

June 2003

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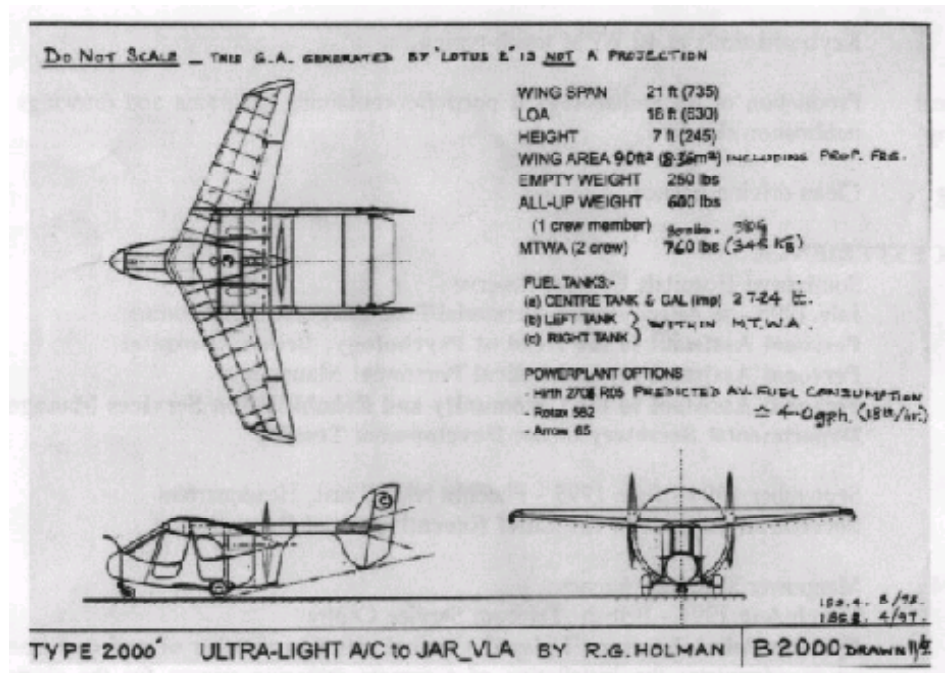
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**This month's meeting - 12th June**

Roger Holman will be bringing along his Type-2000 project on a trailer for us to see at BAWA. He designed and built this single-engine pusher entirely from scratch, and he has reported that it has now successfully completed initial taxi tests.

We look forward to seeing this experimental aircraft on Thursday, and hearing from Roger about the trials and tribulations of designing and building your own plane. Do come along, meet in the car-park and then we will move to the bar and our usual room to see a video of this significant test run.



**Last Month's meeting - 8th May**  
**"VFR down under, no worries"**

Ian Fraser from the Wessex strut, who, along with his wife Elaine, had recently enjoyed a flying holiday in Australia came along to give us his superb presentation on laptop and digital display. We had a very good turnout of members who were all enthralled by Ian's photos and stories, from tales of turbulence which tossed the camera down to the floor of the aircraft to arriving at an airstrip and being told that the 'old ute' (utility) parked outside with the keys in was the means of transport to their accommodation. They stayed in a variety of rooms, varying from hotel luxury, to a lush green ranch or in an underground city! Ian and Elaine flew a total of approx 24 hours in 7 days and covered something like 2,500 miles, all in a Cessna that was one of a fleet of 6 planes flying a pre-arranged 'safari route'.

The whole experience was so fulfilling that they intend to do it again, either in Australia as before or even the American version across the Rockies. Look up details of these flying holidays on the GOANA website [www.goana.com.au/](http://www.goana.com.au/) or [www.qttc.com.au/tqnews/issue11/index.html](http://www.qttc.com.au/tqnews/issue11/index.html) .

**Next meeting - 11th September**

This will be in September as we suspend indoor meetings for July and August. Speakers have been approached, but as they have not yet confirmed we will have to leave the announcement for the next newsletter.

**Visit Bristol ATC**

Don't forget to contact Alan George if you would like to make up a small group to see around Bristol Air Traffic Control

centre at Lulsgate. See last month's newsletter for Dave Hall's report on his visit.

### Where to go in June / July

#### **Free Landings** in June with

*Pilot Magazine*: Chichester/Goodwood, Old Sarum, Sandtoft, Benbecula, Kirkwall, and Islay

*Flyer Magazine*: Derby, Gloucestershire, Roserrow, and Wickenby

Ever wanted to fly in to Bicester instead of going around it?

