

FFLYPAPER

(2010—our 31st year)



Journal of Felbridge Flyers Radio Model Flying Club

Special points of interest:

- Vulcan as an airline testbed
- What are boats doing in a flying club newsletter?
- Software flying your plane?



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From a New York airshow this May

NOTICE BOARD

Winter Club night venue remains as The Haven Centre in Crawley Down, first Wednesday of the month. We now use the Hall in the Centre so we have lots of room for indoor flying. The **start time is now 20:30**. Bring along your indoor models. All members are free to bring along suitable helicopter models even if you joined after the helicopter ban was introduced in 2003.

oooooooo

You are welcome to invite friends along to the field (if they want to fly the Committee have to approve and a Committee member must be present) but please don't disclose the padlock combination to them. Meet them at the entrance and let them in and out yourself please.

Chairman's Chatter - or disconnected ramblings

Sunday 18th July - What a windy day again, so much so that a model stand with model was blown over. If you don't have a flight box to put on the lower shelf use the metal pegs stored in the shed (on the right at roof level just inside the door)

Sunday 5th August - for once not blowing hard, the wind was mostly light but variable in direction with a few blows to 15 knots, so pleasant after the weeks of strong winds we have been having. I got a decent flight with my Tiger Moth even doing a very scale like landing on my second flight. Chris Searle was having fun with his SE5A and I was flying my foam Swift II though gaps in the far hedge, a feat emulated by Jim Christie with his Multiplex Cub fitted with much smaller, but still BIG wheels. Simon Detry was flying his wing and his fast

"thing" with a speed recording device fitted. This recorded just less than 100 mph but he said it was now not as fast as it was. He has increased the span by a couple of inches to make it more visible, keeps him on his toes none the less. He has subsequently increased the cells to 4 and exceeded the "magic" ton.

Stuart Willis was flying his superbly painted MXS-Acro with a camera on the rudder looking forward which should make some interesting footage in things like stall turns. Sadly his Skyraider came to grief just turning onto finals, radio malfunction is suspected as the radio only had a few feet of range when tested in the pits post crash. He was saying just before the fateful flight that it was his only remaining model on 35 Mhz.

We managed to get John Dowd 5 flights on his Shark and real progress here, just need to ensure unwanted elevator input is not made when turning, we will try some exponential in pitch to lessen the effect.

Dave Nice's Lancaster is sadly no more, no it did not crash but caught fire in his workshop. He had replaced the electronic speed controls and a fault caused a fire which destroyed the model and nearly the house - dangerous these electric models.

Mike Dyke has had a recent spell in hospital following a burst blood vessel in his eye. He felt a pain in the eye whilst cutting his grass and when he came in noticed the eye was very bloodshot. He went to see his GP that afternoon but it got much worse in the evening. The trip to casualty resulted in a short stay in hospital. Happily the eye is getting better and the sight is back to normal.

BBQ - The Club barbecue held on 5th July went very well, in the end some 35

tickets were sold and everyone seemed to enjoy the event. The weather held so the 2 gazebos were not needed. Clive Smith brought along his gas barbecues which, along with our own charcoal grill, did sterling service cooking all the wonderful meat. Your idiot chairman managed to drop 3 lamb burghers during transit from the charcoal grill to the serving area - no we did not serve them to anyone but left them for the local wildlife. They were all gone by the next day so the foxes/owls/kestrels had a good meal.

Much flying was done but we never got round to organising the competition, oh well never mind.

Special thanks to Clive for bringing all the items necessary for a safe event including water and antiseptic hand wash to avoid any possibility of contamination. The Club even managed a small profit for Club funds.

The Gatwick Branch of the Royal Aeronautical Society hold a series of lectures on the second Wednesday of the Winter Months. They have a varied selection of topics many of which members will find very interesting. The programme will be published on the Forum when I can work out how to load a Word document...

Stuart Willis has been flying his modified Acro Wot recently and it looks fantastic. He has altered the shape to make it look like Nigel Lamb's MXS as used in the Red Bull Air Races. This has changed the tip shape, rudder/fin shape and tailplane shape. By some simple masking the canopy shape has been replicated also. What sets this model apart is the paint scheme which is complex with the Brietling sponsorship. Stuart has used 2 pack paint not film covering. There is no cheating all the decoration is painted. He obtained the paint masks for the scheme from FlightLine Graphics but the application was complex and has been executed expertly.

