees and waited. Taupo Bay passed and then when we were approaching the Whangaroa Harbour entrance, the weather, bless its cotton-pickin' socks, cleared.

In a matter of just a few minutes the ceiling vanished under a blue sky. Visibility returned to 30 plus miles and it seemed that we could again see forever – but in bright clear air now. Whangaroa Harbour opened wide so I turned west and flew into the Bay to track directly to Kaitaia.

Kaitaia was controlled at that time so I called and gave my position as being five miles south of Coopers Beach at 2500 feet, inbound. He was startled and said he'd been calling us for some time, concerned we were missing in the storm. His name was Roy Gray and I had known him since childhood and his concern was genuine. He gave me the conditions, no known traffic and requested I call again at three miles.



The routes, planned and actual

Ten minutes later, as I turned finals for runway 24 (it no longer exists today) he cleared me to land and warned me there might be water on the runway. What an understatement – there was probably two inches of standing water sitting on the ground and I dropped Whisky November's wheels straight into it. She seemed to stop dead. It was only our tight harnesses that stopped us leaving reverse busts in the instrument panel. And once again, for a moment there was no visibility forward, but this time it only lasted a few seconds before it all ran off.

Roy debriefed me, asking how we had made it all the way to Kaitaia. The unforecast weather had been a mean little cold front that swept across the northern North Island. Electricity was out all around Kaitaia and Kaikoke, and slips blocked the main road north. The scheduled NAC F27 Fokker Friendship from Auckland had turned back to Mangere suffering from severe icing at FL330. Our flight time, 3 hours and 10 minutes. I would need fuel to get home.

This experience illustrates that, even following all the rules and ensuring things are suitable to fly, nature and fate still hold trump cards. Your only defense is to be constantly aware, to know what you are doing and act decisively. And you must always have a back-up plan. Make these attributes fixed habits, so you can best cope with any flight that turn to s##t. That way you'll have the best chance, too, of writing about it five decades later.

Some may wonder why I would present what might be construed as a blatant advertisement for "pressing on ", when inclement weather adds excessive risk to the successful planned operation. Absolutely NOT! The purpose of this article is to remind readers that, in spite of a pilot's best efforts, occasionally fate, karma, God, to whatever deity you might wish to attribute misfortune, as in all aspects of life, just doesn't let things fall your way. You'll have to fight an unexpected battle for success.

In the flight I depict, the forecast weather was comfortably within VMC minimums, there were no predicted atmospheric issues that I could logically expect to impact adversely on the planned operation so no reason to suspect any potentially serious prophesied issues influencing my successful carrying out of the operation. While the front did move across the island from the west, the actual onset of the weather deteoriation was from above, the conditions fell to below VMC minimums around us, not from one side or the other where we could run away from its direction of onset. New Zealand's island topography restricts one to only a very narrow land mass, and once the coast is reached, there's nowhere further to run.

While such weather issues are far less likely in Australian skies (for reasons of topography and latitude) take the message that, anywhere you may fly, in spite of your genuine efforts to operate within the law and carry out all your pilot-in-command duties completely correctly, fate can stick its cold wet fingers into your best-laid plans and summarily shred them. You are on your own! In such situations, your very survival will depend on you knowing your stuff, making good decisions based on your own knowledge and skills, and tempering every decision with logic.

Keep your wits about you.

Happy flying

Van's Aircraft, 50 Years in the Making

By Julie Boatman. March 10, 2023

A maker of kits creates a golden opportunity for new and returning builders.

A maker of kits creates a golden opportunity for new and returning builders. [Credit: Stephen Yeates]

The pallets stack high inside the inventory hangar. Crates ready to be filled with kits line the ramp outside. It feels callous to say the pandemic resulted in any good consequences, but one was undoubtedly felt by Van's Aircraft: Pilots stayed home—and built airplanes. The experimental/amateur-built (E/AB) category of aircraft saw intense growth as homegrown projects—and the ability to isolate in a hangar while doing them—took on a new shine. Instead of making jam and nurturing sourdough starter, hundreds of new builders "fermented" aircraft across the U.S.

During the year marking its 50th anniversary, Van's worked hard to catch up. Facing workforce and supply chain ups and downs that have plagued the entire industry, the Aurora, Oregon-based OEM added shifts and placed orders on backlog from 12 to 18 months. The company managed to stockpile some key materials—such as the gauges of aluminium it bends and stamps into pre-built parts—yet it still waits on others, from the wood to build crates to the avionics finishing kits.

For most of its business, Van's designs and builds kits—and in the case of the SLSA version of the RV-12, manufactures the aircraft itself. Greg Hughes, chief operating officer, has been with the company since 2018. He says of the RV-12: "It's not like we're building a different airplane there—we're just building the same kit that you would."

Hughes attributes the company's mission to Rian Johnson, president, chief engineer, and CTO, who is known to state often: "We reserve the right to get better," according to Hughes. "That's part of our ongoing commitment to quality, safety, and just general product [development] over time. If we discover something that we need to do better, we do it. It's not a 'head in the sand' kind of game."

The real growth of Van's began with the single-seat RV-3, as Richard "Dick" VanGrunsven, aka "Van," laid the foundation for the company selling plans and parts for the model. Van's has since seen the RV-4, RV-6, RV-7, RV-8, RV-9, RV-10, RV-12, and RV-14 launched over the years—but not necessarily in that order. The RV-5 was a one-off, as Hughes explains.

"We have refined [the kits] significantly over time," Hughes says. "So, if you go find an RV-3 kit, it's pretty much a paper plans-built model." It's a fundamental, basic kit that's "circa 1970s, early 80s." The RV-6 morphed over time—Van's no longer sells them—and the RV-7 replaced it. "It changed over time to take on pre-punched holes. The RV-7 actually came after the RV-8—the 8, 9, and 7 taking on more pre-punched holes."

