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The journal of  
the Aircraft Owners and  
Pilots Association



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### 4 Chairman's Column

Efficient regulation, by **George Done**

### 5 AOPA Working for You

Regional airports smile on GA; cross-border instruction; amending the Basic Regulation; Members Working Group considers transition altitudes, Bournemouth security and more

### 16 Ice cold in Bodmin

An expedition across the Sahara in a Robin DR400 described by **Pat Malone**

### 24 Goodbye Filton

One of Britain's historic airfields mourned by **Peter March**

### 27 Air racing

Why not try your hand at air racing this season? Anyone can, as **Geoffrey Boot** reports



### 28 All at sea

Engine problems in the most inconvenient of places described by **Robin Nash**

### 32 The way we were

**David Ogilvy** harks back to a time when flight training was more pertinent, less bureaucratic, and more fun

### 34 Book reviews

### 38 Boats and planes

It's suggested that GA be regulated like yachting. **David Chambers** elucidates



### 16



### 32





# General Aviation

February 2013

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**Front cover:**  
**Cessna 206**  
**over the Sahara**  
Photo:  
Grzegorz Bielowicki

## Chairman's message

### Efficient regulation

The two weeks either side of the New Year always tend to be on the quiet side not only from an AOPA point of view, but also personally in relation to getting into the air in a light aircraft, and this Christmas period has been no different from most. December's weather kept me firmly on the ground throughout, and this month so far I have only managed one short trip in the Cub, on one of those unexpectedly pleasant not-as-forecast fine days. Kicking off the post-Christmas lull at AOPA has been meeting the deadline for submitting comments on the proposed CAA Scheme of Charges for 2013 – 2014. This is one of those documents for which the devil is in the detail, and to assimilate the impact on the multifarious interests of the general aviation community requires very close scrutiny.

The CAA is obliged to cover the cost of its regulation by income from those whom it regulates and the Scheme of Charges provides the structure for the fees necessary to meet the budgets set for each identifiable activity. The total revenue target budget figure for 2013 – 2014 is just under £78 million, of which the Safety Regulation Group is responsible for nearly 80 per cent, providing a projected profit of just over 2 per cent of revenue. Of the total revenue, it is hard to say what proportion relies on general aviation, as contributions derive from many sources such as AOCs, airworthiness, personnel and aerodrome licensing. So the financial impact on the CAA of a reduction in trading caused by increased regulatory costs in GA is impossible to assess. This highlights the importance of effective dialogue, and at least we are fortunate in the UK that the CAA does make a serious effort to consult.

The Scheme of Charges consultation document can be downloaded from the CAA website and is fairly readable. There is a certain amount of self-congratulation which is excusable (if you don't say it yourself, nobody else will!), e.g. a 26 per cent reduction in operating costs over the past 10 years despite significant growth and changes in the aviation industry. Two new programmes are described under Development Activities, the first entitled 'Enhancing Safety Performance', or ESP, being aimed at "...adding value to regulatory behaviour by applying the principles of Better Regulation..." This presumably refers to those quoted in the Hampton Review of 2005 (mentioned in *General Aviation* for October 2005 and February 2006) which are transparency, accountability, proportionality, consistency and targeted. Also to be found in the review is the clear statement "Regulators should recognise that a key element of their activity will be to allow, or even encourage, economic progress..." The other programme is called the Performance and Process Improvement Programme, or PPI. This is geared towards streamlining internal processes, including moving towards on-line transactions amongst many other things, so a speedy turnaround of approvals, licence issues etc. should result. Part of PPI relies on a management tool entitled Business Process Re-engineering (BPR) that became all the rage back in the 1990s, ousting the then popular TQM (Total Quality Management – anyone remember that?) from centre stage. It is very customer focussed and one of the precepts is to eradicate activities that do not add value. It will be interesting to evaluate the outcome of these two programmes in the fullness of time.

It is one of the main objectives of AOPA, and its colleague associations, to strive for the continued viability of general aviation on behalf of all its members, and this involves fighting against anything that is likely to add to the overall cost of flying, whether you fly for business/professional reasons, or for private transport or enjoyment. Hence, AOPA has responded to the consultation highlighting those detailed items that raise serious questions about future cost, or lack clarity or seem ambiguous. It is all too easy to be cynical about how the CAA will respond to the consultation but I am sure that all matters raised will be given due consideration. Members of AOPA will appreciate that the effort expended on this and many other areas of concern is covered by their subscriptions, but any benefits downstream spread way beyond the membership, a fact worth mentioning in the appropriate circumstances!



George Done

# Airports dust off the GA welcome mat

Regional airports that have in recent years presented an unfriendly face to general aviation are reconsidering their attitudes as commercial passenger traffic shows little sign of recovery and costs continue to increase.

While some airfields are doing well, most are struggling in the face of an unprecedented recession which has knocked the stuffing out of some sections of the air travel market. Stansted passenger numbers are down almost five million from their peak; Bournemouth is off by half a

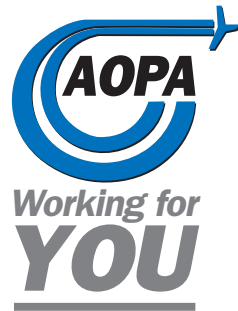
million, Liverpool by 700,000, and many more are feeling the pinch. Air cargo volumes have fallen dramatically. Blackpool, Norwich and Teesside are among the airfields to have suffered in the downturn.

AOPA Chief Executive Martin Robinson said he had been approached by a number of airport managers who were re-examining their approach to GA in the light of the economic situation. While general aviation sees the solution as simple – don't charge so much – to airport managers it looked more complicated.

"They have shareholders to answer to, investments to justify, sub-contractors with whom they have made handling and service deals," Martin says. "You might say they got themselves into this position by relying on dubious forecasts of continual exponential growth in commercial air transport, but that doesn't lessen the impact of the situation."

The first step, Martin says, is to convince management that general aviation should be treated as a marginal operation and should not be expected to pay what management considered a 'fair share' of costs. "This is something they have difficulty with," Martin went on. "Some of them say that they've got controllers to pay, tarmac to renew, infrastructure costs to keep up, and everyone must contribute equally."

"But even if they've only got a handful of commercial movements a day they still have to have controllers there full-time, and GA movements serve to keep them alert. As to resurfacing runways, the damage is done →



**Left: Stansted passenger numbers are down almost five million and air cargo volumes have fallen dramatically**

## Back to basics

Efforts to improve EASA's regulation of general aviation could come to nothing unless the Basic Regulation governing the Agency's every move is amended.

Basic Regulation 216/2008 is the European Commission's framework document which sets out what the Commission expects the European Aviation Safety Agency to do – the so-called 'essential requirements' for aviation regulation. It runs to only 21 pages, and all of EASA's efforts are directed towards putting flesh on those bones. The tens of thousands of pages of detailed regulation produced by EASA represent its interpretation of what the EC wants.

Too often, EASA turns away questions about its rulemaking with a final: "It's in the Basic Regulation." A more precise answer might be that it's in EASA's interpretation of the Basic Regulation – but there are certainly elements of the Basic Regulation that need to be amended, says Martin Robinson.

"An example would be the definition of commercial activity in the Basic Regulation, which is effectively anything where money changes hands. This leads to a situation in which EASA indicates that you must be a commercial pilot operating on an AOC in order to give trial lessons, or even under certain circumstances to cost-share.

"Being designated as a commercial operation opens up whole new levels of bureaucracy and cost, and there is an urgent need to give EASA more guidance on this subject by

amending the Basic Regulation."

A second area in which the Basic Regulation needs more clarity is in shaping EASA's attitude towards the acceptance of third country licences and qualifications.

These amendments must come soon, because after the summer the European Parliament goes into election mode, which means no business gets done. Many of the Commissioners will change after the 2014 election as well as the MEPs, so IAOPA's whole programme of education will have to begin again with a new class. If we can't get amendments before summer, there won't be another chance until 2016 or 2017.

IAOPA's Brussels lobbyist Lutz Dommel is working to create the opportunity to amend the Basic Regulation before the summer, speaking to MEPs and policymakers. IAOPA has been asked to submit proposals on how and where the Basic Regulation should be amended.

The EASA Management Board has accepted that there should be a clearer distinction between regulation for Commercial Air Transport and regulation for general aviation. Its strategy, expressed in documents sent to the Commission and EASA in September last year, includes specific recommendations for changes to the Basic Regulation.

IAOPA is also working on creating an 'Intergroup' in the European Parliament – this is a special interest group along similar lines to a caucus in the US Congress, and it has an element of official blessing; it's not possible to set up an Intergroup during the lifetime of a Parliament, so 2014 presents an opportunity to do so. Half a dozen MEPs have so far expressed an interest in participating. ■

by the heavy jets, not the piston Cessnas. A GA movement effectively costs them nothing, yet it could bring in a reasonable landing fee and a profit on sales of fuel or other services. It can also help businesses in the local area.

"Unfortunately some people seem to think GA can make up the revenue they've lost from commercial aviation, but it's not going to happen."

Martin has written to the Aerodrome Operators Association offering guidance, and has been informally contacted by a number of managers. "The first thing they need to do," he said, "is to implement in full the EC's self-handling directive, which

**Right: The European Commission says GA pilots should be allowed to do their own handling, without having to pay an agent**



## Chief executive's diary: A stranger in England

Sometimes I spend so much time in Brussels that I feel like a foreigner visiting the UK. It's essential, of course – the main pressure points for effective lobbying have moved offshore, so Waterloo Station and Eurostar loom large in my life. Since I last wrote this diary I've spent a lot of time in Brussels and Cologne, and it's pleasing to be able to report some significant successes.

On 5 November I attended a meeting at the European Commission with Lutz Dommel, where we had a meeting with the Transport Commissioner Siim Kallas's aviation adviser Margus Rahouja. We spoke about general aviation, a subject which Mr Rahouja admitted he knew very little about. We discussed the issue of better regulation and the need for EASA to become a more risk-based regulator. I explained that we supported the Agency, and in principle the need for a single European regulator. However, in order for the Agency to regulate according to risk it needs to have good-quality data on which to evaluate the risks. Without knowing what the risks are, the regulations are unlikely to be fit for purpose. These comments were accepted. We also suggested that amendments to the Basic Regulation were a priority, and that IAOPA was seeking an opportunity to get some early amendments in place.

On November 6 I introduced Lutz Dommel to the European Business Aircraft Association to continue our discussions on a possible awareness campaign for GA in Europe. We had an interesting exchange of information with our EBAA colleagues, and we have a better understanding of their concerns, particularly where 70 percent of their members operate on AOCs.

Next day I had a meeting in the Transport Commission with policy officers to discuss the requirements for ATOs and was able to explain how IAOPA believes the proposed changes for existing Registered Facilities are over-burdensome and extremely costly. There is also an excessive level of bureaucracy for these small and medium sized businesses which are struggling because of the downturn in flight

training activity for the PPL. The policy officers sought to defend the proposals but also considered that it may be possible for Registered Facilities to have a certificate that covered a 10-year period. We are waiting for further communication from the Commission on this point.

We also spoke about the non-commercial complex proposals for accelerate-stop distances, which would have serious implications for light turboprop aircraft operating from airfields with runways of less than 800m. This led to a rather robust exchange of views but with a promise to further consider our points. Since the meeting, and with the intervention of a German member of the European Parliament, the Transport Commissioner has written to IAOPA with amended proposals. This is a small but significant victory because it demonstrates how, working with members of the European Parliament, it is possible to get change when the regulations are wrong. (See page 9)

On November 13 I attended the SESAR interim deployment steering group meeting in Brussels. This is basically Phase 1 of the implementation of SESAR, where the main concern for IAOPA is the requirements for our members to install 8.33 kHz radio by 2017. Retrofits will cost millions of euros and there is no supporting business case or cost-benefit study that demonstrates why GA should install these radios. I have asked Helios to conduct a study of how the non-equipage of 8.33 radios by GA would affect the network. The EC has previously stated that if general aviation did not equip with 8.33 radios, and if it had an impact on the network, then they would have to look at funding arrangements. We are not asking the Commission to purchase the radios, but we are asking for assistance with the installation and certification costs, as these can be considerable. It's unlikely that any funds will be forthcoming because the Commission has indicated that certain



member states will have portions of their airspace which are exempt from the carriage of 8.33 radios. However, IAOPA believes that this does nothing for harmonisation or synchronization of this issue and further illuminates the difficulties within the Single European Sky.

On November 16 the CAA arranged a meeting at Heathrow with senior officials from the Transport Commission, which included Matthew Baldwin and the Director General of Transport Mr Mathias Ruete. I congratulated the Commission on the work it did in supporting the EASA Management Board decision to endorse the work which had been completed by the French civil aviation authority and the general aviation community. I also requested that the Commission ensure that its policy offices are fully briefed on those outcomes, because recent discussions have left me wondering whether the system between the Agency and the Commission was joined up. I also urged the Commission to adopt and apply the principles of smarter regulation which have been agreed elsewhere in the European system. I'd like to thank the UK CAA for inviting me to this meeting, and Mr Ruete and Mr Baldwin for the support they have given so far to initiating the changes general aviation desperately needs in the regulatory environment.

On November 21 I attended Eurocontrol for a meeting of the Enlarged Committee for Route Charges, which was responsible for the study group conducting the review of the VFR charges. One of the main items on the discussion was the setting of the unit rate, which affects all IFR flights where the weight of the aircraft is greater than two tonnes. An advantage that has resulted from the recent changes to the rules of the air is that night flying can be done VFR, for which the exemption from charges applies in line with the same requirements as for day VFR.

I travelled to Cologne on November 23 for a meeting with senior managers and the Director of Rulemaking in EASA, where again we discussed non-commercial complex operations particularly with respect to accelerate-stop issues, and how the Agency has gone further in the rulemaking task than is required by ICAO. We also discussed in detail the issues around ATOs, and I explained that I had also had discussions with the EC about the same. With a view to ensuring there is a joined-up approach



allows general aviation pilots to do all their own handling without recourse to an agent.

"Then they should look at the charges levied by smaller local airfields, and perhaps set a landing fee with a premium that reflects the additional facilities at their own airport. Some of the charges at regional airports were clearly inflated in order to keep general aviation out, and perhaps some people have lost sight of that." ■

between the Commission and its Agency. The response I received was that the Agency was doing some internal work with regards to alternative means of compliance with a view to reducing the impact of the original rule, and that the Agency is hoping to have some amendments in place early in February 2013.

On November 24 I attended a meeting with Jeppesen in Crawley to discuss their products and their pricing. This meeting was also attended by members of PPL/IR Europe. I felt the meeting was productive but experience has shown over the years that Jeppesen take some time to consider their options. For some of our members this can be frustrating, and although we have a good relationship and enjoy working with Jeppesen we really want them to make a decision with regard to their business plans for GA in Europe. The development of iPad technology is exciting, but there are other companies who are leading the way and Jeppesen must make sure they do not get left behind.

Over the next three days I spent time in the AOPA office catching up with members' correspondence and issues as well as catching up on reading the mountains of documents which accompany all aviation regulation.

On December 3 I went back to Brussels for a meeting of the Industry Consultation Body which gives advice to the European Commission on matters relating to Single European Sky. I again raised our concerns with respect to 8.33 kHz radio and asked for a study, and for a decision to be made early with respect to what kind of funding may be made available to assist with the retrofit of thousands of general aviation aircraft. This was also the last meeting of the chairman Per Arnie, to whom we would like to extend our thanks for his efforts whilst in the chair. We wish him a happy retirement.

This is also the time to say goodbye to David McMillan, who retired from Eurocontrol as Director General, and wish him success in his new position at Air Safety International. It is generally considered that David has steered Eurocontrol successfully during a difficult period of transition. All the senior Director Generals from other agencies attended his farewell party. David is an immensely able operator and I'm sure he will rise to the

# Euro-harmony? Think again...

*Under EASA it should be easy to cross a border with a student. George Capon explains why it's not*

A trip to France with a student in training sounds great...

With landing fees and fuel costs increasing in the UK flying organisations

are always looking at ways of assisting ab initio students to keep costs to a minimum, which is to be applauded. One of the ways is to go to Europe for flight training and →

challenges that his new organisation faces.

On December 4 I had a meeting in Brussels with Frank Bannister to discuss how Avia Bell may be interested in offering aircraft insurance policies to our members. Next day I met again with Lutz Dommel for follow-up discussion on IAOPA's political lobbying activities in Brussels. Lutz has had many meetings with members of the European Parliament and their staff as we begin to strengthen our political ties. We plan to meet MEPs in Strasbourg, and we have identified a number who have expressed interest in supporting general aviation. Our goal is to establish a GA Intergroup prior to the new Parliament which will begin in 2014. It is not possible to establish such groups during the life of an existing Parliament. We wish to explain to MEPs the difficulties that many of our small and medium-sized businesses are facing, and how they are struggling to come to grips with the changes coming from EASA. We will also press the need for an immediate set of amendments to the Basic Regulation 216/2008. If we cannot get these amendments before this summer it is unlikely that we will get a chance again before 2016/17. The Parliament will change in 2014 and there will also be new Commissioners, including the Transport Commissioner. We do not know who this will be, but in reality it will mean we must start the education process again, explaining what GA is, what it needs and how we can achieve a sustainable future for our industry.

