

There are sound reasons for learning aerobatics. For instance, if you should find yourself in cloud with no instruments, your enhanced understanding of stall and spin behaviour will make you less likely to lose control and better able to recover. If you should meet an aircraft coming the other way, you will react faster and manoeuvre more effectively. A

knowledge of aerobatics will increase your options if, for example, you have a fire in the air and need to get down quickly while blowing the flames away from the cockpit. You will know what to do if you hit bad wake turbulence and suddenly find yourself inverted. Quite apart from your ability to deal with emergencies like these,

a knowledge of aerobatics will make you more confident and a better pilot.

Learning aerobatics is also, of course, enormous fun. Aerobatic aircraft are among the most exciting you can fly, because generally they are enormously over-powered and have light controls and great handling. Few experiences in aviation are as exhilarating as rolling and tumbling



# Attitude issues



*Learning basic aerobatics will make you a better pilot, and could lead on to great things.*

**Nick Bloom\*** reports.

*Pitts pictures:*

*Mick Osbaldeston*

*This photo: Pitts cockpit offers an unusual view of the planet*

*Left: substantial left rudder holds the Pitts on a knife-edge*

through an aerobatic sequence on a perfect summer day, experiencing unsurpassed freedom of movement in three dimensions. Watch swallows (surely the most *aerobatic* birds) snatching midges out of the air on a summer evening and tell me they aren't having fun.

So how does the average PPL go about learning?

Not so very long ago (in the 1970s and 1980s) the only recourse for most pilots was to buy an aerobatic aeroplane and teach themselves. Some aircraft were actually designed with this in mind, such as the Topsy Nipper. Instruction books (like Neil Williams's classic *Aerobatics*) were written for DIY learning. Aerobatic instructors with two-seat training machines did exist then, but they were few and far between.

You can still, quite legally, teach yourself to fly aerobatics, but the practice has largely died out. I suspect one reason is that we're all more safety conscious and perhaps a little less self-reliant these days. Whether it's learning how to use an expensive camera, a personal computer, or even how to re-paper a bedroom, we

package for teaching aerobatics, complete with a certificate when the course was completed. The emphasis was on teaching the basic manoeuvres and on safety. Schools all over the country began offering the AOPA aerobatics course, often on a Cessna Aerobat or some equally under-powered (by aerobatic standards) machine that could also be used for PPL training.

I flew some years ago with an instructor who was teaching this early version of the AOPA course (I was writing a flight test on his aircraft). When he demonstrated a loop, it was egg-shaped at the top. He flew

stall turns without applying increasing right rudder to offset spiral airflow from the engine on the way up, so that the aircraft fell over sideways rather than responding to rudder. And his spins began by raising the nose.

As an aerobatic competition pilot, I was concerned that his students would be learning bad habits that they would have to overcome, should they later wish to enter an aerobatics contest. In competitions, loops must appear perfectly round, the aircraft must appear to be vertical before the turn in a stall turn, and



**Above: Pitts cockpit is pretty cosy – check you're not too big**  
**Top right: Advanced Flying's principal Darren Audet in his Pitts**  
**Right: student Darren Thatcher seeks to improve his flying skills**

expect to go on a course. However (as Neil Williams pointed out, even back in 1975 when *Aerobatics* came out), there's little doubt that you learn far quicker with dual instruction. There's also the safety factor: it's easy to become disorientated when you first sample manoeuvres.

For example, the classic disorientation, as any aerobatic instructor will tell you, is during the first aileron roll. Many students freeze on the ailerons half way through, when the aircraft is upside down. They stop rolling and pull the stick back instead. If there's enough altitude, the aircraft should recover in a half loop, but there's a risk of the pilot blacking out, not to mention over-stressing.

AOPA stepped in roughly at the same time as it was introducing its widely admired IMC course and designed a



a competition spin will get a zero from the judges if the nose isn't seen to drop prior to rotation.