Since moving from the airpark in North Plains, Oregon, that the VanGrunsven built to the Aurora State Airport (KUAO) south of Portland, the company has expanded significantly to meet demand. As of October 2022, more than 11,000 Van's Aircraft have been completed and flown. More than 400 kits go out the door each year.

The main building at Van's houses offices, the parts inventory, and the primary assembly areas. Interested parties can stop by to take a look at the facilities during normal weeks. \ [Credit: Stephen Yeates]

"We'll have people come by here and take a tour because they've been flying the airplane for 20 years, but they've never been here," Hughes says.

Kits go into large shipping crates that come together on site to match their contents. [Credit: Stephen Yeates]

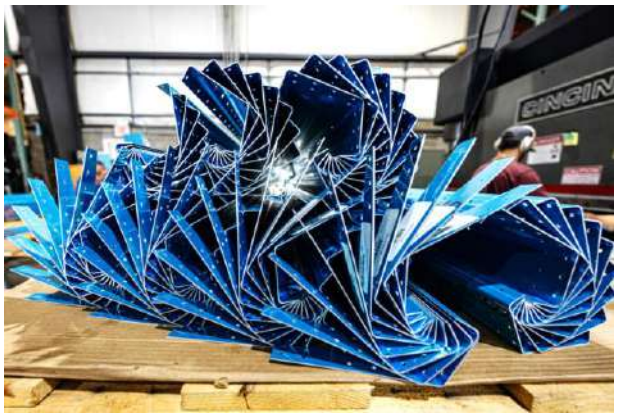
The kits come with detailed instructions that have been refined extensively over the decades, culminating in a process to follow that lays it out step by step—so it's approachable for a new builder.

"The whole point of E/AB is to …50 percent of it is educational. Half the reason for E/AB is the opportunity to learn. And what you learn along the way, you learn by doing," Hughes says. "Our mission is to build an incredible airplane… An uncommon airplane for common owners that's really good at a wide cross-section of things."

The process for putting together the Van's-built light sport RV-12 follows the same path, essentially, as an owner would when building the ELSA version from a kit—except technicians build a couple each month rather than one in a lifetime. [Credit: Stephen Yeates]

Investments in CNC machines and other tooling ensure that the precision of parts that go into a kit has improved over the past 20 years to assist the builder in the process. [Credit: Stephen Yeates]

Parts for several models stand ready for crating into kits. [Credit: Stephen Yeates]

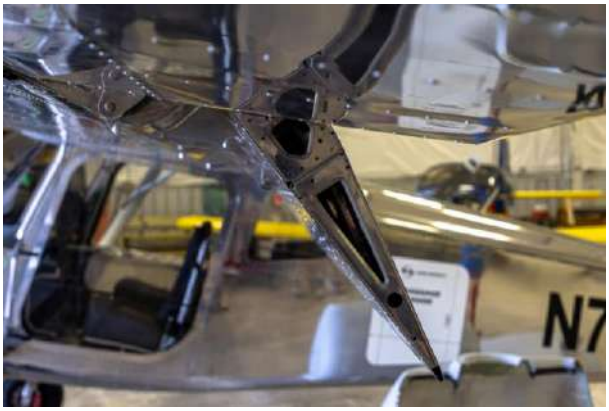


"On the 10, 12, and 14, those holes are already final sized, and they always line up… because of the advances in the CNC punch press and bending machines, and some of the computer technology," that Van's has implemented in its plant, according to Hughes. "The advances in technology have enabled us to offer kits that are more ready to assemble." [Credit: Stephen Yeates]

Skilled technicians craft the parts that can be more rapidly and accurately formed by the company's tooling. The effort ensures that Van's kits can be assembled by first-time builders. [Credit: Stephen Yeates]

"We want to do what we can to make it approachable, affordable, and doable for the average person," Hughes says. "You don't have to have special training to build an RV.

"[For the] RV-15, we're talking about a whole new airplane design, not just somebody else building the airplane… the level of detail and the amount of safety and caution and small incremental expansion… is quite intentional," Hughes says. [Credit: Stephen Yeates]



During our visit, Van's founder Dick VanGrunsven stopped by to check on the progress of the RV-15. The aircraft was flown to EAA AirVenture 2022 with a nonstandard fuel tank sitting in the right seat, since moved behind the seats. At the show, admirers surrounded the new model like they would a rock star. [Credit: Stephen Yeates]

Right. "We're much more about getting it right than getting it right now," Hughes says. Van's is taking the time to refine and validate the 15 before contemplating releasing a kit into the wild. That includes a novel design for the tailwheel assembly for which Van's has pursued a patent, and advanced main gear shock absorption. [Credit: Stephen Yeates]

Test and demo flights depart from a hangar on the main taxiway at Aurora State Airport (KUAO). The aircraft on hand include an RV-8, an RV-12, and an RV-14—plus the prototype RV-15 and a few other artifacts from Van's history. [Credit: Stephen Yeates]

Julie Boatman

Based in Maryland, Julie is an editor, aviation educator, and author. She holds an airline transport pilot certificate with Douglas DC-3 and CE510 (Citation Mustang) type ratings. She's a CFI/CFII since 1993, specializing in advanced aircraft and flight instructor development. Follow Julie on Twitter @julieinthesky.

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The Veteran Spy Plane Too Valuable to Replace

By Mark Piesing. 11th December 2020

Although no relic, the U-2 is certainly synonymous with the Cold War.

The ubiquitous U2, part of the skies since 1955

Satellites – and drones – were intended to replace it. But the 65-year-old Lockheed U-2 is still at the top of its game, flying missions in an environment no other aircraft can operate in.

Nearly twice as wide as it is long, the Lockheed U-2 spy plane is one of the most distinctive aircraft in the United States Air Force – and the hardest aircraft to fly, earning itself the nickname "The Dragon Lady".

The U-2's 63ft-long (19m) thin fuselage, two high-aspect, un-swept glider-like wings, and powerful engine are designed to rocket the plane higher than 70,000ft (21km) – and, crucially, keep it there.

