

HELICOPTERS WHY, WHERE & WHAT? – THE WHOLE NINE YARDS

FLYER

AUGUST 2006 £3.40
www.flyer.co.uk

MAKING YOUR FLYING EVEN BETTER



UK Exclusive

The Liberty has landed

Flying the first UK customer aircraft
with designer Ivan Shaw



4 FREE Landing Fees
SAVE £37

- CAMLETOWN
- ENSTONE
- ISLAY
- SHERBURTON

Flexwing flight fantastic

More freedom, more fun and more get up and go...

PLUS

- **Hot Poop**
How not to bust a TRA

JAGUAR

- **IFR minima**
No room for confusion

- **Lecomber**
Breaking bad habits

THE TEAM



Miles has moved. Still that shouldn't delay the FLYER Europa build for too much longer, should it Miles?

EDITOR

Philip Whiteman philip@flyermag.co.uk

DEPUTY EDITOR and WEB EDITOR

Martin Le Poidevin martinlp@flyermag.co.uk

TECHNICAL EDITOR

Miles McHousemave milesm@avnet.co.uk

NEWS EDITOR

Mike Jerram

ART EDITOR

Ollie Alderton ollie@flyermag.co.uk

REGULAR CONTRIBUTORS

Richard Boswell, John Farley, Paul Handover, Rufus Heald, Brian Lecomber, Iv Lee, Rod Simpson, Charles Stites (USA), Gavin Webb, Nigel Webb & Lynn Williams

CHIEF PHOTOGRAPHER

Austin Brown AVPIX@aol.com

Aviation Picture Library 020 8566 7712

PUBLISHER & MANAGING DIRECTOR

Ian Seager ians@flyermag.co.uk

ADVERTISEMENT SALES MANAGER

Darran Ward darran@flyermag.co.uk

ADVERTISEMENT SALES EXECUTIVE

Rebecca Daly rebecca@flyermag.co.uk

EXHIBITIONS MANAGER

Nicola Pye nicola@flyermag.co.uk

PRODUCTION MANAGER

Kate Munday katem@flyermag.co.uk

SUBSCRIPTIONS

Alex Wright alexw@flyermag.co.uk

CREDIT CONTROL

Diane Havin diane@flyermag.co.uk

ACCOUNTS

Martine Teissier martine@flyermag.co.uk

REPRODUCTION

ColourWorks, Bath

PRINTING

Headley Brothers, Ashford, Kent

CIRCULATION

Newtrade Distribution UK and Rest of the World by Comag

Cover: Liberty XL2, photographed near Dover by Aussie Brown

Seager Publishing
9 Riverside Court
Lower Bristol Road
Bath BA2 3DZ

tel: +44 (0)1225 481440

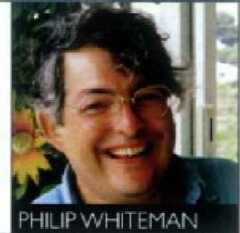
fax: +44 (0)1225 481262

At FLYER we aim to produce the best possible magazine for our readers. All correspondence is welcome and will be read, but we can't guarantee a writers reply. We welcome contributions from readers, and guidelines are available from us. We take great care to ensure what we publish is accurate, but cannot accept any responsibility for any misprints or mistakes. Our indexes measure what we believe to be a product's most important points, but readers are advised to check a product suits their needs before purchasing. No part of this publication may be produced in any form without permission.

© Seager Publishing 2006

www.flyer.co.uk

EDITORIAL



PHILIP WHITEMAN

Liberty lands, Mode S takes off

The dual pleasures of flying the Liberty and discovering that the CAA is moving towards real consultation – and is tuning into PPLs' needs

Nice to have on the cover this month, courtesy of owner Bill Roberts, the first Liberty XL2 to reach a these shores. (If you are wondering about the N registration it's because, although the XL2 has FAA certification, the aircraft has yet to gain EASA acceptance, although this is something Liberty Aerospace is of course pursuing.)

Happily, as much because it would allow me to renew my acquaintance with Ivan Shaw as anything else, flight testing duties fell on my shoulders. I last flew with Ivan in the mid-1990s, when he gave me an informal demonstration of the then relatively new Europa. I thought this aeroplane's handling was superb and its agility was quite astounding – and I must admit we didn't spend a whole lot of the time the right way up.

