BRISBANE VALLEY FLYER

February 2023

www.bvsac.com.au

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

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BVSAC President, Peter Ratcliffe, about to start his new engine in his recently built Zenith STOL CH-750 at Watts Bridge. Watch this space for further details.

Peter Ratcliffe (Pres.)	0418 159 429	Ian Ratcliffe (Treasurer)	0418 728 328
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From the Club

Greetings members,

Firstly -- welcome to 2023.

I hope that you all have had a very relaxed Christmas and New Year and have been able to take time with your families, friends and loved ones and I am sure, loke me, that you, too, are hoping that 2023 will be a better year for everyone.

In regard to the Club, we held the 2022 Christmas party late last year and the day turned out to be a very good event. The number of members attending was excellent and a great time was had by the families and their guests. The food, too, was great and no one left hungry.

Our next meeting will be held on Saturday the 4th February and will be in the club house. As usual, it will be followed by the usual BBQ lunch. We all enjoy seeing as many of our members attending as possible for a bit of fun and fellowship.

Best wishes

Peter Ratcliffe
President BVSAC

The Skyranger Swift

By Rob Knight

The Skyranger Swift looks like a hybrid between a Cessna 152 and a Piper Colt but is a little disadvantaged in this comparison because both these comparison aircraft use the Lycoming 0235 108 HP (81 kW) engine. This Swift used the Rotax 912 ULS engine, providing only a nominal 100 HP (75 kW). But ssshhh, no-one told the Swift and this little interloper completely out-performs both these mass produced and well-known aircraft in almost every respect.

Mal's Skyranger – 19-8082 at YCDS – Childers International. Note the larger than usual windows and tall windscreen

The Skyranger Swift is produced by Best Off Aircraft company in Tourlous in France. Designed by the late Phillipe Prevot, this aircraft has several siblings. Developed from the Skyranger V-MAX, the Swift and Swift 2 have another sister – the Top-Of-The-Range - Nynja.

At 275 kg, the Swift is considerably lighter than either the Colt or the 152 each at 448 kg and 490 kg respectively, this discrepancy lies in part at least to the much lighter Rotax engine compared to the Lycoming. Here the greatest comparison lies with the Colt, a rag and tube design, the same format as the Swift, and the Swift is 39% lighter. Additional weight in both the Cessna and Piper products comes from their larger and heavier 3.8 litre aircraft engines (the Rotax is a mere 1.352 litre) and their cabin interior. Both include soft felt or plastic trim, and sound proofing, all of which weighs heavy and comes out of the payload tally. However, in the Swift, with its intercom equipped radio system and headset use, noise is not an issue.

My interest in the Swift began when Mal McKenzie, who has built one (yes, the Swift is a homebuilt) suggested that we attend some fly-ins together. In coming to pass, these trips caused me to step back and take stock to look at exactly what the capabilities of this aircraft are.

The Skyranger's glass instrument panel

Mal's machine has twin sticks, others, at their builder's preference have a central stick. Even so there's plenty of room on each side of the cockpit once ensconced with the straps done up. There was even room for my elbows. The start is typically Rotax 912 stuff and the oil pressure quickly rose to above the bottom limit as we sat and waited for the temps to rise to 50^{o} so we could taxi. The run-up and pre-take-off checks were completed and we taxied onto the threshold for 03 at Forest Hill (YFRH).

The take-off was brisk. Acceleration was excellent because of the light aircraft weight and the nominal 100 hp under the tight cowls in front. These two attributes also created the need for a surprising amount of right rudder to keep the nose on the centre-line. At 40 knots I lifted the nose so it cleared the grass, and the aeroplane lived up to its name, swiftly entered a brisk climb and the runway fell away as we quickly cleared the tree-tops.

8082 – a pretty little aeroplane

My first impression was that it was difficult to maintain 65 knots for the climb – the nose attitude to get this speed was unusually high. But once nailed, the VSI settled at over 1200 fpm. Still holding left rudder to keep straight, I adjusted the trim lever between the seats and that took the load from me and we began flying it around as a team – the trim and I. The nose being so high, it occurred to me that, in busy traffic, a wary pilot might need to "S turn", to clear the track ahead, or periodically drop the nose to see if anyone was in the way.

Level at 3500 feet, at 5000 RPM we got a steady 92 knots cruise. It was better than I expected because Mal had more fuel in the tank than we might have wished. Visibility over the short stubby nose was as good as most other light aircraft, and the rudder requirement had dropped back to zero at cruise speed and power. This Swift is well set up.