Max Woodhead as most of you will know is moving house to Lincolnshire to a village called Old Bolingbroke near Spilsby. Max has been a member for some years and served on the Committee for some time as membership Secretary. He has already tracked down a likely club where they have a full size taxiable Lancaster. We wish him well and no doubt envy him the hard runways his new club will have.



Another airshow shot

A View from the Hover - a book by John Farley

John Farley was an accomplished Test Pilot at RAE, Hawker Sidley Aviation and privately until around 1990. He did a significant proportion of the Harrier test flying and has written a book of his time in aviation with the above mentioned title.

John has a particularly candid style of writing and I have found this book a great read as I am sure most members will also.

There are some fascinating insights into development work and one concerns Concorde. The wing shape of Concorde ensures that with high angles of attack there is much drag which enabled relatively low take off and landing speeds. With this high angle of attack (or high alpha) there is a speed where just to maintain level flight you need full power, this is called Zero Rate of Climb speed or Vzrc.

I quote from John's book (by kind permission of the Publishers, Seager Publishing Limited). *"At Vzrc you cannot accelerate, climb or turn so the only way to get speed back is to reduce drag by lowering the nose accepting the associated temporary loss of lift and height in order to accelerate. This led to the consideration that certifying the takeoff speeds of a slender delta airliner, such as Concorde would need to be related to a margin over Vzrc rather than a margin above the traditional stall speed. The snag with this idea was that on a multi-engined slender delta Vzrc literally leaps up if you lose an engine, requiring the very rapid selection of a much lower pitch attitude from the one you had before the engine failure"*.

To address this the boffins came up with what they called a take off director (TOD). This was a modification of the attitude instrument (artificial horizon) where an additional bar represented the climb angle, if an engine failed this point would automatically be lowered so the correct pitch angle could be flown.

The aircraft chosen to test this was the Vulcan which had similar inertia to Concorde, I quote from John's book again.

"The normal right hand Vulcan flight instruments were replaced by a panel that closely resembled that of the Trident, then in service with BEA, including the actual Trident attitude and horizontal situation instruments.

After we had done some 100 hours of development flying, the Aero Flight pilots felt the laws were about right so it was time to see what airline pilots thought of them.....

If we were to successfully sell our work to airline pilots who were not used to development work, let alone the Vulcan, some thought was required. Because they were used to the spacious and comfortable shirtsleeve envi-

(Continued on page 3)



ronment of a Trident, or similar, such evaluators were not going to feel instantly at home trussed up in the right hand Vulcan bang seat, looking through a porthole to the side and a letter box slot to the front.....

As for the ejection seat, I explained they did not need to know anything about it. I would check it thoroughly and strap them in. I pointed out we were only flying in the circuit and this was Bedford not Heathrow so we had the luxury of the airfield and ATC to ourselves..... In short our evaluators were about to fly at our very own private airstrip in a delightfully overpowered four engined airliner that could climb on one.

In the air they all loved it. As is the way of the world the older captains looked very serious and tried to come up with a significant comment (as befitted their station in life) while the young first officers said 'want one' and a week later sent in well-written reports..... One with whom I especially enjoyed flying was First Officer John Millett from BEA who had earlier been a flying instructor of mine at FTS. I then felt a little of what Janis Joplin described when she went back to a high school reunion as a pop star and met again the teachers who had virtually drummed her out of school. Actually, if John reads this, we though he was one of the better ones. Good military instructors need to be hard at times because hard school works and military squadrons are not exactly flying clubs.

It was a real pleasure to see how this diverse bunch took to the TOD kit. A typical sortie started with them doing a normal take off to see the rotate demand and generally get used to the display, then I would quickly pop it back on the ground so they could do five or six more takeoffs. On the second one I would chop a throttle on initial climb out, the bar would dip and off they went at the correct new attitude.

Then came a run with the first throttle chopped at rotate and the second after unstick. Given the right weather and evaluating pilot, I later enjoyed chopping one before rotate, the second during rotate and the third as we left the ground. Sitting alongside them and watching as they climbed over the valley at the end of runway 27, with a rate of climb of around 200 ft/min on one engine, in a strange type for which they had not been briefed said everything about the potential value of this TOD."

