



# Brissle Strutter



Newsletter of the LAA Bristol Strut

[bristolstrut.uk](http://bristolstrut.uk)

December 2019

## Next Meeting — CHRISTMAS QUIZ

Our next meeting will be held on **Tuesday 3rd December** at 7.45 in Room 4. Bring some nibbles to share.

A few words from our Quizmaster Alan George:

*There will be a light-hearted picture round to start as usual, this time you should be thinking about some of the diversification products also made by companies otherwise known for their aeroplanes, usually when military contracts had come to an end. I have also found another black and white film featuring Filton products, some knowledge will help but all the questions are based on what can be seen and heard in the clips I intend to show. The aircraft technical round was left over from last year, unfortunately I did not keep the answers so there could be some lively discussion about what is the 'correct' answer. There is a round of trivia with an aviation theme, these are questions that have popped up throughout the year, influenced since 2019 is the 100th anniversary of several notable events. Finally the aircraft recognition round links an aeroplane to a famous pilot, you are going to have to make the correct connection to get the recognition points.*

Directions to BAWA are available on our website: [bristolstrut.uk](http://bristolstrut.uk)

## Last Month's Meeting

We were entertained with a visit from Gp Capt Laurie Hilditch, RAF (Ret'd), who gave us a "Lucky Dip" into his logbook. From a flying career of fighter squadron pilot, test pilot training with the US Navy, flight test postings at Boscombe Down (including as Commandant of ETPS) and pilot for the Shuttleworth Trust, he introduced us to some of the aircraft he had flown. Favourites included the Chipmunk and T-2 Buckeye (he explained a strong preference for pilot training to be in tandem aircraft). Not so enjoyable were the F-14 and Shuttleworth's LVG C.VI (which suffered from aileron reversal at anything above a modest bank angle). His enthusiasm showed how he felt he was "lucky = fortunate" in his career.



## Bonus Meeting:

On 23 November, in the Concorde building at Aerospace Bristol, we had a very informative, interactive talk from Rob Hart of SkyDemon on "SkyDemon Tips and Tricks". He helped us explore some of the full potential of SD; judging by the discussions, we all learned something new!

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### Contact Information

#### Strut Chairman:

Trevor Wilcock

01275 858337

E-mail: [chairman@bristolstrut.uk](mailto:chairman@bristolstrut.uk)

#### Treasurer/Membership Sec:

Steve Pemberton

01934 823938

e-mail: [treasurer@bristolstrut.uk](mailto:treasurer@bristolstrut.uk)

#### Newsletter Editor/distribution:

Mary Leader

01275 541572

e-mail: [Secretary@bristolstrut.uk](mailto:Secretary@bristolstrut.uk)

Editorial address:

7 Cantell Grove

Stockwood, BRISTOL

BS14 8TP

#### Webmanager

John Leather

E-mail: [webmanager@bristolstrut.uk](mailto:webmanager@bristolstrut.uk)



## Picture Quiz

Apologies to Dave Hall who had send in his correct suggestion for the SubSonex aircraft in the October Newsletter but we'll blame technology for the omission of credit to him!

Dave had sent in the following:

*At last, I can answer the "What's the aircraft in the Newsletter" question.*

*It's a SubSonex jet. I thought it was a Waix, but then spotted there wasn't a prop, and saw the jet. There aren't too many light aircraft with that pointy nose!*

I did find a video showing exactly that plane, and the builder tells his story.

[https://youtu.be/Yh1SZFvW\\_30](https://youtu.be/Yh1SZFvW_30)

**Last month's** picture quiz suggestions:

Pat Harrison: *The aircraft is a B36H-20-CF (serial no 51-5712) used to carry a 1Mw nuclear reactor. You can see the radiation warning sign on the tail.*

Alan George: *I believe that is the B36 with the nuclear reactor in the back.*

**This month** is one also from Trevor with a seasonal flavour:

*What's the seasonal association of these four aircraft types?*



## BRISTOL AERO TALKS

On **Friday 6th December** in **BAWA Room 4** at **7:15** - Professor Mike Bagshaw will give a talk "*Hunter Heavy Breathing - Tales of XL563 and the IAM Centrifuge*". The Hunter in question, a T.7 XL563, earlier acted as the chase plane for the Bristol 188.

In January (date to be confirmed) Terry Ransome will give a talk that will look at the different orbits and trajectories that allow spacecraft to do what they do well

There will be no charge for entry to these talks. However, as these talks are being run independently, BAT ask for a voluntary contribution of one pound per person to cover the room rental and associated costs. In the event there is an accrued surplus at the end of the season of talks it will be donated to a good cause such as the Air Ambulance.

