N°4

Airspace Infringement Safety Improvement Initiative

Safety Letter

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EUROCONTROL

GENERAL AVIATION COMMUNITY HIGHLIGHTS POTENTIAL AIRSPACE INFRINGEMENT RISK REDUCTION MEASURES

FOREWORD

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The current EUROCONTROL Airspace infringement safety initiative was launched in the beginning of 2006, and is approaching the end of the causal factors analysis phase. This safety letter considers some of the findings of the General aviation airspace infringement survey which, along with the Safety analysis of airspace infringements in Europe study reported on in a previous safety letter, are shaping potential risk reduction measures.

Analysed occurrence reports show that the great majority of airspace infringements involve GA flights. Of course, this comes as no surprise because most GA flights take place outside of controlled airspace and there are now reported to be 132 000 private aircraft operating in Europe. However, it does mean that focusing on the needs of the GA community is the key to reducing the airspace infringements. To that end we are grateful to IAOPA and the hundreds of GA pilots who have actively contributed to the causal factors analysis and the development of potential risk reduction measures.

In partnership with the other stakeholders in this initiative, EUROCONTROL will be holding a workshop on 24 January 2008 to examine the evidence collected by the initiative. The workshop will also discuss the draft risk reduction measures which will form the baseline for a European action plan to reduce airspace infringements. The Action plan is expected to be published in the summer of 2008.

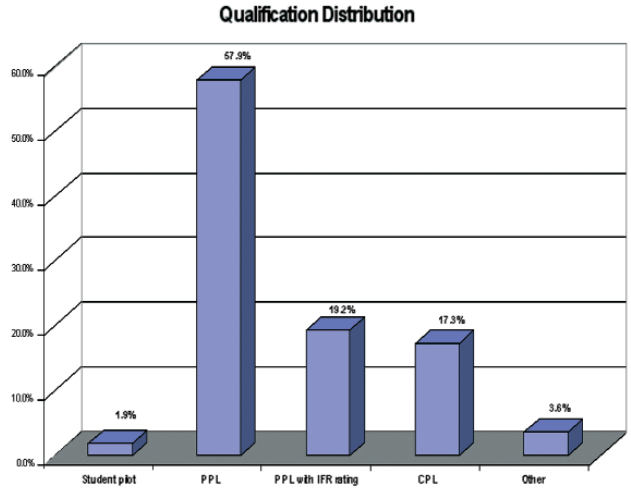
Further information on the workshop can be found on the back page of this safety letter or at: *http://www.eurocontrol.int/safety/public/standard_page/Infringements_workshop.html*

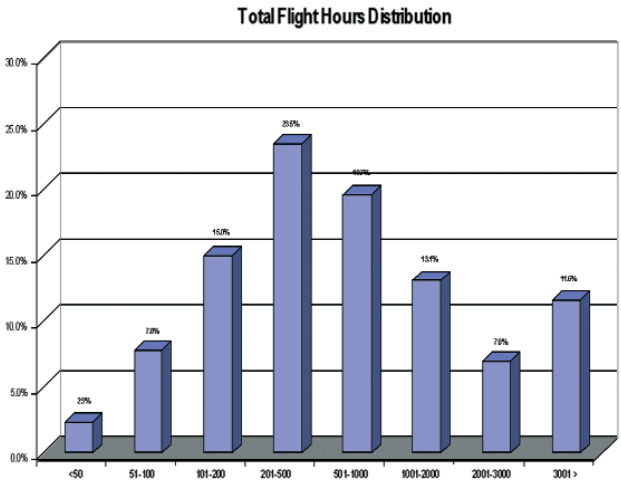
GENERAL AVIATION AIRSPACE INFRINGEMENT SURVEY

The survey was carried out in the summer of 2007 as part of the causal factors analysis phase of the Airspace infringement safety initiative. The survey took the form of an on-line questionnaire and a series of "Focus groups".

The "Focus groups" were conducted in various European countries including Bulgaria, France, Germany, The Netherlands, Norway, Portugal, and the United Kingdom. The focus groups included pilots with a wide range of experience and qualification ranging from glider pilots to flight instructors and commercial pilots. Pilots were asked a number of questions about their opinions and their own experience of airspace infringements. The team conducting the interviews ran "brainstorming" sessions to gather the pilots' collective thoughts on the causal factors behind airspace infringement occurrences and potential prevention measures. In addition to the "Focus groups", more than 1000 GA pilots, 77% of whom were PPL holders, responded to an on-line questionnaire. Pilots from 24 European states, Albania, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, The Netherlands, Norway, Poland, Portugal, Slovakia, Sweden, Switzerland, and the United Kingdom, took part in the survey.

The full survey report will be published in January 2008 but this safety letter highlights some of the conclusions and recommendations which emerged from the study.





CAUSAL FACTORS

The survey enabled the establishment of a prioritised list of causal factors considered by GA pilots to have the highest contribution to airspace infringements.

The top 10 factors are shown in the table.