On December 6 I was in Cologne to attend the EASA Advisory Body, which discussed proposals to amend the Agency's fees and charges structure. While the existing fees for GA have effectively been frozen, the CAT sector is looking at some very substantial increases. IAOPA has supported the objections raised by the CAT sector as a matter of principle, given the way in which the Agency has developed these new fees.

On December 7 I attended the UK Department of Transport briefing on EASA, which takes place a few days before each Management Board meeting so the UK officials can consider industry's views. While this is not an official meeting it is a very useful forum where we get an exchange views from different UK groups.

Three days later I met with Airsoc

regarding advertising in this magazine and in our online products. Next day I attended a meeting hosted by the CAA Directorate of Airspace Policy regarding future airspace strategy, with a focus on commercial air transport operations in south-east England. We also took a look at the Anglo-Irish functional airspace block. The objective is to change airspace in such a way as to facilitate constant climbouts and constant rate descents for CAT aircraft as these have huge environmental benefits through reduced fuel burn and reduced emissions. The CAA plans to have another event later in 2013 where the focus will be on GA, and AOPA has already been invited to speak.

On December 13 I had a meeting at the Department for Transport to discuss better regulation, and how many of European regulations are affecting our sector of aviation – more to follow on the subject. On the 18th I attended a meeting of the Airspace Infringement Working Group to discuss the number of infringements emanating from general aviation operations. While it is pleasing to note that the number of risk-related infringements has fallen, the overall number of infringements remains unacceptably high. The chair of this group, Phil Roberts, has agreed to attend the AOPA Open Day at Duxford, where he will speak about infringements. This is perhaps a good opportunity to remind all our members that the best way to avoid infringement is to plan your flight properly, taking into account your intended route airspace and notams, not forgetting the weather. Study your route carefully – don't just rely on the GPS, and if you do become uncertain of your position make sure you give those nice people on 121.5 a call. This is an important feature of the safety nets we have in place in the UK, and there is no shame in seeking help.

I returned to work on January 7 to play catch-up with many emails that came in over the festive season. I hope you all had a very nice Christmas. On January 10 I went to Brussels for a meeting with Patrick Ky, Director of the SESAR Joint Undertaking, to discuss the future of general aviation inside the ATM Research Projects. Then on January 12 I visited England for the AOPA Members Working Group at White Waltham, more which you can read about in these pages.

**Martin Robinson**

→ have lunch during the stop over, it has benefits in that dual navigation can be taught on a long sector across the channel, a fuel rebate can be claimed plus landing fees are significantly reduced if non-existent, and a great lunch at the restaurants at the airport and in town, but is it legal?

If the instructor holds a JAR licence, this is valid in any EASA country and the unlicensed student may fly solo on the instructors licence; but here comes the potential hitch:



Under EASA rules, there are additional rules that are not immediately apparent. These arise from the 'Authority Requirements Aircrew' – Part-ARA. Under ARA.GEN.200 and .300, the UK CAA and French DGAC may both be involved in regulating the activity.

ARA.GEN.200 includes:

(c) The competent authority shall establish procedures for participation in a mutual exchange of all necessary information and assistance with other competent authorities concerned including on all findings raised and follow-up actions taken as a result of oversight of persons and organisations exercising activities in the territory of a member state, but certified by the competent authority of another member state or the agency.

Also, ARA.GEN.300 includes:

(e) Where the activity of a person or organisation involves more than one member state or the agency, the competent authority responsible for the



oversight under (a) may agree to have oversight tasks performed by the competent authority(ies) of the member state(s) where the activity takes place or by the agency. Any person or organisation subject to such agreement shall be informed of its existence and of its scope.

This implies that any flying training organisation that wishes to undertake this flight would have to add the airfield in France that they intend to use to the organisation's UK training approval, in advance of the flight, and there would need to be contact between the UK CAA and the French DGAC. This would be to make the French authorities aware of the activity and to agree procedures for sharing information, and potentially for the French authorities to maintain regulatory oversight of the activities undertaken in France and therefore safety. Following on from this, an interpretation of ARA.200(c) is that the UK

**CFG Tiger flying to France; beware EASA rules affecting instruction abroad**

CAA would be obliged to share the results of its audits of your organisation with the French authorities.

This in itself probably isn't a problem, but be warned it isn't as clear-cut as it initially seems. Also, the detail of how the requirements are applied may change in April 2013 when the DGAC adopts EASA regulations.

Be careful out there.

● Cambridge Flying Group is basing two Tiger Moths at Abbeville from June 17 to June 21 and inviting members to convert onto the aircraft. Apart from circuit-bashing, there will be an opportunity for cross-countries and aerial tours of First World War battlefields. For information on joining the Group email Mike Derrett (m.derrett382@btinternet.com) ■

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# IAOPA wins on accelerate-stop law

IAOPA-Europe has mounted a successful campaign to amend EASA rules which would have closed some 900 European aerodromes to turbine twins. The effect would have been catastrophic for small aerodromes for whom such aircraft represent premium traffic, and would have forced some owners to downgrade to piston twins or singles, markedly reducing safety.

Dr Michael Erb, Managing Director of AOPA Germany, co-ordinated the successful campaign. Here, he outlines what has been achieved:

'There is light on the horizon for non-commercial twin turboprops who would have been adversely affected by EASA-OPS.

'When the latest draft of the EASA-OPS requirements for Non-Commercial Operators of Complex Aircraft went out, the message for IAOPA and the affected operators of complex aircraft below 5.7 tonnes MTOW was shocking: take-offs from shorter runways would no longer be possible following the requirements of OPS.NCC.POL.125 for Accelerate Stop, specifically:

*b) In the event of an engine failure during take-off, the pilot-in-command shall ensure that:*

*for the aeroplane where a V1 is specified in the AFM, the aeroplane shall be able to discontinue the take-off and stop within the accelerate-stop distance available;*

'A turboprop aircraft, which could up to now legally take off on a 700m runway, would need under the new rules almost 1200m to fulfill the requirements. The consequences would have been that at about 900 European aerodromes used by workhorses in corporate aviation such as the Beech King Air 90 and 200 could no longer operate as they'd done safely for decades.

'IAOPA presented these facts, which had obviously been overlooked in the respective Rulemaking Impact Assessments, in a well-organised information campaign to its members, the European institutions and Members of the European Parliament. The message was clear: corporate aviation would lose access to almost 50% of their aerodrome network, with devastating consequences for aircraft operators, aerodromes and regional economies. IAOPA's critical comments in the Rulemaking Process were noted, but not accepted by EASA.

'Many aircraft operators and aerodromes joined IAOPA's criticism and wrote to their MEPs, with remarkable success Vice-President of the European Commission Siim Kallas and the EASA Rulemaking Department have now declared concurrently to MEPs and IAOPA that turboprops below 5.7 tonnes should be exempted from the new Accelerate-Stop requirements.

'They now say: "It could indeed be justified to question the proportionality of the new rule in relation to a small number of twin-engined turboprops at around 900 aerodromes in Europe. Besides this it has to be seen that the non-commercial operation of complex aircraft is not under competitive pressure and that the owners, having far-reaching control over the safety standards of their operations, naturally make provisions for the safety of themselves and their passengers."

As the OPS-NCC regulations can't be changed any more in the running legislative process before they reach the European Parliament for acceptance, it is foreseen that they will be adapted before the three year-transition period to OPS-NCC ends.

'It is still unclear what will happen with the jet aircraft below 5.7 tonnes MTOW, for which both the Certification Standards of Part 23 and the ICAO Operations Requirements of Annex VI Part 2 do not require Accelerate Stop calculations. IAOPA requested that they be exempted as well, but there appears to be strong pressure from aircraft manufacturers and commercial operators to implement OPS.NCC.POL.125, which is obviously more an issue of competition than of safety. Non-commercial corporate aircraft are allowed to operate from relatively short runways which are not accessible to commercially operated aircraft any more, for which



**Beech King Air 90 and 200**  
would have been denied access to about 900 European aerodromes

more strict take-off criteria are applicable since JAR-OPS commercial rules were introduced – a fact that has always been a thorn in the side of commercial operators, and against which they are obviously seeking action.

'We will keep you updated.' ■



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# Full refund for Bristol 'Strasser' diversion

An AOPA member who diverted to Bristol at their suggestion after he feared he had a fuel leak – an incident reported in the October issue of *General Aviation* – has been given a full refund of his landing and handling fees after the airport agreed he had been charged in error. Bristol management has affirmed its support for AOPA's 'Strasser Scheme' under which fees are waived for emergency or precautionary diversions.



The pilot, flying a PA-30 out of Staverton for Guernsey, was talking to Bristol when he became aware that the aircraft was venting fuel from a filler cap. He decided to return to Gloucester, but ATC suggested he land instead at Bristol. Knowing that Bristol subscribed to the Strasser Scheme, he did so. He was later given a bill for £132.51, and when he queried it he was told to take the matter up with AOPA.

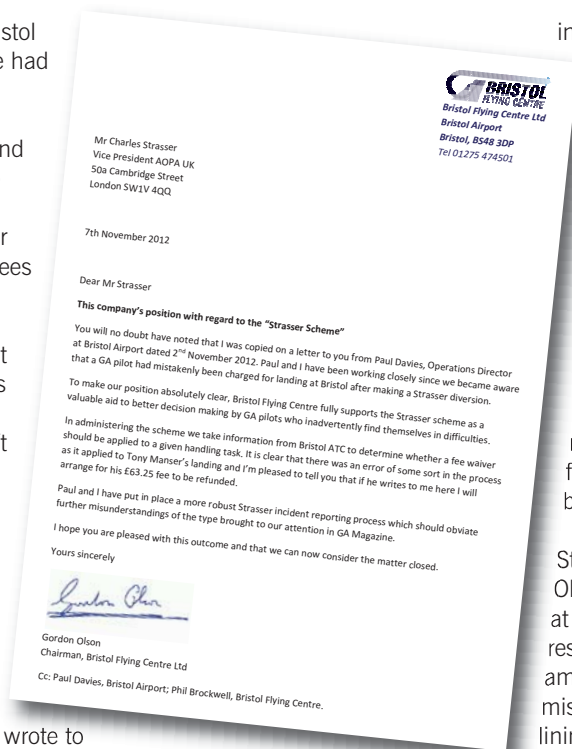
On the pilot's behalf, Charles Strasser wrote to Bristol's Chief Executive Robert Sinclair seeking an explanation, and after an exchange of messages the CEO agreed to refund the landing fee of £55.92. He also undertook to seek a refund of the remainder from the handling agents, Bristol Flying Centre Ltd.

The handling agent later agreed that their fees had been levied

in error and made a full refund of the balance. Bristol Flying Centre's Chairman Gordon Olson wrote to Charles Strasser to say there had been a breakdown in communication between ATC and BFC Ltd, and as a result the diverting pilot had mistakenly been charged.

"Bristol Flying Centre fully supports the Strasser Scheme as a valuable aid to better decision-making by GA pilots who inadvertently find themselves in difficulties," Mr Olson wrote. "We have put in place a more robust incident reporting process which should obviate further misunderstandings of the type brought to our attention in GA magazine."

At the conclusion of the matter, Charles Strasser said: "My thanks go to Gordon Olson, to Robert Sinclair and to Paul Davies at Bristol Airport for their willing help in resolving this issue satisfactorily. Not only am I pleased with the final outcome of this misunderstanding, but I hope that the 'silver lining' will be that all other mandatory handling agents in the UK will follow your example and also confirm that they will not make any charges when a GA aircraft under 3 tonnes and not flying for hire or reward makes an emergency or precautionary diversion landing and the airport has waived its charges." ■





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# Farnborough listening squawk

The listening squawk for Farnborough West, introduced as a temporary measure, has been extended on a trial basis to March 1st, with a view to making it permanent. This follows the successful use of a listening squawk – officially known as a Frequency Monitoring Code – at Farnborough during the Olympics.

Most GA pilots seem to find listening squawks useful, and they have spread across the country in the last three years. The pilot enters the frequency into his or her transponder, then listens out on an associated radio frequency. If ATC needs to get in touch, they know the pilot is on frequency without any radio message having been passed.

This system has worked well, although pilots need to remember that when they change to their next frequency, they must also change the transponder code. Issues have arisen when pilots who were transmitting the listening squawk were found to have changed to their en route frequency.

Frequency monitoring codes for particular aerodromes, and their associated radio frequencies are:

Belfast Aldergrove	7045	128.500 MHz
Birmingham	0010	118.050 MHz
Doncaster Sheffield	6170	126.225 MHz
East Midlands	4572	134.175 MHz
Farnborough (trial only) 1 Sep 12 to 1 Mar 13	4572	125.25 MHz
Gatwick	0012	126.825 MHz (Gatwick)
London City		132.700 MHz (London City)
Leeds Bradford	2672	133.125 MHz
Luton	0013	129.550 MHz (Luton)
Stansted		120.625 MHz (Stansted)
Manchester	7366	118.575 MHz
Southampton	0011	120.225 MHz (Southampton)
Bournemouth		119.475 MHz (Bournemouth)

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# AOPA members set the agenda

The AOPA Members Working Group held one of its regular meetings at White Waltham on January 12th, and despite the fact that it was a grey and dank day which presented little opportunity to fly in, the room was crowded. As well as AOPA Chief Executive Martin Robinson, Chairman George Done and office manager Mandy Nelson the group included Chris Wheeler, Chris Royle, Richard Warriner, Timothy Nathan, Nick Wilcock, James Chan, Pauline Vahey, John Murray, Mick Elborn, Peter Barron, Saul Empson and Pat Malone.

Topics covered included progress with the AOPA regional representatives, the saga of the online GAR form, security at Bournemouth and elsewhere, website upgrades, CAA charges, handling charges, changing attitudes to GA at regional airports and more. Nick Wilcock reported on moves to establish an 18,000 foot

transition level, EASA's proposed aerobatic rating, NPPL to LAPL conversion and more. Articles on Bournemouth security and the proposed transition altitude change appear elsewhere in these pages.

Mick Elborn and Chris Royle have been working on the issue of regional representatives and have held two meetings with reps in London and Carlisle. Awareness of AOPA's work among airfield managers and pilots is not as high as it should be, although those who know of it appreciate the effort. This is a work in progress and more meetings are expected.

James Chan updated members on the ups and downs of the handling charges debate, where things have not gone well in Europe, while Martin Robinson reported on the CAA's proposed scale of charges, the consultation for which had finished the day before the meeting – more details elsewhere in these pages. ■



## Razor wire or common sense?

Bournemouth is edging closer to a workable solution to the security clampdown which has made GA operations out of the airport extremely difficult.

Security gates around the airfield were padlocked after a Department for Transport inspection found one gate had been propped open. The AOPA representative at Bournemouth, John Murray, reported to the AOPA Members Working Group that after a long campaign, the management had agreed that the padlocks could be removed, effectively re-imposing the security regime that existed before the lockdown, with the addition of a more formal system of airspace permits.

The DfT inspection found that an employee of one of the aviation companies on the airfield had stuck a traffic cone in a security gate to ease his multiple passages. In another case, someone – not necessarily a pilot – allowed an inspector to follow him through the gate. The reaction was swift and – it might be said – grossly disproportionate. All the gates, previously opened with a coded keypad, were padlocked.

The Bournemouth experience is worrying for all of GA because security requirements for all airfields that handle larger aircraft are strict, and are sufficiently flexible to allow some airports to make life really difficult.

John Murray told the AOPA Members Working Group that it had taken five



meetings and some 20 phone calls to begin to resolve the situation. He and AOPA member Roger Bell had met with local management, who had adopted most of their suggestions as the airport's position.

"This is an interim settlement which removes the padlocks and requires pilots to have an authorisation chit when they're airside," he said. "The key codes will also be changed fortnightly." He added that the airport management reserved their position that the DfT have still to approve the action, so the battle is not over.

Members remarked that similar problems had arisen at other airfields, but management seemed to have responded in a less draconian way. One such airfield was Biggin Hill; Biggin-based pilot Timothy Nathan said that while the situation there was similar, there were a number of differences. Aircraft owners had threatened to take their planes elsewhere if the

management carried requirements for criminal background checks and security courses too far.

"There are three kinds of space on the ground - landside, airside, and a more secure subdivision of airside called Critical Part (CP)," Nathan said. "While the DfT inspector had suggested that everything behind the security fence had to be CP, the airfield suggested that the requirement for CP is in fact very limited. They decided to place cones around every large aircraft that comes in and to designate that area as CP, so anyone who wants to go into that small area would need the CRB checks, the security courses etc."