Visibility was good forward and sideways. Laterally it was also good but the proximity of the underside of the wing made vertical sightseeing difficult. Aft, with no rear window, it was blind.

Mal, flying 8082

We had a good lookout around and about, and I tried a turn to the left. The roll rate was good, better than many, because of the short wing span. What was very noticeable, though, was the substantial adverse yaw from aileron drag on the up-going wing. For ease of construction and cost reduction, most angles are right angles and this leads to a square, full chord wing tip. Thus, the tip vortices are already substantial and very susceptible to angle of attack changes. The ailerons extend right to the tips so the down-going aileron on the up-going wing increases the local angle of attack quickly, and the effects of sideways stick are immediate on rudder application requirement. Returning to level flight, I rocked the wings with stick and no rudder. The aeroplane is theoretically perfect - it was almost impossible to turn without using rudder. Roll without rudder just lowered a wing and the aircraft just flew uncomfortably sideways with only a barely discernible amount of turn.

45^{o} turns were easy once the rudder co-ordination was established. Little out of turn aileron was required to stop-over bank in level turns. However, there was a drop in airspeed from the cruise to

about 85 knots with the drag increase in the turn. The 60^{o} banked turns were fine but did reinforce the need for accurate rudder application. Too much into-turn rudder and the ball would be out to the outside, but as well the nose would be too low and a descent would materialize. When correctly controlled it was easy to do 360^{o}s and feel the jerk of the wake on roll out – a most satisfying sensation.

Turning onto finals for 10 at YCDS. Good forward visibilitv

Mal had warned me that the stalls were a non-even. He was right. Basic stalls provided a slight buffet as the airflow broke away on top of the wing at the stall, and the nose sagged..... With some power and flap, stalls were still very similar and there was still no tendency to drop a wing. Then, with 4000 RPM and full flap, I got a result. At the stall the left wing sagged about 3^{o}. Recovery was quick in all recoveries but what was very prominent, again, was the requirement to use rudder to stop or control yaw resulting from slipstream effect and "P" factor. To fly this girl accurately did require nimble footwork.

Descents were easy. In a full power-off glide, the aeroplane trimmed out nicely for 55 knots which seemed to give a glide ration of around 10 or 11 to 1. Full flap and 55 knots decreased the ratio to about 8 to 1. Steep gliding turns held no unusual attributes and were typical for other aeroplanes of this genre.

We returned to Forest Hill and joined downwind for 03. After the radio call and downwind checks I was free to set up the approach. One thing I had noted in the upper air exercises, was that full flap was quite gentle and only equated to about 15^{o} of flap in other aircraft. That last notch was not available to steepen the approach when descending over trees. This meant a little less approach angle control than I would have liked. However, sideslip is available with flap and this provided a very good alternative.

Using and initial 55 knots, over the last of the trees I drifted back to 50 knots at about 50 feet. The flare was easy, but the aeroplane did float quite a way and this, I feel, was a direct result of the limit of the flap to just 2 notches. Still, there was plenty of elevator to hold the nose up and a good landing was easily achieved. Applying full power and simulating a sudden need to depart terra firma required an immediate and substantial application of left foot with the throttle. That nose was very attracted to the left side of the runway. However, with the normal climb speed attained, the pressure was off and everything returned to a normal climb.

For the next landing I maintained 50 knots the whole way in. Using sideslip as I crossed the trees to draw the flare point closer to the downwind threshold to improve the available runway ahead worked well. Again, from 50 knots on the clock, the flare was sharp and the aeroplane easy to hold off. The landing was gentle and the nose-wheel settled of its own accord. We taxied back to the hangar.

For a kit based, home-built aeroplane, this machine has class. Its chunky shape and squared-off wings belied its great performance. It had a good cruise speed and an excellent rate of climb. Visibility was

a little better than normal for this type of aircraft with its large windows and tall windscreen. The cockpit was well laid out and effectively quite roomy and comfortable. The door seals were good and there was no noticeable chill factor. It has character-building rudder requirements but the loads are not severe and in quite normal accordance with other aircraft. This has a 19 registration which is a pity because it would make a good, cost effective, trainer. Its characteristics are mostly ideal considering it has a nose-wheel and the economics would keep the costs down. In the UK, this type of aircraft is used for around 80% of training hours for non-certified pilot training.

And I liked it!