## ROYAL AERONAUTICAL SOCIETY BRISTOL BRANCH

On **Wednesday 4th December** the Branch will hold its annual Collar Lecture at the University of Bristol: "Engineering the Future – How to Design and Build the 'Bird of Prey' Concept Aircraft". Registration is at <http://www.raesbristol.org.uk/>

### Where to go...

**Free Landings December 2019 in:**

**Flyer:** Beverley, Blackbushe, Crosland Moor, Fowlmere, Oaksey Park (Mon-Fri), Shipdam (weekends and Bank Holidays).

**Light Aviation:** Henstridge, Peterborough Conington (½ price), Sherburn-in-Elmet, and a free bacon bap at Sandown

**And January 2020 in Flyer for:** Bodmin, Coventry, Leicester, Netherthorpe, Spanhoe, Wolverhampton



## A CHRISTMAS TELLY?

By Graham Clark

Each Christmas I indulge myself for the Nth time by watching a recording of 'Those Magnificent Men and their Flying Machines', with its fabulous line-up of replica vintage aircraft and brilliant comic actors; not to forget the shapely bicycling oscillation of Sarah Miles' delightful SLA.

The replica aircraft from that film which has always fascinated me is the Demoiselle flown by the Frenchman. An original can be found in the Musée de l'Air at Le Bourget Airport, while another is at Brooklands, Surrey.

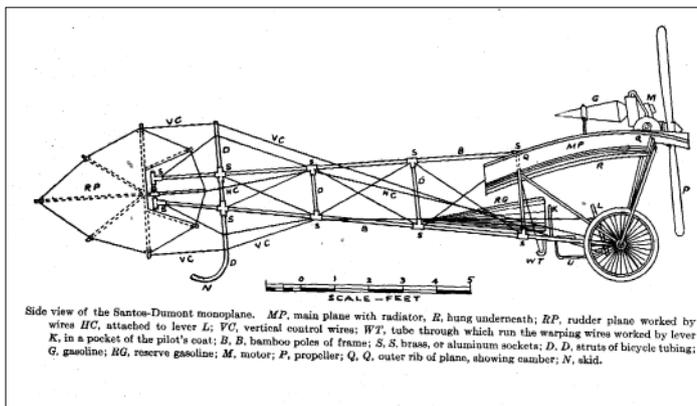
In preparation for filming, the replica built for the film had to be test flown, but although the Demoiselle would go bouncing along the turf, nobody could get it off the ground. That was until someone remembered that the designer, Brazilian millionaire Santos Dumont, was 5ft nothing and skinny. So the task was given to Joan Hughes, petite ex-ATA pilot who had flown everything up to and including the Short Stirling four-engine bomber. During the 60s, she taught with the Airways Aero Association, first at White Waltham Airfield, and then at Booker Airfield. She got it off the ground, and flew for the filming.

But what of Alberto Santos Dumont? He was rich, living in Paris and wanted to fly. He financed the construction of a number of one-man hydrogen airships which he flew at low-level over the city, circumnavigating the Eiffel Tower and landing on rooftops to enjoy a drink with friends.

But then, news of the Wright Brothers reached France and Santos Dumont decided to build and fly fixed-wing aircraft. His early waterborne designs were failures by any current definition. However, he progressed step-by-step and his first successful landplane design was his 14th. This biplane made the first flight of a heavier than air aircraft in Europe. His most successful design was his 20th. In the hands of a skilled and lightweight pilot, the Demoiselle was exciting to fly. This design was replicated for the 'Magnificent Men' from the original plans using bamboo and original construction methods.

Santos Dumont waived his patents for the Demoiselle, allowing anyone to copy his ideas. The Brooklands replica has a steel tube airframe. Close up, it reveals some interesting design features such as four-way articulation of the empennage. Lateral stability was courtesy of a gull wing and the pendulum action of the pilot seated in a 'deck-chair' location. Sadly, development stopped when Santos Dumont fell ill with MS. He died in 1932.

If you get the opportunity to watch the 'Magnificent Men' this Christmas, remember the debt we owe to pioneers such as Alberto Santos Dumont.





