

# The master class



*No matter what your experience level you can learn something new at an AOPA flying instructor seminar, says **Pat Malone***

It must be said that flying instructor seminars were not wildly popular when they were introduced by the JAA in 2000. The idea of taking two days out of your life to sit in a darkened room and be lectured on the theory of flying instruction at your own expense made hearts quail, but nine years down the line they have proved their worth and attract a rather less truculent crowd.

Not only have instructors come to value and enjoy the seminars, but it is generally felt that they have helped improve and standardise flight training. Sitting through a two-day seminar

impresses on one the fact that they are the foundation stones of flight safety, being the only opportunity beyond initial flying instructor training (itself not rigorously standardised) to make sure everybody is singing from the same up-to-the-minute hymn sheet.

AOPA has been running flying instructor seminars around the country since the beginning, and hundreds of instructors have gone through the mill. I joined the seminar at High Wycombe in December despite having given up instructing several years ago – the

pointless doubling of the cost of medical compliance was the last bloody straw – and I must say I found it an extremely positive use of my time, and the 45 instructors in the room were overwhelmingly of the same opinion.

Instructors must renew their qualification every three years and can do so either by flight test or by seminar. If you renew by seminar this time, you must take a flight test next time, but it is possible to renew solely by flight test. In my opinion you lose out by opting to do so. One high-time instructor on the course at Booker, George Tipler, was attending his first seminar – an instructor since 1979, he had always renewed by flight test. George, who has 11,000 hours, about 6,000 of them rotary, said: "I wish I'd done the seminar years ago. I've got tremendous value out of it, and personally I would recommend that the seminar be made compulsory at least for every second revalidation.

"We tend to exist in our own little worlds as instructors. The flight test is all well and good, but I know I can teach, and I know I can convince an examiner that I can teach. It's no substitute for spending two days interacting with lecturers who are absolutely up to the minute with techniques and regulations, and experienced instructors who pool practical information that is priceless – I've learned so much."

**Top: fixed-wing instructors hear one of Tim Orchard's presentations**  
**Right: Mike Green (left) with George Tipler, attending his first-ever seminar renewal**

The group included part-time PPL instructors and 747 training captains, and we had eleven helicopter instructors – AOPA includes a helicopter component in its seminars once a year, and they split off on their own for many of the components, led by the hugely experienced Mike Green. Only three of the 45 were women, and worryingly, the vast majority were a lot closer to pension age than to the beginnings of their careers; if there were two people under forty I'd be surprised.

There were a handful of foreign students, too – an American teaching with Oxford in Arizona, and a Dutchman, Bas Strijland, who had a CAA instructor rating (as well as a Dutch CPL). Many Europeans come to Britain, apparently, because of the lack of seminars in their own countries, particularly in eastern Europe. Several instructors were renewing





rather than revalidating ratings; they'd run out of time on them, and had to attend a seminar as well as undergoing a flight test.

Many of the instructors present were at the very top of the experience tree – while 747 training captains and 25,000-hour men can find a common language with 1,000-hour Cherokee men, I thought it might be daunting for the lecturers to be faced with so many egg-sucking grannies. But the lecturers' CVs trump everything. The main man is David Scouller, whose delivery and responses betray an absolute mastery of all things aeronautical, and no wonder. He has 14,000 hours on more than 200 types, including fighters and bombers, seaplanes, airliners, helicopters and airships, he was a test pilot at the Empire Test Pilots School in 1962 and became CO of the Fighter Test Squadron at Boscombe Down and a tutor at ETPS. He ended up as the MoD regulator for all military flying, and he'll test-fly your homebuilt if you ask nicely.

Michael Bagshaw literally wrote the book (with Ron Campbell) on Human Performance and Limitations. He's Director of Aviation medicine at King's College, London, and a visiting professor at Cranfield, and he put in 16 years with the RAF as a medical officer, a Hunter and Jaguar pilot and a flying instructor at Cranwell before gaining an ATPL and joining British Airways. He teaches aerobatics at Blackbushe and is a PPL examiner and a corporate jet pilot.

Tim Orchard holds the New York to London speed record, having piloted Concorde across the Atlantic in eight minutes under three hours. He flies the 777 and was once personal pilot to my Lord King, chairman of the board at BA. He's a C of A test pilot on pistons, turboprops and jets, he's in charge of British Airways Flying Club and he owns a third of a Chipmunk.