"For the rest of us, we have to be able to identify ourselves when we're airside, we have to be responsible for our passengers and so forth – all the usual stuff, but nothing too onerous. Airside ID can be your passport, your driving licence, or your AOPA aircrew card. Biggin management has been very pragmatic about the whole thing."

John Murray said the Bournemouth problem has arisen when a new DfT inspector had called his boss to complain about the open gate. His boss had called the Managing Director of Manchester Airports Ltd, owners of Bournemouth, and threatened to have the airport closed down. In turn, the MD had then called Bournemouth management and read the riot act, which resulted in the disproportionate response.

Martin Robinson commented that



because of staff cuts at the DfT, experienced inspectors had been replaced by juniors whose sense of proportion was not as developed as it might be, and who applied the letter of the statute without regard to its spirit.

John Murray stressed the risks inherent in alienating pilots with pedantic security demands. "The solution is not barbed wire, barriers and patrols, and relying on

them is a big mistake," he said. "They have to co-opt pilots as part of the solution and therefore the security apparatus.

"What's needed is a national security standard which is proportionate, which is not whimsical, and which has the support of all pilots."

AOPA members John and Roger have now received a response from the Minister for Transport, Simon Burns who points out

that the CP of the airfield applies only to aircraft over 10 tonnes and to CAT, neither of which apply in this case. "The airport management is engaging very positively right now but has pointed out that the Minister got some of the regulations wrong! Back to the drawing board. More meetings to come. We will continue to follow this case as it has implications in many other places," said John Murray. ■

# Transition altitude harmonisation

By Nick Wilcock

As many of you will know, moves are afoot to harmonise the plethora of different Transition Altitudes currently in effect, not only in the UK but also across the whole of Euroland. The main reasons for such harmonisation are more effective use of airspace and greater availability of uninterrupted climb profiles for commercial air transport. On behalf of AOPA, I recently visited Swanwick to attend a NATS workshop on the topic, which was of much greater interest than my typically jaundiced ex-military views of what we used to call the 'Flying Prevention Branch' had initially led me to suspect. NATS gave an excellent presentation and were highly

receptive to the concerns expressed both by AOPA and by a colleague from PPL/IR.

## AOPA concerns

There were basically two distinct areas of concern which I presented to NATS. One concerned pilots flying outside controlled airspace being able to ensure that they were clear of the base of any altitude- (rather than Flight Level-) defined Controlled Airspace (CAS) and the other concerned the effect upon IFR touring pilots flying in the airway structure below the transition altitude.

**Airspace avoidance** In order to avoid the base of any CAS defined by altitude, you obviously need to be flying on the same altimeter setting outside

CAS as is in use inside CAS. Many people flying outside CAS use Regional Pressure Setting (RPS) or, if crossing several altimeter setting regions, the lowest forecast RPS they are likely to encounter. Others use 1013 milli... err, sorry, hectopascals or even the local aerodrome QNH. However, if an airway is defined using the local QNH and you are flying underneath using lowest RPS, you might well be rather closer to the base of CAS than you realise, particularly if there's a significant pressure gradient near your route. So one factor in the TA harmonisation debate is which altimeter datum to use – and how would it be made available to any pilot at any time in any part of



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<i>Lebanon, Jordan and Israel Flying Safari</i>	<i>4-20 October</i>
<i>Algerian Flying Expedition</i>	<i>7-16 November</i>

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the UK? At Swanwick, the Met Office representative advised us that RPS is in fact slightly tweaked to ensure safe terrain avoidance at any part of an ASR, whereas QNH is an 'actual' value which can be several mill... hectopascals different.

**IFR cruising** Unlike the Gucci environment of an airline people-tube flight deck, a GA IFR cockpit can be quite a busy place. Probably operated single pilot, with manually tuned nav aids and perhaps an autopilot of significant vintage without the functionality or redundancy of something fitted by Airbus or Boeing. Additionally, light twins can be rather noisy beasts inside,

exacerbating radiotelephony issues, so the workload involved in lower level GA airways flying is probably rather greater than it is for those sipping Earl Grey whilst watching the autoflight system flying their airliner in the upper airspace. If the low level airway is defined by traditional RPS, every time the pilot crosses an ASR boundary he or she is going to be faced with an altimeter setting change, readback and possibly a frequency change if the boundary includes a new Air Traffic sector. Frequent adjustment to the revised altitude and disturbing engine settings which have been precisely set up in the cruise would be irksome enough, but listening to every other pilot doing the same thing would also increase the general level of ear-battering radio traffic – and every change is a potential source of error. So the message I gave to NATS was that a large number of small ASRs in the airway structure would be far less acceptable than fewer, but larger areas.

**Transition Layer**

NATS pointed out that TA itself is not the real issue, the problem is actually more to do with the vertical siting of the Transition Layer. Those of you who recall a little of Aviation Law, Flight Rules and Procedures which you lovingly studied for your PPL will recall that this is the chunk of 'dead' airspace between altitude-defined and Standard Pressure Setting-defined levels,

whose thickness is never constant and within which it would be impossible to cruise safely, given that no altimeter setting datum would be available. So, an inappropriately defined TA would lead to the loss of cruising levels; in addition, a TA defined at lower levels would seriously impinge upon the scenic tours of the home counties enjoyed by Heathrow



**Above: controllers at work, with a supervisor double-checking over their shoulders**

inbounds as they while away their time and fuel in various holding patterns. You obviously cannot have some aircraft holding at Flight Levels and others at altitudes in the same busy hold.

**Optimum TA**

In theory, there are few limitations governing the optimum altitude to choose for the TA. Earlier requirements were concerned more with terrain avoidance than efficient use of airspace and are perhaps less relevant in today's environment. But in practice, deciding which altitude should be used is far from simple:

**6000ft?** Much of the UK's airspace now has a 6,000ft TA. However, although this would suit many GA pilots, it has a significant impact upon London holding areas, SIDs and STARs, so is probably too low for the efficient continuous climb profiles sought by the airlines.

**10,000ft?** Many airlines would find 10,000ft convenient as, in addition to facilitating better climb profiles for them, it is also a point at which certain standard flight deck procedures and climb/descent speed changes occur. Hence it would also be a useful occasion at which to change altimeter settings. But that's rather a weak reason

and the main problem of a 10,000ft TA would be the loss of cruising levels at around 10,000ft due to the associated Transition Layer. Such cruising levels are highly attractive to unpressurised GA aircraft without oxygen systems, whose pilots would otherwise be forced to fly at lower levels.

**18,000ft?** Those who think that the US knows best will no doubt advocate 18,000ft as the best TA. But, much as 10,000ft would lose attractive cruising levels for unpressurised GA, 18,000ft would lose cruising levels in popular use within the UK for short distance airline flights. The US decided on 18,000ft many years

ago, probably back 'in the day' when Ernie Gann was 'flying the mails' with some pretty basic altimeters and often fairly close to mountainous terrain. Safe terrain separation was clearly vital when all sources of altimeter error were taken into account; however, nowadays 18,000ft is more of a historical consequence and some consider that, given the chance to think again, the US might actually choose another Transition Altitude. In addition, the recent Eurocontrol survey found that there was less support for a harmonised 18000ft TA in Europe than there was for retaining the status quo.

**NATS-preferred TA?** NATS has conducted considerable research into this topic and has identified an optimum TA which satisfies pretty well all GA and airline concerns. However, for the moment their recommendation must remain *sub rosa*. Unfortunately, I consider it highly probable that political eco-greenwash might well be brought to bear on NATS valuable research, which would be a great pity.

**Altimeter Setting Areas**

In addition to the 20 UK ASRs, there are a further 18 areas with QNH-defined altimeter setting requirements. As I've already indicated, frequent altimeter subscale and associated cruising level changes increase both cockpit workload and the potential for error, so it is essential that simpler methods are evolved. The



Met Office has a considerable store of statistical data and is now considering the maximum size of any potential altimeter setting area given the likelihood of a maximum acceptable pressure gradient of 4-5 hectopascals within the area. 'Amended' lowest forecast QNH values applicable to such areas would be relatively simple for the Met Office to provide to NATS, which could replace the current plethora of RPS values. But there are other matters to consider. For example, when should a pilot change from aerodrome QNH to this 'area' altimeter setting? One school of thought suggests at the ATZ boundary or upon completion of the noise abatement procedure, whichever the later. But would safe separation still be afforded to IFR traffic inbound on the approach using aerodrome QNH and departing traffic using 'area' altimeter setting. It really is quite a complicated matter for NATS to consider, particularly in parts of the UK with a number of aerodromes in close proximity to the airway structure, which also has significant cost implications when SID/STAR procedure design is added to the mix.

## Conclusion

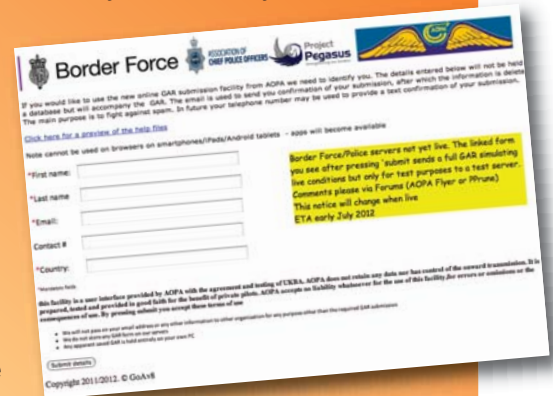
Agreeing upon a single harmonised Transition Altitude across the UK and Europe is far from straightforward. NATS was very grateful to receive GA input both from AOPA and PPL/IR and work continues to refine harmonisation proposals further, bearing in mind specification constraints of cockpit workload, SID/STAR procedure design, NATS-preferred TA and maximum acceptable altimeter setting area dimensions. For the vast majority of AOPA members, life should actually become easier when the final decision is made. NATS are to be thanked for affording both AOPA and PPL/IR the opportunity to provide them with the GA viewpoint and I consider that our comments were well received and fully understood. ■

# Online GAR soldiers on

The last time we reported on AOPA's project with Border Force to introduce an online GAR system, we sadly had to say it was being mothballed by the Home Office.

Before the summer it was almost ready to go live, then the Olympics came along. The promised resumption of the project in October did not materialise because, as we

understand it, a ground-up review by the Home Office raised some legal questions. We are happy to report that Border Force has recently organised a meeting to discuss a resumption of efforts. We are asked to say that Home Office actions notwithstanding, Border Force itself is a great supporter of the project and praises AOPA highly for their contribution so far. Senior Border Agency officials are very keen to promote a 'community' based approach to security, building on the cooperation of pilots and they promise to examine all possibilities for resuming this year. The first resumption meeting is taking place in January and we hope to have something more concrete for the next edition of this magazine.



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# Ice cold in Bodmin



*In a 'hard-core challenge for a PPL' Pat Malone and friends cross the Sahara in a Robin in the footsteps of Saint-Exupéry*

Flight level 065 somewhere over southern Algeria and we've been out of contact for an hour and a half. We transmitted our 'ops normal' call blind on the hour as requested, and heaven only knows whether anyone heard it. Down below the terrain looks less inviting than the mountains of the moon; on the off-chance that we survived a forced landing we'd be out of the frying pan and into the fire.

Then, a human voice... Virgin 652 Whisky attempting to raise Algiers. He's not having much luck, and he's at FL400. Eventually it's clear he's got through and we ask him to relay our position. He's on his way to Heathrow, and he's amused to hear there's a Robin DR400 out of Bodmin pattering away in this misbegotten corner of nowhere; he knows Cornwall, his parents live in Falmouth. "There's always a

cloud over Bodmin," he says.

"That's why we're down here," says Terry. We invited him to drop into the clubhouse, and we'd buy him a beer – *Ice Cold in Bodmin*. We will, too.

No words, and no pictures, can do justice to the Sahara. It is beyond vast, and whatever hell you subscribe to can't compete. You can fly all day in a straight line without seeing a living thing moving on the surface of the earth – only scorching rocks, oceans of sand whipped into sinuous calligraphy, and nameless ranges of tortured cinder mountains in an oven-haze that stretches for ten and twenty horizons. Shrunk in our minds by Mercator, the Sahara was just one more territory to cross until we experienced its stupefying immensity. Hour after hour we were remote from the rest of the human race, and even with our survival rations,

our water, our PLBs, our hand-helds and our satphones, we knew that landing on what lay below didn't bear thinking about. As we crossed the border into Niger we put 'direct to' Bodmin in the Garmin and got 2,200nm, and we realised that even when we were halfway home, we would still be in the Sahara.

Crossing the Sahara in a Robin is a pretty hard-core challenge for a PPL. I'm glad I did it and I don't think I'll ever experience anything like it again. As a young man I read *Wind, Sand and Stars* and flew vicariously with Saint-Exupéry and Jean Mermoz, but against the romance must be set the reality of modern Africa. On the one hand, the magenta line has supplanted the magnetic pole to give much peace of mind. On the other, the Foreign Office advises against all but essential travel to Algeria, with precise and





Michael Wingenroth and Maltese Martin Agius in their Cirrus SR22, and German Helmut Polzer in the most fantastical, idiosyncratic aircraft ever to have sailed the Sahara, a Soloy-conversion turbine Cessna 206 on floats! Then there was us – Bodmin Over-60s Club, Terry Earl, Keith Hayley and me in G-HXTD, a DR400 loaded like a Mexican donkey. Terry, our get-out-of-jail card with his 10,000 hours on Shackletons, Nimrods and BAC 1-11s and 5,000 hours more instructing on GA types, sat in the right seat while Keith and I took turn about in the left.

You couldn't do this on your own. Apart from the mutual support factor of going with a gang, the provision of avgas, the arranging of permissions, the wearing down of bureaucrats calls for a mob-handed approach. All arrangements were made by Sam Rutherford of prepare2go.com and his team, wife Bea, photographer Damian Wilson and fixer Jonny Mutch. Sam needs no introduction to readers of *General Aviation*; Jonny flies a Dauphin off a well-known Russian's yacht and he is quite the most organised, proactive and unflappable pilot. With Sam and Jonny on the job, no police state is uncrackable.

## Into Africa

Africa lies just 160 nm from Alicante, and thither we bent our tread on a foul morning with Keith flying TD not above 700 feet to stay VFR while the Cirrus and Malibu filed IFR and went over the top. In the Cirrus, Michael switched to Oran Tower for the approach – but he didn't push the button, did he, so he's still on the company frequency. Sam, with William in the R44, is on him like a flash. In his best Algerian accent he instructs: "November 211 Sierra Echo, fly ILS upside down please."

Consternation in the Cirrus. "You mean... fly a back course?" says a small voice.

"No, upside down please. Fly ILS upside down."

It took Michael a while to twig, the other aircraft rocking dangerously with mirth. It set the tone for the next ten days, just as our arrival in Oran set the tone for our landings everywhere. They hadn't the first clue what to do with VFR traffic. William called from the R44:

"November Yankee, approaching the perimeter, request cross."

"November Yankee, clear ILS approach 25."

"Don't want that," says William. "Just cross the active."



specific warnings about all the places we intended to visit. As to Niger, they just give a list of recent mass kidnappings and murders and say don't go, full stop. They do, however, tend to err on the side of caution; good planning and common sense go a long way. In the event, the worst that happened was that Terry's wallet vanished in the camel market in Agadez; he'll drink on that one for a while.

Getting to Africa VFR during a northern European November was no easy task, but apart from mild icing and a battering from some serious turbulence off the Pyrenees we got off lightly. We met our fellow travellers in Alicante – Steven Day and Rick Wray in Steven's Malibu G-GREY, William Cortazzi in his much-travelled R44 G-DKNY, Greg Bielowski from Poland and his lady companion Jagna in their new glass-panel Cessna 182, Anglo-German

**Above left: A thousand miles from nowhere, TD takes on the empty and desolate Sahara**  
**Above: Some of the aircraft on the ground in Oran, waiting for fuel and formalities**  
**Below: Halfway across the Med, William's R44 gets down low out of the weather**



"November Yankee, say your position and altitude."

"Under your nose, five feet."

Somehow it all worked out and we lined up on the apron for fuel. Out came the douanes, the gendarmes, the state police, the military, the airport authorities, the people with no uniforms whom everyone obeys, the refuellers with two giant trucks and a small avgas bowser. In the midst of all this technology and manpower, one elderly Algerian was put to work with a hand pump to fill the aircraft. He refused offers of assistance. It took almost four hours to complete the 'formalities' of entering Algeria, and we took a bus downtown through the world's most anarchic traffic to the best hotel in Oran.

