

## **Background**

The CAA is currently consulting with interested parties over their plans to extend the use of Mode S transponders (otherwise known as ‘improving technical operability’) in UK airspace. These plans will potentially affect every glider pilot and the BGA is urging that all clubs and individual pilots make a response.

This is the second round of consultation. In 2006, the CAA published a consultation that proposed that all aircraft, including gliders, should be equipped with mode S transponders when flying in any classification of UK airspace, anywhere in the UK. UK glider pilots were foremost amongst a huge swell of opposition from within air sports to the seriously flawed series of recommendations and proposals within what is now known as the Phase 1 Mode S consultation.

It is clear now that the CAA is willing to listen to informed stakeholder opinion and Phase 1 is, at least for now, history – and in a large part because of the involvement of glider pilots.

The new proposals, although less draconian than the Phase 1 proposals, still threaten the future of gliding in this country and, once again, the BGA is appealing to all clubs and pilots to consider the proposals, form their own views and make a response to the CAA.

The current consultation runs until the 31<sup>st</sup> May and this document is designed to help you understand the proposals, the BGA stance to them and their implications for you. This document is not, however, a substitute for reading the full consultation document. Links to this are provided on the BGA web site.

## **What is Mode S?**

SSR Mode S (or Secondary Surveillance Radar Mode Select, to give it its full title) is a co-operative radar surveillance system that employs ground-based interrogators and airborne transponders. Aircraft equipped with Mode S transponders will appear on air traffic controllers’ screens, with position, height and unique identification shown.

Mode S is not, in itself, an anti-collision device although, because equipped aircraft are more visible to ATC, collision risks may be more easily detected and avoidance instructions given. Anti-collision equipment, such as TCAS, installed in some commercial air transport, can alert pilots to possible collision risks, although this is not being proposed and, in any case, is completely impractical for gliders.

More details of Mode S are available in a CAA document at [http://www.caa.co.uk/docs/7/DAP\\_SSM\\_Mode\\_S\\_SSR\\_Factsheet.pdf](http://www.caa.co.uk/docs/7/DAP_SSM_Mode_S_SSR_Factsheet.pdf)

## **What are the new CAA proposals?**

The CAA is introducing Mode S into UK airspace in a number of phases, the first of which has already been implemented. This currently mandates the use of Mode S transponders on all IFR (non glider) flights in controlled airspace below FL100, in all

IFR and VFR (non glider) flights above FL100, and in all flights above FL195 (except glider flights in TRA(G)s).

The new proposals seek to significantly extend the mandatory carriage and use of Mode S transponders.

These proposals are broken down into four options, any or all of which might be adopted. Three of these directly affect glider pilots. The fourth relates to crossing international boundaries and is more of an issue for our powered flying colleagues.

**Option 1** essentially mandates the carriage and operation of mode S transponders in all aircraft operating within controlled airspace of classification A to E. Following the open meetings arranged at gliding clubs, the CAA has issued clarification that this option *on its own* would not apply to gliders. However, taken in conjunction with option 3 below, this would apply to gliders.

**Option 2** is a proposal to implement a formal process to support applications for “Transponder Mandatory Zones” (TMZs) outside controlled airspace. The CAA already has TMZs within its airspace toolbox and they have been established in the past on very rare occasions.

**Option 3** includes gliders in the SSR transponder carriage requirements. The Air Navigation Order currently excludes gliders from the list of aircraft required to carry transponders. By including gliders in the ANO requirement for transponder carriage, gliders would join aeroplanes in having to carry a mode S transponder when flying above FL100 and, if the proposals of option 1 pass into regulation, gliders would have to carry a Mode S transponder when flying in controlled airspace.

In summary, if the provisions of options 1 and 3 become regulation, transponder-free gliding would only be possible (apart from any locally-negotiated exceptions) in those areas of uncontrolled airspace below FL100 which had not been designated as Transponder Mandatory Zones.

### **What is the BGA’s position regarding the proposals?**

The BGA is pleased that this consultation is not proposing that all aircraft in all airspace should carry mode S transponder secondary surveillance radar (SSR) equipment.