Pam Campbell, who is IAOPA delegate to the JAA FCL committee and filled everyone in on the progress of the handover to EASA and the likely changes that will affect us all, was an RAF fighter controller who qualified on

everything to piston singles to multi-engined jets, a former flying instructor, FIC instructor and PPL examiner who doesn't even mention on her CV that she's one of the few women to have flown the Meteor and the Vampire.

To catch their pearls of wisdom you don't even have to take a note – everything is presented to the instructor in a fat green folder. The pace is rapid but you can review everything at your leisure. I can't begin to encapsulate everything in that file in a magazine article – we had 15 hours of lectures or workshops, with many of them doubled up to cater for the helicopter contingent – but I can give a flavour of what was said, so here goes:

### Human performance

Professor Bagshaw is always excellent value, endlessly informative and often humorous. Very thought provoking, too, with lots of pictures of entertaining plane crashes. Human performance training is gradually being introduced into the aviation engineering world, but has not yet extended to ATC. The human performance exam was introduced in 1991 and increasing stress has been laid on the topic ever since. But guess what; the ratio of incidents caused by human factors remains at around 75 percent, the same as it was in 1990. In 88 percent of cases, a crew member had the opportunity to break the chain of events leading up to the accident. That's not 'pilot error' as we know and love it, but it is human performance. (The accident rate, and its fatal component, are about the same in Europe and America, despite the very different regulatory regimes).

What are we doing wrong if this figure is not diminishing? What can instructors do to improve the picture? Perhaps if fewer instructors taught human performance by throwing a book to a student and arranging for him\* to take the exam, we might move forward.

Prof Bagshaw spoke for an hour and didn't waste a word; we learned about sabre-toothed

tigers, rhinoceroses and examiners with clipboards, and buckets with taps at varying levels, not to mention hypoxia, stress and pressure (not the same), the magnetic attraction of a false hypothesis and the twelve unnecessary funerals you can go to every year. A few valedictory tips: teach individuals, not information, and don't teach for the test, teach for the life after.

### Take-off and landing

I've always gone through the helicopter seminar in the past, so it was interesting to see how the fixed-wing chaps do it. There's a difference, I think, in the amount of procedural information that's traded in the aeroplane world; helicopter instructors would concentrate on the handling of controls rather than, say, the flying of a precise circuit. David Scouller made the point that instructors are often allowing students to start circuit work before they've absorbed the earlier upper air lessons, and it may be necessary to take them out and do it again if they are not to become demoralised at their inability to get landings right. Some don't fully understand the effects of controls and why control can be sloppy as they get slower in the flare, and if you don't know that you'll experience landing difficulties. Nose strut breakage and landing overrun are the most



**Above: Pam Campbell, one of the few women to have flown the Meteor and Vampire**



**Above: Professor Michael Bagshaw, who wrote the first 'human performance' book with Ron Campbell**



**Top: Tim Orchard at 50,000 feet and Mach 2 in Concorde  
Above: lecturer Tim Orchard in Concorde captain's uniform**

common accidents in this area. We spent a long time reinforcing basic ideas of where students should be looking on approach, whether and when wing-down is better than a crab approach. A lot of people open their egg at entirely the wrong end in this regard, and that's not just my opinion. The chaps who fly 747s into hurricane-prone parts of the world said they don't straighten up before touching down after a crab approach – the plane weathercocks perfectly well around the first bogey to touch, and it's more important to maintain the centreline. David Scouller continually stressed the interactive element of the event, and it was worth being there just to hear what the professionals had to say. What are we going to do in the era of the MPL?

### Piston engine performance

Some years ago, David Scouller told us in the third lecture, the CAA became concerned that pilots were unable to calculate the performance of their aircraft, and this was often causing them to hang it in the hedge at the end of the runway. We discussed each step in the calculation of take-off run and distance, the factors involved including weight, altitude, temp, humidity, wind, flap setting, airframe condition, surface, gradient, ground effect and so on. There's more information than many students realise in the manual, including whether the CAA has downgraded the performance claims made by the manufacturer, as it has with the C150/152. Are the recommended flying techniques practical? The 152 short landing technique says that at 50 feet with full flap and 54 kt you should round out with the throttle at idle. This is not wise. Have you ever used an acceleration checkpoint? You should be at 85 percent of take-off safety speed at 40 percent of take-off distance required. A new one on me, but very useful.