The U-2 operates at such height and at such a wafer-thin margin between its maximum speed and its stall speed that pilots call its cruising altitude "coffin corner". The missions there last hours at a time.

The aircraft's slender design is sometimes difficult to see. Often, it is covered in pods, spiky antennae, mysterious bulges and nosecones hiding the sensors, radar, cameras and communications equipment it needs to complete its missions. These different sensors can be plugged into the plane almost as if someone was building a model kit. There is an urban myth that one such bulge or pod contains a cloaking device – an electronic signal that renders it invisible to radar.

At 70,000ft and above, the "Dragon Lady" still has the stratosphere largely to itself, just as it did 65 years ago on its first flight. At these altitudes, the pilot is more astronaut than aviator. In the cocoon-like, pressurised cockpit of the U-2, wrapped in a bulky pressure suit with a large spherical helmet, the pilot breathes 100% oxygen. Some of the features of this kit can still be found on spacesuits in use today.

In air this thin the margins between living and dying are narrow. Indeed, the pilot faces the constant danger of hypoxia (lack of oxygen) and altitude-induced decompression sickness. Like any plane, the U-2 has to fly fast enough that the plane doesn't stall and not so fast that the plane breaks up – the

challenge for the U-2 pilot is that at 70,000ft there may be only a few miles an hour difference. An accidental nudge on the controls could spell disaster.

Close to the ground the plane's mechanical controls, easy to manipulate at high altitude, now take muscle power. The U-2's lightweight design makes the plane liable to float over runways, bounce back into the air if the landing is too hard and very sensitive to cross winds. The weight-saving bicycle-style landing gear makes it difficult – and hard work – to keep the plane in a straight line and its wings level as it slows down.

The visibility from the cockpit is so limited that when landing the pilot has to rely on instructions from another U-2 pilot driving a car that races on to the runway when the plane is coming into land. These chase cars have reached speeds close to 140mph (224km/h).

The U-2 was designed to snoop over Soviet territory in order to keep tabs on the USSR's military (Credit: Universal History Archive/Getty Images)

"The U-2 really attracts the kind of pilots who want to say 'I fly the most difficult aeroplane in the inventory'," says Greg Birdsall, Lockheed Martin's U-2 deputy programme manager. "They take a pilot candidate and put him in a trainer aircraft with a seasoned instructor pilot in the backseat to see how they take to the peculiar handling characteristics of the aeroplane." Only around 10–15% of pilots who apply to join the programme are accepted.

In the age of automation and algorithms it is easy to imagine that these spy planes and their pilots with the "right stuff" are a relic from the Cold War – but that would be wrong. For the 31 years since the fall of the Berlin Wall, the U-2 has been intercepting speech or text, acquiring electronic signals, taking photographs and using a special form of radar to capture digital imagery.

The U-2 has also acquired new roles, like that of a data relay. Its ability to fly high in the sky meant that it was in the perfect position to relay information from the battlefield to headquarters. In the process it has outlasted rival planes and seen off the surveillance satellites that were supposed to make it redundant.

Now the 31 operational U-2s in the USAF fleet are about to undergo a $50m (£37.8m) update and acquire a new mission which could see them fly on for another 30 more years. It may also see them go head-to-head with a drone so secret that its existence has yet to be officially acknowledged.

"We are not going away as a programme and we are investing heavily to bring the U-2 into its new mission environment," says Lockheed Martin U-2 programme director Irene Helley. "In this new era there is no sunset date planned."

Although no relic, the U-2 is certainly synonymous with the Cold War. In the 1950s, President Dwight D Eisenhower's administration received several shocks over the Soviet Union's nuclear capabilities. This was due to its intelligence gap. The Soviet Union was a closed society that was difficult for the Central Intelligence Agency (CIA) to penetrate. The lack of spies in the right places meant that the president needed a high-altitude spy plane to tell him exactly what the Soviet Union was up to. And he needed it quickly.

In engineering genius Kelly Johnson and his team at the secretive “Skunk Works”, Lockheed had exactly the people to create it for him. The mythology of the “Skunk Works” was born when Johnson and his engineers designed and built the airframe of USAF’s first jet in just 143 days back in 1943. In late 1954, they set to work on this secretive spyplane.

Landing a U-2 comes with some very special challenges (Credit: Jon Hobley/MI News/NurPhoto via Getty Images)

The plane had to sustain flight above 70,000ft, have a 3,000-mile (4,800km) range and carry 700lb (212kg) of equipment. The U-2 flew for the first time only eight months later, on 1 August 1955, in a remote location in Nevada now known as Area 51. It was clear that Johnson and his team had come up with something special.

“The U-2 marks the start of a shift towards technical intelligence that is solving these intelligence problems not by John le Carré-style spies on the ground, but through advanced technology,” says Peter J Westwick, director of the Aerospace History Project at the Huntington-USC Institute on California and the West. He also wrote Stealth: The Secret Contest to Invent Invisible Aircraft and says, “the U-2 is really kind of the first big technological jump into technical intelligence”.

The U-2’s story could have been very different. In 1966 its future looked bleak; only 15 of the original 55 U-2s built were still in operation. Crucially, the decision was made to restart production in the 1980s, a tricky business when many of the original engineers had retired. The planes that flew off the rebuilt production lines certainly looked similar to the original, but they were nearly 40% bigger and had a new modular design in order to carry more – and heavier – equipment, and switch it more easily for different kinds of missions.

The U-2s in operation today can carry nearly three times as much twice as far and fly for three times as long as the original aircraft. In the 1990s they were substantially updated again; that upgrading process continues to this day.

The U-2 has so far seen off at least five possible replacements. The first, in the 1970s, was from the first-generation UAVs (unmanned aerial vehicles). The whale-like Northrup Grumman RQ-4 Global Hawk, a high-altitude remotely piloted surveillance aircraft, is one of the most recent. When it first appeared in 1998 the U-2 was more than 40 years old. To pay for the U-2’s update, 24 Global Hawks are going to have to be scrapped.