Specs for the Best-Off Skyranger Swift 19-8082

Seats:	2
Engine:	100 hp Rotax 912
Empty Weight:	300 kg
MTOW:	544 kg
Baggage (behind seat):	19 kg
Limit Load Factors	+4G, and -2G
Wingspan:	8.5 m (27 ft 9 in)
Length:	5.5 m (18 ft 1 in)
Height:	2.4 m (7 ft 9 in)
Never Exceed Speed - Vne:	111 knots
Max Manoeuvring speed - Va:	74 knots
Max Flap Extension speed - Vfe:	70 knots
Best Angle of Climb speed - Vx:	48 knots
Best Rate of Climb speed - Vy:	57 knots
Cruising speed:	85 knots
Stalling speed:	33knots
Max rate of climb:	1,100 ft/min
Max Fuel Capacity:	90 litres

Coominya Airfield (YBCM) Changes Hands

By Rob Knight

With the retirement of John Walmsley, the subsequent sale of the YBCM property was made to Mark Leaney in early December.

Mark, an entrepreneur in the electrical industry, flew his DHC-1 Chipmunk into YCBM about a month ago.

Mark (on the right) with his beloved "Chippie). On the left is Cameron Blackburn, the instructor at Stick and Rudder at YCAB where Mark did his Taildragging apprenticeship.

The airfield has five large hangars, one being the base of Insitu Pacific, a company directly involved in the development of multi-domain unmanned aircraft system (UAS) solutions to Australia and the Asia-Pacific region. With this in mind, be aware that the circuit may well contain drones (unmanned aircraft, or UAVs) which are smaller and harder to see that normal light and ultralight aircraft.

As was always the case, visiting pilots are welcome, ideally after a quick call to Mark to ensure that any relevant details of the Insitu Pacific operations for the day or other period may be conveyed to the visiting pilot to ensure operational safety. Mark's phone contact is 0400 288 588, or email him at…… mark.leaney@888electricalsolutions.

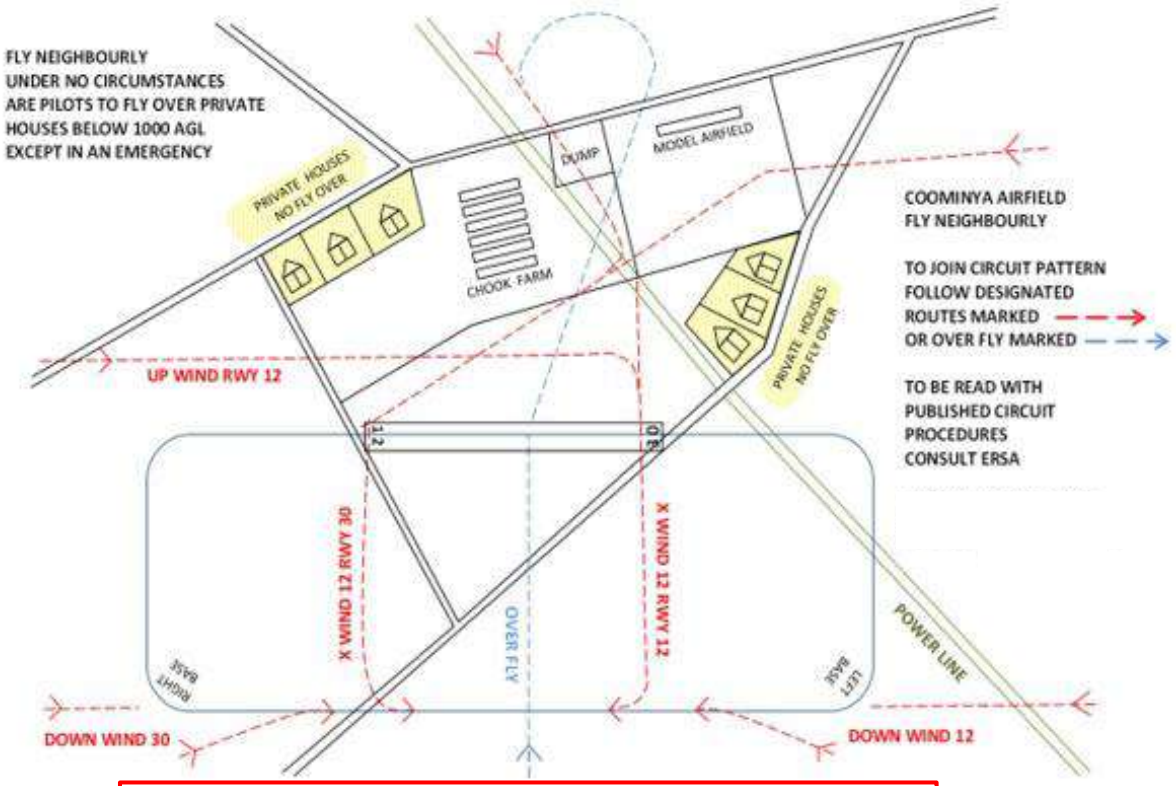
As depicted in the ERSA, YBCM has two operational runways, both grass-surfaced and 30 metres wide. The main runway, 12/30, is listed as having a length of 1000 metres and virtually level, whilst 22/04 is 400 metres with notable downslope at BOTH ends. Airfield CTAF is 126.7, and the listed elevation is 330 feet AMSL. Runways 12 and 04 require right hand circuits, other left hand

NOTE: It is the pilot's responsibility and duty to confirm all details with current ERSA provided information before operating at this or any other airfield for which such details are provided.