John goes on to describe how fly by wire was developed for the Harrier over a considerable period using the first 2 seat Harrier to be built. He said that there were mixed views about letting computers take over the skilled job of

"looking through a porthole to the side and a letter box slot to the front"

CLUB NIGHTS

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6TH OCTOBER - FIRST WINTER SEASON CLUB NIGHT IN THE HALL AT THE HAVEN CENTRE - STARTS 8:30PM - INDOOR FLYING

3RD NOVEMBER - MEET AT THE HAVEN CENTRE 8:30PM (SPEAKER TBA)

1ST DECEMBER - MEET AT THE HAVEN CENTRE 8:30PM (SPEAKER TBA)

manually flying the Harrier but he thought the idea a good one.

".....However, once they turned their back on the target and their operational job was done, they should be able to press a 'coffee bar' button whereupon the aeroplane would then take them home safely, day or night, in any weather....."

I know some readers will not altogether take to this notion because they have reservations about the reliability of computers and software, you should know you are not alone.

At a recent software engineering management course in the US, the participants were given a question to answer. 'If you had just boarded an airliner and discovered that your team of programmers had been responsible for the flight control software, how many of you would disembark immediately?' Among the ensuing forest of raised hands, only one man sat motionless. When asked what he would do, he replied that he would be quite content to stay on board. With his team's software, he said, the plane was unlikely to even taxi as far as the runway, let alone take off"

I arranged to buy a copy of this book as a thank you to Phil Keyes for putting me up in the IOM. I contacted the publisher and arrange to buy a copy which I asked if it was possible to get the author to sign. Yes that would be possible at no cost. The publishers also agreed to allow me to quote excerpts from the book. Within an hour I had an e-mail from John Farley saying the book was on its way to me with a personalised greeting to Phil. He also offered to give the Club a talk on his time as a test pilot, we are sorting out a date so watch this space.

There will be some more excerpts in the next issue.

Norman

Service stencils

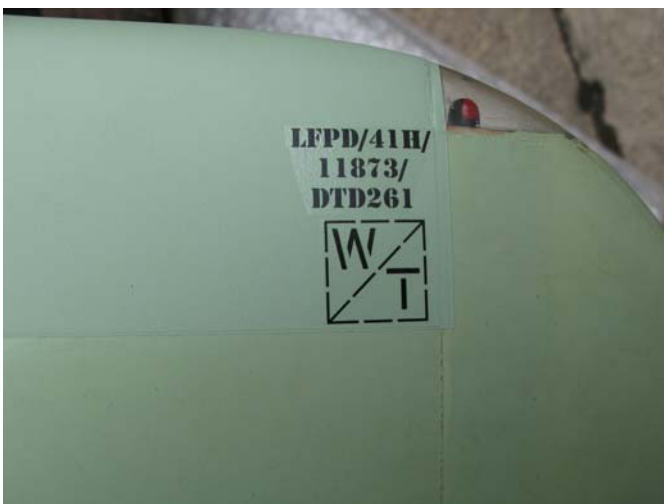
Military aircraft have multiple notices plastered about their structure. They tell all sorts of tradesmen what to do, e.g. "TRESTLE HERE", "NO STEP", "9 GALLS S100 OIL", "TP 50 PSI" and so on; these are known as Service Stencils.

A scale model will benefit from these being reproduced on your replica. The problem has been that they are a b****r to reproduce. Step in FlightLine Graphics.

They produce a number of stencil transfers and dry print solutions but mostly at 1/6th scale or larger.

After Stuart Willis got them to produce the paint masks for his MXS - R, I gave them a call to see if they had stencils for a 1/7th Hurricane.

They didn't but would do me a transfer sheet for £15 which arrived shortly after my call. There were a wealth of correct stencils for the 1940 Hurricane that I have and they have been duly applied. The transfer film is very thin so they are not obtrusive but needed care in application. I think you will agree they look great.



Norman

Tales from a (nearly) founder member

As you will see from our "masthead" the Club has been in existence now for nearly 31 years, the Club being formed in 1979 by a small group of people, one of whom is still a member, Bob Cutter.

Whilst Bob is our only true founder member, a number of us joined only a couple of years after foundation. One of those is Phil Keyes who used to Farm at Stonelands Farm in Copthorne. Phil used to fly in his own fields but thought he needed some contact with other flyers so he joined up.