With the Global Hawk sidelined, the evolution of the U-2 can take its next step. The changes to the plane will include better avionics, a touchscreen cockpit (that you can use with a pressure suit) and a new mission computer that will allow the plane to run the new Open Mission System (OMS). A bit like a spyplane equivalent of the Android system you might find on your mobile phone, OMS will enable aircraft like the U-2 to talk easily to the computer systems of tanks, ships, aircraft, satellites and even cyberweapons.

“That the U-2 can serve for another 30 years is really down to the genius of the folks who designed the plane,” says Helley. “When we started rolling off new versions of the plane it was built to have an excess amount of power and space – and the modular way it was redesigned… allows us to continually upgrade it or equip it to serve different types of missions.

"We can take something from concept to a demonstration flight and then testing in the field within weeks or months."

The U-2's experience has been a benefit. "It has a proven high-altitude performance," Helley says. "There is also the recognition that its airframes are still basically teenagers. They have about 80% of their design service life left." Manned platforms are also much better at dealing with surprises than computers. "If you look at space and some of the other types of surveillance capabilities, they depend on a great deal of pre-planning to provide the information required. In contrast, the U-2 is always available and can be ready at a moment's notice."

The U-2's design - a slim body and long wings - help keep it aloft in the thin air of the upper atmosphere (Credit: Lockheed Martin)

"What I am often asked is, why can't satellites do what the U-2 does?" says Chris Pocock, a former aviation journalist and the author of books about the U-2. "Well, they have fantastic capabilities now, but a predictable orbital path. This means that low-orbit spy satellites aren't over any one area for very long, whereas the U-2 can loiter for a long time over one specific spot." Satellites are also increasingly vulnerable to countermeasures such as lasers that can blind spy satellites, jamming or even missiles that can damage or destroy a vital satellite.

The U-2 helped to pioneer the use of a data link to relay intelligence to ground stations which might be thousands of miles away, bouncing the signal first to a satellite above it.

Now this role will become more important with the USAF's ambition for all its computers, irrespective of which company made them, to be able to talk to each other. New sensors or cameras are to be added and removed from the plane quicker and cheaply than ever before and compared to it its rivals.

The U-2 does have one problem: it's not particularly stealthy. And that means it cannot fly over the airspace of other countries without their knowledge. A U-2 was recently spotted by Chinese military flying over their military exercises in South China Sea. It now appears that US defence contractor Northrup Grumman has now built a small fleet of top-secret drones that look like its B-2 bomber to do precisely this. Some believe it could replace the U-2.

These yet-to-be de-classified high-altitude, long-endurance reconnaissance drones popularly called the RQ-180 must have cloaking devices as only the odd "possible" photograph has ever surfaced, an astonishing feat in the digital age. While a cloaking device is a fictional piece of stealth technology that allows planes or spacecraft to become invisible, the top-secret drone is known for its unusual light colour that makes it hard to spot. This has earned it the nickname "Great White Bat", or more whimsically "Shikaka", a fictional sacred white bat from the film Ace Venture 2.

"Whatever I say must be considered provisional," says Pocock. "It must be very stealthy if it's going to go into denied territory and do what the U-2 does over friendly territory, but I don't think it will replace the U-2 because it's apparently fantastically expensive, they are not making many [as few as seven] and there may be not many occasions when they can get permission to fly."

Micro-satellites pose a greater threat to the future of the U-2. Weighing between 10 to 100kg (22 to 220lb) they are small enough to be launched from spaceplanes such as the Boeing X-37. “These micro satellites can be launched from a single rocket launch in such large numbers that they begin to overcome the vulnerabilities of spy satellites in low Earth orbit,” says Pocock. “If you have got 10 or more satellites going around the Earth in chains then you’re are revisiting the same place on Earth in hours not days.”

Yet Helley is confident that the U-2 will see off the threats from future rivals as well as it did the earlier ones. “What else serves in the environment that the U-2 does?” she says. “We see the U-2 as a North Star in a very large constellation of real-time information gathering and dissemination.”

“It is a hard, hard environment to operate in,” adds Birdsall. “Trying to develop something to take its place, or even to complement it at that altitude, wouldn’t be quick, wouldn’t be easy, and would be very costly. When you’ve already got the capability that we’ve got, why do it?”

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Are You X'd up With X'Winds

By Rob Knight

Are you crossed up with cross winds? I used to be. I was apprehensive every time the wind sock pointed any other way but down the runway towards me.

"Why", is the big question? Personally, two factors were prominent - stories from other pilots, and bewildering instruction from a procession of bewildered instructors who gave widely confusing directives. Combined, these became a festering mass of muddles and stress, clouding my thought processes and degrading my performance. There just wasn't time to recognise, assess, and appropriately control, the wide scope of undesired aircraft actions.

Actually, operating across the wind is not difficult at all! It merely requires an understanding of the effects that wind has when acting at different angles to the aeroplane's longitudinal axis, and fundamental knowledge of the effects of an aeroplane's controls. However, add turbulence, stress, and already lowered pilot confidence into it as well, and cross wind operations can become a sobering concern.

There are two parts to this issue – the crosswind approach and the crosswind landing. The crosswind approach, to me has no issues. There are just the two methods of making such an approach and they have both been discussed to destruction. Either tracking with the wings level, where drift maintains the approach line over the extended centreline, or the wing down method where the aircraft is banked with crossed controls and slip does it instead. A good pilot is capable of using either, as he or she deems appropriate. I have a personal preference but it's mine and has no seriously arguable facts to support it. But whatever method is used, the sole purpose of the approach is to set the pilot up for a flare and float at the right place, the right time, the right height, and the right airspeed.

This tract looks at the second part – the crosswind flare and landing so let's assume the aircraft is at the right flare height at the right airspeed and examine the techniques from there.

Again, there are two commonly prescribed techniques – the "drift and kick-her-straight" method, and the "wing down and let-her-rip-in-a-slip" method. In the 1960s I was taught the former, but now do the latter. I find it is more straightforward and less fraught with luck and gusts, so it is far less stressful on my airframe.