Briefly, with the location of this airfield being inside D612A, the maximum height available for non YAMB cleared traffic over the airfield is 1500 feet, so the maximum height available for over-flying is 1500 feet (QNH). The circuit height is 1000 feet (QNH), which means that the circuit height is effectively 700 feet AGL.

Looking down 1000M of Runway 30, YBCM

WARNING - YBCM has a “Fly Neighbourly” procedure in place. See below for details.



For further information, contact Mark Leaney, 0400 288 588

Coominya Airfield (YCBM) - Fly Neighbourly

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Unique Aircraft: Northrop X-4 Bantam

By Jason McDowell

The semi-tailless design helped iron out the problems of transonic flight.

Deceptively small, the X-4's wingspan was only a few feet longer than that of a Grumman AA-1. [Photo: Jason McDowell]

In the years following World War II, aerodynamic research and development entered one of the steepest learning curves it would ever encounter. With the advent of jet-powered aircraft, speeds climbed up to and beyond the sound barrier, and along the way, numerous phenomena were discovered. One area that required extensive study was the transonic regime, and the unique Northrop X-4 Bantam was developed to study it in depth.

During transonic flight, an aircraft can be flying well below the speed of sound, but local airflow around various parts of the wing and airframe can accelerate beyond the sound barrier and create serious concerns. The first documented accident involving these effects occurred in 1941, when a test pilot named Ralph Virden was performing a dive test in a Lockheed P-38 Lightning. Upon reaching Mach 0.675, a shock wave caused the inboard wing sections to stall. Virden lost control and perished in the ensuing crash.

Northrop's engineers had a theory to minimize such effects in the transonic regime. Reasoning that the interaction of shockwaves between various parts of the airframe was to blame for stability issues, they decided to minimize the number and strength of these shockwaves. They did so by eliminating the horizontal stabilizer entirely, developing a semi-tailless design.

Completely eliminating the horizontal stabilizer required the engineers to get creative. They started by combining the roles of elevators and ailerons through the use of elevons. They assigned double duty to the flaps, as well, providing them with the ability to split open and serve as massive speed brakes when required. This was a safety feature, intended to serve as a means of quickly decelerating to lower airspeeds should dangerous high-speed phenomena surface.

The split flaps were able to spread open into massive speed brakes to quickly exit potentially dangerous speeds and flight regimes. [Photo: Jason McDowell]

A small airframe enabled the use of small engines. The X-4 utilized existing Westinghouse J30 axial-flow turbojet engines, as used for the McDonnell FH Phantom. These produced 1,600 pounds of thrust each, more than sufficient to propel the aircraft even at its maximum weight of 7,820 pounds.

First flight took place in December 1948 at what is now Edwards Air Force Base. Considering that Cessna's newest offering that year still utilized a fabric-covered wing, the sight of the space-age X-4 taking flight must have been stunning. A second X-4 was built and added to the program, making its own first flight in June 1949.

The following five years would prove to be simultaneously tumultuous and productive for the X-4 program. Issues with the landing gear doors, fuel siphoning, and various systems were commonplace, as were general controllability issues. As the flight envelope was expanded, pilots discovered undesirable flight characteristics such as buffeting, oscillation, and general instability. These were all meticulously logged, debriefed, and analysed, and the data would go on to supplement the development of future aircraft.

The final X-4 flight was made in September 1953, capping off a total of more than 100 flights that reached a maximum speed of Mach 0.94 and a maximum altitude of 42,300 feet msl. With the testing complete, both examples would ultimately be put on display for the general public. The first is presently on display at the Air Force Flight Test Museum at Edwards Air Force Base in California, and the second is on display at the National Museum of the USAF in Dayton, Ohio.

The simplicity of the X-4's semi-tailless airframe is evident in this photo. [Courtesy: U.S. Air Force]

Jason McDowell

Jason McDowell is a private pilot and Cessna 170 owner based in Madison, Wisconsin. He enjoys researching obscure aviation history and serves as a judge for the National Intercollegiate Flying Association. He can be found on Instagram as @cessnateur.