As you will read on page 20, not long after that flight Ivan let me in on the secret of the new factory-built design he was working on. Over the course of nearly ten years of development this has become the Liberty XL2 we know today.

It's by no means been plain sailing for Ivan, his engineering team or Liberty chief executive Anthony Tiarks. They had to set aside the idea of using the super-efficient Rotax engine Ivan had originally selected, because service support for the engine in the USA was not developing as quickly as had been promised (no doubt low US fuel costs made the Rotax less attractive to the Americans than it is to us poor Europeans).

Later, of course, Liberty had to seek fresh investment, Kuwait Finance House stepping into the breach in October 2004. What with re-engining and re-financing, you could be excused for wondering if the XL was actually going to appear at all...

FLYER flew a pre-production Liberty for the October 2002 issue,

but we've been keen to sample the production-standard aircraft, preferably in the UK. Presented with that opportunity, the big question in my mind was 'is it going to be as good as the Europa?' Of course, you are going to have to read the article to find out...

Now I have an admission to make. This month's lead news story concerns the CAA consultation on the 'technical interoperability of all aircraft in UK airspace' – or, in strident headline-speak, *compelling owners to fit Mode S transponders*.



All smiles when it came to the Liberty flight test – even if we did fault the aircraft in some aspects. The real surprise was with the CAA and Mode S...

Of course I own a non-radio aircraft – so you'd have a good idea from which corner I emerge, when it comes to this subject.

It was thus a good job I took up the Authority's invitation to a surprisingly sparsely attended press briefing on the subject. Why, exactly? Because I got to listen to, and question, the man responsible for the consultation, Surveillance and Spectrum Manager Andy Knill.

I had expected to be told in polite terms that, in the name of protection of commercial air transport, it was really a case of put up and shut up. Instead, it became

clear that the CAA really has taken on board the point that current transponder technology is beyond the price range of those operating simple aircraft, and they are proposing that certain aircraft, covered in Annex F of the Regulatory Impact Assessment document, be exempted.

While Andy Knill stressed the safety benefit to all aviators – after all, a transponder may offer no obvious benefit if you are non-radio but it still tells Traffic and Collision Avoidance System-equipped aircraft where you are – he was quite clear

in saying "The aim of the game is not to freeze people out of the air".

The CAA doesn't have a firm figure in mind when it comes to defining a price threshold that would reasonably bring the cost of Mode S transponders in reach of all 'airspace users'. So it is down to us, in terms of providing cost data, to provide the Authority the figures it needs to back up its case that Mode S cannot be universally mandated: go to www.caa.co.uk/default.aspx?categoryid=78&pagetype=90&pageid=6476 and make your voice heard. I really think they are listening! ■

FLYER CLASSIFIEDS: From flight training to aircraft sales and much more Starts page 87

FLYER

CONTENTS

August 2006

Cover feature **Exclusive**

page **20** Liberty



FEATURES

018 **New department!** **Hot Poop**

Our much-appreciated visual guide to this month's Notams will make your planning easier and your flying safer

037 **Special supplement** **The World of Helicopters**

With a listing of Clubs and Schools, a complete list of helicopters and a guide to training, this is your essential helo info pack, whether you're a newcomer to rotary flight or a seasoned campaigner



024 **Liberty: free your mind**

Ivan Shaw followed up the Europa with the Liberty XL – a production aircraft made in the US but with British parentage. **Philip Whiteman** sits alongside Ivan to test the first UK customer example of the type

030 **IFR Minima explained**

Instrument-rated pilot **Timothy Nathan** talks us through the IFR minima – those strange terms which IR and IMC pilots bandy about

034 **When what you thought you were doing...**

...turns out not to be what you were doing at all. **Brian Lecomber** realises that something he'd been teaching all his life wasn't part of his real routine

066 **Flying a microlight**

Gavin Webb is an engineer, a tug pilot and occasionally turns his hand to gliding. But never has he been in a weightshift microlight. Until now, that is. What did he make of his introduction to flex-wing flying?



