

A high-angle photograph of a red and white checkered aerobatics aircraft flying upside down. The aircraft is a high-wing configuration with a large, rounded fuselage and a prominent propeller. The wings and tail are decorated with a bold, jagged red and white checkered pattern. The words "BENDIX KING" are visible on the fuselage. The aircraft is flying against a clear blue sky, with a green landscape visible below. The text "Now try it blue side down" is overlaid in the upper right corner in a bold, red, italicized font.

***Now try it  
blue side  
down***

**Simon Rolfe** ratchets the 'whoa!' factor up another notch on the AOPA Intermediate Aerobatics Certificate course

I am proud to say that I have completed the AOPA Intermediate Aerobatics Certificate course with Ultimate High Academy at Kemble (now Cotswold) Airport during August 2011. I managed to complete the course over six days of flying; the first two days saw three sorties at the end of February, and the remaining four days involved nine sorties and a short test. It was a most intense week, quite frankly! It was also a brilliant week: the sense of achievement that I feel now is quite overwhelming. I flew in an Extra 300L under the excellent tuition of Nick Wakefield, a UK Advanced Aeros Champ and British team member in the Unlimited Aerobatic Competition in Europe in times past. Nick was superb; his knowledge and experience are second to none, and he is an absolute gent as well, especially in the face of my profound incompetence!

I come from an airline and general aviation background. I am a Senior First Officer with Eastern Airways on the Saab 2000 twin turboprop airliner; I'm also an unrestricted Flying Instructor (PPL/Night/IMC/aerobatics) and a CAA Authorised Flight and Ground Examiner (PPL/IMC/SEP). I ran a flight school at



**Above right: the Extra 300L in which Simon completed the AOPA Intermediate Aerobatics course**  
**Above: Simon teaches aerobatics in his spare time on the Robin 2060i**  
**Right: the author at his workbench – Simon is a Senior First Officer with Eastern Airways on the Saab 2000**  
**Below right: Ultimate High also offers a Basic Formation Flying course at Cotswold (Kemble) Airport**



Norwich for three-and-a-half years in the post-9/11 world, and I've been with Eastern for nearly six years now. I teach aerobatics in my spare time in a Robin 2160i.

I've been spending lots of time at Ultimate High ever since June 2007. Since then, I've done nearly every course that the Academy offers, namely the AOPA Basic, Standard and Intermediate Aeros courses, the Full Spins course, Basic Formation Flying and Tailchase course, and Air Race Challenge. I am now planning to do the Top Gun Challenge as my next relaxing break.

My motivation for doing the Intermediate

course was based on two driving factors. Firstly, I wanted to explore new aerobatic manoeuvres, especially the weird world of prolonged inverted flight, so that my knowledge and repertoire of both aerobatics and flying could be expanded; secondly, I want to be the best person that I can be in everything, so, as the highest officially certified level of formal aerobatic training that one can reach in the UK at the time of writing, the Intermediate Aerobatics Certificate proved to be an irresistible lure. Also, aerobatics is how I like to relax and unwind, in the same way that cooking has the same soothing effect





on my soul; I can state with full honesty that I found it strangely serene to try and master precision inverted spins whilst many thousands of feet high over the Cotswolds during late August 2011.

The Intermediate Aerobatics Certificate course proved to be a quantum leap from the Basic and Standard courses, as challenging as they both were. It is a requirement that an Intermediate course candidate have passed both the Basic and Standard courses before attempting the Intermediate course, and I agree with that wholeheartedly.

There is a great deal of prolonged inverted work, as well as a respectable amount of negative G manoeuvring (of which more later) and the challenges are many; these areas are not covered in the AOPA Basic and Standard courses. Firstly, there's getting used to the "Whoa" factor of bimbaling around upside down for long periods of time: the discomfort as blood wells in one's tiny brain; the constant nagging from the Devil on the shoulder who is questioning the integrity of both the straps that keep you in your seat and the chap at Walther Extra's factory in Germany who installed them; and the constant need to keep a healthy distance between the dashboard and the horizon while inverted, an attitude known

to acolytes of Neil Williams as Key Point B. You don't spend ages wandering about the sky inverted; no more than

about 10 seconds at a time, as a rule.