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Pilot Dies after Seat Slides Back after Take-off

From article by Neil Lancefield, PA Transport Correspondent -22/09/2022 (MA-089)

A fatal plane crash happened because the pilot lost control when his seat slid backwards during take-off, an investigation has found.

A tail-wheeled version of the Just Aircraft Escapade

That is the "most likely" reason for the accident which killed the 66-year-old light aircraft pilot at an airfield in Selby, North Yorkshire, according to a report from the Air Accidents Investigation Branch (AAIB).

Evidence indicates that his seat moved backwards due to an adjustment pin – designed to secure its position – being misaligned for an unknown reason.

A backup strap – intended to prevent the seat sliding if the pin failed – was not tightened.

The pilot, who was not named by the AAIB, was the only person on board when the Escapade plane crashed at Breighton Airfield on November 14 last year.

He had flown there from Rufforth Airfield East, in York earlier that day to attend a Remembrance Sunday service.

During take-off for the return flight, he made a radio call stating that he had a problem with his seat and intended to land back at the airfield.

Eyewitnesses reported that the aircraft began to climb at an "uncharacteristically steep angle", the report stated.

The damage to the pilot's seat in the Escapade plane (AAIB/PA)© Provided by PA Media

The suggested cause of the mishap above is well documented here, in Australia where several fatal accidents have been attributed to that same cause – the sliding aft of the pilot's seat after take-off when the nose is pitched up to enter the climb.

In my own personal experience, this almost caused me to have a serious/fatal accident in a Cessna 150 Aerobat when the seat slid backwards when entering a slow roll in a low-level aerobatic display in front of a large crowd at a Mystery Creek Agricultural Expo neat Hamilton, New Zealand, in the early 1980s. I was fortunate enough to just grab the skylight opening and stop the seat sliding further whilst I could still (just) reach the yoke to roll out.

The cause was a failure in the seat locking mechanism which failed under zero G at the top of the roll. The failure was not discernible during a pre-flight (DI.) *Rob Knight*

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The New Electric 'Flying Car' That Can Be Piloted with a Driver's License—and It Will Fit in Your Garage

Michael Verdon – 16-09-2022

Miami-based Doroni has started to accept pre-orders for its "personal" flying machines. The company recently showed off the cockpit of its H1 aircraft at the EAA AirVenture in Wisconsin, using VR headsets to simulate take-off, flight and landing.

The Doroni H1 is designed to fit into your garage. (Provided by Robb Report)

Doroni is going after a different market than most eVTOL manufacturers, which are building air taxis for intra-city use. Instead, it's targeting personal pilots, much like the Jetson, with an aircraft it claims will be intuitive and much easier to fly than a helicopter or conventional airplane.

Company officials yesterday said in a webinar that they plan to "democratize" general aviation with a "semi-autonomous" aircraft designed for safety. CEO Doron Merdinger said anyone with a standard car driver's license and 20-hour training course should be able to fly the H1.

Four large ducted fans provide lift with the two-person cockpit in the center. (Provided by Robb Report)

The two-seat flying car has two sets of wings with large ducted fans, a 500-pound payload, and wheels—this last feature is unusual since most eVTOLs usually land on pads. The H1 is designed to drive into a standard garage and recharge overnight.

The curves on the fuselage and large fans give the H1 a futuristic but equally retro look. The H1 is expected to have a range of 60 miles, with a top speed of 140 mph. Merdinger said the battery can be charged from 20 to 80 percent in about 20 minutes. It will also have a parachute for safety.

The Doroni H1 cabin

The company is building its first two prototypes at a new facility in Miami, with the goal of completing the first full-scale flying model in the next few months.

Doroni plans for the H1 to be certified as a Light Sport Aircraft with the FAA so it will fit into an existing category, unlike most new eVTOL aircraft that will have to undergo certification processes in new categories.

Deliveries of the aircraft, said the company, will begin in the fourth quarter of 2024. It plans to take 36 pre-orders. According to its website, there are 19 build slots left. The H1's starting price will be $150,000.