REGULARS

007 **FLYER News**

CAA Mode S consultation; airspace changes; fly-ins reports

014 **Watchdog**

016 **Events**

Places to go, things to see

084 **The FLYER Shop** Products and items for pilots

HANDS ON

074 **Our Aircraft** Aka Our Maintenance, as Philip Whiteman mends his Cub. (Again).

077 **Weather Watch** Iv Lee with the first of a two-part look at the Met-gathering aspects of a trip to the near Continent

064 **SUBSCRIBE!**

Subscribe to the magazine and join the **FLYER Club**

078 **Letters to the editor**

083 **That Worst Day**

X has problems –but why?

114 **QSY**

The sideways view...

66 **Microlights**

Flying a flexwing for the first time



37 **Helicopters**

All you want





PLUS

"It's easy to imagine having a sense of humour loss over this bum swivelling lark when the wings are wet or chilled by the winter's cold"

Find out who said this on **p22**

4 FREE
Landing Fees
SAVE £37

FLYER FREE LANDING FEES <small>Valid August 2008</small>	CAMPBETOWN EGEC 01586 553797
FLYER FREE LANDING FEES <small>Valid August 2008</small>	ENSTONE EIP1 01608 617200
FLYER FREE LANDING FEES <small>Valid August 2008</small>	ISLAY EGPI 01494 502361
FLYER FREE LANDING FEES <small>Valid August 2008</small>	SHERBURN EGCJ 01972 682614

FREE Landing Fees **p28**

Find out why he's smiling on page 114



30 IFR Minima
Minima mystification minimised

73 WIN!
Two helicopter headsets

Liberty at last



After a change in powerplant and the trials and tribulations of FAR-23 certification, the US manufactured Liberty XL2 has at last made it to these shores. In a *FLYER* exclusive, Philip Whiteman flies the first UK customer aircraft with designer Ivan Shaw





If there ever was a field of dreams, it is aviation. So many unfinished projects, so many unrealised goals... Yet once in a while appears an individual with the quality of vision and the doggedness to see things through to a conclusion. Ivan Shaw is one of these people, first emerging as the homebuilder who had the temerity to fit his Rutan Vari Eze with twin engines, then winning far wider fame with the Europa kitplane.

It was in the late 90s, at the height of the Europa craze, that I was taken by Ivan to a secret location near the Kirbymoorside Europa factory to see the new project he was working on. In a small industrial building not a whole lot bigger than a double garage – Europa's 'skunk works', if you like – Ivan showed me the engineering mock-up of the factory-built aircraft he hoped one day would take over where the Europa left off. This prototype shared the kitplane's lines, but was very different in its construction.

Instead of being all-composite, the new design had a tubular steel centre section – a kind of chassis – which mounted the engine, wings and undercarriage. However, this departure in construction method had little impact on me next to the feature that would really set the new aircraft apart from the competition: *it would have folding wings*. And not just any old folding wings – As Ivan demonstrated, the lightweight panels could be swung back by one person and

latched beside the tail in only seconds, after a neat built-in electric motor had withdrawn the rigging pins.

Well, even with a designer of Ivan's energy behind the project, these things don't happen overnight: fast forward a decade, speeding through all manner of shenanigans, and hit the play button as June 2006 comes round:

The setting is the apron at Lydd Airport. I am stood with Ivan – a little greyer, a fraction more weather beaten but still the same tell-it-as-it-is Yorkshireman of yore – and, courtesy of first UK owner Bill Roberts, we are looking at the Europa replacement finally made flesh: the Liberty XL2.

Although the aeroplane is production standard, the walk-round reveals a couple of details missing from N518XL, the most obvious being the wheel spats (apparently, Liberty has flown the aerodynamic-standard items – and shot them for the brochures – but is still working on the tooling for the lightweight carbon composite items that will be production standard). Also conspicuous by their absence are any steps to allow you to climb up onto the wings for access to the cabin: Bill has been told these will follow as a retrofit kit, which does make you wonder...

The wing may be constructed of a material unfamiliar to Europa owners – it's metal, with flush rivets back to approximately 50 percent chord and domed ones aft of that – but it is

again a design based on an original concept from aerodynamicist and past Ivan Shaw collaborator Don Dykens, mounting area-increasing flaps familiar from the Liberty's kitplane progenitor, complete with hinges sticking down from the under surface.