Next day, Sam ran into bureaucratic obstacles filing the flight plans and we spent two hours waiting on the apron – this



**Left: The beginning of the sand seas – dunes reached hundreds of feet high**  
**Above: You are here – Terry and Keith study a painted wall chart in Timimoun**  
**Below: Desert hardships – Jonny at breakfast overlooking the lake bed in Timimoun**  
**Bottom: Greg and William flew into Timimoun in a sandstorm that spoiled our desert picnic**

after we'd been searched, X-rayed and documented at three different airport entrances. Keith had his hand-held radio confiscated, but he got it back when he was able to show that the CAA stipulated that a hand-held be carried, this injunction being clearly stated in the manual in biro beside an official CAA stamp. Strange – I didn't remember reading it before. The target was Timimoun, 400 miles south in a straight line but a lot further if you avoided the many surface-to-outer space danger areas. We set off flying east and ran into heavy rain and low clouds in the Atlas Mountains. TD's oil temperature was worryingly high, even though the OAT was low compared to what we were going to face. I reduced the climb rate and eventually it fell back, and in fact we had no further complaint from it. But it started me worrying about oil – temperature and quantity – and I didn't stop until we were back in France. Waste of a good worry,

really. Beyond the Atlas we hit a headwind that was significantly worse than forecast. We could make Timimoun, but the R44 couldn't, so William turned back to Oran. South of the mountains the terrain got more and more arid, the geology more tortured and slashed, then near the BAY VOR the Grand Erg Occidental began, the sand seas with endless dunes in scores of shades of gold and pink and ochre stretching from one horizon to the other. We discussed dealing with engine failure and decided to treat it like a ditching – flare and flare almost to the stall, and hope for the best.

Timimoun lies in the 'Triangle of Fire', an area bounded by three towns which proudly claim to have the highest average temperatures in the world. Like all the desert airstrips we went into, the runway is massive and well-paved. Oil exploration and military requirements have given Algeria a good ground infrastructure. In the







air, it's not so good. We were 'negative HF' so we were out of contact most of the time. Tower controllers, oddly enough, tended to have better English than area controllers – even when the area people could hear us, the meaning was often lost.

I had been conscious that TD seemed to be weaving slightly on take-off and landing – it wasn't just me, Keith felt the same at Perpignan. I thought that perhaps the way we were loaded, while within the C of G envelope, was unloading the nosewheel. In the Robin, the nose oleo disconnects from the rudder pedals when the weight comes off it, and I figured that perhaps it wasn't quite reconnecting when we got on the ground. At Timimoun I gently pushed the stick forward once the nosewheel was on the tarmac, and while it felt unnatural, it did the job. On take-off, keeping the stick slightly forward until she was almost ready to fly solved the problem.

We refuelled from battered barrels of avgas using a hand-pump and a filth-filter.

We weren't very good at this; rather than a slick replenishment operation it looked a bit like *M Hulot's Holiday*, with ten people advising and two pumping. We got better at it later. Our passports were taken and we had many forms to fill in, but the biggest delay was in mustering a military escort for us – the Algerians insisted we go nowhere in Timimoun on our own, and two 4x4s full of heavily armed uniforms followed us everywhere. Next day we potted about in the desert, which gave William and Greg, who'd been delayed in Majorca by an alternator problem, a chance to catch up. William, beset by fuel issues, may not have followed his dog-legged flight plan precisely – at Oran, Greg was called into the tower and asked to sign a form absolving ATC from the consequences if he infringed the danger areas, a document hereinafter known as the 'Cortazzi Waiver'. Both aircraft arrived in Timimoun in a dust-storm, which we didn't allow to spoil our desert picnic.



**Top: Michael and Martin's Cirrus, not about to attempt an upside-down ILS**  
**This photo: Greg brings his glass-panel 182 alongside for a photo-shoot over Tamanrasset**  
**Below: Helmut's floatplane, the most incongruous aircraft ever to sail the Sahara**  
**Right: William formates on the Robin over the vast, flat emptiness south of In Salah**



Sam, arriving with William, helped Jonny take the cover off the Robin because sand blown underneath the fabric would be ground into the Perspex by the flapping of the material. For the rest of the trip, we put the cover on inside the aircraft.

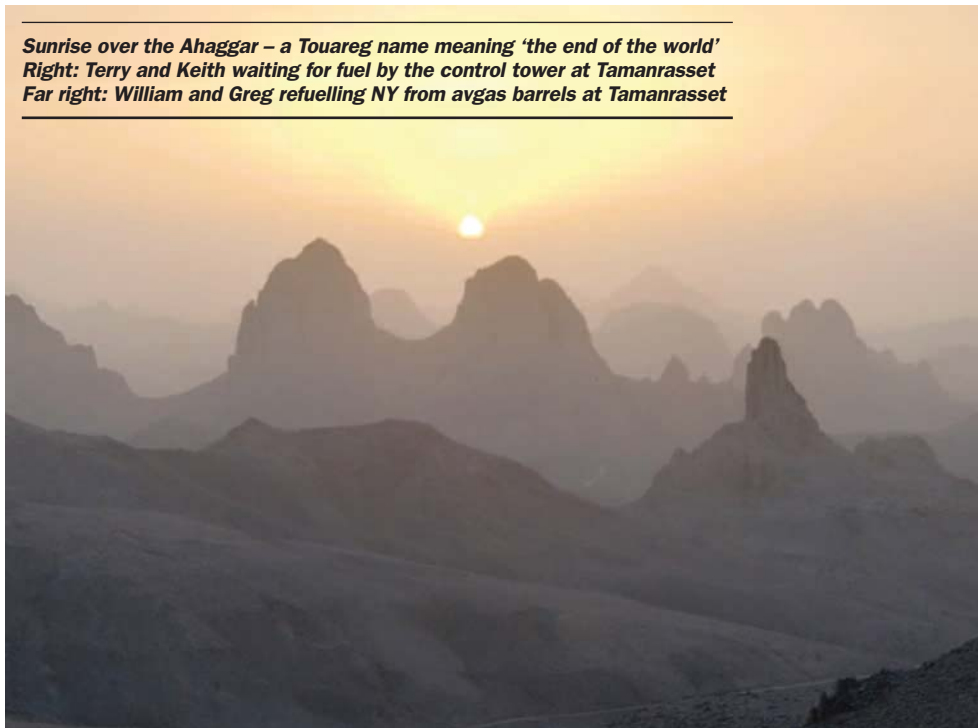
Next day we headed for Tamanrasset, with a fuel stop at In Salah. This far north you could still see vehicle tracks in the desert, and rows of equidistant holes where seismic surveyors had set off their explosives, but soon that all petered out and there was nothing but rock, sand, haze and hills looking like the rakings from a blast furnace. Here, the French set off their first nuclear bomb in the early 1960s... would anyone have noticed? Keith had bought a Zaon anti-collision box from Transair before we left, and it was very useful for homing in on the other aircraft to take pictures and say hello. At In Salah the Malibu had a technical problem (see sidebar) so we left them to die in the desert and pressed on to Tamanrasset, crossing the Tropic of Cancer to find

another massive, well-made runway with lots of policemen, soldiers and officials whose attitude may be summed up as: 'Welcome to Algeria – now go home.' Here we saw some of the Algerian Air Force's assets – an Il-76, a C-130, several Mil Mi-8s and a Single Squirrel. We spent an other-worldly night in a stone hut 9,000 feet up in the remote Ahaggar mountains, at a place called Assekrem – which means 'end of the world' in the Touareg language – before pressing on next day to Agadez in Niger, four hours beyond the end of the world.

### South into Niger

Nothing marks the border between Algeria and Niger but a colonialist's pen; sand and stones burn on unmolested by mankind or by time, and the sudden appearance of a gnarled tree gives aviators cause for comment. This is where Mark Thatcher famously got lost in 1982. It took them six days to find him, and he was the Prime Minister's son, worthy of a vast military

**Sunrise over the Ahaggar – a Touareg name meaning 'the end of the world'**  
**Right: Terry and Keith waiting for fuel by the control tower at Tamanrasset**  
**Far right: William and Greg refuelling NY from avgas barrels at Tamanrasset**



## The African solution

*Stranded in the Sahara, Richard Wray finds a man who can fix a Malibu with a reel of cotton thread*

There are very few reasons to visit In Salah and even fewer to stay there, unless you happen to be working in one of the numerous oil fields that pepper the barren landscape surrounding this characterless central Algerian town. It was supposed to be a quick refuelling stop on the way to Tamanrasset and the beautiful Ahaggar mountains. However, for our PA-46 it nearly marked the abrupt end of the trip.

The trouble started when the tower at In Salah airport attempted to land another aircraft on top of us as we were backtracking to the terminal. Having slammed on the brakes, we hoped to quickly refuel and get out. But during the pre-take off walk-round, it became clear that our emergency stop had caused damage and our right wheel was leaking brake fluid – the one thing we hadn't brought with us. As the rest of the party landed and refuelled it was obvious we weren't going anywhere until

we'd fixed it. Attaching a make-shift fluid collector made from a water bottle, some first aid bandage tape and an old T-shirt to keep the Saharan sand out, we went in search of a mechanic (followed – as always in Algeria – by the police, not for any discernible reason, just because they had nothing better to do). The garage adjacent to the airport was staffed by an elderly tractor mechanic whose single working arm didn't fill us with confidence; neither did the fact that one of our police entourage whispered that he was 'not good mechanic'. When the first thing he did was spill all the fluid we had carefully collected onto the tarmac we politely suggested he should go back to his tractors. We retired to the control tower, partly to get out of the heat of the mid-day sun, but mostly to see whether any of the staff might be able to help.

Getting anything done in Africa relies on perseverance, patience and a bit of luck.

Whatever you're after, any conversation with anyone even faintly official will include the promise of help, reassurances that whatever you're after is being done already and most likely the revelation that the person you are speaking to knows someone who knows the person you must contact to do whatever it is you need done. But everything you are told is remarkably thin on detail. We were told there was a mechanic in town, perhaps even an aviation mechanic, possibly connected with the military, and that there was brake fluid at the airport, only for it to emerge that the mechanic might be a car mechanic and might not be in town at all. The brake fluid did turn up, but it was suitable only for jet aircraft and too corrosive for G-GREY. The airport did, however, have wi-fi internet access, which explained why it seemed to be so well staffed despite the fact that it only received one scheduled flight per week. So we set ourselves the task of contacting all the people who had said they would help every 30 minutes for a status update. During one of these chats one of the airport officials mentioned the expected arrival of an Algerian Air Force plane the following morning. It might have an engineer on board. Never mind that, we asked, what kind of plane will it be? A C-130, came the reply. A quick scan of the internet proved



**Left: In Salah – the middle of nowhere, and no Malibu mechanic for a thousand miles**

**Right: G-GREY on the apron at In Salah, hydraulic fluid weeping from a damaged brake**  
**Middle right: G-GREY's crew Steven Day and Rick Wray refuel their aircraft the hard way**  
**Far right: Airborne again – Malibu offers comfort and speed, as long as the hydraulics work**







that C-130s take the same brake fluid as our plane. All we'd have to do is persuade the Algerian Air Force to give military supplies to two British flyers, with no visas, transiting to northern Niger. Easy. As for the mechanic, our 30 minute rota paid off and we were relatively certain that the next morning a car mechanic, a friend of one of the trip's fixers who was in Tamanrasset, would be with us.

That just left us stranded for the night. It turns out there is a hotel in In Salah. It's government-run and has all the character and friendliness you'd expect from a government institution. It did, however, have a bar that sold beer.

Being unsure exactly what time either our mechanic or the C-130 would be at the airport, we arrived next morning just after dawn. Already waiting was an Algerian Air Force pilot called Pierre who was fascinated – and not a little surprised – by our trip and offered to help secure the necessary brake fluid. Mid-morning the mechanic arrived, but without his tools. To our horror we discovered that a vital adjustable spanner was missing from our own tool kit, so we tried the only other people at the airfield – the fire crew. They'd been quietly watching our struggle from the comfort of their hangar at the side of the tarmac and were surprised

**Right: TD on finals for In Salah, with which G-GREY was to become over-familiar**

that we'd not come to them for help before. They offered us the use of their spanner set – and endless cups of green tea – and the mechanic set to work. The trouble, it transpired, was not just the large quantity of sand that seemed to have got into the brake calipers but the O-ring around the piston, which was far from a perfect fit and was causing the leak. The mechanic warned us that there was no replacement within a thousand miles, but he had an idea. He wound a single layer of cotton thread along the groove in the piston and popped the ring back into place. Then it was just a matter of forcing it back into the housing and replacing the brake on the wheel. The leak was cured; all we needed now was new fluid.

By this time the airport was filling up with army personnel, and we watched alongside them as the C-130 came in to land. Pierre beckoned us to follow him onto the tarmac as the plane taxied to a halt and the rear door descended. As the plane disgorged its cargo of army cadets – to be replaced on rotation with those from the airport – we met the onboard engineer. Using Pierre to translate, we made our plea. The engineer vanished into the hold for several tense minutes before emerging with two tins of Algerian Air Force brake fluid. Before he could hand them over, however, he explained that he would have to clear it with the pilot, whom he went to fetch. That was it, we reckoned – either there would be



endless paperwork that we'd never be able to complete or we'd get a straight 'no'. While we pondered our fate in the desert, we heard a hearty 'hello' from the side of the plane. It was the pilot, in his regulation green flying suit, who proceeded to tell us in perfect English that he had trained just outside Oxford and regularly flew his C-130 at the Farnborough Air Show. Of course we could have the fluid, he added. We could not believe our luck.

Bidding a very fond farewell to the C-130 as it took off again, we reprimed our brakes, and feeling very glad to see the back of In Salah we took off, straight into 9000ft of fierce Saharan sandstorm. But that's another story.







up, a brown strip in a brown land. Tower gave us 34 degrees, dewpoint minus one. "No problem with fog then," said Terry... most unlike Bodmin. We landed after 3hr 25min with three quarters of an hour's fuel in hand. Now we had officially crossed the Sahara and were in the Sahel; there remained the minor issue of getting back again. Two Antonov An-2s, abandoned Bulgarian crop-sprayers, sat by the apron, the upside down one housing a machine-gun post. The reception was very different from Algeria – laid back, relaxed, friendly... show us your passport and sign this form, job done. We tied down TD and Sam's local fixer Ibrahim drove us to our hotel. Beyond the uranium mines, Niger has little income and it is one of the poorest countries on earth. The streets of Agadez are dust, the houses baked mud and the people desperate. Humanity debased like this is a condemnation of us all, and the notion that 'charity begins at home' is a

manhunt. What would our chances be, I wondered? Then abruptly one comes across the enormous uranium mines of Arlit – like in the science fiction films, where aerial shots of the desert track to a glass-domed city of unnerving incongruity. The workings stretch out to the horizon, the bright pile of yellowcake ore, the huge settling ponds the first hint of water in 500

miles, and beside it the town of Arlit, owing its existence to the mines. Here, seven Frenchmen were kidnapped last year by Al Qaeda – two were beheaded and five are still missing. We debated whether, if the engine failed, we should aim for the track from Arlit to Agadez, or as far away from it as possible.

Agadez airport was quite hard to pick



*Above: Uranium mine at Arlit under TD's wing – note the pile of yellowcake ore  
This photo: Defunct An-2s at Agadez – the upside down one housed a machine gun post  
Right: Jonny shows delighted children their photographs in the streets of Agadez*



fatuous cop-out. Last year, the British government stopped bilateral aid to Niger as a cost-saving measure. Apart from an uplift of highly-priced avgas, our contribution to the GDP of Niger included the contents of Terry's wallet, lost or expertly lifted in the camel market. Agadez is noted for its pyramid-like mud-brick mosque – an unremarkable structure in other circumstances, but the tallest building for a thousand miles. We stayed at an oasis run by a French lady called Celine whose husband, a Touareg, is a pilot. He was in France completing his instructor rating and intends to ship two Savannah microlights to Agadez. Here, the Malibu rejoined us with its hydraulics fixed, African-style. We had a day to see



*Keith eyes up the talent in the camel market in Agadez, Niger*



the town, then took off for Djanet in the relative cool of the morning.

If anything, the terrain in the Air Mountains north-east of Agadez was even worse than what had gone before; no sign of track or living thing, just St-Ex's 'eternity of mirages and salt lakes'. William landed to refuel the R44 and we circled over him – he looked like the Mars Rover, a tiny dot on another world. Four hours took us back into Algeria, to Djanet near the Libyan border. Here, Gadaffi's hordes had come through after the revolution in heavily armoured convoys, en route to Mali, and the Algerians had prudently stood off 100km and let them pass. The tower controller's English was excellent; he was from the north, young in his career, sent to this outpost for a five-year stretch. The police captain, who can't have had anything to do since the Libyans came through, gave us a hard time, interrogating everyone individually in his office, asking



**Above: land on that, then. Uninviting Saharan rock formations north of Djanet**

**Left: Keith and Terry refuelling – jerry cans measured fuel better than hand pumps**

**Right: you are now here – Sam and Jonny brief the crews at Wadi Whatnot camp**  
**Bottom: Pat, Terry and Keith dressed up as pilots – flying suits often impressed officials**



the same banal questions before locking up our passports and ceremonially issuing receipts. It took hours, and the ever-emollient, ever-deferential, ever-manipulative Sam and Jonny kept smiling. Finally we were allowed to leave in our fleet of 4x4s and we spent the next two days and nights deep in the desert, being driven at high speed across the sands by Touareg guides playing Tinariwen at full volume from flash drives, sleeping under the stars and storing up memories for the wistful years to come.