We support initiatives that make a real contribution to increased safety for all airspace users but believe that the best approach to this is by matching a solution to a specific problem. If there is an unacceptable risk in a particular piece of airspace, then the BGA will always be willing to engage in constructive dialogue to find an appropriate, proportionate solution. This solution might include mandating Mode S under certain conditions and in specific areas.

However, the BGA is extremely concerned that the blanket approach of options 1, 2 and 3 as described in the consultation represent an approach by the CAA that is both disproportionate and impractical and that will give rise to significant economic and

social burdens for small businesses and individuals. As a whole, Options 1, 2 and 3 have the potential to threaten the fundamental viability of the sport of gliding.

### **How is the approach disproportionate?**

The BGA feels that the proposed approaches are disproportionate in a number of areas.

#### Safety

The CAA makes the case for Mode S using a safety argument. The BGA is fully in favour of any steps that do increase the safety of all airspace users, where these steps are justified. However, the CAA's argument is not backed up by their own data.

The consultation claims that mode S is required to protect Commercial Air Transport (CAT) aircraft in the face of traffic growth. However Airprox Board report number 17 (Jan-June 2007) tells us the number of risk A or B airprox involving CAT has declined from 29 in 1997 to 6 in 2006 while traffic has grown by 36%. In the face of this evidence, it is not clear to the BGA why the CAA claim that traffic growth results in reduced safety.

None of the 6 airprox involving CAT aircraft referenced in the report were category A (the highest risk) and, commenting on these, the Airprox Board notes 'there is nothing to suggest a common thread' and 'such wide variability does not point to the need for concerted action in a particular area of operations'. The Airprox Board has identified that the collision hazard for CAT is reducing, and there is no need for concerted action. The BGA would like to know whether the CAA has recognised and acted upon these Airprox Board findings.

There has never been a CAT/glider collision. This record has been achieved, in part, by recognising that different categories of air space exhibit different levels of risk, based on flight patterns, densities, etc and adopting control procedures that recognise these. Non-transponder-equipped aircraft have been able to gain access to Class D airspace for many years perfectly safely when the traffic situation permits. They have, as a consequence, created a known-traffic environment as required by the CAA. The BGA understands that there has never been an airprox in controlled airspace involving a glider with permission but no transponder.

The CAA is proposing a blanket introduction of Mode S equipage in all UK controlled airspace. The safety argument behind this is not backed up by facts. The CAA appears to be suggesting a solution to a problem that does not exist against a reality where the risk of a CAT collision is actually decreasing.

The BGA does accept that there may be discrete areas where disproportionate growth of CAT may require airspace design changes in the future. However, such situations are not best addressed by an across the board imposition of Mode S.

#### Access

The proposals clearly will restrict airspace access for non-transponder equipped gliders.

How great the restriction will be will depend, in part, on how many Transponder Mandatory Zones are created. The statement in the consultation that the approval process for new TMZs should be “scaleable” to ensure that the burden on applicants is not disproportionate is worrying, suggesting a bias in favour of the organisation applying for the creation of a TMZ.

The BGA believes that the consultation does not identify a justifiable need for widespread use of TMZs. Additionally, the BGA believes that TMZs must not be used to control risks that are not uniform across airspace users. For example, the consultation document suggests that TMZs might be established in areas where there have been unacceptably high levels of airspace infringements. Gliders with moving maps are already recognised as effective mitigation of the risk of airspace infringement. Requiring gliders to equip with mode S to access a TMZ that has been established because of airspace infringement by other classes of user is a disproportionate approach. It’s clear that a robust and fair process akin to CAP 725 that takes the above point into consideration must govern TMZ development.

The CAA has not stated whether or not they intend to increase the amount of Class E airspace. We are concerned that if large new areas of Class E airspace are established, and with the possibility of large areas of UK airspace being designated as TMZs, we may end up in a situation where Mode S carriage would be mandatory in virtually all UK airspace.