Things have changed for the better in recent years, largely due to the efforts of Alan Cassidy. Alan has been teaching competition aerobatics for decades, and has impeccable credentials as an international judge and Unlimited level contest pilot. Furthermore he has been chairman of the British Aerobatics Association for many years and has written what many consider to be the definitive aerobatics instruction book.

Around three years ago, AOPA invited Alan to update the AOPA course to bring it more into line with competition aerobatics.

In a parallel development, the British Aerobatics Association found a way to make the sport more accessible. The rule forbidding entry with more than one person in the cockpit was scrapped for Beginner contests. This allowed pilots to be introduced to the stimulus of competitions at a much earlier stage, because their instructor could be on board as a safety pilot. This was particularly useful for training aircraft like the Extra and Pitts Special, because the student – invariably trained on a nosewheel aeroplane – need not take time off



practising aerobatics in order to learn to land a tailwheel aircraft.

The third 'leg in the milk stool' was an increase in the aerobatic fleet which has been taking place over roughly the last two decades. Used Extra 300s, Yak 52s imported from Eastern Europe, aerobatic Robins and Pitts Specials sold by serious competitors moving up to monoplanes have all considerably increased numbers and brought down the cost of keeping up aerobatics once trained. Having said that, the cheapest aerobatic machines are still, as they have been for since the 1970s, a Topsy Nipper (I've got one myself) and the venerable, but still useful Cessna Aerobat... and you can still learn very economically in the Cessna at a number of schools.

In short, there has never been a better time to seek out a school teaching AOPA aerobatics.

One such training establishment is affiliated to the popular London Transport Flying Club at Fair Oaks, and operates as Advanced Flying (London) Ltd. Early in February, I went to meet the chief instructor,

Darren Audet to learn more about it.

Darren is 48 and was born in Sydney. (The family came from France originally.) He learned to fly at seventeen and started at the Australian Air Force Academy, intending to join the RAAF on graduating. Instead, aged 21, he switched tack and persuaded an entrepreneur to back him to



**Would sir care to try something different?  
Topsy Nipper (top) Cessna Aerobat (above)  
and (from left) Pitts, Extra 300 and Yak 52**



set up his own charter company with a Piaggio twin pusher. "I drove a taxi non-stop for six months to raise enough capital," he told me. "Then, at 22 I discovered Sydney Aerobatics, a school run by the charismatic Noel Kruse – incidentally, I can't recommend his free aerobatic instruction downloads too strongly – you'll find them on [www.flybetter.co.uk](http://www.flybetter.co.uk)." Thanks to Noel's inspirational instructing, at 23 Darren won his first competition, the Australian Intermediate Nationals.

The charter company was thriving, but he realised it wasn't quite where his ambitions lay.

"I decided the British RAF was the way forward for me, applied, was accepted and served from the age of 25 until leaving at age 39." He then became a civilian passenger jet pilot.

"I got back into aerobatics three years ago," he told me, "and quickly decided to run this school with a Pitts S2C."

Darren has a son who's eighteen and a keen pilot, and a daughter a year older who's a classical singer. "She had her first flight in a light aeroplane recently – she loved it!"

Darren's flying experience includes long spells of gliding and hang gliding, "in my



Eric Coe/berg/ris

## A fat bloke writes...

I was going to write this aerobatics article myself but it turned out that at 16 stone I was a mite sturdy for the Pitts, so a well-proportioned writer did the job. If you have similar issues, worry not – there are many aircraft that will happily carry the better-upholstered pilot upside down through the sky. The Extra 300 is spacious and could perform an outside loop while towing a caravan, and it's one of many. Xtreme Aeros has the Robin 2160 and the Zlin 242 and operates out of Coventry, Wellesbourne, Filton, Cardiff and Gloucester – and as an added inducement, its CEO Tom Dunn has begun the AOPA aerobatics course himself. "I've been flying for 17 years and I've flown most things, but I'd never really tried aerobatics," Tom says. "But we started marketing Xtreme Aeros last year and I thought I'd better find out what it was all about. My main aim is to make myself a better, safer pilot, and it is certainly doing that, but I have to say it is also enormous fun."