However, the "Whoa" factor isn't the only thing that has to be overcome at first. This leads me to the second major challenge of the course; keeping one's orientation while inverted. It is easy to lose

track of reference features while doing inverted steep turns at 60 degrees angle of bank, for example: one sees that the nose is lowering towards the horizon, so applies forward stick to correct; in doing so, aileron can be applied inadvertently, so the bank angle steepens or slackens; as one corrects THAT, the reference feature/s can be lost, and you shoot through the reference heading. This is nothing new, in that upright steep turns require reference features/headings, constant bank angles, and rearward pressure on the control column instead of forward pressure; however, when one adds the aspects of the "Whoa" factor described above, it is all too easy to lose the plot.

For me personally, the negative G manoeuvring was not just another aspect of the "Whoa" factor; it represented a whole new "WHOA!!!" factor in itself. For those unfamiliar with the aerobatic world, positive G is gravity that pushes everything towards the floor of the aeroplane,



including the blood in one's body; negative G is where gravity pushes everything towards the ceiling of the aeroplane, including the blood in one's body. Inverted flying will cause blood to pool in one's brain and head, but negative G manoeuvres will force it there with varying degrees of severity. In the AOPA Basic and

Standard courses, some manoeuvres involve very minor negative G (for example, a positive push forward on the control column when at the five-eighths position of a loop during a half-Cuban,

before one rolls to upright flight); however, some of the manoeuvres in the Intermediate course are a little more testing than that. My bible for the course was *Better Aerobatics* by Alan Cassidy, and I remember feeling some trepidation when

reading about half-outside loops (i.e. starting a half-loop from inverted instead of upright, and pushing one's way around it instead of pulling); gallons more trepidation were reserved, like fine malt whiskey, for the prospect of a stall turn with a push under. For non-aerobatic folk, a stall turn involves pulling up to the vertical, keeping on going upwards until the aeroplane is about to run out of speed, and then cartwheeling around a wingtip until the aeroplane is pointing straight down. Normally, one would recover from a stall turn's downward vertical line by pulling the stick back, either to return to straight and level, or to commence another manoeuvre; imagine my delight when I first read that the Intermediate syllabus requires one to push the stick forward to recover from the vertical down line instead of pulling back! As it happened, The Gospel According To Cassidy states that it is normal to feel some trepidation and anxiety about these things, so I was relieved to read that I wasn't just being a big Jesse; The Gospel also states that, once one has performed these "Pushing Out, Pushing Up" manoeuvres a few times, the trepidation does go. I can state with conviction that Alan was absolutely right; once Nick demonstrated the half outside loop and the stall turn with push under, I had a complete change of heart, and thoroughly enjoyed performing the manoeuvres thereafter. We built up to them with other exercises, as Cassidy recommends doing, and they were really good fun; total exhilaration and thrill, in fact. Do brace yourself for your blood to flow into your head with some conviction, and try to clamp your feet on the rudder pedals so that they don't fly off.

Upward vertical rolls proved to be a challenge as well. It is crucial in any vertical lines to ensure that the zero lift axis of the wing is at 90 degrees to the horizon, or else the line won't be truly vertical; when



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They both require a sound understanding of what you are trying to make the aeroplane do, the capacity to read and interpret each phase of the turn at any one moment in time, and plenty of muscle power to either push or pull (as required) the nose of the aeroplane around the turn, all the while contending with the “Whoa” factor mentioned earlier. It is so easy to lose the plot, and my frustration became palpable at times. Thankfully, Nick tolerated my hissy fits, tantrums, and colourful language with grace, humility, and plenty of chortles and encouragement during my many attempts at these two difficult manoeuvres.

Equally frustrating was trying to put the “precision” into precision inverted spins. I had been introduced to inverted spins before in the Extra 300 when I did Ultimate High’s Full Spins course in Spring 2009; that course is one of the most fun things that one can do while twiddling one’s waxed moustache in a “Hello young lady” kind of way. However, the Intermediate Aeros course puts the emphasis on precision recovery, which is a different matter from *just* recovering. I would enter the inverted spin full of confidence, only to anticipate spin recovery either too early or too late; during other times, I would, on occasion, anticipate the recovery OK, but not apply *full* anti-spin rudder, which is a slightly crucial thing to have to do in any spin. Other aerobatic folk, especially instructors, will recognise the usual phenomenon of the student *thinking* that s/he had applied full anti-spin rudder, but not actually doing it; I found this to be an intolerable thing when the student was me, an aerobatic instructor myself who teaches spins to other people. At other times, I would lose my reference feature for a second or two, which is as long as it takes to turn a precision inverted spin recovery into an inverted spin from which one has recovered, and nothing else

