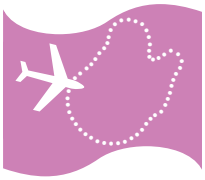

UNAUTHORISED PENETRATION OF AIRSPACE

Airspace Infringements are a potentially serious aviation hazard and occur when an aircraft enters Controlled Airspace (CAS) without clearance. This article summarises the findings of the recent "On Track" project conducted by the UK CAA. The full report may be viewed at the UK CAA website at www.caa.co.uk/docs/33/CAPAP2003_5.pdf

The "On Track" project was established in 2001: 'To identify the causal factors behind airspace infringements, and to make recommendations for safety improvements.' A non-CAA project team was appointed to collect detailed confidential data on why infringements occurred and to make recommendations based on comments and suggestions from pilots and controllers.

"On Track" represented a completely fresh approach to the infringement problem, by directly inviting Pilots and Controllers to give their individual views. The General Aviation (GA) community, Aviation Press and many controllers welcomed this approach as long overdue, but cautioned that its success would be judged solely on tangible results, and that the follow-up process would be closely monitored.

During the 18 month data collection period, 165 infringement reports were researched by the project. Of these, 144 were 'infringements' and 21 were 'almost infringements'. In addition, the project team gathered further detail from pilots who had no infringement to discuss but wished to contribute their views.

Airspace Issues & Lower Airspace Radar Service

Infringements often occur in areas where the amount of free airspace available to GA aircraft is restricted. Airspace constrictions or "choke points" are particularly prone to infringement.

GA pilots should be invited to participate in review of CAS allocation, taking into account the actual utilisation of the airspace concerned. Minor adjustments to CAS would produce significant benefits for all users.

There is overwhelming support for Lower Airspace Radar Service (LARS), especially in the most congested areas, which should receive priority allocation of a specific GA radar facility, and early action should be taken to achieve this aim.

Pilots reported difficulty in understanding why zone crossing clearances were so often refused without explanation. A formal procedure for pilots to register a refusal of service would quantify this problem, and provide feedback.

An additional level of service - Flight Following or Listening Out/Monitoring - based on the US model, would enhance safety when a full LARS may not be required by the pilot or available from ATC. This would employ nominated transponder codes matched to RTF frequencies.

There is a perceived attitude of mistrust between GA pilots and controllers. Airspace policy and procedures are not well understood by GA pilots who would benefit from a focussed education programme and improved publicity.

Maps and Charts

GA pilots were generally very satisfied with the current Maps and Charts following recent improvements, although problems still arise from misreading CAS boundaries.

The advances of modern technology now being employed in the production of downloadable on-line charts for the more congested areas was very impressive. Further opportunities are available to produce low cost interactive CD-ROM based charts, which could be marketed for individual printing of selectable data on a home PC.

AICs and NOTAMS

Infringements in this category were the result of misunderstanding or failing to read an Aeronautical Information Circular (AIC) or NOTAM, particularly where a Temporary Restricted Area (TRA) is established.

Emphasis should be placed on the use of common English and clarity of presentation, avoiding the use of abbreviations where plain language would be more easily understood.

On-line versions should be widely publicised and make full use of the improved graphics and presentation available. Downloadable full colour maps and publicity material should be available on-line where applicable.

Global Positioning Systems (GPS)

GPS is used by a large number of GA pilots who report that its accuracy, performance and reliability are excellent. Unfortunately there is little official recognition of GPS use by GA within UK Airspace, and no compliance requirements exist.

A wide-ranging formal compliance procedure would reduce infringements by improving the effectiveness and application of GPS.

Formal recognition of GPS use would further enhance the benefits for GA pilots, for example, by including GPS co-ordinates whenever possible in navigation information.

Training

Poor training contributes to infringements, and the specific areas of Navigation, GPS and RTF training attracted particular criticism.

A comprehensive review of all aspects of navigation training is required to produce a well-structured syllabus, detailed instructor guidance and an effective standardisation scheme.

There is currently no formal guidance or training in the use of GPS, and many pilots are unaware of the most effective GPS navigation techniques.

Although controllers reported that a high standard of pilot RTF was more likely to produce a service, it was noticeable that RTF training had a low priority.

Some pilots operate their radios with no RTF licence at all. They view the RTF Manual as too complex for their basic VFR flying requirement, and choose to opt out of the licence altogether.

Transponders

Pre-allocated squawks associated with assigned frequencies, especially in known "hot-spots", in support of a varied LARS or Flight Following/Monitoring service should be introduced. As a minimum benefit, controllers would then be able to contact an aircraft on the listening out frequency allied with its squawk.

An education and publicity programme should issue clear guidance on the most effective use of transponders in the modern ATC environment.

Licensing Issues

Infringements would be reduced if more pilots had some form of Instrument Rating (I/R). The more comprehensive use of radio navaids would confer a higher level of navigation accuracy.

A modular I/R should be introduced to focus on GA requirements.

Greater credit for foreign I/R training and qualification should be given to encourage participation and increase levels of expertise.

Communication

Lack of knowledge and poor understanding of procedures contributes to infringements. More resources and ingenuity are required to identify and implement practical means of disseminating useful, relevant safety information, which could help reduce infringements.

The use of an independent "open forum " style website by "On Track " was universally viewed as a very significant, inclusive move forward. The clear GA view was in favour of widening the forum.

CAA Investigation and Follow-up Procedure

A more constructive attitude towards the GA community would facilitate the free exchange of information and ideas required to reduce infringements.

Paradoxically, the most serious infringements that should attract the highest level of safety scrutiny and comment are lost to any safety follow up system when they are passed for investigation. Historically, all details of an infringement have been withheld where prosecution is likely, due to legal constraints. However, it is unlikely that such secrecy is necessary after the event.

Safety expertise should be included at the earliest stage of every investigation, with the specific aim of identifying infringement safety issues. Only limited infringement data is currently available. Whenever possible, causal factors should be identified and effectively recorded to promote safety analysis. 'Infringers' should be encouraged to contribute preventative suggestions as part of a "no blame " culture when closing reports.

There was strong support for heavy fines where blatant, irresponsible infringements had occurred; publicity should be given to all such awards.

Periodic detailed feedback should be available to promote infringement awareness and 'lessons learned' with appropriate expert discussion and comment.