## Homeward bound

Getting out of Djanet was easier; we had learned the advantages of behaving like a herd of cats, some in the departure lounge, some in security, some on the tarmac, wandering hither and yon until in exasperation the police thought the best thing to do was to get rid of us. Keith flew TD north towards In Amenas over positively the worst forced-landing territory ever, a scorched landscape of contiguous, jagged rock pillars like tombstones in an overcrowded cemetery, offering absolutely no chance of survival. But the way home seemed less daunting than the way out; perhaps we'd become conditioned to the desert. At In Amenas – soon to become world-famous as the scene of a bloody Al Qaeda hostage-taking – we refuelled in

record time and pressed on for 3hr 20 mins to El Oued, once again over the sand seas of the Grand Erg, punctuated at long intervals by hard-won airstrips and skeletal oil derricks billowing flames and black smoke, looking like the aftermath of a forest fire. The usual mickey-mouse bureaucracy and a night in a government hotel in El Oued – think Soviet Union, circa 1970 – and we were on our way to Algiers, again at FL065 and out of contact until we were 10 miles short of the airport because the mountains almost reach the sea. Believe me, when Algiers airport looks like civilisation, you've been in the bush. Some elected to overnight in Algiers, others pressed on. We waited on the apron for the liferaft and lifejackets we'd offloaded in Oran to reach us – they finally came at the twelfth hour, leaving us 1hr 20mins to reach Ibiza, 150nm away, before dark. I did the checks on the run and was airborne within four minutes – 'get-home-itis' is a curse, but 'get-out-of-algeria-itis' is perfectly understandable.

Ibiza was fabulous – sensible officialdom, showers and soap, taps you could drink from – and we flew on next day to Newquay, nine hours of sometimes iffy weather and ironically, the most comprehensive and unnecessary customs turn-over at Bergerac. Like everyone else on the trip, I felt like I could sleep for a week. The journey

was sometimes frustrating, often stressful, always amazing, and enormous fun – even though I never wound up Michael and had nothing to do with burning down Martin's tent. After a lifetime of travelling the globe, it opened up new windows on the world and added a dimension to my life. Check out [www.prepare2go.com](http://www.prepare2go.com) – maybe there's something there that will do the same for you. ■







# Goodbye to 'irreplaceable' Filton

By Peter R March, photos PRM Aviation

The cradle of British aviation development and manufacturing for more than a century and one of the last surviving truly historic UK airfields, Filton was closed to flying on 21 December 2012. BAE Systems (BAES), whose predecessor British Aerospace acquired the 350-acre site from the Government for a nominal sum (believed

to be £1) in 1977, is reported to have sold it to property developer Bridgehouse Capital for £120 million. BAES announced the closure in April 2011, stating that the airfield was losing £3 million a year and was no longer viable. There was little hope that significant opposition to the shut-down would be successful after the local council revealed that the site had been

earmarked for 'housing and employment use' in the area plan, thereby hugely increasing its sale value to BAES.

During the week before Christmas Filton invited pilots to fly in for the last time. On Tuesday 18 December Airbus flew in an A380 airliner to mark the end of its flying activities at the airfield. The company is continuing its wing design and

**Left: this Cessna Citation was the last fixed wing departure from Filton**  
**Below: on 18th December an Airbus A380 flew in to Filton for the last time**  
**Bottom: on the same day Spitfire RR232 made its first post restoration flight**



# Boxkite to Concorde - and a Spitfire



The first landing at Filton was made by Maurice Tabuteau on 1 April 1911. He touched down in a Boxkite near to the former tram sheds at the top of Filton Hill where it had been constructed. He had flown from Larkhill, where the British & Colonial Aeroplane Company took its aircraft to test and had a flying school. The first recorded departure from Filton was by Tabuteau on 17 April 1911 when he flew a Boxkite to Badminton Park.

The airfield proper, on the flat land at the foot of Filton Hill adjacent to the A38 road, was established in 1915. New aircraft were towed down the A38 from the factory to be flown. The Royal Flying Corps moved in the following year, building two large hangars - a Royal Engineers designed RFC Standard hangar and a triple-bay wooden Belfast Truss hangar - on the north side of the airfield. Both of these Grade II listed buildings remain today and will



**Left: listed hangars Belfast Truss left; RE Standard right**  
**Above: Boxkite replica after rebuild at Filton**  
**Below: Bristol M1C replica**



provide part of the planned Bristol Aerospace Centre that will accommodate the last Concorde to fly and the Bristol Aero Collection Trust's aircraft, engines and artefacts currently stored at Filton.

Aircraft production at Filton during WWI





**Left: Peter March's former Filton resident Cessna 172E G-ASSS was the last piston-engined aircraft to take-off**

development at the site, alongside manufacturing by GKN and MBDA south of the airfield and Rolls-Royce at Patchway. Shortly after the Airbus A380 took-off for a local flight there was a quite different sound as Bill Perrins took Spitfire HF IXC RR232 into the air for the first time for nearly 60 years. It had reached the end of a ten-year restoration by owner Martin Phillips and was completed by John Hart at Filton just three-days before the airfield closed. "It is rather ironic that the last aircraft to make its first flight after a ground up rebuild is a Spitfire", John commented as it taxied in.

The final morning, Friday 21 December saw 20 or so light aircraft at Filton, including a vintage DH Hornet Moth. The Filton-based Western Counties Police EC135 and Great Western Air Ambulance Bolkow 105 helicopters continued their activities as they will for the foreseeable future. At 11.30am the last fixed-wing landing was made by James Turner in

Executive Aviation Service's Citation G-CGEI. This was followed by a stream departure of the visiting aircraft, with former Filton resident Cessna 172E G-ASSS making the last piston-engined aircraft take-off. This left Peter Turner, who has probably made more flights in and out of Filton over the past 50 years than any other current pilot, to make the last take-off from Filton in the EAS Citation shortly after midday. The local newspaper, under the headline 'Emotional final take-off', reported that 'after taking off into the low winter sun, the pilot turned the jet and gave the grand old airfield one final salute with a flypast before banking and climbing away.'

In his parting radio message to Leo Marriott, Filton's SATCO, Peter Turner summed up the feelings of many people: "Goodbye Filton. You've served us well for over 100 years. You gave us the birthplace of the Bristol Aeroplane Company, the flying ground for Bristol aircraft from Boxkite to Concorde; the test field for Bristol and Rolls-Royce engines; home for the Royal Flying Corps and Royal Air Force through and after two world wars. The people of Bristol and the West Country, industry, commerce, aviation, transport and recreation will all be much poorer without you. An irreplaceable airfield is now lost." ■

## £232 to land SEP at 'monopoly' Bristol

Landing fees and handling charges at Bristol continue to cause concern at AOPA as with the closure of nearby Filton the airport now represents the only GA access to a large swathe of south-west England. An AOPA member who enquired about landing there in a Cirrus SR22 found he would be stuck with a bill which he described as "usurious". The total bill, including one night's parking, came to £232.00, comprising a £59 landing fee, £32.80 ATC fee including an instrument approach, £66.12 'handling', £25 weekend surcharge, £3.60 'police service', £17.00 24 hours parking, £16.40 passenger load supplement (the pilot was travelling with his wife) and a £12.08 'security levy'.

The member writes: "This is of great personal concern, as well as being another example of regional airports consciously driving out GA traffic. My daughter lives in Bristol and it has been convenient to visit by Cirrus SR22 into Filton. With the closure of Filton I enquired of Bristol Flying Centre the cost of flying to Bristol in future.

"£232 is considerably more than I have paid to fly in to Belgium's main airport at Zaventem, which is busier by several orders of magnitude. It is also substantially more than the cost of the fuel I would use for the journey, even at today's high avgas price. If the current charges are maintained it will shut out GA from the whole region when Filton closes."

AOPA believes Bristol's fees run counter to European law, which mandates handling but also makes provision for 'self-handling' in the case of GA. Chief Executive Martin Robinson says: "We are consulting with the European Commission and others in Brussels to ensure that the handling regulations are clarified. We are also talking to Bristol."

Bristol Airport has told AOPA's Charles Strasser that this year, handling of aircraft under 2 tonnes will be delegated to the Bristol and Wessex Flying Club, which is expected to lead to a reduction in fees to general aviation.



**Bristol F2B Fighter  
Below: Bristol Bulldog**

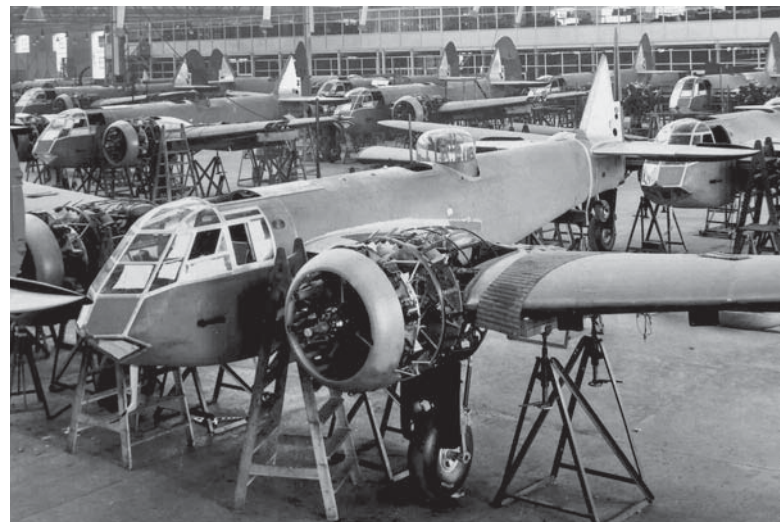


**Bristol Type 142 Britain First**

**Right: Blenheim I production line at Filton**

mainly comprised the RAF BE2, followed by Bristol Scout biplanes, M.1 monoplanes and the very successful F2B Fighter. After the war, the Bristol Aeroplane Company (BAC) diversified into aero-engine manufacture and built a wide range of not very successful aircraft, including the Pullman 14-seat triplane airliner and the Lucifer trainer that equipped the Bristol Flying School which opened at Filton in 1923.

No 501 (City of Bristol) Squadron, Auxiliary Air Force was established at the airfield in 1930 as a day bomber reserve squadron. It subsequently became No 501 (County of Gloucester) Squadron RAuxAF and in 1939 was equipped with Hurricanes before moving to France. In the meantime BAC had produced the Bulldog fighter for the RAF and the fast Type 142 Britain First for Lord Rothermere. The latter gave rise to the Blenheim twin-engined light bomber followed by the Beaufort and





Beaufighter, providing the production mainstay during WWII. In 1941 Filton received its first concrete runway, laid in an east-west direction. After the war this was extended (to 8,000ft) and widened (to 300ft), with the village of Charlton demolished in the process, to meet the perceived needs of the huge Brabazon airliner that was being built. A very large three-bay hangar (then named the Brabazon Hangar) was also constructed. The new airliner was flown for the first time on 4 September 1949 but scrapped four years later after less than 400 hours in the air. No 501 Squadron reformed at RAF Filton in April 1946 with Spitfire LF XVI, re-equipping with Vampires two years later. The squadron was disbanded in January 1957 along with all of the RAuxAF flying units. Bristol University Air Squadron was formed with Tiger Moths at Filton in November 1950. The biplanes were soon replaced by Chipmunks which in turn gave way to Bulldogs which were operated until the UAS moved temporarily to Hullavington in March 1992, and then Colerne.

The first British production helicopter appeared at Filton on 27 July 1947 when the prototype Bristol Type 171 Sycamore had its maiden flight. Five years later the twin Alvis Leonides-engined Bristol Type



**Above: Bristol Brabazon G-AGPW**  
**Below: Bristol Sycamore prototype**  
**Bottom: Bristol 173 in BEA markings**



**Above: Bristol Freighter swallows a Bristol car**  
**Below: Britannia first flight 16 August 1952**  
**Bottom: Bristol 188 XF926 now at Cosford**



173 was airborne for the first time on 3 January 1952. Best known for its use as an air ferry carrying cars and their passengers over short water crossings, the Bristol Freighter, in production at Filton for twelve years after the war, was mainly delivered to overseas military users. Meeting a BOAC specification for a medium/long-range turboprop airliner, the Bristol Proteus powered Type 175 Britannia, popularly known as the 'Whispering Giant', took to the air at Filton on 16 August 1952. Overtaken by the turbojet DH Comet and Boeing 707, only 85 Britannias were built, 55 of them at Filton.

A twin-engined, stainless steel, supersonic research aircraft, the Bristol Type 188, was the first Bristol turbojet aircraft to be built and the last true Bristol aeroplane. It was first flown at Filton on 14 April 1962, with a second aircraft following a year later. Another research aircraft, the BAC221, which was a conversion of the record-breaking Fairey Delta 2, took to the air on 1 May 1964. With a lengthened fuselage and slender re-shaped wing, the 221 was used to investigate the handling and control characteristics of the slender ogival wing, in support of the Concorde programme.

Concorde, the world's first and only (to date) supersonic airliner to enter full airline service, was the last entirely new aircraft to fly from Filton. Developed out of the

Bristol Type 223 in collaboration with Aerospatiale in France, the first BAC assembled prototype (002) G-BSST flew for the first time on 9 April 1969. It landed at Fairford, Glos where subsequent flight testing took place. Two pre-production Concorde followed the prototype into the air before seven aircraft were built at Filton and delivered to British Airways. The last of these, G-BOAF, had its maiden flight from Filton as G-BFKX on 20 April 1979. This aircraft also made the last ever Concorde flight when it was flown from Heathrow to Filton on 26 November 2003 for preservation by Airbus. A visitor centre, staffed by volunteers of the Bristol Aero Collection provided guided tours of the aircraft from August 2004 until it was closed in 2010. Concorde G-BOAF has since remained in open storage, awaiting the necessary funds for it to become the centrepiece of the projected Bristol Aerospace Centre.

While there were no all-new aircraft built after 1979, Filton airfield, owned by British Aerospace since 1977, continued to be busy with the overhaul of USAF F-111s, the conversion of VC-10 airliners to tankers for the RAF and more recently Airbus A300/310s as freighters. With Airbus wing, undercarriage and fuel systems design and manufacturing becoming increasingly important, there were regular visits to Filton by the Beluga super transport as well as the A380 and A400M.

On the north side of the airfield Rolls-Royce continued to base various types for engine development work at its Flight Test Centre. The company's Spitfire XIV and replacement Mk XIX were both maintained at Filton. After the company ceased flying operations at Filton and the land was acquired by the Royal Mail, John Hart the R-R engineer responsible continued with the maintenance and restoration of Spitfires, culminating in the maiden flight of Martin Phillips' totally rebuilt Spitfire IX RR232 on 18 December 2012 - positively the last first flight of a 'newly built' aircraft at Filton. ■



**Above: Concorde GBSST first flight**  
**Below: Concorde's last touchdown**  
**26 Nov 2003**





# Air racing – is this your year?

Sharpen your skills and take on a new challenge in air racing, suggests **Geoffrey Boot**



The Royal Aero Club Records Racing and Rally Association (RRR) is once again looking for race pilots, navigators and volunteers to join them in the 2013 air race season.

The concept is simple, although it's a bit daunting just pitching up to one of the eight race venues held throughout the UK, Europe and the Channel Isles. So the RRR is once again holding an air race school at North Weald on Saturday March 23rd to give pilots and navigators all the information they need to compete.

And almost any pilot, in almost any aircraft, can compete for and win historic prizes such as the Schneider Trophy. Air racing is run by the RRR on a handicapped basis, which means that any fixed wing propeller driven aircraft, home built or fully certified, capable of 100 mph in level flight, can enter and win. Pilots require no special qualification other than a pilot's licence and 100 hours P1, and must complete a check ride. Because it's handicapped, which in essence means that the slower aircraft take off first and the faster ones take off later, any general aviation aircraft can be competitive.

Attending the one day course at North

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**Above: handicapping ensures an exciting finish with several aircraft approaching the line simultaneously**

**Below: the slowest aircraft take off first, the rest following at speed-related intervals**

**Bottom: turning over a lighthouse – getting it right calls for planning and skill**

**Lower left: sharing the air with faster planes in close proximity calls for a good lookout**

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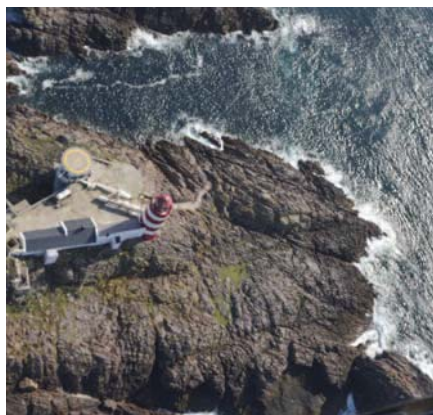
Weald gives potential new participants a feel for the racing scene, the excitement involved and also the technical requirements.