Rotation techniques differ between tarmac and grass; get the nose off the ground as soon as practical on grass, or you'll extend the take-off by 20 or 30 percent. Would you raise the flap on landing to shorten the run? You could, as long as you don't mistake the flap lever for the gear lever, which really would shorten your run. On a touch and go, throttle first, then flap. All of this is in the AOPA PPL syllabus; do you

understand it, do you teach it properly?

### JAR-FCL

Pam Campbell gave a run-down of everything that's happening as EASA takes over from the JAA. If you read this magazine regularly you'll know everything she told the seminar, so suffice it to say that although there will be significant differences, some of them positive, there's no sign of EASA changing anything substantive in the system of seminars and flight tests for instructor revalidations and renewals. Pam stressed the use of the new 'student' prefix on RT – some instructors weren't aware of it – and went into detail on some aspects of glass cockpit training, medical requirements and the turboprop class rating, and warned that some interests are trying to have the requirement to hold a CPL reintroduced to EASA FCL, something we must guard against.

### Instructional techniques

Tim Orchard addressed – and demonstrated by his delivery – some instructional techniques, including engaging and involving the student/audience and not letting attention flag. He showed the celebrated video of the basketball players, the one where you miss the most incredible goings-on because you're concentrating so hard on an assigned task (I don't want to spoil it for those who haven't seen it) and warned against such tunnel

vision; he covered some reasons why ability to learn varies widely, and he repeatedly brought in the audience not by asking if we had any questions, but by seeking to know what questions we had. Most of what he said was a reiteration of what we already knew, but Tim contrived often to bring a new angle to it and make it fresh, just as we should all be doing when instructing.

### Forced landings

Tim ran straight on into practice forced landings without power, covering the military approach – 'high key', 'low key' and a curved approach – with the civilian system of 1,000-foot area and rectangular circuit. For the private pilot, the latter replicates the sort of approach and landing he is used to, which is an advantage. We covered the full details of the lesson and looked at the many variables that can be introduced to bail your chestnuts out of the fire if you screw up. Best suggestion for rescuing the situation if you're low at the 1,000-foot area – "warm the engine." But seriously, there was a lot of useful discussion of how to avoid over-complicating the issue. If you have engine failure, don't waste time on things that won't fix it. It needs fuel, air and a spark.



Above: David Scouller makes use of a model during one of his presentations



Left: don't straighten up before touching down after a crab approach – the plane weathercocks perfectly well around the first bogey to touch, and it's more important to maintain the centreline



Remember the shut-down drills, and stress (important, this) that while he goes through a touch drill in practice, in the real thing he actually has to turn it off. (And vice versa, if you value your hide). Too many students can't give a Mayday. Do the whole job. And remember Rule 5.

### Multi-engine

David Scouller finished off Day One with a discussion of multi-engine training, useful even for SEP instructors. Optimum bank into the live engine is three degrees, and shouldn't be much more than five – it provides a weight side-force to counteract sideslip caused by the displaced rudder. Too much bank and you'll stall the fin, and that can often be fatal. Where strength mattered in older aircraft, regulations now demand that the petite and demure be able to manage engine-out manoeuvres.

### Stalling and spinning

Tim Orchard was back on Day Two with separate lectures on stalling and spinning; I'll sum them up together. Although many student log books will show two full hours of stall recognition and recovery, in actual fact they probably got 15 minutes bracketed by getting there, getting back and doing other stuff. This is not good – it's a fundamental part of flight training and you shouldn't short-change the student. "We don't spend enough time briefing on it, we don't spend enough time doing it," says Tim. You might introduce it on the way home after exercise nine, just demonstrating a benign incipient stall and recovery, thus overcoming the trepidation that can often blight exercise ten. Don't do it too low – 4,000 feet is good. The military do it at 'transition level plus ground height'. Cure the student of the idea that these things can be done lower down, and impress on him that it'll happen when he's buzzing his mate's house. Keep practising stalls through the course, keep throwing one in.