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FLY-INS Looming

WHERE	EVENT	WHEN
Murgon (Angelfield) (YMRG)	Burnett Flyers Breakfast Fly-in	**Find Next Planned EVENT Sunday 12 Feb Confirm details at:** http://www.burnettflyers.org/?p=508

The Gloster Gladiator – The Last of the British Biplane Fighters

Compiled from an article by Pilot Friend and others

The Gloster Type SS-37, Gladiator

In the early 1930s H.P. Folland, Chief Designer of the Gloster Aircraft Company, carried out a re-appraisal of his earlier design, the Gauntlet, in order to clean up aerodynamic efficiency to give an improved performance. The resultant aircraft, carrying the Gloster Type no. SS.37, was ready for test flying by September 1934. The fundamental differences between the SS.37 and the Gauntlet were the change to single-bay wings, a low-drag cantilever main undercarriage unit with Dowty internally sprung wheels, and flaps on both upper and lower mainplanes. Whilst this Private Venture design exercise had been progressing, an important event had been happening. The Gloster Aircraft Company had joined forces in 1934 with Hawker Aircraft, so bringing an immediate strengthening of resources which was to be invaluable in the execution of the forthcoming Air Ministry orders.

Gloster Type SS.37, subsequently named "Gladiator", was constructed at Gloster's plant at Hucclecote, Gloucester, also known as Brockworth. This confusion over address names came about because the boundary between two adjacent parishes actually crossed the airfield.

The prototype Gladiator passed to the Air Ministry at A. & A.E.E. Martlesham with R.A.F. No. K.5200, on 3 April 1935. Some changes were made during evaluation, the principal one being the addition of a sliding cockpit canopy. Extensive trials were carried out with differing reduction gears, and two and three bladed propellers, with the primary objective of achieving smoother running of the engine. Report M/666B/Int.2 of 10 September 1937 detailed these comparative tests. Basically, the reports were very satisfactory; but the Mk.II was already developing. During this period the new monoplane fighters were threatening to eliminate biplanes from the defence scene, but a combination of vacillation by diehard champions of the biplane at the Air Ministry, and the failure of the more or less mandatory Goshawk engine due to its heavy and complex steam-cooling system, was causing serious delays to the implementation of the fighter programme.

Current political events in Europe, however, could not be ignored. The availability of the new biplane fighter proved to be opportune, as it had become clear that there was an urgent need for R.A.F. expansion. In the short space of two weeks a production specification, F.14/35 was drawn up and agreed, immediately followed by the award of a contract for the production of twenty-three Gladiators Mk.I. A second batch of one hundred and eighty was ordered in September, 1935. So, the defence gap was filled by an aircraft whose conception was already obsolescent.

Initially, significant numbers of Gladiators were lost in flying accidents during operational training. The difficulties arose from an increased wing loading, combined with the lack of experience in

landing with generous top and bottom flap area. Moreover, recovery from flat spins had proved to be almost impossible. Subsequently, it became clear that Gladiator-trained pilots had a significantly lower accident rate, when converted to Hurricanes and Spitfires, than did pilots who had not flown Gladiators. As a result of the accidental losses a small replacement batch of Gladiators Mk.I was ordered. The "Shuttleworth Gladiator" L.8032 was the last of this batch. It was retained in storage with six others at No.27 M.U. (Maintenance Unit), and none of these seven ever emerged for active service. Eventually, L.8032 was struck off R.A.F. charge in 1945 or 1946 and was sold back to the Gloster Aircraft Company.

Further serious delays were being experienced in the production of Rolls-Royce Merlin engines for the Spitfire and Hurricane. A decision had been taken in the 1930s to adopt a ramped head to the Merlin combustion chamber. In testing, this did not give the anticipated performance and, worse, suffered from cracking both during manufacture and when running. Although initial production had been committed a decision now had to be made to redesign the block and head.

Due to these delays, and to cover the unknown length of time involved, the Air Ministry decided to place an order under Specification F.36/37, for the production of three hundred Gladiators Mk.II to fill the gap, and these were built during 1938 and 1939. During 1941 the last operational Gladiators with the RAF were withdrawn from first-line service. However, several aircraft were modified for meteorological, liaison and communication duties.

VARIANTS

The inability of British manufacturers to produce by the mid-1930s a Bristol Bulldog replacement led to further orders for Gloster Gauntlets to equip additional squadrons proposed under the 1935 RAF expansion scheme. Although design studies for monoplane fighters were showing considerable promise, Gloster designer H. P. Folland conducted a detailed examination of the Gauntlet design to define the extent to which performance might be improved; the wings were redesigned as single-bay units and the landing gear introduced Dowty internally sprung wheels mounted on cantilever struts. Both changes reduced drag, promising a 10-15 mph (16-24 km/h) increase in maximum speed.