## Ploughing Match by

Graham Clark

*Continuing our series of articles from which we all hope to learn something useful. Many thanks to Graham for these thoughtful insights. They are reprinted with very kind permission from Flyer Magazine*

Pilot X needed to re-familiarise himself thoroughly with the Gliding club's tug, a PZL-104 Wilga 35. The Polish Wilga was highly suited for this task, even though it was powered by a rather thirsty 260 hp Ivchenko radial, which could give a rate of climb beyond 2,000 fpm.

He had been a member of the gliding club for many years and had amassed the not inconsiderable experience of over 2,500 hours as a soaring pilot. As any glider pilot will say, this calls for much airmanship and regular training to deal with mishaps such as winch cable breaks anywhere from ground level to over 1,000 feet. At very low level, the response is quite simple but needs immediate action. If the cable breaks, the pilot must at once push the stick forward to lower the nose and accelerate to the correct approach speed and depending how high he was when the cable broke, then flare. At X's club, this was a response that was drummed into all active club members at regular intervals, because a low and slow recovery could result in a stall and damage or much worse. Fast transition from the climb to down-nose attitude is essential to maintain control and a safe landing.

X had also flown almost 20 different types of powered aircraft, on which he had built up over 500 hours. Now on this fine spring (110/13KT 9999) day, he needed to get back in the saddle of this high-wing very draggy and agricultural STOL machine; built like the proverbial all-metal barn door; but unlike his sailplane, with the glide characteristics of a brick.

Under his gliding club internal house rules, he was required to do a minimum of ten take-offs and landings in the Wilga within the past 90 days to be classified as 'current', but had only flown three and was therefore required to complete this requirement either with a suitably rated and current instructor or another club 'safety pilot' meeting the currency requirement. The qualifications of the 'safety pilot' were undefined, other than that he had to be a club member with ten take-offs and landings in the Wilga within the past 90 days.

In spite of his many hours X – who was also a flying instructor – had relatively little time on the Wilga, over which the club committee maintained a restrictive watch. So it was decided that the first part of

his re-familiarisation would consist of a few practice forced landings from 2,000 ft overhead the airfield. This was appropriate since when tugging gliders, a rapid descent back to the airfield was standard practice.

Together with his 'safety pilot' they climbed up their respective stepladder-like landing gear legs and secured the lap-straps. Everything was normal, and so with the engine warmed they taxied out to Runway 15 to begin their practice. Given the Wilga's rate of climb, a practice PFL took very little time from take-off to touchdown. They climbed to 2,000 ft prior to a simulated engine failure and glide approach. This manoeuvre was repeated six times with no apparent difficulty, with flight times of from four to 14 minutes.

On the subsequent flight, on the radio X announced his intention to practice another emergency procedure, though without stating exactly which. Once again, the STOL Wilga lined up on Runway 15. With the flaps set at 21°, X opened the throttle and accelerated down the grass runway. At a height estimated by witnesses to be 100 to 140 ft while in the climb-out, the engine sound dropped and the STOL Wilga began its descent to the runway.

The witnesses differed in their estimation of the subsequent angle of nose-down descent – though most described it as 'steep' –, but there was no disagreement that the taildragger Wilga then crashed on the runway, about 500 metres from the runway threshold, leaving a series of tell-tale impact marks and ripped turf. The final marks on the runway were made by the prop hub as it ploughed into the ground, also with deep cuts left by the rotating propeller and main gear. The Wilga came to rest 43 metres after the penultimate turf marks.

The Wilga nosed over and crashed inverted pointing back the way it had come, with the cockpit cabin crushed to half the normal height by the engine and bearer, which had broken away from the firewall and folded against the underside of the inverted fuselage. The Wilga was a total wreck, but there was no fire.

The club members on site immediately called the local fire service to the airfield, and with their help immediately set about a rescue attempt for the two



occupants, lap-strapped to their seats in the crushed cabin. The rescuers were hindered by the weight of the engine on the fuselage. The occupants might have had a chance of survival if skilled medical assistance had been immediately to hand, but it was not; X's lifeless body was removed from the cockpit and the 'safety pilot', also a flying instructor, died in hospital five days later. The post-mortem showed that X had a compressed ribcage and there was bleeding to the spinal canal.

When consulted about the landing attempted in this accident, the Polish aviation authority answered that recovery from an engine failure at a height of 40 metres (approx. 120 ft) was not possible, and that this exercise should not be attempted.

Nevertheless, accident investigators decided to conduct flight tests at altitude with a similar machine fitted out with sensors to record static and dynamic pressures, acceleration along the z-axis, elevator positions and power levers.