The RAFGSA Centre is the home of the RAF Gliding and Soaring Association and has been based at RAF Bicester for 40 years, To celebrate this occasion there is to be a 'Fly-in' and evening function on Saturday 14th June 03.

A copy of the airfield details can be found at [www.rafgsa.org](http://www.rafgsa.org) .

Event organiser: Roger Davis Tel: 018699 252493 / 875995 / 875996. Radio: 129.975MHz.

14th June	Old Warden	Shuttleworth Celebration of Flight sunset display	01767 627288
15th June	Halwell	Devon strut fly-in	PPR 01548 857513 or 0797 1480078
21st June	Eggesford	Devon strut fly-in	PPR 01363 83746 or 0770 3397210
21st June	Old Sarum	Midsummer fly-in & BBQ	01722 322525
21st June	Kemble	Swindon strut Young Eagles Day	Info on 01793 791517
29th June	Old Sarum	Vintage Fly-in	01722 322525
6th July	Lundy	Devon Strut fly-out	07970-251386
11th / 12th 13th July	Kemble	PFA rally 2003	<a href="http://www.pfa-rally.com/">www.pfa-rally.com/</a>
19th / 20th July	Popham	Andover strut fly-in	
20th July	Taw Mill	Devon strut fly-in	PPR 01837-580749
26th July	Eggesford	Devon Strut fly-in	PPR 01363-83746 or 07703-397210
26th / 27th July	Branscombe	Devon strut fly-in	PPR 01297 680259 or 07710-190637

### On the Web

We have always been mindful that not all strut members have, or even desire, connection to the internet. Thus we offer the option to have the 'Strutter' printed and posted to those who request it by snail-mail. This will continue, of course, but the fact is that more and more useful stuff is becoming available to those with computers on-line, and from time to time we would like to point them towards various web-sites we find interesting. Perhaps even those not wired at home would like to pop into the local library and see what the web has to offer - most libraries now have computers set up to do this.

*If you discover any aviation related websites that we can share with others, do let us know. In the meantime, here are a*

few to kick it off...

**[www.UKGA.com](http://www.UKGA.com)**

This is a brand new website recently set up (and still developing) by one of our Bristol Strut members Neville Kilford, and it aims to provide a one-stop flight-briefing facility specifically for General Aviation in the UK. Lots of airfield data is already online, and links take you directly to weather and NOTAM information for the area you want to fly in. There are news pages, forums to air your views on any subject, classified adverts and events listings to read and add to. A great website already and getting greater!

**[www.raes.org.uk/public2003/](http://www.raes.org.uk/public2003/)**

Sponsored by several notable aviation companies, the Royal Aeronautical Society is managing a programme of events to celebrate 100 years of flight. Some of these in our area include the Classic Jet Airshow, 15th June at Kemble, a lecture with RAeS Yeovil Branch about the Wrights in Europe, and also at Yeovilton the Fly Navy Heritage Day on 21st June. Another interesting event coming to Yatton on the weekend 5th / 6th July is the Woodspring Flying Weekend 2003, details of which are on their website:

**[www.woodspringwings.co.uk/show.html](http://www.woodspringwings.co.uk/show.html)**

Primarily an extravagant Model Aircraft meeting, the event is well known also for it's full size air display which this year includes such stars as Denny Dobson and his Extra 300, the Yakolevs (4 Yaks aerobatics team), and the Battle of Britain Dakota. Hopefully the Sopwith Triplane will also make an appearance.

**[www.beagle2.com/index.htm](http://www.beagle2.com/index.htm)**

Those space enthusiasts among us will have been following the recent successful departure of the British-led probe to Mars. The development of the lander robot Beagle2 made interesting viewing on the box, and you can get the full story and technical details of the project from this fascinating website.

Finally, news of a charity event soon to take place in our area:

**[www.angel-high.com/index.html](http://www.angel-high.com/index.html)**

Local girl Angela Robotham plans to fly solo round the coast of the United Kingdom, starting from Bristol on the 26th July. The Charity her team is raising money for is the Childrens Hospice South West, New Bristol Hospice Appeal.