Let's look at a perfect model of a crosswind landing. At the flare, the pilot arrests the aeroplane's descent and enters a level flight mode with the wheels a little above the runway. Maintaining height at this close proximity to the runway, the pilot continues to keep the aeroplane's direction of flight along the centreline as the airspeed falls, As the lift reduces with the falling airspeed, the pilot allows the aeroplane to touch its main wheels (in a tricycle U/C machine) ensuring, at the time of touch and thereafter, the aeroplane's nose is aligned with its direction of motion along the centreline. The pilot allows the nosewheel to settle and uses the rudder pedals to control any yaw so the roll-out is also straight as he progressively moves his aileron into wind. Sound simple? It is but pilots tend to confuse themselves as all this takes place over just a few short seconds. So many things are happening that require the pilot's input to correct that missing any one can create problems in the rest.

So, what can go wrong? Many things in fact. Some are external and environmental; others relate to aeroplane type and characteristics; and there's still the pilot and his/her proficiency mixed in there as well. Let's look at them each in turn.

The environmental issues are generally caused by wind and heat but can also include runway slope (both lateral and longitudinal). The wind can gust or swing or both, separately or simultaneously. All have effects on the aeroplane's path along the runway and rate of airspeed reduction which affects controllability. Gusts cause momentary increases in airspeed which increase drag. The increased drag reduces the airspeed and when the gust has passed, the residual airspeed is lower requiring a

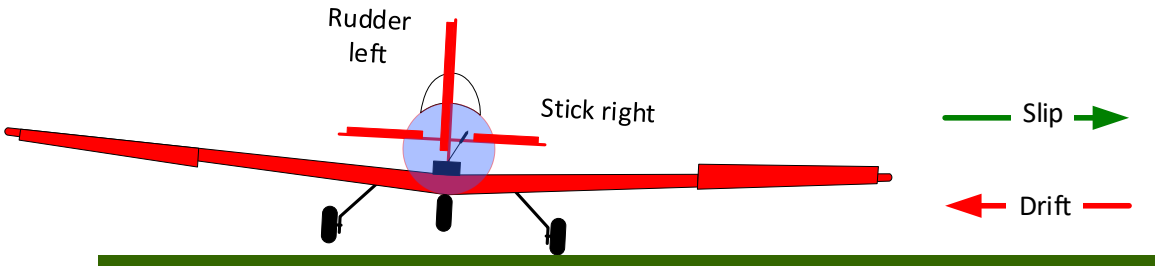
change in the rate of pulling the stick back to maintain height in the float. A change is wind direction is worse – the resulting change in headwind component will cause airspeed decay at the same time as weathercocking requiring directional control. As long as the pilot sees the yaw and corrects it early there will be no further effect of yaw, and roll will not result. However, if the pilot misses the yaw, roll will inevitably follow and now the pilot must exercise control over yaw and roll at the same time as the airspeed is reducing, controllability is falling, and the aircraft is in close proximity to the ground. The pilot becomes overloaded and a bad landing results damaging confidence if not the aeroplane.

The aeroplane type and characteristics include whether it is high or low winged. High wings are generally influenced more by the wind than low wings because of their greater distance above the ground and thus require more control input by the pilot. Low wings are more susceptible to ground effect where the shockwave in the air caused by the wing passing through it bounces off the runway surface and increases air pressure under the wing. This prolongs the float. The pilot's field of vision – the height of the cowling ahead (and tailwheel configuration) can impose serious limits on forward visibility making it harder to see and judge the landing. Last but not least, the effectiveness of the controls. So, let's simplify the crosswind landing technique so it's easier to carry out successfully.

At the flare, stop the descent and fly level. Keep the stick coming back to hold the height and lower the windward wing so the machine will touch down initially on the windward wheel. At the same time, use just enough rudder to keep the nose aligned with the aeroplane's path along runway.

I admit it's a bit like rubbing your tummy whilst patting your head, but it is a whole lot less than that necessary in conventional crosswind landing techniques. By removing some of the considerations that are pattered by instructors and relying on the simpler concept above, the process is more easily followed to a good and safe landing conclusion. Good landings bring confidence and, with rising confidence in one's performance, come mental ease, and more good landings.

In essence I am not changing anything, just promoting a simplistic method of landing in a crosswind that is easier to apply. Too many things can be happening too close together for a pilot to recognise each one and act appropriately on that recognition. Maintaining the, "Just land on the windward wheel", concept made it much easier for my students to cope that they learned more quickly and effectively. Without thinking about it, they naturally applied quite sufficient slip to counter the drift being experienced. It was a win-win situation.



Aeroplane lands initially on windward wheel

As an aside, I also found that, with the reduced pilot mental load during the landing sequence, my students seemed to make better go-around decisions. Using the conventional patter and techniques, too frequently they became so gripped in the stick waggling and rudder shaking that they didn't make appropriate go-around decisions when it would have been more prudent to have left the scene of the impending accident for another try.