This priority list has been acknowledged by the results form the online survey which confirmed the high importance of pilot navigation skills; human performance related factors - workload, distraction, honest mistake; airspace complexity; correct use of maps/charts and the weather factor.

RANK	CAUSAL FACTOR
1	INSUFFICIENT TRAINING AND NAVIGATION SKILLS
2	HONEST MISTAKE
3	HIGH WORKLOAD
4	NOTAMS DIFFICULT TO UNDERSTAND
5	AIRSPACE BOUNDARIES DIFFICULT TO IDENTIFY IN FLIGHT
6	USE OF OUT-OF-DATE CHART
7	COMPLEX AIRSPACE USE PROCEDURES
8	BAD WEATHER CONDITIONS
9	UNFAVOURABLE ATTITUDE TOWARDS VFR FLIGHTS
10	UNFAMILIAR AIRSPACE

RISK REDUCTION MEASURES

The airspace infringement prevention measures suggested by GA pilots can be grouped into the following categories:

AERONAUTICAL INFORMATION PROVISION

Whilst acknowledging the importance of pre-flight preparation, many pilots report difficulties either obtaining aeronautical information or identifying, amongst the huge volume published, the information that is important to them. Suggestions put forward by pilots include:

- Improve NOTAM readability;
- Ensure graphical visualisation of NOTAMs;
- Improve aeronautical information accessibility;
- Standardise lower airspace maps and charts; and
- Produce aeronautical Information and MET products tailored to GA needs.

ATC SERVICES

The "Focus groups" raised a common perception among GA pilots that ATC service providers had a negative attitude to GA VFR flights. This is possibly one reason why only 10% of pilots cited ATC services as mitigation for navigation failure. The survey highlighted the need to improve understanding by controllers of the needs and limitations of VFR flights, including knowledge of light aircraft types and their performance characteristics. A further suggestion from pilots was that an airspace infringement warning tool should be developed and implemented.

FLIGHT INFORMATION SERVICES

Pilots would like to see FIS coverage extended and service scope and availability of FIS improved. They would also wish to see FIS provision in Europe standardised and best practices implemented.

AIRSPACE COMPLEXITY

The complexity of airspace is seen as a major contributory factor in airspace infringement occurrences. Suggested measures to improve the situation include:

- Harmonise and simplify lower airspace classification;
- Review and optimise volume and boundaries of controlled airspace and number of restricted/reserved/prohibited airspaces; make boundaries of airspace structures more prominent (alignment with visually observable ground features and landmarks).
- Improve management of reserved/restricted airspace structures and related information dissemination;
- Implement dedicated VFR routes, standard VFR entry/crossing points and corridors in controlled airspace.