The course itself comprises a mixture of aspirational videos, background information on air racing and the organisation, pilot and navigational techniques, and for pilots, the opportunity to fly with an experienced race pilot to see what it's all about. For potential volunteers

such as marshals, timekeepers and judges, it's an exciting opportunity to see what being involved as ground crew entails.

Races are normally run over a closed 20 – 25 mile circuit of four or five laps. A typical race weekend comprises a practice session on the Saturday, a qualifying race in the afternoon and a championship race on the Sunday. Navigators are encouraged, but this is not navigating in the conventional sense of the word as closed circuit racing is more a matter of good lookout and ensuring straight lines between turnpoints.

There are some really historic and spectacular trophies up for grabs, handicapped air racing being one of the few sports where private pilots in normal general aviation aircraft can compete in a safe and regulated environment for the



King's Cup, Schneider Trophy, British and European Air Racing Championships and now the special Navigator's Trophy.

As with all sports, a lot of infrastructure is required, such as managing turnpoints, timekeeping, finish line judging, etc so the Royal Aero Club is always keen to engage with aviation enthusiasts willing to undertake these tasks for basic expenses, as well as encouraging new pilots and navigators in to the sport.

For more information and registration please look at the Royal Aero Club RRR's website [www.airraceuk.co.uk](http://www.airraceuk.co.uk) ■

# ‘Suddenly it all went quiet...’



**Robin Nash and his mate Roger set out for Ibiza in Robin's Nibbio; we pick them up in Spain, where things get decidedly dodgy**

Weather in Ibiza was looking good as we climbed to about 7,500 feet to get past the *Cumulus Granitus*. We sailed over the mountains, straight into the edge of a very big cell with solid rain, darkness and lightning. I had already briefed myself on a longer but lower level route round to the north and it seemed I now had little choice but to go for that, so I turned to a more northerly heading and tried to stay high. After a bit, I spotted a lighter patch, which was a gap in the rain, and turned towards it, emerging from the noise and turbulence after a few more minutes.

We'd been running on the back tank until the fuel pressure dropped and I switched to the left hand tank. I had earlier experienced an increase in resistance in the fuel selector when moving to the right hand wing tank – the last 15% of the movement had become stiffer than normal.

About ten minutes prior to leaving the Spanish mainland, I changed from the left wing tank (which was now about half full) to the right wing tank (which was about three quarters full) for the 50+ nm sea crossing and landing. The last part of the movement was again very stiff and I had to use a lot of pressure. It did not feel right.

The engine continued to behave normally with the usual fuel pressure showing. I was in touch with Ibiza and had the island in sight with about 25nm to run. They wanted me at 1,000' by the time I reached the island and I worked out that I should descend at 300 fpm from my current 7,000'. We were thus cruising down fat and happy at 166kts ground speed when suddenly, it all went quiet.

The fuel pressure disappeared and the exhaust gas temp went to nothing. Everything else was normal. Both wing tanks had plenty of fuel. The back tank was practically empty. I raised the nose to convert our speed to height and the engine picked up briefly (which, I later realised, should have given me a clue as to what had happened). I switched to the left tank anyway, but this had no effect. I called Ibiza and informed them that we had a fuel pressure problem and would be remaining at height until we could be sure of making the island. We had 14.7nm to run. Funny how precise numbers imprint themselves on your mind at times like these.

There was no panic, just a sense of disbelief. Roger, who had been quite talkative up till now, was conspicuously quiet. Changing tanks had not cured the problem. For some reason I thought our high speed and perhaps, excess air pressure in the tanks might have caused the problem, or maybe an airlock due to the relatively high altitude and temperature. All kinds of things go through your mind.

The oil pressure and temperatures were good. Now in level flight but with speed decaying, I considered the possibility of mechanical fuel pump failure. I switched on the electric pump and, lo and behold, still nothing. Maybe we really were going to get our feet wet. However, by fiddling with the fuel selector and putting it in odd places between the normal detents, we finally got a bit of fuel pressure – not normal and not consistent – but enough for the engine to run normally and deliver something like cruise power. I told Ibiza



**Top: coasting out above the cumulo-granite over Kalpe in Spain  
Right: the Nibbio on the ground at Shoreham prior to departure**





that I now had some fuel pressure and would continue towards Point November (San Antonio) but remain at 7,000'. They asked if I could accept 3,500' and I said, 'Only when I'm a lot closer to the island'.

So we flew on, not saying very much but watching the dodgy fuel pressure very carefully. I ran through the ditching procedure with Roger. The sea looked pretty calm. There were a few boats and ferries around. We had our life-jackets on and the life-raft on top of the baggage in the back. From our height we had 7-8 minutes gliding time. I told him that I would make a wheels-up landing close to but ahead and to the side of the nearest ship and that I would ask him to open the door prior to landing. After landing, the

plane would most likely float for a moment or two, adopting a nose-down attitude and he was to exit onto the wing with the life-raft and inflate it, keeping hold of the line. I would then follow with the waterproof ditch-bag, into which we had already put our mobiles, locator beacon, wallets and passports and whatever else I could grab. We were prepared. If we were going to end up going for a swim, it wasn't a bad day for it.

As we approached San Antonio, by now at 3,500' as agreed with Ibiza, I had the bright BUT WRONG idea of changing (force of habit) to the fuller, right hand wing tank. As I did it I thought, 'No, you fool! Its working as its set up now – why change it?' but it was already too late. I'd

moved the fuel selector. Sure enough, the pressure immediately went to zero again and, although putting it back on the left restored it and kept the motor running, the reading was now very low and fluctuating alarmingly. We still had some rocks up to 2,000' above sea level between us and the runway, which was not yet in sight.

To make matters worse, now the fuel pressure seemed to be sensitive to turns, dropping to zero in anything but straight flight. It was at this time that I had serious doubts about making it to the runway. I called the tower and told them that we were at Point November but still with fuel-flow problems and that I would not descend further till I had the runway made. At this point, they seemed to get the idea and although I had not declared an emergency, they cleared me direct to the active runway with no need for a normal circuit join. I just aimed for the end of the 2,300m runway and descended over it to land half-way down. All the fire-engines were deployed, but neither of us had the presence of mind to get a photo.

Anyway, all's well that ends well. I thanked the ATC controllers and staff for their co-operation and made arrangements to gain access airside to investigate the problem as soon as I'd tracked down a suitable licensed engineer. As Roger said at his birthday dinner that night – he's a very lucky person, though he did confess that there had been moments when he thought he might have already seen his last birthday. I'll probably get him to fly with me more often – especially if I'm going over the sea.

We had first to establish that both the mechanical and electric fuel pumps were delivering normally and that the filters were clear. I had phoned my engineer in England and he was fairly sure that we'd



**Top left: the summer weather was un-cooperative most of the way**  
**Left: plenty of altitude, but no fuel pressure and MAP falling**

find a problem with the engine-driven pump. When this proved to be sound, we had to look elsewhere. Roger and I were convinced the fuel selector itself was the problem. We took the selector switch and its operating mechanism to bits with the help of two local engineers (who were rather like Laurel and Hardy) cleaned it, lubricated it, put it back together, adjusted and wire-locked it – and it has behaved perfectly ever since. It's not a good system, though of course it probably worked quite adequately for the first 48 years... the aircraft was built in 1959.

In the Nibbio, fuel tanks are selected by a four-way valve situated under the rear seat. This is operated from a rotary selector switch on a panel between the front seats, which also accommodates the magneto switches, the parking brake and the flap

position indicator. The selector operates the valve via a cog-wheel that engages a coiled wire cable connecting the two. This is reminiscent of the cable used to operate the windscreen wipers on most cars. Over time, there is obviously an accumulation of wear in these components and the apparent stiffness I had encountered when changing tanks had been due to this having got to the point where it allowed the cable to jump the cogs. To take up this wear, there is an adjustable bolt designed to hold the cable in engagement with the cog-wheel. After adjustment, this is then wire-locked into position. This adjustment had clearly been neglected for some time. The net result was that the system had selected either no tank at all or the practically empty rear tank.

Personally, I think the rear tank had been selected and, because we had been in a steady descent, what little fuel that remained had run to the very front, eventually un-portioning the pick-up. I suspect that when I raised the nose and the engine picked up briefly, it was due to some of that fuel being thrown back down the pick-up as a result of the change of attitude. With the tanks once again topped off, we did a test flight the next day, just to check that all tanks were delivering normally.

Everything was fine so we set about planning our next leg to Lezignan in south-east France, routing via Majorca and Perpignan. However, neither the weather nor the fuel system had quite finished with us yet.

We could have taken the direct and, at first sight, safer route back to the Spanish coast and then followed the shoreline up and round the eastern end of the Pyrenees but I reasoned that it was at least half as far again and, in any case, we'd still be over water most of the way. Also, by the time we were ready to go, the weather had

and the plane packed and fuelled, pre-flighting in the wind and rain never fails to bring on that apprehensive feeling in the pit of the stomach. Strapping in with the aircraft rocking in the breeze and the windows steaming up from our combined carbon dioxide output does little to calm the butterflies either but, once in the air, the practical demands of the flight take over and calmness and control unfailingly return. Just as well because, as well as the rain and poor visibility, we had a 35/40kt headwind so it was a long time before the outline of Majorca emerged from the murk.

In view of our recent fuel selection drama I had elected to take off on the left hand tank and leave it on that until we were past the first stretch of water and over the island, in case we had a problem changing tanks. However, after about an hour, Roger, who had the fuel gauges directly in his line of sight, said, 'It's a funny thing, you know but, even though we're running on the left-hand tank, it's the rear that's going down'. Oh bother, I thought – or words to that effect. Perhaps we'd set up the selector wrongly. If it was using fuel from the back tank when set to the left, what would happen when we changed? Perhaps we'd get no tank again. This was not something that I felt we should investigate in the air, so we called Majorca and made what turned out to be a rather expensive diversion to sort out the problem on the ground.

Once on the ground, we discovered that, while we had indeed been using fuel from the left-hand tank, the Nibbio's fuel system is set up in such a way that, because the rear tank is situated higher up than the wing tanks, if you are using a wing tank and the rear tank is full, the rear tank will drain into that wing tank as the fuel is used, thus giving the illusion that the rear tank is selected. I had never discovered this before, because on previous occasions

when I'd filled all three tanks, I had invariably changed to the rear tank, once established in the cruise, in order to use that fuel first and bring the CofG forward. Now, several puzzling events that had occurred on previous flights suddenly made sense. I had never quite understood why I could not get the full 2hrs out of the rear tank, even running it dry once after only 1hr 35mins. Now it was clear. It even explained why once, when I had left the plane in the hangar with about 40litres in the rear tank and forgotten to turn the selector to off, I had returned to find it empty. The fuel had obviously all drained down into the wing tanks. There was no mention of any of this in the flight manuals.

Getting into a large international airport is often easier than getting out. Now we'd put our minds at rest, we wanted to get on our way as soon as possible. The day wasn't getting any younger and the gloom



**Above right: Robin on the ground in Ibiza – listen to his knees knocking  
Right: local engineers Laurel and Hardy go troubleshooting in vain**

taken a distinct turn for the worse and wasn't forecast to improve for up to six days. From the satellite pictures, it looked like our only realistic option for getting away from Ibiza any time soon was to go north to Majorca, running up the west coast and launching across the Med, more or less direct to Perpignan. That way, although the sea crossing from Majorca was about 110nm, we should be out of the worst of the weather after about an hour and we still had the option of landing there if it all went pear-shaped. We'd spent so much time over water on this trip that, while I won't say we were getting blasé about it, we were certainly not fazed by being out of sight of land. Even so, with all the logic in place, with the flight plan filed







was making it feel later than it actually was. We'd had to close our flight plan and submit a new one. Our compulsory but efficient handling agents had organised fuel for us and were doing their best to speed our flight plan into the system and get us permission to leave, but there is a certain minimum time that these things take, especially in Spain. I was by now getting a little concerned about landing at Lezignan before dark. Finally, we were cleared and wasted no time getting airborne on the long over-sea leg to France. On the climb-out to clear the coastal mountains we saw a friendly-looking GA field, to which we should perhaps have made a more considered diversion. The Palma experience cost about €380.

The strong headwind made for slow and turbulent progress up the rugged coastline but, once we'd turned on track, became more favourable and our groundspeed



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**Top left: departing Ibiza, the weather had again closed in on us**

**Left: welcome to Majorca – now give us all your money**

**Bottom left: the Pyrenees come into view as the Nibbio makes landfall**

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crept up to 140kts or more. Visibility had improved and the rain had almost stopped so it was almost relaxing. After a while, we could make out the Spanish coast off to our left, and as it got closer we could see the peaks of the Pyrenees sticking out above rather a lot of cloud. I wondered how far this extended into France but there was no way of telling. Fortunately, after Perpignan the cloud dispersed and we landed at Lezignan in good time and without further problems to spend the night at a chateau run by some old friends at nearby Ginestas. Next day their son dropped us back to the field but it seemed the weather had caught up with us again. The tops of the hills were obscured and there was light rain in the air. We were heading northwest for a further night-stop with family friends at Riberac, not far from Bergerac in the heart of the Dordogne. The very helpful guy in the tower, who I knew from previous visits, advised against VFR flight but he got me TAFs and actuals for various places along our route and agreed that the weather was approaching from the south and we were going north. It was another of those now-or-never moments and, after 30 or 40 minutes in the air, we got ahead of the weather and managed to keep it that way, all the way back to Shoreham.

It had been an interesting trip. At times, a little bit more exciting than I'd planned, but a fine adventure, nonetheless. Roger later confessed there were moments when he wasn't at all sure he wanted to get back into my little plane. He thinks I should get a twin. ■



# The way we were...

*David Ogilvy recalls training pilots in the 1950s, a time of few nav aids, little forbidden airspace and flying for fun*

Every reader is aware of (if not understanding) the endless list of changes being carried out in the licensing muddle created by EASA. However, although spread over a far more digestible time scale, numerous other moves have been made since the Private Pilot's Licence was introduced shortly after World War 2.

Before the PPL was invented, anyone aiming to fly in a private capacity was required to undertake only very rudimentary training for the Pilot's 'A' Licence. This called for just three hours of solo and a simple flying test, viewed from the ground, comprising a figure of eight and a landing from a glide approach. This was watched by a Royal Aero Club Observer whose positive recommendation led to the issue of the licence. At no. 250, in 1949, I was one of the last people to be issued with this qualification before the scheme was abandoned and the task was taken back by the authority of the time – the Ministry of Civil Aviation. No navigation training was required for the 'A' Licence, although most people chose to have some instruction in this important field.

Very sensibly, from the start, the PPL was more demanding. There were two routes, the normal process requiring a minimum of 40 hours of training, initially including 15 solo, but this was reduced to 10 as clearly there was more productive value in an added ration of dual time. Helpfully, for anyone with above average flying aptitude, selected full-time clubs and schools could provide a Ministry-approved course of just 30 hours, valid only if the training was carried out in a total time not exceeding six months.

These reduced hours played a key role in an Air Ministry training scheme enabling members of the Air Training Corps or combined Cadet Force to obtain their

PPLs. The cadets were selected well in advance and needed to cope with a tight schedule. Although the aircraft of the time were taildraggers that called for more handling skill than is needed today on nosewheel machines, a cadet was expected to be ready for first solo in nine hours, as beyond that the full syllabus could not be completed in the 30 hours allowed. If a candidate was 'nearly there' the club or school could apply for an extension of up to three hours, but if a lad was far off the mark at that stage he was 'chopped' from the course.

In the earlier days spinning and recovery formed an essential part of the PPL course and, in accordance with RAF practice, cadets were expected to undergo this exercise on three separate sorties. This ate into a considerable amount of the available training time, especially as climbing to at least 5,000 feet on a low-powered trainer

was not exactly a rapid process. Although only selected aircraft types with bucket seats to hold parachutes could be used for cadet training, many private customers chose to learn on other types such as the cabin Auster Autocrat; so for their spinning they

needed to fly in the unfamiliar surroundings of open cockpit Magisters or Tiger Moths, often without electrical intercom, relying on rubber Gosport tubes. This was self-defeating and understandably created many feelings of tension.

Although eventually the requirement for spinning and recovery was removed from the PPL syllabus, one old feature lived on in the cadets' training programme. This was stopping and restarting the engine in flight. The procedure was to turn off the magneto switches and reduce speed until the propeller would stop turning and the machine became a not very efficient glider. To get it all going again we reset the

ignition, dived the aeroplane and did some slightly coarse waggles and,

**Left: many private customers chose to learn on types such as the Auster Autocrat**



**For spinning, pilots needed to fly in the unfamiliar surroundings of open cockpit Magisters (top) or Tiger Moths (above), often without electrical intercom, relying on rubber Gosport tubes**

with luck, the prop would jerk and power would be reinstated. For this exercise I made sure that we were over or within easy reach of a suitable aerodrome and on just one occasion I needed this facility; my pupil (not student in those days!) had failed to get the engine turning and at a late stage I took over. I, too, was unsuccessful and we made a dead-stick landing on Panshanger – at that time a good-size omni-directional field. Despite the engine's failure to come back to life in the air, nothing was wrong and it restarted at the first hand-swing. The point that baffled me on this exercise is how it came to be required. Several years earlier I had trained on Tiger Moths in the RAF and it was not in the syllabus, so why, when and how did it creep into the course for ATC/CCF cadets? This anomaly remains perplexing, as the most likely time for a propeller to stop would-be during aerobatics, which Service pilots were trained to undertake, while the cadets were not. The question remains unanswered.