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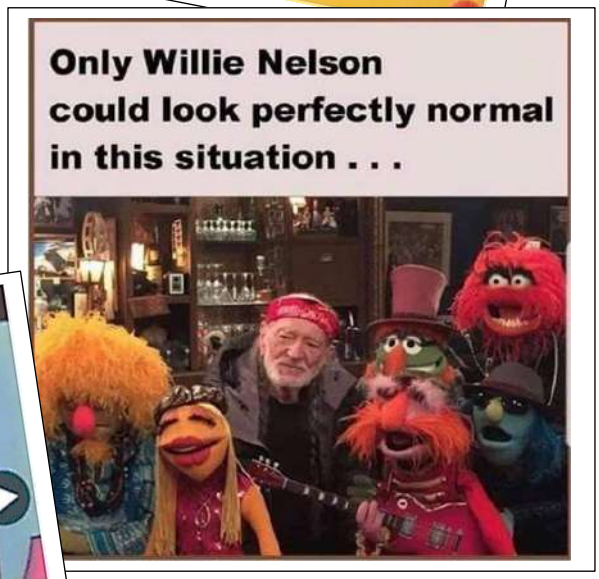
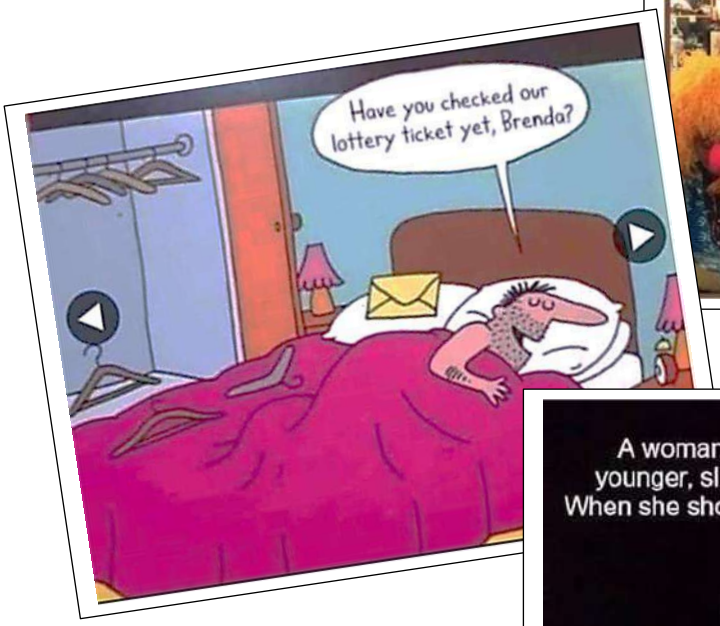
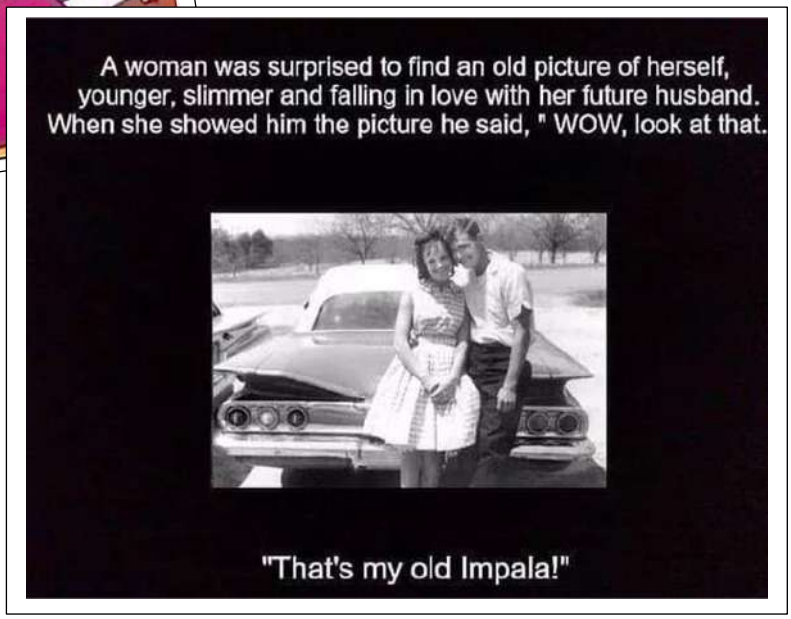
FLY-IN Invites Looming

WHERE	EVENT	WHEN
Murgon (Angelfield) (YMRG)	Burnett Flyers Breakfast Fly-in	**Find Next Planned EVENT Sunday 13 August.** **Confirm details at:** http://www.burnettflyers.org/?p=508







Darkstar, Lockheed Martin's Fact or Fiction Aircraft

Story by Sascha Brodsky, 15/03/2023

Darkstar, the secretive, ultrafast jet supposedly being developed for the U.S. military, may have gotten another shred of confirmation that it actually exists.

The SR-71 Blackbird is still the fastest acknowledged crewed air-breathing jet aircraft. However, it may be yesterday's news!

Aircraft manufacturer Lockheed Martin recently tweeted about the famed SR-71 Blackbird "being the fastest acknowledged crewed air-breathing jet aircraft." (Italic emphasis our own.) As first noted by The War Zone, the tweet could be a subtle reference to the SR-72, the long-rumoured hypersonic successor to the Blackbird.

The Lockheed tweet was in celebration of Tom Cruise's movie Top Gun: Maverick, the second highest-grossing film of 2022, which picked up six Academy Awards nominations, including for Best Picture, Film Editing and Visual Effects. At Sunday's ceremony, the film's sound crew won the Oscar for best sound.

Maverick famously featured an SR-72 "Darkstar." While no such jet is known to exist, there have been hints that a follow-up aircraft to the SR-71 might be flying—or at least in the planning stages.

The jet in the movie, called the SR-72, looks like a Skunk Works concept art for a real uncrewed SR-72. The hypersonic strategic reconnaissance aircraft, first announced in 2016, had a long-blended wing, fuselage, and tiny wings. The Skunk Works logo can be seen on the tail fin. Former Lockheed CEO Marilyn Hewson once described the plane as a Mach 6-capable jet.

Maverick's SR-72 shares many similarities with a rendering that Lockheed Martin released on its website, including the Skunk Works logo on the tail. One part of the plane that looks different is the pilot's cockpit window on the left and right of the Darkstar, while the real-world concept plane is said to be uncrewed and would not need a window.

Whether or not the SR-72 actually exists, the interest in hypersonic aircraft is genuine. The European company Destinusn is trying to build a hybrid hypersonic plane. The airplane combines hydrogen-fuelled air-breathing turbojet engines for take-off, landing, and flights at subsonic and supersonic speeds along with a rocket engine that will boost the aircraft to hypersonic speeds.

Hypersonic missiles are also getting a lot of attention, with Russia recently using its Kinzhal weapons to hit command centres in Ukraine. The highly manoeuvrable air-launched missile flies at Mach 5 in order to evade defences.