A prototype was built as a private venture, with the designation Gloster SS.37, and was first flown on 12 September l934 by the company's chief test pilot, Flight Lieutenant P. E. G. Sayer. With a Mercury IV engine installed a maximum speed of 380 km/h (236 mph) was recorded, and this was increased to 389 km/h (242 mph) after the fitting of a 481 kW (645 hp) Mercury VIS in November 1934. With the Gauntlet's two fuselage-mounted Vickers Mk III guns supplemented by two underwing Lewis guns, the SS.37 met Air Ministry armament requirements, and it was flown to Martiesham Heath in early 1935 for official evaluation.

Gloster's design was submitted to the Air Ministry in June 1935 and Specification F.14/35 written around it; an order for 23 aircraft followed, the name Gladiator being announced on 1 July. The 626 kW (840 hp) Mercury IX was specified, and other changes included an enclosed cockpit, minor landing gear modifications, a revised tail unit, and the fitting of improved Vickers MK V guns.

The first production batch of 23 Gladiator Mk I fighters, delivered in February and March 1937, carried Lewis guns under the wings, as did the first 37 of the second order, for 100 aircraft. All of this second batch were fitted with a universal armament mounting under each wing, capable of accepting any Vickers or Lewis gun or, indeed, the licence-built Colt-Browning which was installed in fuselage and wing positions in the majority of aircraft delivered in 1938. A third order, for 28 machines, brought the RAF's Gladiator Mk 1 procurement to 231 aircraft, some of which were converted later to Gladiator Mk 11 standard. The Royal Air Force later received 252 new Gladiator Mk IIs, built to Specification F.36/37, with an 619 kW (830 hp) Mercury VIIIA engine fitted with automatic mixture control, electric starter and a Vokes air-filter in the carburettor intake. Thirty-eight Gladiator Mk IIs were fitted with arrester hooks and transferred to the Fleet Air Arm in December 1938, these being

an interim replacement for Hawker Nimrods and Ospreys until the delivery of 60 fully-navalised Sea Gladiator fighters. These latter aircraft had an arrester hook, catapult points and a ventral dinghy stowage fairing.

Gladiator production totalled 746, with orders from Belgium, China, Eire, Greece, Latvia, Lithuania, Norway and Sweden covering 147 Gladiator Mk Is and 18 Mk ils. Gladiators were first issued in February 1937 to No. 72 Squadron at Church Fenton, and although most of the squadrons that received the type had been re-equipped with Hawker Hurricanes or Supermarine Spitfires by September 1939, some of their aircraft had been reissued to home-based auxiliary units, four of which were fully operational when war broke out. Two of them, Nos 607 and 615 Squadrons, were posted to France in November 1939 as part of the Advanced Air Striking Force. No. 263 Squadron, together with No. 804 Squadron, Fleet Air Arm, participated in the Norwegian campaign; and the handful of aircraft of Hal Far Fighter Flight and of No. 261 Squadron, took part in the defence of Malta between April and June 1940. In the Middle East Gladiators said service during the war with Nos 6, 33, 80, 94,112 and 127 Squadrons and with No. 3 Squadron, Royal Australian Air Force. In addition to No. 804 Squadron, Fleet Air Arm Sea Gladiator units included Nos. 769. 801, 802. 805, 813 and 855 Squadrons. After withdrawal from front-line units, the Gladiator continued in RAF use for communications, liaison and meteorological reconnaissance until 1944.

Gladiator Mk-1 Cockpit of K7985

Specifications (Gloster Gladiator Mk II)

Type:	Single Seat Biplane Fighter
Designer:	H.P. Folland
Manufacturer:	Gloster Aircraft Company
Powerplant:	• SS.37-Prototype - One 645 hp (481 kW) Bristol Mercury VIS radial engine. • Mk I - One 840 hp (626 kW) Bristol Mercury IX or IXS 9-cylinder radial engine. • Mk II - One 830 hp (619 kW) Briston Mercury VIIIA 9-cylinder radial engine.
Performance:	• Maximum speed 253mph (407km/h); • initial climb rate 2,300 ft (700 m) per minute; • service ceiling 33,000 ft (10060 m).
Range:	• Mk I and II - 440 miles (708 km); • Sea Gladiator - 425 miles (684 km)