Actually, the wing skins are remarkably free of any dimpling and, but for those rivet heads, look just as smooth as the ripple-free carbon composite fuselage. The tailplane is again obviously a metal structure and – as should always be the case with all-moving tail surfaces – one vital preflight check is confirmation that the anti-servo tab is operating (it moves up as the rear of the tailplane is raised and down as it is lowered). While we were considering this, Ivan told me that during the course of certification the FAA had at first demanded that Liberty make a test flight with the tab disconnected – "a highly dangerous thing to carry out" – before accepting that the high engineering standard of the rod actuated linkage was the primary safety factor. (Without the damping effect of its anti-servo tab, an all-moving tailplane loses its progressive G load and may allow the pilot to overstress the airframe or get into PIO.)

Time to climb aboard. The gull-wing doors are unlatched by very neat recessed stainless steel operating levers, which are released by pressing

a tab – “the idea’s borrowed from Glasair,” Ivan is quick to admit. Not so neat is the way you get into the XL’s cockpit: hop, bum-first, onto the wing, swivel through 30° and feed your feet inside, taking care not to mess up the leather seat cushion and get each leg on the correct side of the stick, and then slither in. If you have studied Aussie Brown’s lovely air-to-pictures, you’ll be ahead of me: the point is that there are abrasive walkways beside each door, ideally positioned to give the backside a partial rotary sanding each time you get in. I understand that the US flying school operating Libertys has had the walkways removed, presumably to head off instructor claims for replacing ass-less pants. We may be enjoying a reprieve from the ‘usual’ here in Britain, but it’s easy to imagine having a sense of humour loss over this bum swivelling lark when the wings are wet or chilled by the winter’s cold. In the fine

weather we enjoyed for our test flights the fighter pilot style of cockpit entry was acceptable, but if it were my aeroplane I would want Liberty to have sorted those steps out by the autumn!

Now we are seated in a wide, comfortable cockpit, facing a military grey finished panel fitted out with mechanical flight instruments, a Vision Microsystems LCD display for the engine parameters and – centrally mounted – a Garmin GNS 530. The whole thing looks very professional, even if it’s not up to the increasingly common ‘glass-standard’ of the more expensive trainers and tourers like the C172, Cirrus and Columbia.

The seats – their contours closely based on those of Ivan’s Range Rover, he tells me – are comfortable from the moment you snuggle in. Their backrests sitting against the fuel tank, they are fixed and adjustment for leg reach is had by winding the rudder pedals back and forth by twiddling on a crank mounted under the panel. There was adequate forward adjustment for Ivan and I – he is six feet,

two inches tall, and I am fractionally shorter – but a really lanky individual might find his or her knees were unduly bent, even with the pedals wound fully forward. Having a long back, when I straighten myself up I generally find myself testing the headroom: the XL has clearance to spare in this respect – there’s no danger of headsets clunking the Perspex and it practically feels like you could wear a top hat, should for any peculiar reason you feel the need to. (The serious point is that even pilots as tall as Ivan can wear a borie dome in the XL2, a feature that played its part in the sale of six machines to the Bahrain police for surveillance duties.)

There’s a very large and easily reached baggage area behind the seats – sized to swallow a typical airline luggage allowance, Ivan tells me – and the headset jacks plug into a ceiling fitting, which should eliminate any danger of either bags or clumsy occupants snapping off the jacks: a nice touch.



Top: the way Ivan and Liberty have carried through the Europa’s lines is apparent. Left: the traditional sticks may impede easy entry, but are they nice to use...

Above: Ivan and Philip demonstrate there’s plenty of room for six-foot-plus pilots of, shall we say, solid build

The instrument binnacle is finished in satin black and the moulded centre console – made from something that looks suspiciously like the dread Royalite used in old-generation Cessna singles – is done in grey, to go with the seats. These and the stitched leather headlining give what you might call a medium luxury standard of trim, comparable with the sort of thing you'd find in a Cirrus or Columbia. Below the waistline, the cockpit walls are untrimmed, being painted black with a grey speckle finish. Odd, that; Liberty's colour brochure shows a carpet covering... Peering down into the footwells, you can see the naked chequer pattern of the carbon cloth – not that there's a problem with this; people pay good money to have fake carbon fibre trim in their cars. The one mildly jarring note is the fake walnut veneer on the centre console – something the car makers make a far better job of.