Meanwhile, China is reportedly deploying hypersonic missiles that could strike U.S. bases in the Pacific if the two countries ever went to war over an invasion of Taiwan. The Defense Intelligence Agency's head of science and technology said recently that China had made significant advancements in developing conventional and nuclear-armed hypersonic missile technology.

Lockheed Martin SR-72 Darkstar

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

1. In attempting to land with a tailwind, and experiencing a tailwind gradient, which of the following issues should you expect to encounter if you elect to go around?
   A. Difficulty in flaring the aircraft and turbulence on the climb out.
   B. Decreasing airspeed on the descent, and a good rate of climb on the climb out.
   C. Increasing airspeed in the descent, and a shallow angle of climb on the climb out.
   D. A very short float period, and a normal climb out.

2. When taxiing in a crosswind, why are tailwheel aeroplanes more prone to weathercocking problems than nose wheeled aeroplanes?
   A. The low tail position reduces lateral stability and directional control.
   B. The low tail position reduces pilot visibility making ground control more difficult.
   C. Adverse effects, caused by the changes in the thrust/drag couple due to the nose high attitude of a taildragger, disrupt normal airflows around the tail fin reducing its authority.
   D. The centre of gravity on tailwheel aircraft must lie ahead of the main wheels. Therefore, because there is a greater keel surface aft of the centre of gravity than on nosewheeled aircraft, crosswind gusts will have a greater effect on the directional stability.

3. Will a turning aeroplane always suffer an increase in the stall speed?
   A. Yes. There is always an increase in loading in a turn and this will provide an increase in the stall speed when turning.
   B. No. A gliding aeroplane has less lift than weight, so the stall speed will always reduce.
   C. Yes, if the best glide speed is not maintained.
   D. No, provided airspeed is increased.

4. Using aileron to counter wing drop in a stall is considered a bad idea because:..?
   A. It's not. Picking a dropped wing up is a recommended practice.
   B. Rolling the aircraft back to wings level is not the highest priority in the recovery.
   C. The application of down aileron to lift the dropping wing will likely exacerbate the stall condition.
   D. Adverse yaw, created by the aileron use, requires rudder which is not used in the recovery.

5. Dihedral, on an aeroplane……..
   A. Aids directional stability by providing a restorative force about the normal axis.
   B. Aids lateral stability by increasing the angle of attack on one wing when slipping.
   C. Aids longitudinal stability by changing downflow forces behind the aerofoil.
   D. A And C could be correct depending on the condition of flight.

See answers and explanations overleaf

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 (International +64 400 89 3632), or email me at kni.rob@bigpond.com.

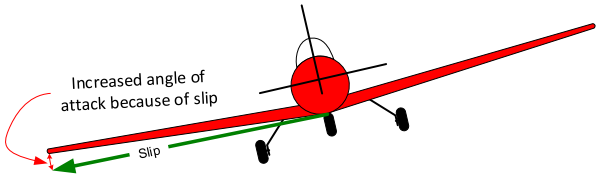
1. C is correct.
   The effect of a tailwind gradient is to cause a rise in airspeed as the aircraft descends through the gradient and a shallow angle of climb as the aeroplane climbs away after the go around. This is the exact reverse of the flight characteristics resulting from a headwind gradient.

2. D is correct.
   Tailwheeled aeroplane designs have the centre of gravity further forward than nose-wheeled types so the keel surface that forms the arm aft of the said C of G is greater. With the greater keel surface Aft, there is a larger area for the wind to strike and exert a force against, so the tendency to weathercock will be increased.

3. A is correct.
   In a straight glide the wings provide less lift than the aircraft's weight so the stall speed will decrease. However, in a turn, loading increases the effective weight the wings have to provide lift for so the lower stall speed assumption relating to a glide no longer exists.

4. C is correct.
   To lift a wing the aileron goes down to increases the angle of attack and provide more lift. However, as the aerofoil has already exceeded its critical angle, that further-aileron can ONLY serve to deepen the stall condition creating further roll and yaw.

5. B is correct.
   If an aeroplane suffers a uncommanded roll, because the lift line is no vertical longer vertical, the aircraft will slip towards the lower wing. Dihedral ensures that the lower wing has a higher angle of attack than the upper wing, which then provides more lift on the lower wing to restore the aircraft to a wings-level condition. Dihedral provides lateral stability about the longitudinal axis.
   See https://aerocorner.com/blog/dihedral-angle/



Dihedral increases angle of attack when aircraft is slipping

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Aircraft Books, Parts, and Tools etc.

Contact Rob-on mobile – 0400 89 3632

Books (Aviation) (Selling on behalf)

NEW Item	Condition		Price
RA-Aus Pilot Certificate **Ground Training Manual (102)** ***By Dyson-Holland***	**Brand new**		**$49.00**
RA-Aus Pilot Certificate **Ground Training Manual (103)** ***By Dyson-Holland***	**Brand new**		**$49.00**

Tow Bars

Item	Condition	Price
Tailwheel tow bar.	Good condition	**$50.00**

Handheld Radios (Selling on behalf)

Item		Price
ICOM VHF Transceiver, Model: IC-A22E With • Battery, • Cigarette lighter power source, and • 240V battery charger.		**Open to Offers**
ICOM VHF Transceiver, Model: IC-A6. With 240V charger but no dock to recharge battery *(available on EBay)*		**Open to Offers**

Cockpit Electronics (Selling on behalf)

Item		Price
TRANSPAK GPS Personal Navigator Complete with • Carry bag, cigarette lighter power pack, • AA battery power pack, and • User manual.		**Open to Offers**
MAGELLAN GPS Model 315/320 With • Cigarette lighter socket power pack, and • User manual.		**Open to Offers**

Other Electronic Units (Selling on behalf)

Item		Price
PALM, model Z22, complete with • CD software, • 240V charging unit • Linking cables etc., • Still in original box.		**Open to Offers**

Other Electronic Units (Selling on behalf)