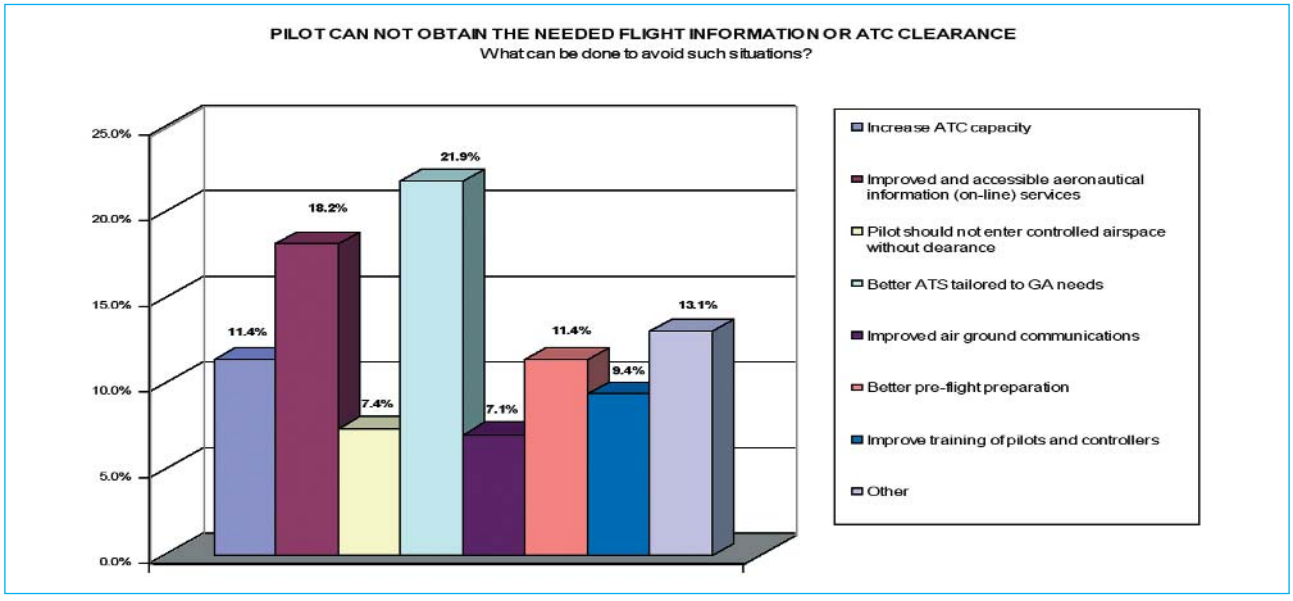
COMMUNICATION

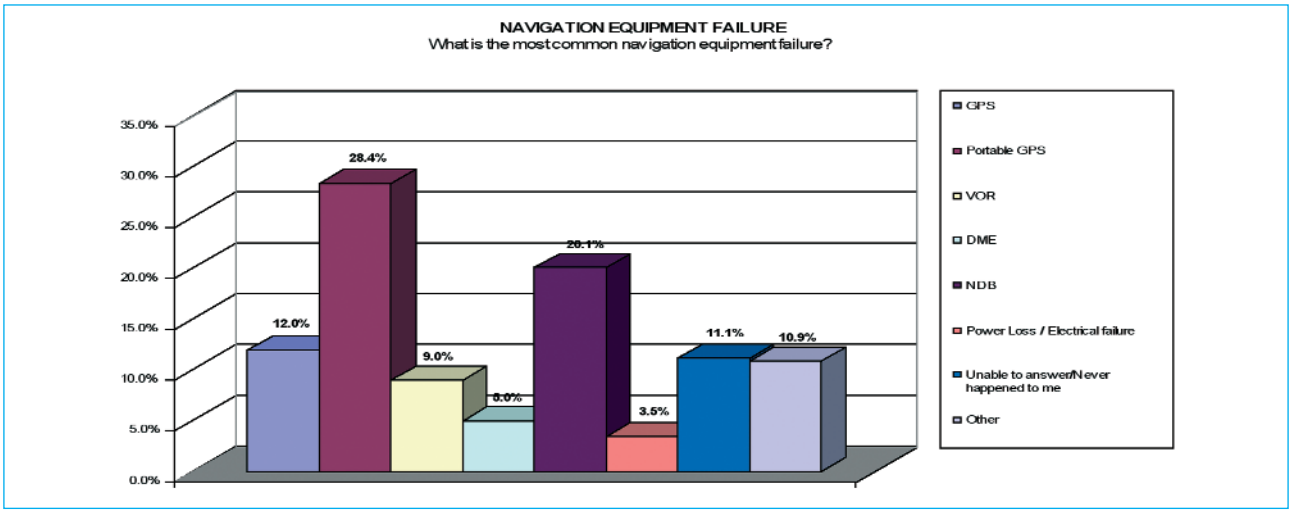
Pilots, who have experienced airspace infringement, consistently give higher importance to mitigation measures that can prevent loss of communication. Improved R/T skills training, radio discipline, knowledge and use of aviation English are all measures put forward as well as the desire to see the development of a generic R/T communications guide for VFR flights.

Many of the recommendations put forward have been addressed by European action plan for air ground communications safety and the AllClear toolkit (see *www.allclear.aero*).

TECHNOLOGY

The importance of making full use of SSR transponders installed on GA airplanes, implementation of data link and digital





radio communication (in the medium to long term), and the wider implementation of advanced GPS automated functions (e.g. infringement warning) were all technology related measures suggested by survey participants.

PILOT NAVIGATION SKILLS

Pilots perceive the need to improve navigation skills training, including GPS usage and favour implementation of pilot refresher training as well as improvements to Flight Instructors' proficiency and safety culture.

Nearly half of pilots reported having experienced a failure of navigation equipment - nearly 27 % of pilots have suffered it in the last 12 months. It appears that portable GPS sets used by pilots are least reliable and the majority of answers in category "Other" point at compass failure.

Basic navigation skills and use of better/advanced navigation equipment have been most commonly cited as the solutions to the issue; for example use of GPS navigation backed-up by dead reckoning.

REGULATORY OVERSIGHT

Implementation of mandatory pilot refresher training and mandatory proficiency checks are suggested. Pilots would also like IFR rating requirements for PPL holders to be less demanding allowing the extra safety benefits to be achieved with a more accessible rating.

RISK AWARENESS AND SAFETY CULTURE

'Open doors' days at ATC towers and control centres for GA pilots, and familiarisation visits to flying clubs and schools for controllers would help to improve mutual understanding. Pilots responding to the questionnaire also wished to see more support to the safety efforts of GA establishments and their efforts to encourage pilots to affiliate to GA organisations and flying clubs.

AIRSPACE INFRINGEMENT WORKSHOP

On 24 January 2008, EUROCONTROL will be hosting a workshop in Brussels to consolidate the knowledge acquired by the airspace infringement safety initiative and hear the views of the general aviation community, civil and military authorities, and air navigation service providers. The objective of the workshop is to develop safety recommendations which will form the baseline of an Action Plan aimed at reducing the airspace infringement risk in European airspace. EUROCONTROL's objective is not to discourage enjoyment of flying by private individuals, but to work with all aviation safety stakeholders to promote harmonisation and best practice and ensure that flights are conducted safely.

To participate to the development of safety recommendations, visit *http://www.eurocontrol.int/safety/public/standard_page/Infringements_workshop.html* or *www.cis.bg*

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