Speaking of which, Ivan is just pointing out that the XL is very much designed for ease of production, rather than labour-intensive hand assembly that characterises 'traditional' light aircraft. It thus has rod, rather than cable operated rudder controls, the entire pedal assembly being a drop-in item that can be fitted very quickly indeed. Similarly, the toe brakes familiar in American light aircraft have been done away with, in favour of finger levers operating on a pair of combined master cylinder/reservoirs hidden under the centre console.

Belting in – the XL has decent four-point

harnesses that are remarkably easy to do up and adjust for comfort – we haul the doors down in preparation for start-up. I note that the door pulls and latches are easy to reach, and securing the big gullwing doors is again remarkably simple. (These details matter; I have to say I have flown a dismayingly large number of new light aircraft that require a painful amount of contortion and effort simply in getting the belts on, and too many where the door security depends on careful checks and fiddly things like secondary latches.)

The good impression continues with easy engine starting and handling: the XL was the first aircraft to go into production with Continental's new Full Authority Digital Engine Control (FADEC) IOF-240. You do have to run the electric fuel pump until you see pressure build on the LCD display, but then it's a simple matter of setting the pump switch to AUTO – where it stays for the rest of the sortie – and cranking until the engine fires. From then on it's all single lever control – there's no mixture setting to worry about and, out of sight and mind, the keep an impassive electronic eye on all the



Top: centre console mounts, from top, pump switch, trim indicators, power lever (left), finger brakes (right), trim buttons and fuel selector. Vision Microsystems unit (right) not only displays but logs engine data



Neat, recessed door latches work perfectly and minimise drag. Rescue instructions cover escape from inverted – roll-over hoop protects occupants



things that matter, from mixture strength and ignition timing, right down to not allowing you to over-rev the engine. While all this solid-state expertise minds the shop far more closely than any human could manage, you are free to concentrate on the really important thing; flying the aeroplane.

We started the engine several times over during the day, from cold and from hot, and each time it burst into life almost instantly. There does seem to be a slight knack with the FADEC – quickly learned – of continuing to crank the engine over for a couple of beats after it fires and slightly longer than you'd first expect to keep the starter running, otherwise the engine dies as you turn the key back.

Post-start checks include isolating the main electrical supply and emergency back-up battery, in turn. You do this with two metal, lift-to-unlock switches, one for each supply. As you do so, the annunciator panel – well positioned, by the LCD display bang in front of you – shows FADEC WARN plus PWR FAIL or EBAT FAIL (which looks like some kind of Yorkshire expression, at least to my mind).

This is not quite the kind of automated electronic control unit test that the Thielert diesel engine performs on itself – you are still left to do the 'magneto' (actually duplicate electronically controlled ignition system) checks manually, by twisting the usual key – but Continental's FADEC is a huge advance on the old mechanical

controls. Once you've tried it, you'll wonder why we have put up with such archaic technology for so long.

Also unfamiliar are those finger brakes, which require positive brain engagement before you move off: they are locked on – and are unlatched – by tugging on a tab just ahead of the scalloped grips. The trick is to taxi with your thumb over the conveniently positioned throttle, driving the XL along with little touches of brake. The nosewheel castors and the aircraft can be made to spin around one mainwheel with ease.

Steering with accuracy proves to be easy after a short period of familiarisation – but the system is quite capable of making you look an idiot when you first grapple with it. By the time I'd taxied out to the runway hold I'd mastered following the yellow line – and, on returning from our sortie, I felt quite comfortable steering the XL into a slot in the line-up on the apron with just a couple of feet to spare either side. Maybe I have weak forearms, but my one observation is that it takes a fair tug to set the brakes on hard for the run-up, effective though they are in holding the aircraft against propeller thrust.

Full-and-free checks remind you that the XL's sticks are centre-pivoted, the left and right grips effectively being the ends of a yoke, when it comes to lateral control. This means the P1 stick moves up and right as you apply right aileron, down and left as you apply left. There's no problem with clearance, except I found my hand hit kneeboard, if I had it strapped to my left leg.