Flight Cell 2GO. Mobile phone to Headset interface • With user guide, and • Includes cable etc. See: www.flightcell.com for details		**Open to Offers**
NAVMAN. Model MY 50T automotive GOPS system With • CD, and • Cigarette Lighter socket power supply.		**Open to Offers**

Aircraft Magnetic Compass (Selling on behalf)

Item		Price
Wired for lighting • Top of panel mount, • Needs fluid replenished.		**Open to Offers**

Propeller Parts

Item	Condition	Price
Propeller spacers, Assorted depths, all to fit Rotax 912 UL/ULS propeller flanges	Excellent	**$100.00 each**
Spinner and propeller backing plate to suit a Kiev, 3 blade propeller, on a Rotax 912 engine flange.	Excellent	**100.00**

For all items, Contact me - on mobile – 0400 89 3632

Or email me at:

kni.rob@bigpond.com

Aircraft for Sale

Kitset - Build it Yourself

$1,780.00 neg

DESCRIPTION

All of the major components needed to build your own aircraft similar to a Thruster, Cricket or MW5.

- Basic plans are included, also
- Hard to obtain 4" x 3" box section, 2 @ 4.5 metres long.
- Wing spar & lift strut material - 6 tubes of 28 dia. x 2 wall.
- 20 fibreglass ribs plus the moulds,
- 16 spar webs plus the moulds,
- 2 fibreglass flat sheets for the leading edges - 4 metres long x 1.1 metres wide.
- All instruments including,
- A Navman flow meter,
- A Powermate rectifier regulator,
- A ballistic parachute,
- A 4-point harness,
- Set fibreglass wheel pants, and
- More.

Box sections and tubes

Flow Meter, Navman, Ballistic Chute, etc

A very comprehensive kit of materials

Ribs, tubes, spats, etc

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

Or Mob: 0419 758 125

Thruster T85 Single Seater for sale.

$9,750.00 NEG

Beautiful classic ultralight single seater taildragger Thruster for sale; to good Pilot. Built in 1984, this is a reluctant sale as I inherited Skyranger V Max and two aeroplanes are too many for me.

The aircraft at Kentville

New Engine Rotax 503 Dual Ignition has only 10

Fuel tank

Instrument panel

Details

Built - 1991	Serial Number - 312
Model - Thruster 85 SG	Rego Number – 10-1312
TTIS Airframe - 638	Original logbooks - YES
Engine - *NEW* Rotax 503 DIUL	Next Annuals due – 05/11/2023
TTIS Engine – 10 hours	Propeller – Sweetapple, Wood, 2 Blades (as new)

Instruments - RPM, IAS, VSI, ALT, Hobbs meter, New Compass, CHTs, EGTs, Voltmeter & furl pressure gauge

Avionics - Dittel Radio 720C and new David Clark H10-30

Aircraft is fitted with Hydraulic Brakes. Elevator Trim. Landing Light. Strobe Beacon. Auxiliary Electric Fuel Pump.is in excellent mechanical condition and the skins are “as new”.

Offers considered. Call Tony on 0412 784 019

AIRCRAFT for Sale - LIGHTWING GA-55.

Registered 25-0374

Engine ROTAX 912, 80HP, 853.3 Hours

Reluctant sale of this great aircraft, I have owned her from June 2004.

Excellent fabric, Red and Yellow, always hangered, and comes with the following extras:

* 2 Radios
* Lowrange GPS
* EPIRB
* Aircraft Dust Covers.
* Manuals – various
* Fuel Pressure Gauge
* Extra Tachometer
* New Headsets
* Paint
* Oil

Work performed at Lightwing Ballina:

* Wings recovered, tanks resealed, new brakes, wheel bearings and hubs, new wing tips.

Other work carried out:

* Windscreen replaced, door panel replaced, choke cables replaced, ignition upgrade.

Rotax:

* Engine modifications, gearbox rebuild.

Currently hangared at Boonah in Queensland.

Contact Kevin McDonald on 0419 607 637

Sky Dart Single Seat Ultralight for Sale.

$4,500.00 NEG

A single seat, ultralight, Taildragger. Built in 1987, this aircraft has had a single owner for the past 18 years, and is only now I am regretfully releasing it again for sale. I also have a Teenie II and am building another ultralight so I need the space.

The landed Sky Dart III rolling through at YFRH Forest Hill

TTIS airframe is 311 hours, and the engine, TTIS 312 – is just 1 hour more. Up-to-date logbooks available. 2 X 20 litres tank capacity. To be sold with new annuals completed.

It is easy to fly (for a taildragger), and a great way to accumulate cheap flying hours.

Call me to view, Bob Hyam, Telephone mobile 0418 786 496 or Landline – 07 5426 8983, or Email: bobhyam@gmail.com

Landed at McMaster Field after my flight back from Cooma just West of Canberra. In the cockpit with me is GeeBee, my dog

Single Seat T84 Thruster, disassembled and ready for rebuild.

I have a T84 single seat Thruster project in my hanger at Watts bridge.

The fuselage is on its undercarriage, the wing assemblies are folded up and the skins are with them.

Included is a fully rebuilt Rotax 503 dual ignition engine and propeller.

And, most importantly – the aircraft logbook!

Asking price $5000.00

Contact John Innes on **0417 643 610**

Aircraft Engines for Sale

Continental O200 D1B aircraft engine

Currently inhibited but complete with all accessories including,

- Magneto's,
- Carburettor,
- Alternator,
- Starter motor,
- Baffles and Exhaust system, and
- Engine mounting bolts and rubbers.

$POA

Total time 944.8 hours. Continental log book and engine log are included.

Phone John on 0417 643 610

ROTAX 582 motor.

Ex flying school, TTIS 600 hours, and running faultlessly when removed from aircraft for compulsory replacement.

No gearbox, but one may be negotiated by separate sale if required.

Interested parties should contact…..

Kev Walters on Tel. **0488540011**

My teacher told me not to worry about my ability to spell; there was always autocorrect. For this I will always be internally grapefruit

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