This charity will shortly be launching a £10 million appeal, which will enable them to build, equip and sustain a second hospice in the Bristol area. Angela will fly PA28-140 G-BOFY, operated by BCT Aviation at Kemble, and there will be an opportunity to sign the wing of G-BOFY, either before the flight, or on route in return for a £5 donation. Full details of the project are on this website, along with a list of all the local companies who provided sponsorship, and an invitation to enter a competition based on the number of hours flown.



**[From the Bristol Evening Post website - This is Bristol...](#)**

11:00 - 29 April 2003

A Secret report is today set to pave the way for Concorde to become the centrepiece of a new aviation museum in Bristol. The Evening Post can reveal that the report, to organisations involved in plans to build an aviation museum in Filton, says the museum has the potential to become an international tourist attraction. Projected visitor numbers are high enough to ensure that the museum could pay for itself through entrance fees and not become a drain on the public purse, a private consultancy firm has found.

The report, by Edinburgh based consultants AGA, was due to be presented to a special committee made up of officials from South Gloucestershire Council, Airbus, Rolls-Royce, the Bristol Aero Collection and The Mall at Cribbs Causeway, in a meeting held behind closed doors. A source revealed that the report is the first major step towards Filton - where Concorde was designed, built and tested - becoming a shrine to the world's fastest passenger jet, if British Airways agrees to donate one. Initial plans are already in place for the multi-million-pound museum to be built on Filton's north field close to the west's biggest shopping centre, The Mall.

It would house the Bristol Aero Collection, which is currently at Kemble Airfield in Gloucestershire, a Rolls-Royce and separate Airbus heritage collection, as well as the Queen of the Skies. The study was commissioned in January, before it emerged that British Airways would be taking its Concorde fleet out of service by October. Funding is yet to be arranged.

An insider said: "The report says that Filton has the potential to become the UK memorial to Concorde. It could become the place where this icon in the aviation world is to be remembered forever. The number crunching has found that Concorde would be viable as a museum piece in financial terms." The committee will now be urged to get fully behind the Evening Post's campaign to bring home Concorde 216 - the last airliner built at Filton - by formally registering their interest. BA is yet to say where the planes will go after they are retired, although it is understood that Filton is on the list.

Parts of the report are expected to be made public in the next few weeks, but South Gloucestershire Council was only prepared to confirm today that the consultancy's findings were being presented to the committee. Council spokesman Matt Rees said: "We are extremely happy to be involved and are naturally proud of Concorde's heritage." Preparations to move the Bristol Aero Collection from Kemble in Gloucestershire to Filton are already under way. The campaign to bring the collection back to Filton was launched more than three years ago. South Gloucestershire Council first set up a steering committee for the museum in 2001. An earlier feasibility study, published in July 2001, said the museum would cost about £6 million and that a target visitor attendance of 150,000 a year would be achievable because it would be next door to The Mall.

### **Request From National Council**

*We have received the following appeal from Stuart MacConnacher to all struts, for information with which to assign awards at the Rally in July:*

All struts are requested to nominate individuals for these awards with rationale to aid those doing the judging. Reply can be made direct to [stuart@comper-aircraft.co.uk](mailto:stuart@comper-aircraft.co.uk) or phone him on 01604 708596.

#### **THE LOIS PARKER TROPHY**

AWARDED FOR DISTINGUISHED SERVICE IN AN ADMINISTRATIVE FUNCTION OF GREAT BENEFIT TO PFA. The trophy was donated to PFA by her many friends in the organisation. Lois Parker was the much loved wife of Frank Parker a former Chairman of PFA. Until she was incapacitated by an ultimately fatal illness Lois was a devoted and inspired secretary to the PFA. The Parker's front room was the PFA office and due to their efforts a sound foundation was built from which the PFA has grown. The award is restricted to PFA Members.

#### **THE FRANK HOUNSLOW TROPHY**

FOR SERVICES TO PFA IN ENGINEERING

Presented to PFA by Rollason Aircraft and Engines in May 1994. Frank Hounslow who worked for Rollasons for many years was also PFA's Chief Inspector until his death.

Awarded to the PFA member who has made a major contribution to PFA's engineering function e.g. in Inspection.

#### **THE PRESIDENT'S JOYSTICK**

AWARDED TO THE PERSON WHO BEHIND THE SCENES HAS HELPED THE PFA CAUSE.