There were many procedural differences between then and now. Perhaps the most noticeable was that the expected way to land was to do so from a glide approach, using power only when required to correct an undershoot. This had two advantages: it helped a student to gain sound judgement in height and distance in relation to wind strength, which in turn





was a beneficial introduction to forced landings.

There were two elements of the course that were easier than they are today. Most aerodromes were in rural areas with few obstructions and vast areas of grass in most directions, so the principle of landing almost straight ahead in the event of engine failure after take-off was easy to teach and to use. The other benefit of the time was that the authorities were in the early learning stage of grabbing chunks of the sky for controlled airspace; therefore if a student went slightly adrift on a navigation exercise there was little likelihood of anyone being collared for going off piste. The London Control Zone was a sizeable volume of forbidden

100 hours PI to give air experience flights to ATC/CCF Cadets, with roughly half the cost being paid by the Service. This was not particularly popular, so after a few years it was abandoned and the RAF's own Air Experience Flights were started. In modified form these exist today, using Grob Tutors shared with University Air Squadrons.

In many ways there was a different approach to people's reasons for flying. Certainly some pilots ventured on long flights to faraway places and there was a small core of serious business users, the latter using such types as the Percival Proctor or the twin-engine Miles Gemini. In the main, though, private pilots flew primarily for the pleasure of being in the



**Above: RAF Reserve Flying Schools equipped with Tiger Moths and later with Chipmunks were busiest at weekends. The same air space housed three fighter squadrons of the Royal Auxiliary Air Force, operating Spitfires (below) and later re-equipping with Meteors (bottom)**



James Humphreys



**Top: the spectre of the 'York on three' governed the design of London airspace; the York was being used by several airlines Above: University Air Squadrons use Grob Tutors**

**Serious business users used such types as the Percival Proctor (top) or the twin-engine Miles Gemini (above)**

airspace, but there was very little else. Many people complained that this zone was far larger than could be justified, but the excuse at the time was that it was needed to cover a York on three (the Avro York former wartime military transport was being used by several airlines and, at load, this had a very marginal performance in the event of an engine failure on the climb-out).

In many ways the private pilot was considered to be a benefit to the nation and there were two schemes that helped people to fly at reduced cost. All flying training for the PPL was eligible for fuel tax rebate, with a fixed rate per hour for each type of aircraft used for this purpose. To avoid any opportunity for fiddling, pump prices were at full rate and a flying training establishment submitted a claim at the end of each month. The administration was handled by the Association of British Aero Club and Centres, which was one of the organisations that merged in 1967 to become AOPA UK. The other road to less expensive flying was an Air Ministry scheme enabling PPL holders with at least

air; most aircraft had no radio and there were few nav aids, so the bulk of activity took place, often locally, in good weather. On a sunny Sunday afternoon the sky – especially in the south-east – would be full of light aeroplanes to an extent that no-one has seen for many years. There were fewer licensed private pilots than there are today, but the RAF had five very active Reserve Flying Schools in the immediate London area and initially equipped with Tiger Moths and later with Chipmunks, these were busiest at weekends. In addition, to add variety among the users of free airspace, the same area housed three fighter squadrons of the Royal Auxiliary Air Force, first operating Spitfires and later re-equipping with Meteors or Vampires. This scale of airspace use today would cause a constant stream of airmis reports, but fortunately were not hostile to each other and frequently a hand-wave doubled as an acknowledgement of another's presence and a friendly 'hullo'.

Among the many pleasurable activities available to private pilots were breakfast, lunch or tea patrols. The defending club would launch its fleet to definite points around the aerodrome and the visiting



pilots would attempt to enter the circuit without having their aircraft's registration recorded. Those who penetrated the defences received free meals. Also popular were spot landing competitions, which had a very practical value. Requiring a glide approach usually with the permitted use of just two three-second warning/clearing bursts, the landing needed to be a three pointer as near as possible to the marked point.

It is widely accepted that, with fewer restrictions, flying was far more enjoyable than it is today. This does not mean that it was a free-for-all. No aeroplane is a toy and I was just one of many instructors who stressed the need to take seriously the responsibilities of having and using a pilot's licence. A touch of discipline, including acceptance of the need for sound airmanship, need not detract from the pleasures to be derived from the freedom of flight... and the rate for hiring a club machine was about £3 an hour! ■

# BOOK Reviews

## Miles M.52 Gateway to Supersonic Flight Captain Eric Brown CBE DSC AFC QCVSA RN In association with Dennis Bancroft C.Eng MRAeS

First published 2012  
by Spellmount  
ISBN 978 0  
7524 7014 6  
Hardback 222  
pages with index.  
No price stated but  
typically ca £15  
purchased online.

Eric 'Winkle' Brown is the doyen of British test pilots with achievements far too numerous to list here. For an excellent summary of his career, the reader is encouraged to read the June 2009 edition of *General Aviation* which can be accessed via the AOPA website <http://www.aopa.co.uk/>

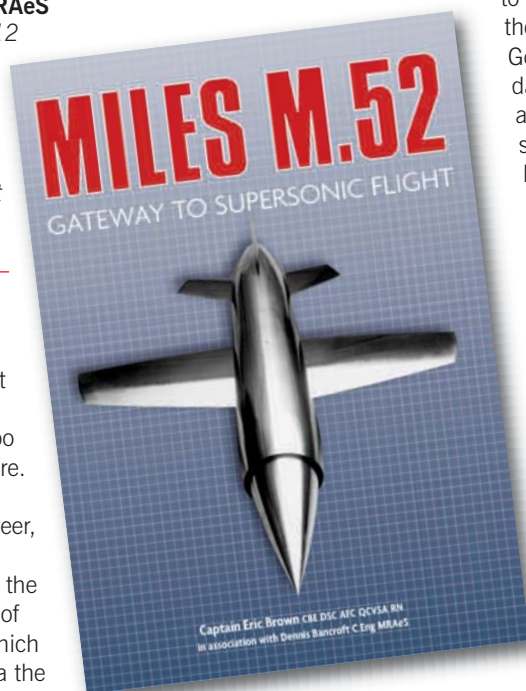
He is also author of some very well known books on flight testing a wide range of aircraft, including some esoteric German types captured by the Allies at the end of WWII. Thus, any book written by Eric Brown demands attention, and this one is no exception.

In 1943 (!!), Miles Aircraft were awarded a Government contract to produce an aircraft capable of flying at 1,000 mph. In fulfilment, Miles produced the M52, to be powered by a reheated Power Jets engine and scheduled for its first flight in October 1946. In early February 1946, Eric Brown was confirmed as the test pilot, but just a couple of weeks later, with the prototype 80% complete, the project was summarily cancelled. The implausible explanation given at the time was that it was considered too dangerous to expect a man to test fly the aircraft, and pilotless models would henceforth do any further testing of flight in the transonic and supersonic speed ranges.

Eric Brown was thus denied the chance to be the pilot of the World's first supersonic aircraft, and a British one to

boot! He therefore has a great deal of personal interest in attempting to establish the definitive reason(s) for the cancellation of the M52.

In this book, Eric Brown and his co-author Dennis Bancroft (Chief Aerodynamicist on the M52) examine exhaustively the potential reasons for the cancellation (political, financial, aerodynamic) and attempt to identify the smoking gun that killed the project. Needless to say, this cannot be found and one is left with the impression that cancellation was due to a combination of factors. The one factor that really puzzles me was why we passed all the M52 data



to the Americans on the order of the Government of the day. It would appear that we shall never know. In a recent interview, Chuck Yeager wrongly claimed the all-flying tailplane was an American innovation. An article in *USA Today* says: '(Yeager and) Jack Ridley pioneered the use of a 'flying tail,' transforming the rear horizontal

stabilizer into an active part of the aircraft. "It took the British, the French and the Soviets five years to find out that little trick," he says with a laugh. "It gave us a jump on the world.'" In view of misleading nonsense like this, Eric Brown's book is timely.

With the advantage of hindsight, cancellation of the M52 set the pattern over the next 20 or so years for a whole series of disastrous cancellations of British aircraft.

I also commend this book to those who bemoan the gradual demise of the British aircraft industry, and who wonder how in Heaven's name did we come to lose such a commanding lead that we held in the post war years.

The facts presented will bring them close to tears. –  
*Chris Royle*

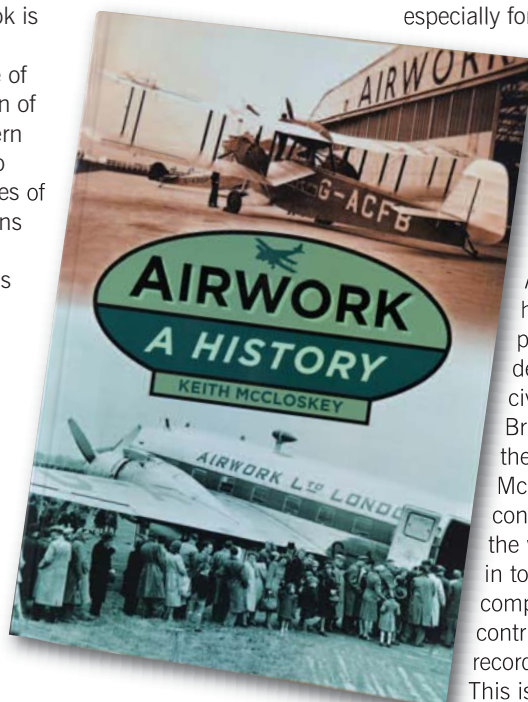
## Airwork: A History

By Keith McCloskey

[www.thehistorypress.co.uk](http://www.thehistorypress.co.uk),

£17.99 270pp, liberally illustrated

This is a monumental piece of research that leaves no stone unturned in illuminating the history of one of Britain's great aviation companies. If you worked for Airwork you'll probably find a piece of your past here; author McCloskey includes all manner of details – types and registrations, pilots names, dates and places – from the 1930s up to the present day. If you didn't work for Airwork you'll be absolutely astounded, as I was, at how the company managed to carve a successful business from such a disparate range of activities. The only unifying factor was that something in every contract flew in the air. For much of its history Airwork operated in a business environment dominated by civil service diktat – Britain's national airlines were feather-bedded and everybody else fought over the scraps. The sheer breadth of Airwork's activities, and the number of centres in which it operated, makes you wonder how the company was ever managed. Engineering and maintenance, training, aircraft sales, aerodrome operation, military experimental work, charter flights, cargo transport, crop spraying, helicopter support, Airwork did it all. And of course, it took its expertise all over the world. From Nigeria to New Zealand, Airwork had a finger in some pretty exotic pies. Inevitably it found itself in some odd situations – delivering aircraft to both sides in the Spanish Civil War, for instance, or maintaining both Yemeni and Omani warplanes when the two countries were knocking seven bells out of each other. The Omani chapter is of particular interest; there's a fine line between being a support worker and being a mercenary, especially for pilots. Looking



on the bright side, if a mortar shell fell inside the compound, all the staff got a £1 a day bonus for two months! Airwork was a hugely important player in the development of civil aviation in Britain and around the world, and McCloskey is to be congratulated for the work he has put in to make sure the company's contribution is recorded for posterity. This is a reference →



## FOR SALE



**Grumman Tiger AA-5B**

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work rather than a read-through book, but I've returned to it again and again to be reminded that Britain once led the world in every aspect of this aviation racket we're in. – *Pat Malone*

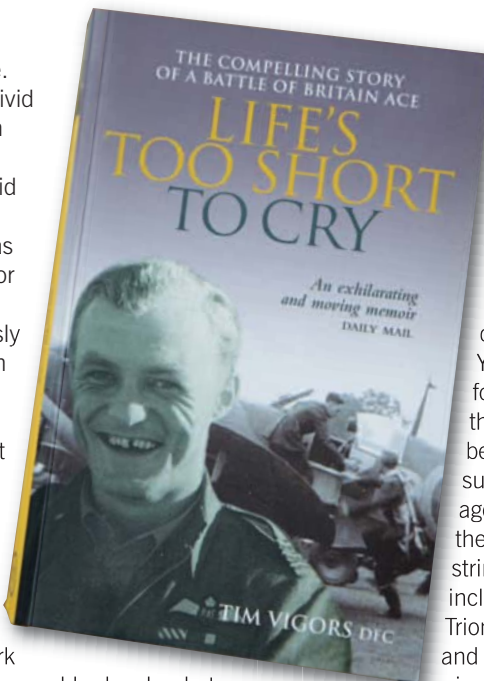
## Life's Too Short to Cry

By Tim Vigors DFC

[www.grubstreet.co.uk](http://www.grubstreet.co.uk) £8.99  
300 pages, eight of pictures

Tim Vigors was a proud Irishman flying a Spitfire in the Battle of Britain and he didn't take kindly to it when a furious Keith Park ordered him to remove the Tricolour he'd painted on his aircraft; the flag stayed where it was. In this great book, Vigors credits his survival in part to a certain Irish circumspection – the urge to selflessly sacrifice his life for the Mother Country might have overtaken him had the Germans been bombing Tipperary, but they weren't. Nonetheless his life was on the line as much as any; he was Bader's wingman on 222 Squadron and survived two Spitfire crashes. Shot down and badly wounded by the Japanese, he finished the war as a Wing Commander with 12 victories. This autobiography was written 56 years before it was published and came out four years after Vigors died. It covers the Battle of Britain and the fall of Singapore, and it leaves the reader hungry for more... but

that's all he wrote. Vigors is such a vivid character, with an engaging turn of blarney, and he did much of his best work when he was badly the worse for drink. Once, clinging nauseously to his bed after an evening on the lash, he was scrambled against night bombers. Barely able to walk, he was helped into his Spitfire, took off, shot down a Heinkel in the dark despite radio failure and broke cloud at 700 feet, totally lost, to find he was on finals for a flarepath. Then he had to explain why he'd arrived at this strange aerodrome drunk, wearing bright red pyjamas and a green silk dressing gown... His account of the sinking of the *Prince of Wales* and *Repulse* is edifying; it certainly cured the Navy of its disdain for air cover. But after 300 pages we leave our hero in Java as he tries to get to Australia after the fall of Singapore – end of story. Perhaps he meant to write more; some of the



photographs are taken in places not mentioned in the book, in years not covered, at ranks unexplained. We know something about his later career, of course. He ended up in India, in command of RAF Yelahanka, training pilots for the Far East and left the Service in 1946 to become one of the most successful bloodstock agents of his day, owner of the Coolmore Stud and a string of fortune-makers including the Arc de Triomphe winner Rheingold and several 1,000 Guineas winners. Always flamboyant, when he travelled to America Vigors would charter a Super Constellation with his office in the front half and a bedroom in the back. His four wives included Richard Fairey's widow Atalanta, and he maintained an interest in aviation, at one point holding the Piper distributorship for the UK, a company later merged into CSE. But the book takes us only as far as his 21<sup>st</sup> year; a pity, really, but half a loaf is better than no bread. Well worth reading. – *Pat Malone* ■

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As an AOPA member you are entitled to make use of any or all of the benefits listed here. You may find some will save you money, and at the same time you will be helping your Association



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# Whatever floats your boat

*Pilot and yachtmaster David Chambers compares general aviation regulation to that of yachts and asks why they should be so different*



Private piloting should be as accessible as sailing for the general public, but has been hampered by restrictive regulation over many years. The tight rules around flying qualifications, especially for the instrument rating, have reduced the take-up of longer distance pleasure flight. This is compounded by the excessive paperwork and procedures for aircraft maintenance, which dramatically increases costs. Production of new aircraft has been strangled in recent decades due to the very high cost of initial certification for manufacturers and the ongoing maintenance costs to the new owners.

By contrast, the sailing and boating fraternity continue to thrive with minimal regulation. The ability to buy a boat, not register or name it and sail it without any formal qualifications has not resulted in dramatic loss of life or increased accidents.

While there is clearly a need for adequate training, qualifications for all aircraft pilots and supervised maintenance of all private aircraft, I think there is much

to be learned and adopted from the more open regulatory approach on the water. That would increase the accessibility of the skills, future careers and enjoyment of taking to the air to a wider population, bringing with it a resurgence in general aviation, with all the associated economic benefits throughout the country.

During a debate on EASA's over-regulation of general aviation, the Norwegian delegate to the Agency's Management Board drew comparisons between yachting and GA and suggested that GA should be looked upon in a similar way to yachting. The risks are similar – why are the regulatory regimes so different? I am both a PPL and a yachtmaster, and I'm able to compare the two approaches.