Phil's models were all own design, often built with non traditional materials and of unusual configuration. He had a good appreciation of design principles and aerodynamics. He used to build small scale models of his designs to check out flying characteristics before going ahead.

His first love was sailing and he has now returned to this discipline. He once sailed from the Isle of Man to Liverpool in a small dingy to attend a racing event.....

Well, he returned to his home in the IOM 13 years ago and I went over to stay with him for a few days in late August. We had not seen each other since 2003 so we had a lot of catching up to do. Avril, Phil's wife hardly got a word in.

Phil used to model seaplanes primarily and he has one hanging up in his entrance hall with a Hurricane and a number of large model sailing boats.

Whilst he still has some slope soarers in the loft he was not able to get them airworthy in time. We did pass a slope soaring spot on our travels and went over to speak to the flyers, both of whom he knew of course, who were flying highly loaded models in the stiff breeze coming straight off the Irish Sea.

Well, Phil has always been an innovator, and he has evolved a small fast multi hull of 4.7m that he calls Outlaw. This he has designed himself following



Phil & Outlaw in Derby Haven

tests with an R/C models and is an evolution from his earlier designs. As he says he has designed it out of his own head and still has some left for further projects!



Captain Keyes

It is built from plywood assembled using epoxy resin glue and is very light weight which contributes to performance. The hulls have been designed for minimum water resistance and maximum strength. It is designed for one man operation and Phil can stretch out in the cabin so can spend the night at a mooring, he has cooking facilities.

He has a few electronic aids powered by a battery that is charged by a small solar panel on the stern deck of the centre hull. These comprise a depth sounder, electronic log giving speed and position, a weather predictor working on air pressure changes and an auto helm - yes an auto helm. The auto helm links to the tiller and will maintain a set heading.

Phil had designed and made the sails which are attached to the swivelling "wing" mast. This mast is effective enough for him to sail the boat at slow speed to his mooring in Derby Haven.

The small Honda outboard weighs less than 10Kg and floats..... (only to be used for desperate situations).

The whole boat can be transported on a boat trailer as the side hulls fold alongside the centre one for a width of 7 feet. The rigging does not need to be detached during this process.

This view of the inside of the centre hull shows the construction method, planking below the chine and sheet



above. Note the decoration, all cut out from 1/32nd plywood.

I have to say I was knocked out by how well this craft has been built and finished and all the innovative touches to ensure he has all he needs for coastal sailing (including a very effective anchor



stored in a locker near the bow.

Just look at the line and finish of this outrigger hull!

The local sailing Club are a bit put out by this craft as it is so much faster than other similarly sized boats. In a recent 3 lap short race he had lapped many other boats by the finish.

All in all a fantastic job for which he should be justly proud.

Norman



Committee and General

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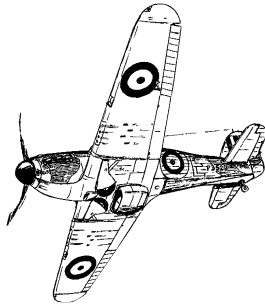
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Webmaster – Stuart Willis (01293 402733)

Field Report

Imberhorne - Limited winter use field maintained by Chris Seale, dates of use will be notified.

Newchapel - Now the outfield has been cut the new lush grass is growing through, with luck it will remain shortish through the autumn with the growing season coming to an end. We will continue to cut the strip and pits area to keep these comfortably useable.

We are having some problems though with rabbits, they are digging holes in the runway. They seem confined to the 2 ends as they obviously hop up the walkways rather than cross the scrub grass in between.

We have been filling these in but the digging continues. If you spot a new hole please do fill it with soil (there is a blue sack behind the shed with fresh soil), stamp it down and water it in.

We did have some sheep get into the fields but they did no damage and left only minimal "evidence". They roamed as far as the Wildlife Centre deer enclosure. I meet the owners father on site and showed him where they had got through. I left my number with him saying I could let them in at our entrance if he needed to gain



access. I got no calls and the sheep remained in the fields for 5 days. He was obviously not concerned with them wandering onto the A22.

The fire site has been cleared so we can burn the old wood not suitable for the stove when an appropriate opportunity arises.