doing vertical rolls, one wants to avoid barreling out of the manoeuvre, so one aligns the sight line on the wing tip with the horizon accordingly. Simple, no? No! Once you’ve set the vertical as best as you can, you have to be careful to ensure that both wingtips are equidistant above the horizon, and also that you don’t pull/push the control column once you apply aileron to start the roll; either of these things can ruin your perfectly vertical line, and, hence, the manoeuvre. Add to this the fact that one doesn’t have a great deal of time to assess perfect verticality and/or wingtip equidistance from the horizon once established in one’s up or down line, and, also, that you have to roll pretty smartly to get the manoeuvre going, and it becomes clear that a good vertical roll is a thing of beauty.

I think that the hardest manoeuvres were the inward and outward rolling turns.



of note.

The slipperiness of the Extra 300 was an added factor. I’m used to effort when it comes to manipulating the controls of the Robin 2160i; however, Mr. Extra’s Lil’ Lady requires a lover’s touch sometimes, which is easy to forget when trying to nail the 8 point roll required of the AOPA Intermediate syllabus. I lost count of the times that I heard Nick say “Relax!” when I was trying to fly the 8 point roll perfectly; it was so easy to indulge in deep tissue massage when a gentle fingertip glide over Baby-Oiled skin was all that was needed to glissade The Beast around the 8 point roll.

Then there was the minor matter of flying each manoeuvre to the required accuracy, which was a difficult task in itself. Tying everything together into a sequence, and flying that sequence within a specified box, bearing in mind that each manoeuvre had to be flown in a certain specified direction, and taking into account the wind, proved to be a whole new challenge in itself.

Added to all of the aforementioned factors was the need to do *everything* accurately, fuelled by my own OCD and the sense of personal pride which, I believe strongly, the overwhelming majority of us all have. I hope that, by now, the reader can see that I failed to do this every time, which is what learning a skill is all



about; these are the roots of addiction, in that one has memories of satisfaction and ecstasy, and will seek to recreate those sensations thereafter; this is part of the appeal of both aerobatics and flying in general. It’s amazing what punches a boxer is prepared to take in order to win a bout!

The AOPA Intermediate Aerobatics Certificate course is one of the three toughest courses that I have done in my flying life, along with the CPL and the Flying Instructor’s course.

The CPL is difficult because one has so many different hats to wear: one is navigating according to VFR to start with, then doing a simulated IMC bit, then doing the upper air work and general handling, and then back into the circuit to finish off. The CPL has been dismissed as being “...just the PPL Skills Test to a higher standard...” (I quote), but I would love to

see how many people would be willing to do the full PPL Skills Test again, especially under JAR/EASA who combine the Nav bit with the GFT bit, instead of testing each bit separately as the CAA system used to do. I have met a lot of people – especially in the airline pilot world – who have forgotten what they went through to get their PPL, the foundation on which all future licences and ratings are built. The dreaded multi-engine single pilot instrument rating, which is the last hurdle for any aspiring commercial pilot, is extremely tough as well, because the workload is immense, and the situational awareness and accuracy of flying are both hard to maintain for any given situation; however, I found the CPL to be tougher, because of the need to switch from one hat to another, while retaining situational awareness at all times and also flying to the required accuracy. I'm not saying that I found the IR easy; I am saying that the need to only wear the one hat helped a little.

The Flying Instructor course was tough for me because I was flying the aircraft from the right seat instead of the left for the first time, and, thus, my hands were reversed when it came to performing most tasks. Add to this situation the fact that I



was learning to a) speak a very carefully defined pattern for each manoeuvre, and b) demonstrate everything to a high standard, all the while with my hands having to manipulate the controls in the opposite sense that I was used to, and, I hope, an interesting formula for frustration/self-doubt emerges.

The AOPA Intermediate Aerobatics Certificate course was tough because I chose to cram it all into a week (ish), the

manoeuvres and thinking behind them were a large leap from the norm/what I was used to, and there were all of the factors mentioned above, which I don't wish to repeat in summary. I hope that my text will inspire people to give it a go (as long as they have their AOPA Basic and Standard Certificates first), as opposed to put them off. It will be a challenging course, I think; for that reason, do it. [www.ultimatehigh.co.uk](http://www.ultimatehigh.co.uk) ■



**Simon Rolfe (left) with his AOPA Intermediate Aerobatic Certificate and instructor Nick Wakefield**