Trim setting for takeoff is indicated by a green light, one of three – the other two simply indicating NOSE DOWN or NOSE UP.

Flying from the left seat, I had the stick in my left hand and the throttle in the right. This doesn't feel as natural as the left-throttle arrangement you find in classic stick-and-rudder aeroplanes like my old Cub – but neither is it a problem. We had no crosswind to really test us, although it was a little gusty, but the control feel and response was instantly reassuring. Nor is the Liberty one of those aeroplanes you need to haul off the ground – it responded crisply to very mild back pressure as we hit 60 knots and we were soon climbing at 1,100 fpm indicated/75 knots.

In the past I have discussed flight testing of light aeroplanes with FLYER's resident expert, John Farley. The professional test pilot will run through a whole gamut of manoeuvres and control inputs to assess stability and handling characteristics, but John's view when it came to assessing a production aircraft – one which has already been subject to all these tests during development – was 'if it feels right in standard operation, it is right'.

Owner view: Bill Roberts

I have been flying for only seven years. As I am still an American citizen (after nearly 40 years in the UK), I did my initial training in Oregon (while staying with relatives) and got my FAA PPL in 2000. A year later, I passed the exams and checkride and got my JAA-PPL with Cabair, Biggin Hill.

Over the last eighteen months, I have been training for the FAA instrument rating, which I completed in Lakeland, Florida, in March. I had hoped to pick up my new Liberty from the factory in Melbourne, Florida then fly it across country to Oregon with a CFI friend of mine, who would have had me filing instrument flightplans and taking clearances the whole way, and spending most of the time under the hood. But because my aircraft was still sitting cordoned off in the hangar in Melbourne awaiting FAA certification, I was unable to do that. Happily, Liberty made the two previously finished aircraft to mine available for my use, and I was able to get more than 50 hours logged on instrument training on type before I took my checkride in Lakeland. I currently have close to 380 total flying hours.

I have been watching the development of the Liberty aircraft ever since Tony Tiarks went to America some years ago with the objective of creating a certified version of Ivan's Europa design. I had flown G-KITS (the Europa demonstrator) and liked the handling and economy of the aircraft immensely. However, because of the shallowness of the canopy, my headset continually bounced off the Perspex, and I decided that – apart from not really wanting to have to spend a year building an aeroplane from a kit, regardless of its attractiveness – that the aircraft was neither suited to my height (6 ft 1 in) nor my circumstances. I knew Ivan was going to have



to adapt his basic design, so I waited and bided my time...

Two years ago, Alton Marsh of the American AOPA Pilot mag, which I receive as a member, wrote a long and very glowing review of the new Liberty just after it had received its FAA VFR certification. I was so impressed by what he said that I phoned the Liberty factory at Melbourne and put down \$1,500 via credit card to get a place in the queue. I was lucky enough to have a financial windfall coupled with an inheritance that made it possible for me at that time to invest in a new aircraft. I did my sums, and concluded that apart from the huge initial capital investment, my flying would actually cost less with my own plane than it would hiring (with the addition of a couple other pilots helping on flying and maintenance costs!). Considering that I have never even bought a new car in my life before, it was a sobering undertaking.

I am, of course, delighted with my XL2, and am happy to sing its praises whenever I have the opportunity. It may have the odd very minor design fault: by the standards of those who have been lucky enough to spend most of their P1 flight time in upmarket aircraft like Mooneys and Columbias, but for an old fart like me it is more than enough aircraft to keep me happy for the next 15 years.

I intend to spend as much time as I can exploring every inch of Europe and Scandinavia and north Africa. I am even contemplating longer journeys, if income and opportunity allow. I can't imagine doing that in any other cockpit!

Bill is looking for a fourth member to join the Biggin Hill-based group operating N518XL. Contact wroberts2@aol.com



From the moment the aerodynamic controls come alive, I would say the Liberty XL feels right. It's the sort of aeroplane that has you smiling and thinking "Hmm – nice" right from lift off. Rolling into turns requires a touch of rudder – the sort of amount that should be pretty much instinctive – and the aileron response is just so: it's not quite as light on the stick as VLA competitors like Tecnam P2002, nor indeed the Europa – but the roll response is lovely in comparison with any yoke-equipped two seater I have ever flown and better than most stick-and-rudder aircraft. Ivan tells me that FAA certification requirements dictate the control forces – for example, the Feds require 3 1/2 lb pull per G on the elevator – but the XL's (excellent) control harmony has been achieved without hidden bias springs or bungee cords.