Irrespective of the volume of airspace that is ultimately designated Class E or TMZ, the proposals outlines will reduce the airspace available to non-Mode S equipped gliders. The quid pro quo might, of course, be that Mode S equipped glider pilots would find it easier to gain access to areas of controlled airspace.

However, the consultation gives no commitment to this.

Indeed, the experience of many air sport pilots is that, even with transponders, access is denied and not always for obvious traffic-related reasons. By way of an example, one major ATC unit has explicitly stated that it would never, under any circumstances, allow gliders access to “their” airspace. The BGA is concerned that aircraft owners could equip with mode S but subsequently be deprived of what should be equitable access rights to controlled airspace.

Letters of Agreements are proven to be highly effective, safe and practical means to allow for gliding to operate in proximity to CAT operations. Option 1 does not deliver any commitment that gliders without SSR that currently have permitted and safe access to controlled airspace under local arrangements and letters of agreement can continue to do so. The BGA believes that it is more appropriate to exploit the practical success of LOAs rather than introduce new, unproven (in this context) and expensive technology.

There is a very real risk that glider pilots will be forced to equip with Mode S with no corresponding increase in access to areas of controlled airspace.

## Costs

The thrust of the CAA's proposals are that the need for improved levels of operability is being driven by the increase in CAT and, in particular, the levels of CAT flights routing in uncontrolled airspace. The need is not being driven by increased glider traffic, by an increase in glider/CAT collision risk, or by the need for gliders to have increased access to controlled airspace.

At the recent open meetings with the CAA, the CAA made the point that the whole nation derived benefits from the increase in CAT levels and that, therefore, it was not reasonable to expect the CAT industry to fund the need for gliders to carry Mode S transponders.

Irrespective of whether the main beneficiary of Mode S equipage will be the CAT industry or the whole of the UK, it is the general aviation community that will be made to pay for Mode S equipage if these proposals are implemented, at a cost that is disproportionate to the value of a typical glider.

The CAA estimate that the total Present Value cost of Option 3 between 2009 and 2025 is £3.2M to £7M. By comparison, the government raised over £1.8 billion in air passenger duty over the most recent twelve months for which figures are available.

### **How much will it cost to install a Mode S transponder in my glider?**

The cost range quoted in the CAA consultation document is £2205 to £5275 for an initial installation plus £55-100 annual recurring costs.

The BGA feels that for a straightforward installation these costs are reasonable accurate. However, they may be understated when retro-fitting a transponder into an existing panel.

### **I've read that it isn't practical for gliders to have transponders. Is this the case?**

Yes and no. Yes, you can fit a transponder (standard 57mm format) in a glider and it will run off your existing glider batteries. The question is how long it will run off them for.

The current drawn is typically around 1A at 12v – do the sums yourself. However, the lower power class 1 (125w) transponders on the market are only suitable for use up to 15,000ft. If you plan to go higher than this, you must have a higher power 250w transponder.

Which instruments will you need to switch off to provide adequate power to drive your transponder for the duration of your flight? Will a transponder add to overall flight safety if you have to switch off radio, Flarm, moving airspace map and audio vario to preserve power for the transponder?

### **Where do I find out more?**

The BGA web site contains links to a number of background documents, as well as to the CAA consultation documents. Visit <http://www.glidering.co.uk/bgainfo/airspace/modes2008.htm>

The BGA web site also contains a draft of the BGA's own response which provides significant additional detail.

### **How do I respond?**

You can respond to the CAA, either via an electronic form, by Email or by post. Full details are on the CAA web site; again, links are on the BGA web site. The response document contains 12 questions with space for free form answers; there is also space for additional comments.

However you respond, it is important that you form your own views and reply in your own words. Simply copying the BGA's answers will not achieve anything – your response will effectively be discounted.

When you have responded, please would you complete the form on the BGA web site so that we can track the total number of responses from glider pilots? We will only use the information collected in this way, in aggregated format – we will not make any information available that identifies individuals.

Thank you for reading this. Please respond in the interests of our sport and all UK glider pilots.