The trophy, an AVRO 504N control column, was presented to the PFA by former President Air Commodore G.J.C. Paul. The award is made to the individual who has received no other award but deserves recognition for a particular act of devotion to the PFA cause, often behind the scenes and in connection with the PFA Rally, and of great benefit to us all.

#### **THE PETE CLARKE TROPHY**

AWARDED TO THE PERSON WHO HAS MADE A MAJOR CONTRIBUTION TO AIR SAFETY.

The cup was presented by Ivan Shaw to the PFA at its 50th Anniversary Rally in memory of Pete Clarke who was killed during a flight demonstration at Old Warden in a Slingsby Firefly. Pete had carried out most of the test flying on the Europa during its development. It is awarded to an individual or group who have greatly contributed to air safety.

#### **THE TED MOSLIN MEMORIAL TRUST AWARD**

AWARDED TO THE MOST PROMISING APPRENTICE OR TRAINEE IN LIGHT AIRCRAFT MAINTENANCE.

The executors of the late Ted Moslin's estate donated a sum of money to be held in trust by the PFA for the purpose of making the award. Awarded every other year to the most promising apprentice or trainee in light aircraft engineering especially connected with PFA type aircraft. The award is a set of tools to a value of about £300.

#### **THE BILL WOODHAMS MEMORIAL TROPHY**

AWARDED FOR A FEAT OF NAVIGATION IN THE PREVIOUS YEAR

The trophy was donated to the PFA in memory of Bill Woodhams by his family and friends. Bill was a senior figure in the PFA in the 60's serving on the committee.

The award is made to a PFA member who has carried out a worthy feat of distance navigation in the previous twelve months. A series of such long distance touring over a period is also taken into consideration. Whilst we welcome a nomination this trophy could be used as the basis of a flying/navigation competition to be held at the Rally. Are any struts interested in organising a competition maybe for 2004?

#### **THE COATES "SWALESONG" TROPHY**

#### AWARDED FOR THE BEST DESIGN FEATURE

The trophy was awarded to the PFA by Mrs D Coates and her sons in memory of her husband James, who was a member of the PFA from its inaugural meeting, as the Ultra Light Aircraft Association in 1946. He built and flew his first aircraft, a Luton Minor, in 1948 an aircraft that is still flown to this day now by his son Richard. It is believed that this Minor called "Swalesong" was the first homebuilt aircraft to be built from scratch after the 1939 -1945 war. The name is derived from his boyhood home in the Yorkshire Dales where he started to build a Flying Flea. During the war he served as a Flight Engineer on Halifaxes and later on the Yorks of the VIP unit 24 Sqdn. and post-war served with the King's Flight and Queen's Flight on Vikings.

The award is restricted to the amateur builder, and will be awarded for the design and construction of a part showing ingenuity as part of a PFA project. The award is intended to encourage the younger builder though this will not exclude design ideas from more mature builders. The aircraft incorporating the idea must be at the Rally to be judged on the day. Encourage any potential winner to enter and bring a brief write up with them.

#### THE JOHN WALKER TROPHY

##### AWARDED TO THE BEST AMATEUR RESTORATION OF A FACTORY BUILT AIRCRAFT

The award was instituted in 1995 and named in honour of F.I.V. (John) Walker during whose years as Chief Engineer and Vice Chairman the PFA grew from a tiny organisation catering for a few aircraft to the size it is today with many factory-built aircraft on a PFA permit. The permit system saved many light aircraft from destruction and saw the introduction of many economic light aircraft into the UK. This has both enriched our population of aircraft types and allowed many people to fly where the costs of club flying would have defeated them. It is awarded so as to recognise the restoration of a factory built aircraft by an individual with minimum professional help. The aircraft must be eligible to enter the vintage, classic or contemporary categories. Apart from attending the Rally the aircraft must be presented to the judging team with a logbook on the restoration prepared by the owner which shall include details of the aircraft's history, the work carried out and a rationale on the materials and markings of the restored aircraft. Known to Struts are rebuilds of aircraft that are being carried out with minimum professional help. Encourage the person to present the aircraft for judging and bring with them a photo album and other data to show the extent of their work. We have not always awarded this due to lack of entrants, so you have a fair chance of winning.