Weights.	• Mk I and II - Empty 3,450 lbs (1565 kg) with a maximum take-off weight of 4,750 lbs (2155 kg). • Sea Gladiator - Empty 3,745 lbs (1699 kg) with a maximum take-off weight of 5,420 lbs (2459 kg).
Dimensions:	• Mk I and II - Span 32 ft 3 in (9.85 m); • Length 27 ft 5 in (8.38 m); • height 10 ft 4 in (3.17 m).
Armament:	• First 71 aircraft, two 7.7 mm (0.303 in) Vickers machine guns in the fuselage, one 7.7 mm (0.303 in) Lewis machine gun under each lower wing; • subsequent aircraft had four 7.7 mm (0.303 in) Browning machine guns in same locations. • Fuselage guns had 600 rounds per gun and wing guns had 400 rounds per gun.
Variants:	• Gloster SS.37 (prototype), • Gloster Gladiator, • Gloster Gladiator Mk I, • Gloster Gladiator Mk II, • Gloster Sea Gladiator.
Avionics:	None, zero, zilch
History:	• First flight (SS.37) September 1934; • (Gladiator 1) June 1936; • Sea Gladiator) 1938; • service delivery March 1 937; • final delivery April 1 940.
Operators:	Belgium, China, Egypt. Finland, Greece, Iraq, Ireland, Latvia, Lithuania, Norway, Portugal, South Africa, Sweden, UK (RAF, RN) (not in chronological order).

Gladiator Mk-1, K7986/ G-AMRK

------ ooOOoo ------

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

1. What is the cause of adverse yaw?
   A. Greater drag caused by the aileron on the down-going wing when aileron is applied
   B. The differential drag created by the ailerons extending into the different pressures above and below the wing.
   C. A failure of the pilot to keep the "ball in the middle" with rudder.
   D. Skid caused by aerodynamic drag imbalance.

2. When isobars on a weather map are closer together, this indicates for the areas where they are closer, that the…..?
   A. The rainfall will be heavier.
   B. The air temperatures will be lower.
   C. The wind will be stronger.
   D. The air temperatures will be higher.

3. Buys-ballots law states that, if you stand with the wind ion your face in the southern hemisphere, the lower pressure system lies to your ?
   A. Left.
   B. Right.

4. In a 60° banked turn, maintaining height, an aircraft will be loaded to 2G? If the straight and level flight Vs is 40 knots, what will its new stall speed be whilst in the turn
   A. 45 knots.
   B. 51 knots.
   C. 57 knots.
   D. 68 knots

5. An aeroplane weights 850 kg whilst stationary on the ground. If the pilot enters and maintains a 60° banked level turn, what will be the lift the wings are required to provide to maintain height?
   A. 850 kg.
   B. 980 kg.
   C. 1202 kg.
   D. 1700 kg.

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. B is correct.
   The down-going aileron (used to raise a wing when applying bank) extends into a higher velocity airflow, with a higher pressure than the up-going aileron on the down-going wing side. The result, if not countered by coordinated rudder use, is a yaw to the outside of the intended turn
   See https://inspire.eaa.org/2020/08/12/adverse-yaw-what-is-it/
2. C is correct.
   The closer the isobars on a weather map are topo each other, the higher will be the wind speed.
   See: https://about.metservice.com/our-company/learning-centre/how-to-read-weather-maps/

3. A is correct.
   In the southern hemisphere, the wind flow about a low-pressure area is clockwise (and a high pressure is anticlockwise). Therefore, as Buys-Ballot's law advises, if you stand facing into wind, the low-pressure area must lie to your left in the southern hemisphere.
   See: https://about.metservice.com/our-company/learning-centre/how-to-read-weather-maps/

4. C is correct.
   In any level turn, an aeroplane's stall speed will increase by the **square root of the load factor** being experienced. Therefore, as the load factor in a 60° banked turn is **2 (2G)**, the stall speed will increase by the stall speed in straight and level flight, in the same configuration, multiplied by √**2**. As the square root of 2 is 1.414, the Vs will rise by 40 X 1.414 = 56.5. knots.

5. D is correct.
   If the aeroplane is pulling 2G, its loading is 2 times its actual weight. Therefore, the wings will be required to provide 1700 kg (2 X the actual weight of 850 kg) to maintain height. If you were in that aeroplane, and normally weighted 70 kg. in that turn, and if it could be measured, your new apparent weight would be 140 kg. However, as soon as you returned to straight and level flight, you would no longer be subject to the loading in the turn and would return to your normal 70 kg weight.

------ ooOOoo ------

Aircraft Books, Parts, and Tools etc.

Contact Rob-on mobile – 0400 89 3632

Books (Aviation)

NEW Item	Condition		Price
Flight Briefing for Pilot ***By Birch & Bramson***	**Excellent**		**$25.00**
Mechanics of Flight ***By A. C. Kermode***	**Little used**		**$25.00**

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

$1,980.00 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 – 10n 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

$25,000.00 (Neg)

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 Sky Dart III landing at YFRH Foerst 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**

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