

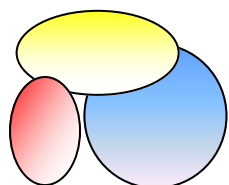


Brissle Strutter

Newsletter of the LAA Bristol Strut

bristolstrut.uk

November 2020



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Next Meeting—Ariel sightseeing in OZ

As you expect, we'll be meeting by Zoom again this month.

Fiona and Angus Macaskill return to us with another of their exploits - this time touring Australia by light aircraft. The meeting will open at **19:30 on Tuesday 3rd November with the talk starting at 19:45.**

Instructions for joining the meeting will be sent separately to Strut members; if non-Bristol Strut members wish to join us please contact our Treasurer and Zoom host Neville Parton in advance at:

treasurer@bristolstrut.uk and he will send joining details.



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Last Month's Meeting—Wings at War

Chris Bigg, local historian with a specialism in aviation, related the story of the Bristol Aeroplane Company and Filton airfield during World War II.

He comprehensively covered the Blenheim and its successors, manufacture and the people involved, shadow factories and the raids on Filton, backed up with an extensive set of pictures. Filton airfield may have changed dramatically over the years, but it was interesting to see what remains from the war years.

We were very pleased with how our first (and Chris's first!) Zoom presentation went - it can't replace a BAWA gathering, but it does keep us in touch.

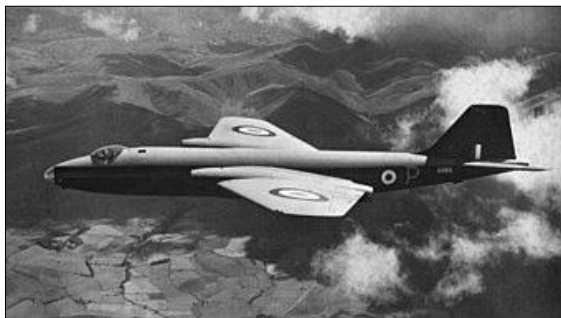
Future meetings:

Our Christmas meeting is on **Tuesday December 1st**, and we are clearly expecting it also to be by Zoom. We are working on one or two ideas; further information later, but suggestions also welcomed.

Picture Quiz

Last month Trevor set a different set of questions:

What is the connection between these two aircraft?, and name three novel features of one (there are more than three). Use of the Internet is allowed!



Our resident Quiz master Alan George (until this year!) was the only one to reply and he gave us a comprehensive answer to Trevor's picture quiz as follows:

In the picture quiz in the newsletter one aircraft is an English Electric Canberra from the UK. The type was built under licence and then developed for the US military by the Martin company. This followed a competition with American designs, one of which by Martin is the other aircraft. Looking at the photo for some novel features it had 3 engines, one in the tail and two in fuselage mounted pods. The wings are swept back, aerodynamically more advanced than the Canberra although not as good an aircraft in the competition. Still one more feature to find.

And Trevor's information confirms Alan is correct:

One is easy - the English Electric Canberra. It won a USAF competition for a tactical bomber, against the other aircraft, the Martin XB-51, and the North American Savage. Martin didn't totally lose out as they manufactured the Canberra (as the Martin B-57) for the USAF.

Particular unusual features of the XB-51 are: the three jet engines, the fuselage pod mounting of two of them, a variable-incidence wing and a rotating bomb-bay.

For this month:

This was Trevor's first aircraft share - almost an open-top G-DENS!

Unfortunately it was initially undergoing maintenance, and then he was posted abroad and the group sold it before he returned, so he never flew it!

Can you identify it—without looking it up on G-INFO!?



No Contrails

words by Graham Clark

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

It was going to be a great day: Pilot X had been asked to ferry a DR 400 from its home base to an open day at a neighbouring airfield, where there would be the usual entertainments. There would be a barbecue, pleasure flights in the DR 400, parachute jumping from an AN-2, plus the opportunity for trial lessons in two-seat sailplanes. The annual event usually brought in a new member or two for the local flying clubs and some cash for the caterers.

Having surrendered the DR 400 to an instructor who was to do the local area pleasure flights, X took his place on the club veranda to watch the proceedings, a newspaper in one hand and a cup of coffee in the other.

It was a hot day: 31°C with nil wind. The gliders were being dragged aloft by a Rallye tug, because winch operation at such a busy airfield might have been a bit risky today. Besides which, with nil wind the height at the top of the launch would have been on the low side. The DR400, with a 180 hp engine, was up and down most of the time with the reliability of a clockwork mouse, and the five-ton AN-2 – said to be the biggest biplane in the world – was lifting the jumpers with equal regularity. There was certainly plenty to keep the watchers amused; heaven for small boys and their dads..

Later in the afternoon, the DR400 instructor asked for a break. He had done seven local area flights and wanted to stretch his legs and have a cup of coffee. Could X do the next local area joyride? Three Pax?