*Please note that even when there is only one aircraft entered into any competition the judges will not make an award if the aircraft is just average. If you noticed there were some classes of aircraft that were not awarded last year due to lack of competitors. So if you know of above average aircraft please encourage them to enter. We accept entries from 12.00 noon to 05.30 on Friday and before 01.00 pm on Saturday - Judging starts at 01.30 pm.*

## Local Lights The Westland Wagtail

*Another fascinating profile in our series by John Shufflebottom*

In 1917 an outline specification for a light single seat fighter was announced by the technical department of the air board, this coincided with the submission of an experimental seven-cylinder 657cu-inch air cooled radial engine named the Wasp.

Ingeniously designed by Granville Bradshaw of ABC Motors Ltd for ease of production, it employed cylinders with copper-plated steel cooling fins (which subsequently proved disastrous). Initially the engine performed well during tests developing 173hp for a weight of only 290lb and on this basis the government placed large orders for the engine. It was expected that fighter performance would exceed that of the Sopwith Camel both in top speed and climb, and by keeping the size small due to the low weight might even exceed it in manoeuvrability.

Tenders were accepted from three companies; The British Aerial Transport Co Ltd, known as B.A.T. who had just finished a small unconventional two-bay biplane, which had a wooden monocoque fuselage. Unfortunately it incorporated features not recommended in the designer's manual resulting in irrecoverable spinning characteristics.





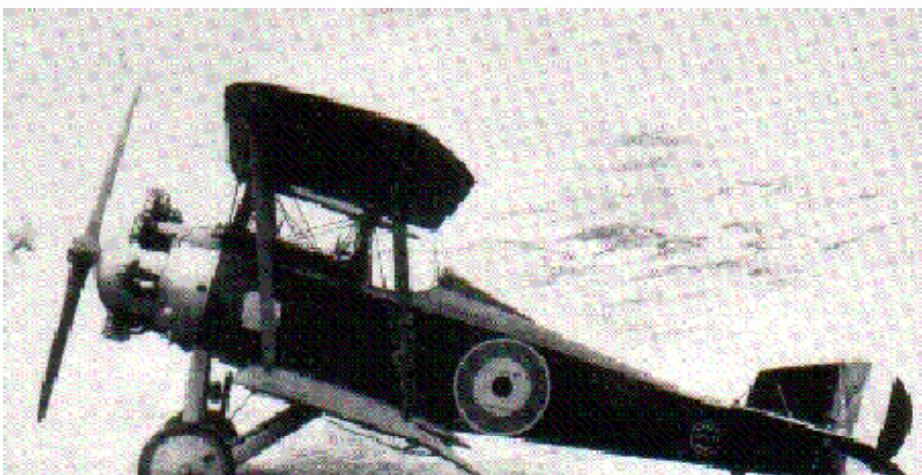
Sopwith Aviation Ltd, the most famous of the wartime firms, offered a more conventional design, the 8F1 Snail. This also had a monocoque fuselage, though this was later given second priority to a MkII version with wings that were identical to the current 7F1 Snipe, and a conventional girder-structured fuselage of similar design.

The Westland Aircraft Works became the third contender. Westland had formed a small design team in August 1915 to make detailed drawings of the shorts 225 seaplane for their opening wartime production contract, subsequently keeping track of the modifications to the Sopwith 1½ strutters of their second contract, and then the D.H.4 production. Managed by Robert Bruce, an accomplished civil engineer, who, before the war had been the manager at the British and Colonial Aeroplane Co Ltd. and was determined to exercise his own design powers.

Bruce and his team had initiated the Wasp-powered light fighter design as a private venture; it was a miniature of only 23ft span, the structure was typical of the day with a spruce framed box girder fuselage with tapered spacer struts secured by interchangeable light steel fittings and each bay braced by adjustable steel rods. The wing had two spindled spars separated by conventional drag struts and the ribs of RAF 15 section were of 1/8 three ply and capped with spruce flanges. To reduce the spar bending-moment a wide centre-section was used matched with cantilever stubs for the lower wings. The tailplane was conventionally braced and construction was similar to the main planes except that the rudder and elevator were metal framed.