Flying instructors are required to be able to teach spin recovery, and many people still offer spin training on the PPL course – power to their elbow, says Tim. He showed us a video of an instructor trying every which way except the right one to get out of a spin while falling from 9,000 feet to 4,000 feet, and the only thing that works is rudder to counter the spin then stick forward, just like it says in the book.

### Navigation

I've got five full pages of notes on navigation, on top of David Scouller's crib sheets. Again, it reiterates what's in the books and adds useful information. Most airproxes happen around 2,000 feet. So avoid 2,000 feet. You're legal to fly without a wristwatch but only if the aircraft has a clock. Wind up, or wind down on the computer? You choose, but wind up is better, says David. Track up, or north up? Track up! (I used to teach track up and fly north up – I was using maps for 30 years before I learned to fly and could never get my head around anything else). Common errors on flight logs – too much information, too little information, or none at all. There's no JAR requirement for low-level nav teaching, but there is for the NPPL. If you're a helicopter chap, of course, it's all low-level nav. Fly map to ground, and –

**Right: some of the instructors who attended the December AOPA seminar**

first time I've heard this, and glory be! – avoid teaching the one in sixty rule, it's a busted flush! Long overdue advice.

Commercial instructors say students are coming to them with very poor RT, and airlines really want standard phraseology. Get the student to use radio from the very first lesson, and be patient – don't jump in. Establish what service you want on first call, and use the student prefix. And there's no reason why GPS should not be used on the PPL skills test, but only to confirm position – you can't use the track. Show students that dead reckoning actually works, it's not just a skill that can be abandoned as soon as you've figured out the Garmin.

### Accident avoidance

Ashley Buckle is an instructor with CTC at Bournemouth, and he is also a quirky lateral thinker with a gift for finding new ways to teach old subjects. In a lecture on accident avoidance and legal aspects of flight instruction he talked us through a flight in which he simulated getting caught out above cloud and got the student to talk his way out of it. ATC at Yeovil didn't quite get the picture when the first call came – after the student said he was lost above cloud and had no instrument flying experience he was asked if he could accept an ILS – but once they

twigged, they were endlessly inventive and helpful. Buckle refused to help out with the radio; eventually ATC called up every aircraft on the frequency to see if anyone could see a hole, then vectored the student towards the aircraft that could and squeezed him down through the hole. And everybody involved felt they'd really accomplished something and had a memorable and useful flying lesson.

### Instrument flying

Tim Orchard finished up with basic instrument flying, explaining the difference between an artificial horizon and an attitude indicator, the selective radial scan, often-forgotten tools like the compass and the minimum safe altitude, limited panel unusual attitude recovery, and

the leans – there are several techniques for proving to a student that he cannot trust the seat of his pants. Why the religious objection to using pitot heat, he asks?

### Syndicate work

This is the bit nobody likes, except the CAA. Instructors chosen at random deliver prepared pre-flight briefs to the rest, who then critique

the performance. Giving a pre-flight on forced landings without power to a jury of airline training captains would put anyone in a muck sweat, especially an airline training captain. It feels a bit

*It feels a bit like being the main attraction at a public hanging*

like being the main attraction at a public hanging, but David Scouller moderates effectively and makes sure everything is positive and constructive, and the briefer doesn't feel like the victim of a gang punch-up. I watched four of these, each lasting only ten minutes, and was full of admiration for the amount of preparation that had gone into them and the *sang froid* of the briefer. I'm bloody glad it wasn't me.

### Some final observations.

This is a fascinating course, and if you can get over the fact that it's compulsory it can be hugely informative and great fun. It's a shame about the £250 (inc VAT), but there's a ten percent discount for AOPA members and it's no more than a break-even proposition for AOPA anyway – sometimes not even that. The real added value is in what you bring to the party. It's when instructors start batting ideas back and forth that the really useful new tips come out.

One last thing. I absolutely hate the term 'Bloggs' for a student. It must have been used a hundred times. I know it's just a linguistic device, but I would never call a student by his surname, even if his name was Bloggs. Please God, it goes the way of the one in sixty rule.

The next AOPA seminar is at Bristol on March 24/25, and there's another at Wycombe on July 21/22. You can book online at [www.aopa.co.uk](http://www.aopa.co.uk). ■

*\*Apologies to the lady who keeps writing to me saying I should say 'him or her' each time. It would make disjointed reading – but it is implied.*