Tom was put off aerobatics by an early experience in an Extra, when the pilot wanted to 'show him a good time' and made him sick. "A lot of people probably suffer a similar experience," he says, "but when aerobatics are done properly it's a different world." Aerobatics instructor Sam Carbery tailors his instruction to what he thinks the student is comfortable with. "Every one is different," he says. "I start with a max rate turn, which feels more dramatic than it is, and I sometimes do a few gentle rolls before I try a loop, just to ease into it. You can only try to sum people up, listen to what they say, and remember what it was like when you first started."

Xtreme Aeros actually charges the same price for aerobatic teaching as for basic PPL instruction. "It shouldn't cost more depending on which way up you are," says Tom. – Pat Malone

thirties and forties, when money was tight”.

In 2003 he married for a second time, Marie-Louise, a marketing professional who now helps him run Advanced Aerobatics (London). She sat in on my interview with Darren, being very much part of the company.

He showed me the course syllabus paperwork, which was when I became aware of just how much Alan Cassidy has done to update it. The course now parallels aerobatic contests, which are graded as Beginner, Standard, Intermediate, Advanced and Unlimited, though the AOPA course stops after Intermediate. While the emphasis is still on safety, aerobatic manoeuvres are taught that conform to the judging criteria in contests – no more graduating with egg-shaped loops.

I asked for an example of a recent student, so Darren Audet told me about Darren Thatcher. “Darren Thatcher is a fairly typical customer for us. He’s in his early forties and came to us with helicopter and fixed wing PPLs and a few hundred hours. While his intention is to become a commercial pilot, he wanted an aerobatics course to improve his flying skills. Flying ten hours over a period of two or three months won him the AOPA Basic Certificate and also our Advanced Flying Certificate.”

Despite some standardisation, you are bound to find more differences in training methods for aerobatics than you would in PPL training. Some instructors come from display aerobatics backgrounds, some were taught aerobatics in the Services. Some have flown in and won a stream of aerobatics competitions, while others may have entered only a few, or even none at all. Add to this the huge differences in the type of aircraft used and it’s plain that training will vary.

Darren Audet uses the Pitts S2C, charging £300 an hour. (A 2008 model, factory-built, which he’s had from new.) The C is an upgrade on the B, and has a 260hp engine as against the Pitts S2A (the earliest of the breed) which made do with a mere 200hp. (All three have constant speed propellers.) I asked him why he chose it.

“Training from Fairoaks means we have a 3,500ft ceiling (because of controlled airspace). With a safety altitude of 2,000ft, that gives a fairly narrow band and I wanted an aircraft that had enough power-to-weight that we wouldn’t constantly have to climb between manoeuvres. I considered an Extra, but decided that the Pitts, with its steel tube fuselage and external bracing wires had the edge when it came to ruggedness.”

Having such a powerful engine enables Darren to introduce students to advanced manoeuvres beyond the AOPA syllabus and also equips them to deal with competition machines that are similarly



**Top: G-ENIO backtracks for take-off at Fairoaks**  
**Above: Pitts S2C has a 260hp engine in a bijou frame**  
**This photo: Darren and Darren prepare to loop the S2C**

over-powered.

The S2C is an ideal advanced tailwheel trainer, since its big engine, somewhat obstructed forward view, short fuselage and other handicaps makes it tricky to land until you’re used to it. Most aerobatic students concentrate on the aerobatics course and leave landings to their instructor, but tailwheel instruction is there if you want it.

In addition to Darren, Advanced Flying (London) has Nick Barnard and Stu Williams as part time coaches and plans to recruit one more. The company began in January 2009, but has ambitious plans.