Many people take up private flying after enjoying years of sailing as a hobby. There are many similarities – planning a trip ahead, the wide range of skills involved, some dependence on the weather, the challenge of a particularly tricky approach

and arrival in strong crosswinds.

But the comparison shows some sharp contrasts. The heavy and disproportionate regulation applied to private aviation distorts its take-up and popularity. Some flyers may be surprised at how few qualifications are needed, comparatively, to sail across the oceans.

Some might say that the consequences of a mistake for the aviator may be more serious than for a yacht captain, justifying additional constraints. But I do wonder whether much of the common sense approach applied in yachting circles might equally be suitable in aviation.

## Qualified commander

In the UK, there is no legal requirement to have any formal qualification before taking command of a sailing vessel for private purposes. Commercial use, including instruction to members of the public, is a different affair. Some European countries, such as Germany and the Netherlands, do require licenses. When venturing abroad to those countries, the RYA (Royal Yachting Association) will issue an International Helmsman's license for a small fee – similar to those International Driving Licenses used in days of old.

Instead, there is a highly respected voluntary scheme run very professionally by the RYA that has a series of qualifications from Competent Crew to Yachtmaster. These comprise both theory and sailing instruction with a practical test and are non-trivial.

I took the Yachtmaster theory course through distance learning and completed



**During the practical course, only one of the four test candidates would be in command at any one time; the others act as crew**





**You might well have sailed with a friend on their yacht before starting any formal training**

the four exams in six months. Many do the theory course as an evening class. Costs are quite reasonable at less than £300 for all-inclusive distance learning, compared to £1,500 for PPL/IR groundschool including CAA exam fees.

A practical course would typically involve five days intensive training on board a yacht, sailing at all hours of the day and night, followed by a two-day exam. Although only one of the four test candidates would be in command at any time, the others act as crew and are also continuously under supervision.

There are no revalidation or renewal checks after passing these skills tests. Currency and type of experience is important and will be taken into account when hiring yachts.

There are no medical requirements or checks to command a private sailing vessel.

## Learning

You might well have sailed with a friend on their yacht before starting any formal training – there isn't the direct equivalent of a trial lesson. If you did buy your own boat, you could take lessons on it from any instructor. Much more commonly, you would take a course with a sailing school and build up experience that way. Few boat owners will let novices have control when departing or returning to their berth, so practice at a school is essential. I recall doing the equivalent of circuits – approaching and docking on a pontoon repeatedly – when the instructor got off and stood on the pontoon. This wasn't quite the show of faith in our skills that we thought; he was ready to push the boat away if we approached too fast or at the wrong angle.

Once qualified as Day Skipper, you can hire a yacht in your own right and practice

shorter trips in better weather conditions. With more 'hour building' under your belt, you can go back for the next level of qualification.

## Rental

It's fairly easy to rent from any yacht charter company. If you're new to them, they may want some proof of your qualifications and a note of your recent experience. Rental contracts commonly stipulate that you may be required to demonstrate your proficiency by a quick trip around the harbour – similar to a

checkout flight. During the lengthy handover and briefing that can easily take 30 minutes or more, it would become apparent if you didn't know what you were doing. I've never been asked for such a check.

Hiring a yacht requires a large deposit, sometimes £1,000 to £2,000, which covers the insurance excess. Any damage or missing equipment is deducted before return. Some charter companies insist on the deposit being paid into their account before departure, others are happy with a signed credit card slip that is torn up on your return.

I've never had to pay a deposit up front when renting a plane, but read that the small print could require me to pay the insurance excess of £500 in the event of an accident or damage. I think this is because there are more smaller breakages possible in sailing – anything from crockery to dropping the winch handle overboard.

## Rent or Buy

Unlike the pilot club rental scene, yacht chartering for longer periods is easily come by. This provides variety, allowing you to explore different areas from each port. Foreign charter is also possible, especially on holiday in the Mediterranean.

Buying a yacht is expensive, both in terms of capital and operating costs, but it seems more common than for private planes. Yacht shares can be found too, but are less common – it's even more important that the group know and get on with each other because solo trips are rare. →



**Yacht chartering for longer periods is easy to come by and provides variety, allowing you to explore new ports further afield**



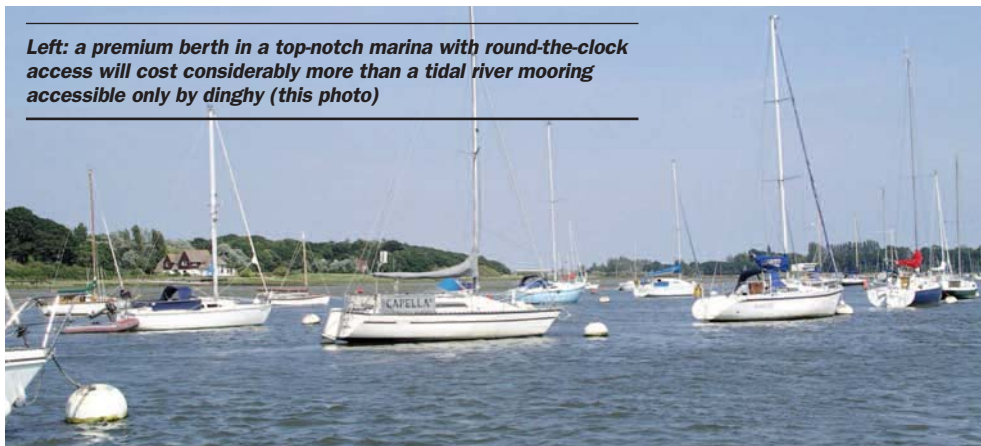
## Maintenance

There are clear legal requirements for the equipment level and regular maintenance of commercial vessels – these include craft hired out for reward, similar to CoA for aircraft in flying clubs. Safety equipment levels are determined by the distance sailed from the nearest land. An annual maintenance check for commercial use is mandatory – similar to an annual for an aircraft.

There is no legal requirement for annual checks for private yachts, but most are taken out of the water at some point during the winter so that the bottom can be cleaned and parts overhauled.



*As with aircraft hangarage, the cost of boat mooring will vary widely according to location and facilities*



*Left: a premium berth in a top-notch marina with round-the-clock access will cost considerably more than a tidal river mooring accessible only by dinghy (this photo)*



*While most yachts come out of the water in winter for overhaul, there is no statutory requirement for maintenance on private vessels*

## Insurance

In both realms, insurers often act as gatekeepers, determining the limits and preferences for owners, renters and clubs. Discounts may apply for those with additional qualifications or experience. While premiums vary widely due to many factors, I suspect that a similar amount (low thousands per year) is probably an average level for either type of craft.

## Hangarage v mooring

Aircraft owners may choose to pay higher prices to keep their pride and joy under cover in a hangar, perhaps at an airfield with more facilities including instrument approaches allowing use in a wider range of weather conditions. Alternatively, they may leave it outside at a small grass strip where it is more exposed to the elements.

Likewise, a premium berth in a top notch marina with facilities and 24/7 access to the sea will cost considerably more than a tidal river mooring useable only at certain states of tide and by dinghy.

## Restricted zones

You can sail pretty much anywhere there is water to float on. Many ports and harbours have defined areas where the Harbourmaster has legal authority. A dedicated radio channel may be used. Large ports (Dover, Portsmouth etc.) may have specified routes for small craft to use. It's particularly important to keep well away from large vessels, which are restricted in their ability to manoeuvre. At Southampton, for example, a moving exclusion zone of 1000 metres applies in front of tankers and is actively policed by the harbourmaster patrol vessel.

Some parts of the coast are used by the military for firing practice. These are clearly depicted on the charts and there is a phone number to call to check if active. Patrol boats keep a lookout for transgressors and will intercept if required.

## Going abroad

While there's no equivalent of a flight plan, the border authorities do require something very similar to a GAR form. The rules change from time to time. Failure to comply can mean a reception by Customs, who may conduct a thorough examination of your craft. You must have a full set of up to date paperwork, especially proof of being VAT paid. In most cases, you can freely enter and sail anywhere you want. Some countries do require prior approval of your cruising plan – for example Turkey – and charge a fee to process and approve

*It's particularly important to keep well away from large vessels, which are restricted in their ability to manoeuvre*







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***There is no equivalent to the flight plan and few countries demand prior knowledge of your intentions***

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this. Other countries may be dangerous because of crime, natural features, or costs.

It would be very unusual to call ahead to any intended port, unless your vessel was very large or had special needs. You can usually be squeezed in, but in exceptional cases may have to divert if the harbour is full.

### **Aircraft register**

All private aircraft except the smallest microlights are registered, and for UK aircraft, the owners' details appear on the CAA G-INFO website for all to see. Private yachts other than the very largest rarely appear on the commercial maritime register. Instead, owners may choose to be listed on the Small Ships Register (SSR) where a serial number of around six digits will be issued. Owner identities are not publicised. There's no legal requirement to give your boat a name, but doing so and registering it does prove country of ownership and makes

foreign travel easier. Apart from superstition or perhaps copyright issues, you can name your vessel whatever you wish – leading to some pretty stupid names at times, e.g. Hoof-Hearted. Sail numbers may be displayed, typically to help identification during races. Boat owners are also encouraged to register their details with the Coastguard, so that they have these on hand in case of distress. There is a standard form and procedure to do so.

### **Radio**

A UK VHF radio operator's license is required to use a marine radio. The installation itself must also have its own station license. The operator's license requires a practical test, similar to that for the FRTOL, but is fairly trivial. This license once issued does not require to be renewed, but the station license attracts an annual fee.



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***Berths are often allocated on a first-come, first-served basis***

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The most common use of the radio is when arriving in port and asking for a berth. This can be allocated before arrival, allowing the ropes and fenders to be prepared on the correct side of the vessel in advance, as well as looking up where to go on the marina chart.

Apart from that, it's common to keep a listening watch on Channel 16, which is used to initiate contact with other vessels and to make distress or urgency calls. A feature called SelCal uses tones to directly contact a specific vessel. This, combined with the growing use of mobile phones, has relieved the (sometimes comical) over-use of Channel 16 in the last decade. Indeed, it's very common to make voyages without using the radio at all.

### **GPS v older instruments**

As with flight training, little practical instruction is given on the use of GPS at sailing schools. The chief instructor will cheerfully point to the onboard GPS at the start of a training course and make it clear that this won't be used at all. Instead, the depth sounder, log (speedometer) and compass will allow navigation by dead reckoning, together with the mark 1 eyeball. Of course, nobody sails any distance without using GPS these days.

### **Booking in and out**

Outside the sunniest days of the peak season, it's rare to phone up your intended destination and ask about local weather conditions or procedures. Trying to reserve a berth for the night in advance may prove fruitless; more often they are allocated on a first-come, first-served basis unless you are extra large (and paying handsomely for the privilege).

Similarly, it's unusual to discuss the time or method of your departure with the harbourmaster – marinas operate much more like car parks, where you come and go at your own discretion. It would be rare to radio for permission to start engines.

In tidal marinas where entry is through a lock or raised bridge, some co-ordination may speed up the process. Sometimes this is as simple as lining up at the entrance to the lock gate a few minutes prior to the advertised opening times.

### **Differences training**

I've rented many different sizes and shapes of yachts from various places. At the start of each charter, a detailed briefing is given to familiarise you with all the equipment and procedures both inside and out. This is usually sufficient. Larger yachts typically need more experience and thinking ahead, so novice sailors are unlikely to be allowed to charter these without a skipper. I've had a little training to sail a dinghy and did take catamaran lessons once.

### **Sailing in cloud**

Mist and fog can form at short notice and disorientate the sailor. The advent of GPS

has transformed these situations by giving confidence of position. Training is given at Yachtmaster level on navigation using only the compass, stopwatch and depth sounder, typically sailing or motoring slowly along the underwater contour lines in search of navigation buoys using dead reckoning. However, there is no mandatory qualification required to sail in fog or at night – common sense tends to limit those embarking on voyages when such conditions are present or forecast.

### Flight log

Pilots are required by law to record details of every flight flown and keep these for several years. A record of skills tests passed and differences training completed are also important to establish rights to fly different types of craft. By contrast, it's optional to record time as skipper or crew of a private vessel although many do so for personal reasons. I kept a detailed log during my earlier sailing career but became much more casual about it after 10 years – it didn't really matter to me any more.

### Pooleys v Nautical Almanac

Sailors would typically buy an annual copy of an almanac. Similar to Pooleys, it lists all harbours and ports, giving plenty of technical detail about approach routes, frequencies to use, telephone numbers etc. An update service providing corrections

throughout the year is included in the price.

Admiralty Charts are also regularly updated, although many choose to manually mark up the notified changes rather than replace them annually. Unlike many pilots who may only need one or maybe two charts to cover their flights for a year, sailors may need ten or more for a longer expedition.

### Cruising guides and pilot books

Pilot information tends to be very technical and specific to individual airfields. There is a plethora of detail about runway lengths, facilities and especially instrument approaches. But there is relatively little written about navigating between them or the differences between individual countries. Sailing almanacs not only list the technical details of ports but also explain the best routes and tidal times to sail between them.

Additionally, there are many pilot books and cruising guides for the sailor. These are often written by private sailors with many years of experience in a particular area. These add a great deal of local knowledge and include details of local practices, such as the stern-to berthing procedures of the Mediterranean or where to walk to for the best views, food and accommodation. Apart from a few personal

websites, magazine articles or club newsletters with trip reports, I've not seen much of this kind of information available to the private pilot – certainly not in reference form.

### Practicing for emergencies

Engine failure, whether immediately after takeoff or in the cruise is the most common emergency pilots train for. Practiced Force Landings may save your life one day, but the real event is remarkably rare. Sailors regularly train for man overboard drill, where it's essential to get back to the same spot and stop the craft to enable rapid recovery. Thankfully, it's also a rare event, but could make the difference between life and death – students are taught to declare a mayday if this happens, even if the crew is successfully retrieved.

I have once had engine failure shortly after departing a berth. It took some quick action to get a sail up and make our way back to the quayside, especially since it was with a new crew who were unfamiliar with the yacht. The cause was down to their being two fuel cut-off valves, an unusual configuration unknown to me.

Caveat: This article is written based on my personal understanding of current nautical legislation and practice in the UK, so may contain factual errors or misrepresent best practice. ■





# AOPA NEEDS YOU YOU NEED AOPA

Whatever you fly, you need to join AOPA



The Aircraft Owners and Pilots Association was founded in 1934 and has a worldwide membership of 400,000.

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**\*GTN 650/750** GPS/Com/Nav Call  
 \*Supplied with harness for LAA aircraft  
**GTX 328** Mode S transponder £1695  
**GTX 330** transponder .... Call  
**SL 40** Comm ..... £1195  
**SL 30** Nav/Comm ..... £2595  
**GMA 340** Audio panel .. £899  
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**G3X EFIS/EMS SYSTEM**  
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AWARE 5



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- CAA digital charts as standard
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**AWARE 5** Airspace Warning Device ..... £191  
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 All other Skyview parts in stock



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 portable true attitude indicator  
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**EFIS-D10A** ..... £1400  
**EFIS-D100** ..... £1575  
**EMS-D120** ..... £1400  
**FlightDEK-D180** .. £2095  
**SV-32** Auto Pilot servo £500

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\*(AW can connect to aircraft pitot/static)  
 This remarkable AHRS is iPad/iPhone compatible.  
 Battery powered attitude and heading system pitch/bank information, magnetic heading, inclination, gravity load, & yaw rate connects wirelessly to your portable device.

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**KY97A** VHF (OHC) comm .... £999  
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**KN64** DME SC+ ..... £2095

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**TT21** Mode S transponder .. £1350  
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**TT31** Mode S transponder .. £1650  
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- cigar lighter lead
- mains charger
- USB cable to PC

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**Mobile GPS** .. £415

includes flight planning software

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**HM51** child headset ..... £ 89  
**Peltor 8006** GA headset £175  
**Peltor** Helicopter headset .. £199  
**David Clark** H10-30 ..... £189  
**David Clark** H10-13.4 ..... £205  
**David Clark** H10-13H ..... £229  
**David Clark** H10-60 ..... £249  
**Sennheiser HME95** ..... £135  
**Sennheiser HME100** ..... £159  
**Sennheiser HME110** ..... £175  
**Sennheiser HMEC250** ..... £325  
**Sennheiser HMEC26BK** ..... £499  
**Sennheiser HMEC46BK** ..... £425

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**A20** GA twin plug w/bluetooth £762  
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**NEW IC-A15\*** ..... £199  
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Panel dock **AERA 500** ..... £99  
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**HM2** place for Icom w/PTT £119  
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**PM 3000** stereo 4 place ..... £329  
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**RC ALLEN**  
 (TSO approved)



**RCA2600-3** electric horizon .... £1850  
**RCA2600-2** electric horizon .... £1850  
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**GH025** electric horizon 14volt £675  
**GD031** D.G. vacuum ..... £299  
**GD023** D.G. electric ..... £675  
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