The nicely weighted elevator is aided by the best electric trimmer I have so far encountered. On first use, you might think it is overly powerful

– but tap the trim buttons as Ivan suggests and it gives just the right adjustment in an instant. "It's not a certification requirement," says Ivan, "but I have flown a couple of approaches and landings stick-free, using the trimmer for pitch control, and there's no problem with getting it on the ground safely."

Of course, the other input Ivan would have been using was the secondary effect of rudder to keep wings-level. Being unable to resist the temptation to at least try a couple of test pilot exercises, I released first the stick and then – holding on aileron – the rudder in the side slip. As you might hope, releasing the stick takes you back to wings-level and the XL straightens up when you release the rudder. A wind-up turn demonstrates a natural feeling of stick forces increasing proportionally with G – that Federal requirement again – and the usual 10-knot disturbance from trim speed shows just one cycle above or below trim speed before the

aircraft settles back in level flight – so pitch stability is about right (and this is not something you can count on with several of the well-known US kitplanes/homebuilts).

Interestingly, Ivan admits some fraught moments in getting the Europa's all-flying tail – the design upon which the XL's tail is based – right in the first place. Feeding in a series of sharp pitch inputs – banging the stick back and forth with an open hand – he demonstrates to me the Liberty's high amplitude pitch stability. Abuse the stick thus and the benign XL just settles back into level flight: before a fix was found (later to be built into the Liberty) the undeveloped Europa could be provoked into a divergent pitch oscillation.

The stall is presaged by an audio warning in the form of a female voice. The usual one-knot-per-second deceleration results in a mild right wing drop, at around 50 knots. With lots of power on there is no real break and the XL can

be kept waffling along pretty much wings-level by jabs of rudder. The accelerated stall (from a tight turn) is equally benign: this does not seem to be an aeroplane that will bite you.

Power can be set with an unusual degree of precision, thanks to a percentage readout on the LCD display. 75 percent gave us around 115 knots IAS, 65 percent 105. Claimed maximum cruise is 132 knots, making the XL a reasonable, if not outstandingly fast tourer. What makes you keen to make use of its 500 nm range is the comfort of the seats – apparent after the 1 hr 45 min in total spent in the aeroplane – and the unusual width of the cabin, 48 inches, which gives generous shoulder and general slouching room. "After instructing on the Liberty, a lesson in a C152 cabin feels like a knife fight in a phone box," says Ivan. I can only agree.

Cabin ventilation, on a warm shorts-and-T-shirt day, was adequate, the aluminium eyeball vents providing a good supply of fresh air. I did try the DV panels, which hinge inwards rather than sliding: after releasing the nylon latch they drop down over the door release lever, which is not ideal – but they are not vital to keeping the cabin cool and will do the emergency vision/ventilation thing satisfactorily when required.

Where I might fault the XL2 is on the right-hand seat occupant's knee-room. No problem if you are flying from this side, but keep your feet back off the pedals and you'll find your left knee coming into contact with edge of the central sub-panel, which is angled toward the command seat – meaning that its right-hand extremity sticks out toward the person on the right.

Descending back towards Lydd's circuit, I appreciate the view around the nose and down past the wings: the low swept edges of

screen and side windows alike give pilot and passenger alike a superb view, and your eye-line is so close to the wing's leading edge that you have an excellent view downwards. It's a shame to be heading back in, when the temptation with such a comfortable aeroplane is to drone on, enjoying the view.