Okay. Pilot X felt well rested and was happy to do a 20-minute local area flight, so walked out to check the DR and board the three passengers. While so doing, jumpers were boarding the AN-2 for their next lift. The big bipe fired up just as Pilot X was ready to do the same, and he followed the Antonov to the hold, passing the limp windsock.

The 180 hp O-360A Continental was already nicely warm, so as soon as the AN-2 had started its take-off run, Pilot X left the hold and taxied to position for line-up, announcing his intention to the Tower, which acknowledged with the reminder to bear in mind the possibility of wake turbulence.

The crowd now had another couple of movements to interest them; cameras clicked and videos purred, as 39 seconds after the Antonov had began its take-off run, the DR400 accelerated along the 500-metre Runway 11. The stills and video clips were very useful in the subsequent investigation.

Pilot X pulled the DR400 off the runway at just above the stall speed, and the DR hung there for a few moments until

it accelerated a little and then started to climb. As it passed the end of Runway 11 at a height of about 50 ft, onlookers watched in horror as the DR suddenly rolled more than 90 degrees to the right. Now the DR400 may be a great aeroplane, but it is not designed to fly a knife-edge with four POB, at any altitude.

The photos taken that day show that Pilot X at once gave full left aileron and rudder deflection, but it was to no avail. The wake turbulence vortices generated by a five-ton biplane easily overcame the 1,000 kg DR400 with occupants. The luckless Robin hit the ground just past the end and to the right of Runway 11 with the engine still developing full power. The aircraft crumpled and fire broke out at once, which was quickly extinguished by the airfield fire crew.

The impact killed two occupants on the spot. Two more were removed from the aircraft still alive, one of which died in hospital. The aircraft was completely destroyed.

Unfortunately, Pilot X did not survive to mug up on the theory of the DR400 Roll Control Ratio. He has always equated the concept of 'wake turbulence' with the disruption of air caused by prop rotation. The contrails leaving the wings of a big jet are generated in the first instance by the fact that air pressure on the upper wing surface is lower than that underneath, mitigated by winglets. Now, the AN-2 does not generate wingtip contrails and has no winglets, but it does trail powerful vortices from the wingtips on each side, spreading up and down, and side-to-side as they decay – slowly. And since the power locked up in these vortices increases with aircraft weight, when Robin meets Antonov, it is no contest.

But it gets worse: the Antonov wingspan is almost 60 feet, and that of the Robin is only about 30 feet. The DR400 was directly headed for two large and powerful vortices. By the time Pilot X's DR400 was thrown into a knife-edge, the width of turbulent air zone was in the region of 100 metres. In the total absence of wind, after 39 seconds the almost static vortices were still powerful and only decaying very slowly. Calculations and experimental measurements showed that even if X had given the AN-2 a one-minute head-start, the result would have been the same.

QUESTIONS

1. What was X's first mistake.
2. What was X's second mistake?
3. How could X have minimised the threat from possible wake turbulence during his take-off run?

Lecture on technical demonstration of freely flapping wing tips

If you haven't had your fill of Zoom meetings, you may be interested in the RAeS Bristol Branch Collar Lecture on technical demonstration of freely flapping wing tips - AlbatrossONE.

Details are at <http://www.raesbristol.org.uk/> and participation is limited to 100 - first come, first served.

However it's on **Tuesday at 18:30**, so you'll need to move over to our Strut meeting at 19:30!

CAA ETC UPDATES

Electronic Conspicuity(EC) equipment rebate scheme:

Don't forget that a rebate of 50% of the cost (up to £250 rebate) of appropriate EC equipment is available on an individual basis - details at:

<https://www.caa.co.uk/General-aviation/Aircraft-ownership-and-maintenance/Electronic-Conspicuity-devices/>

The rebate is available for equipment purchased from **1 October 2020 to 28 February 2021**- or *until the allocated funding runs out!* The scheme has resulted in a backlog of orders at suppliers, so don't delay if you want to take advantage of it.

SN-2020/017: Laser Attacks:

<http://publicapps.caa.co.uk/docs/33/SafetyNotice20201017V2..pdf>

Perhaps unlikely in daylight, but worth being aware of actions to take during and after an attack.

Where to go?

Flyer: Castle Kennedy, Cromer, Fishburn, Sackville, Yatesbury

Light Aviation: Withdrawn for now due to Covid -19.

Pilot X Answers

ANSWERS

1. X's first mistake was to give the Antonov insufficient lead-time before starting the take-off; and discounting the Tower warning of wake turbulence.
2. X's second mistake was to climb the DR400 directly into the AN-2 wake turbulence, rather than keeping low to gain speed and maximise aileron control.
3. The AN-2 has a shorter take-off run than the DR400.If X had stayed low, he might just have been below the two vortices.

TAIL PIECE

We had a decorator in to do some work.

We got chatting and it turns out he is a BA pilot who's been furloughed and he's been earning a bit of extra cash.

He made a lovely job of the landing.

With thanks to the Flyer Forum