Two pilots conducted a total of 17 tests. The stick forward motion was carried out with a delay of about one second, or immediately and forcefully. During two tests the pilots did not carry out a stick

forward motion at all, but watched for the aircraft to recover speed on its own.

Taken together with the witness statements, the tests indicated that the pilot had heavily over-corrected and failed to execute a proper flare. The relatively high energy during impact, which caused the main landing gear to sink into the ground, indicated a high sink rate. The distances between the individual propeller traces showed that the horizontal velocity was not very high. The conclusion was that at the point of simulated engine failure, the Wilga was too low to complete the flare and assume the correct glidepath angle to land safely.

### Questions

1. What was the primary cause of the accident?
2. Should X have attempted a low-level practice engine failure?
3. Did the Pilot's Handling Notes cover all eventualities?

## CAA etc UPDATES

**CAP1855** provides details of the main changes in the recent EU Aircrew Regulation Amendment, which affects theoretical examinations and licence privileges, amongst other things. Of note for pilots of EASA aircraft is that LAPL privileges are now included in PPL(A) and PPL(H). All licences affected will show LAPL privileges in Section II at the next CAA administrative reprint. Licence holders wishing to exercise LAPL privileges only need to hold a valid LAPL medical (or higher) but must maintain validity of any class ratings in accordance with FCL.740.

The **Airspace and Safety Initiative** has produced an update on preventing airspace infringements in the vicinity of the Solent — <https://airspacesafety.com/updates/>

**That's worrying!** Skywise 2019/214 notes that the CAA has recently been in receipt of engineer licence renewal and variation applications where the original licence returned to the CAA was not signed by the licence holder. By not signing the licence, the privileges of the licence cannot be exercised. Any maintenance and associated Certificate to Release to Service issued using an unsigned licence is invalid **and therefore invalidates the CofA/ARC of the aircraft.** *Perhaps the logic of this extends to pilot licences and medical certificates — time to check that yours are all fully signed up? Ed.*

**Small unmanned aircraft:** a reminder that it is now a legal requirement to register and take a test to fly small model aircraft and drones weighing 0.25kg to 20kg, unless indoors or in a securely-netted area — see <https://register-drones.caa.co.uk/>. However ORS4 No.1332 and 1334 provide a short-term exemption for members of certain organisations pending bulk registration of their members, and No. 1333 exempts control line aircraft. Different requirements apply for models/SMAs over 20kg.



**SAFETY EVENING**

**GASCo** Presents... 2020  
**SAFETY EVENING**  
**FREE**

**BRISTOL AERO CLUB & LAA STRUT**  
 TUESDAY 4th FEBRUARY 2020, 1930 hrs  
 ROOM 4, BAWA, SOUTHMEAD ROAD  
 BRISTOL, BS34 7RF  
 Contact PHILIP GREEN on 07768 822 406 or e-mail [social@bristolaeroclub.co.uk](mailto:social@bristolaeroclub.co.uk)

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**AND A REMINDER FROM THE BGA:**

Never overfly gliding sites below the indicated altitude (AMSL) shown on your CAA chart....

**WINCH CABLES CAN KILL!**

BRITISH GLIDING ASSOCIATION

**FLYING BURSARIES**

The LAA is offering 5 flying bursaries (of up to £1,500 each) to deserving under 30 year olds. This is to help post-solo students who are facing the most expensive part of their training - the dual and solo cross countries.

More details on the bursary and how to apply can be found at <http://www.lightaircraftassociation.co.uk/Bursary/AI.html>

**FUTURE STRUT MEETINGS:**

- 7th January - Review of your flying in 2019
- 4th February - GASCo Safety Evening



## LAA COURSES

There are a few remaining spaces left on the one day Rotax Engine course taking place on Saturday 7th December at Turweston. The cost is £120 for LAA Members and for further details please see <http://www.lightaircraftassociation.co.uk/Courses/rotax.html>

To book a place please call the office on 01280 846 786 to provide payment details

## PILOT X ANSWERS

Answers

1. The flying club had not formulated or imposed a satisfactory safety regime for refresher flying. The less qualified 'safety pilot' added no measurable safety to the procedure.
2. No. In this phase of the flight, the risks incurred in attempting the low-level manoeuvre are vastly greater than the probability of a genuine engine failure.
3. No. The pilot's notes contained no warning that a low-level practice engine failure at this height would result in almost certain destruction.

## WISHING OUR READERS —



*Merry Christmas!*



*And a Happy New Year!*