On base leg we slow into the white arc – not difficult with the drag from this machine's exposed gear – and motor down some flap. Flap selection is through holding down a switch and watching for an LED to indicate position. This arrangement is quite literally not that bright: the indication lights are located on the side of the central sub-panel distant from the pilot and, with bright sunlight shining on the panel, they are not particularly easy to see. I found the lights shone with too narrow a beam – they showed up brightly enough if I leaned over to the right, but this is not the point: if they cannot be repositioned, Liberty should give some thought to angling the whole set of LEDs toward the pilot, or substituting the kind of ultra-clear position indicator dial found in aircraft like the Found Bush Hawk (see **FLYER**, December 2004)

Otherwise, the XL is very easy to fly around the circuit. The flaps provide a nose-down change in trim – quickly and easily dealt with using that excellent electric trimmer – and it's a doddle to fly a stable approach accurately. The all-flying tailplane, or stabilator, is a powerful control and there is a slight tendency

to 'ratchet' the round out and hold off if you are not used to this type of pitch control. Second time round I found the right touch was there – and the touch-and-go showed that there is no unwarranted change in trim when full power is applied (nor does the manoeuvre have you fishing for the carb heat which, of course with the FADEC motor, ain't there).

Liberty designer Ivan Shaw's stated intention was to produce a modern, dual-role machine that you could first learn on, then use as a comfortable tourer. I reckon the XL2 meets these requirements admirably: it is very easy to operate – even if it is slightly different in several ways – and offers super and quite viceless handling. Its unusually spacious and nicely appointed cabin gives it a good measure of instant showroom appeal, backed up by very comfortable seating and a super view out from the cockpit. It has already found a market with at least one flight school in the USA, and I can well imagine any student quickly coming to conclusion that they'd really quite like to own the rather appealing aircraft on which they are training.

At present the useful load would not allow two heavy occupants to fill the tank and take much in the way of baggage. Liberty says that a



100 lb hike in maximum all up weight is close to being agreed with the FAA. When this comes through, the aircraft's touring capability will be fully realised.

Like other newly certificated types, the XL starts out with an artificial airframe limitation – in this case one of just over 200 hours total time, pending completion of the usual FAA mandated fatigue tests that, Ivan tells me, are adding 2,000 hours per month. "The company is committed to staying ahead of owner hours," he says

I should say that a number of other minor additions and changes would make what is already a very nice aeroplane an excellent one. Two things stand out: either the steps should be sorted ASAP or those wing walkways must go; and flap position indication needs a rethink.

We flew the first UK customer, production-standard aircraft. In this country, lack of hargarage is endemic. I can well understand that

Ivan's folding-wing concept, which was bound to raise safety questions with today's regulatory authorities, had to be shelved while Liberty concentrated on the certification process (although the folding wing mechanism is still there in the production aircraft, albeit deactivated for the time being). However, facing Rotax-engined opposition as it does in Britain and Europe, the one thing that might give the XL2 an edge is its so far unrealised ability to be de-rigged by one person in almost the time it takes to type these few words, to live in a standard shipping container.

You don't need planning permission to store a shipping container on a farm strip.

Need I say more? ■

LIBERTY XL2

\$149,000 (PLUS \$1,995 FOR DELUXE LEATHER TRIM, AS FEATURED IN TEST AIRCRAFT)



DIMENSIONS

Wing span.....	8.80 m
Wing area.....	6.22 m
Height.....	2.28 m

WEIGHTS AND CAPACITIES

Empty weight (VFR equipped).....	483 kg
Max takeoff weight.....	750 kg*
Useful load.....	267 kg*
Baggage load.....	45.4 kg
Fuel.....	106 lit usable

* to increase by 45 kg, pending FAA approval

PERFORMANCE

Vne.....	162 kt
Max cruise.....	132 kt
Economy cruise (55 percent).....	105 kt
Stall speed, flaps down.....	45 kt
Takeoff run to 50 ft.....	381 m
Max rate of climb at S/L (solo).....	879 fpm
Range.....	500 nm

POWERPLANT/PROPELLER

125 hp Continental IOF-240-B with PowerLink FADEC system driving a fixed-pitch wood and composite Sensenich propeller

MANUFACTURER

Liberty Aerospace Inc,
1383 General Aviation Drive,
Melbourne FL 32935, USA
Tel: +1 321 752 0332, web: www.libertyaircraft.com

We like ✓

- Superior handling qualities
- Roomy, comfortable cabin
- general ease of operation

We don't like ✗

- Pant-sanding/wetting cabin entry

Gas struts kept the doors open, even in a gusty wind. Deluxe cabin trim was nicely done, apart from that bad-taste fake walnut veneer



Did you enjoy this piece? Have your say! Log on to
www.flyer.co.uk/magazine