Outwardly there was nothing remarkable about the design, but in fact weight saving was a prime objective and every item was carefully weighed and modified if found to be overweight. The result was a structural weight of a mere 450lb and only 746lb complete with engine propeller and instruments, giving a disposable load of 584lb which included 185lb for guns and ammunition and a fuel capacity of 26 gallons which gave an endurance of 2½ hours. The prototype C4291 had equal dihedral on both wings and the fin extended forwards of the tailplane; at the beginning of March 1918 the little fighter was awaiting its engine. It received its engine in early April and was flown by Captain Alexander, an R.F.C. pilot loaned to the company. It proved so pleasant to fly that Capt Alexander had no worries and looped it on its first flight. The only problem that manifested itself was when the aircraft was side-slipped; there was insufficient rudder authority to overcome the nose down effect of the fin. Since it was costly to make a new bigger rudder, Bruce reduced the fin area by cutting the front off at the attachment point to the tailplane spar giving it a somewhat Sopwith-like look; this cured the problem and did not affect the spin recovery.

One of the operational requirements for the Wasp powered fighters was good all round view. Captain Alexander considered the semi-circular opening in the centre-section insufficient for upward view, so as a trial modification Bruce lowered the centre-section of the still unfinished third machine and did away with the three centre ribs to give an almost full width gap between the front and rear spars, as well as removing the local trailing edge. In order to keep the same interplane struts and Raf-wires, the lower wings were rigged flat and the upper wings were given a marked dihedral, an expedient cherished by Bruce as a current R.A.E. report indicated that this was an aerodynamically efficient arrangement. Engine failure put a sudden end to testing in mid April, the prototype's engine was returned to A.B.C. motors for rectification and C4291 went back to the works for repair. Therefore the second machine C4292, which had now been modified the same as the unriggered third machine, was fitted with the repaired engine from C4291 when it was returned and continued with the trials.



At about this time the workforce was stopped from smoking in the hangers due to the fire risk; one chap claimed this to be rubbish and to prove it pushed a burning cigarette into a can of petrol. Luckily it did not explode, it's the petrol vapour mixed with air that will burn, not the liquid petrol. At a later date he again demonstrated it, but this time there must have been more air and less petrol as it readily



caught alight, as did the

canvas Bessoneaux hanger and the Wagtail inside it, so another prototype had to be built putting the programme back still further.

The third machine C9293 then had its engine fitted and went to Martlesham Heath for official trials with different propellers. The tests were beginning to endorse the excellent performance when a bad landing on rough ground ended in a nose over. On May 27th this Wagtail was transferred to the Royal Aircraft Establishment for investigation of engine problems. They proved insurmountable, the resonance frequency of the crankshaft coincided with the normal cruise speed of the engine, which after an hour or two began to vibrate itself to bits. On June 12th all company trials of Wasp powered aircraft were suspended, and on October 30th all Wasp engine contracts were cancelled.

Meanwhile the now repaired and modified original prototype C4291 was also transferred to the R.A.E. and was flown throughout the autumn of 1918 in an attempt to make the impossible A.B.C. radials into reliable engines. On November 6th it went to Orfordness for gun trials and in the same month the original contract with Westlands was signed as completed.

The repaired C4292 returned in January 1919 and was known to have survived until 1920 still with a wasp engine. One of the Wagtails was tried with a 200hp Wasp MKIII but it can't have been successful as no more was heard of it.

The all up weight of the Wagtail was 230lb less than the Sopwith Camel with the same load and gave the Wagtail the edge on performance. It was ten miles an hour faster and climbed to 10,000ft in 7½ minutes, 3 minutes faster than the Camel, and it had a higher ceiling. However, due to its larger wing span and lower wing loading, the Camel would have outclassed the Wagtail if it had been powered by the same 170hp engine instead of its 130hp rotary.

The Sopwith Snail MKII had much the same performance but had other problems, and the B.A.T. Bantam was 2 or 3 miles an hour faster but had disastrous spinning characteristics. All three aircraft would have been much better without the large centre-section cutouts, which gave turbulent end losses and gave a lift distribution that was inferior to a continuous wing. This was not understood at the time and had been caused by the emphasis on view, which as it turns out had been exaggerated; the next generation of fighters, the Gloster Grebe, Gauntlet, and Gladiator, the Bristol Bulldog, and the Hawker Fury managed quite well without such aerodynamic sacrifices.

Two more Wagtails J6581 and J6582 were ordered in 1920, powered with the newly-developed seven cylinder 150hp Armstrong Siddeley Lynx radial, the nose being shortened to maintain the same cg. The fin was altered to look even more like the Sopwith and a strengthened SE5 type undercarriage fitted to cope with the greater all up weight, but no market was found for the light fighter.

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