“We’re in an ideal situation here at Fairoaks,” said Darren. “We’re five minutes by road from the M25, very close to

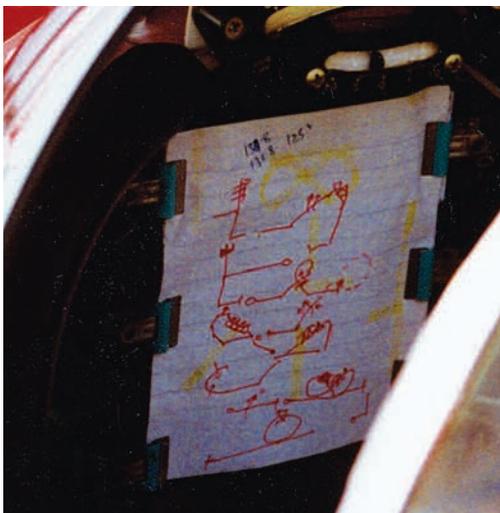
London and yet there is plenty of aerobatic practice space between the towns surrounding the airfield.”

Like many aerobatics schools, Advanced Flying (London) has to be careful about annoying the locals. So far there have been no serious noise complaints and Darren plans to keep it that way by rotating practice sites and making sure that none of them are used to the point where residents become annoyed. “Noise complaints generally occur when pilots practice too low,” he told me. We don’t fly below 2,000ft and that makes a huge difference.

So what exactly does the AOPA course involve? There are some classroom-based elements, such as airframe and engine limitations, body stresses, load factors and



**Above: new students can 'freeze' on the stick halfway through an aileron roll**  
**Below: AOPA course groundwork includes an explanation of the Aresti notation system**



an explanation of the Aresti notation system for writing down different aerobatic manoeuvres. Also classroom briefings before and after flight, just as you would expect.

The Stage One (Basic) syllabus includes being taught to fly loops, rolls, stall turns, the half-loop, half-roll manoeuvre, the half-Cuban and half loop up, half barrel roll down. Finally you will be taught to fly combinations of two or three of these manoeuvres... the course stops short of teaching you to fly a display or contest sequence.

There is a considerable emphasis on safety, so quite apart from being taught to fly aerobatics, you learn how to recover from stalls that occur in different flight attitudes and how to recover the situation if you find yourself disorientated and near to vertical or inverted.

The Stage Two (Standard) syllabus introduces more demanding manoeuvres,

such as the Half Reverse Cuban, where you pitch up 45 degrees, roll on your back into an inverted 45-degree climb, then pull through in a three-quarter loop. Other more difficult manoeuvres introduced at this stage include the four-point-roll, where the roll pauses every ninety degrees and the stall turn with 'a quarter roll down'. This means adding a vertical roll through 90 degrees after the aircraft has yawed 180 degrees at the top of the stall turn, before pulling into level flight.

At various schools around the UK, you can learn Stage One and go on to Stage Two of the AOPA aerobatics course in a Cessna Aerobat, Chipmunk, Slingsby Firefly, Extra 200 or 300, Robin 2160i, Grob Tutor, Pitts Special or Super Decathlon. You won't be able to learn in a Yak 52, or any other aircraft that hasn't a Public Category C of A... although if you join a group that operates such an aircraft on a Permit, there's nothing to stop you finding an experienced aerobatic pilot to take you through the AOPA syllabus. Even if he or she is an instructor, they won't be able to take payment, though – although cost sharing is permitted. And you'd have to have a careful talk with AOPA, because issuing a certificate would be a matter of judgement.

Whether you learn with Advanced Flying (London), or with one of the other schools and whether you go for a cheap and cheerful battered old Cessna Aerobat or a gleaming, almost-new, top-level machine like Darren's Pitts S2C, make sure you enjoy yourself. Take it from me, nothing in flying beats aerobatics. (To learn more about Darren and Marie-Louise's school at Fair Oaks, visit [www.advancedflying.co.uk](http://www.advancedflying.co.uk))

*\*Nick Bloom was Advanced Aerobatic Champion in 1990, flying a Pitts S1S, came second at Unlimited in a DONAC contest, has twice won the prestigious Coupe d'Anjou and won the Intermediate Nationals in a 1946 Stampe. He has flown displays at air shows in a Laser, Pitts and Stampe and was Editor of Pilot magazine for six years. ■*



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