STAR 015 V1 – March 2013	Collision avoidance with VFR traffic in class E airspace

Introduction

During the summer season the number of AIRPROX events and TCAS advisories are generally on the rise. One of the reasons for this is the increase in VFR flying as soon as the weather gets better after winter. These events often happen in E airspace around terminal areas. The purpose of this STAR is to:

- Refresh the knowledge of flight crews on airspace classification and services provided
- Raise the awareness of the flight crews on collision avoidance
- Give advice on how to address collision avoidance to all airspace users

Discussion

It has to be understood that many general aviation pilots are not used to the high speeds and size of the aircraft. They are therefore not able to make a sound judgement on separation and risks of collision. Furthermore, many of those pilots are not aware of the dangers of wake turbulence.

On the other hand airline pilots are not always aware of the separation and services which are provided in the different airspace classes. There is no minimum separation between VFR and IFR traffic in class E airspace. Airline pilots are not used to seeing other aircraft in close proximity and often report near misses which in fact are normal operations in class E airspace.

Airspace classification and services

ICAO Rules of the air
ICAO rules of the air Annex 2 'Avoidance of Collisions' requires that when two aircraft are converging at approximately the same level the aircraft that has the other on its right shall give way except:

- Power-driven heavier than air aircraft shall give way to airships, gliders and balloons.

Class E airspace:

Class	Type Of Flight	Separation Provided	Service Provided	Speed Limitation	Radio Communication Requirement	Subject To Atc Clearance
E	IFR	IFR from IFR	ATC service and as far as practicable traffic information about VFR flights	250 kts below FL 100	Continuous two way	Yes
	VFR	Nil	Traffic information as far as practicable	250 kts below FL 100	No	No

A 500 ft vertical separation between VFR and IFR traffic is normal.

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Class D airspace:

Class	Type Of Flight	Separation Provided	Service Provided	Speed Limitation	Radio Communication Requirement	Subject To Atc Clearance
D	IFR	IFR from IFR	ATC service and traffic information about VFR flights (and traffic avoidance advice on request)	250 kts below FL 100	Continuous two way	Yes
	VFR	Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts below FL 100	Continuous two way	Yes

Recommendations

- Adhere to the speed limitation below FL100.
- Organise cockpit duties in such a way as to ensure a continuous visual scanning and monitoring of the airspace. Avoid having both crew members head down in the cockpit. Anticipate briefings.
- Make proper use of TCAS and follow TCAS RAs even if the other traffic is deemed to be visually in sight.
  Caution 1: The TCAS display does not have the same functionalities as a radar system. It must therefore not be used to determine the relative bearing of an intruding aircraft.
  Caution 2: Not all airspace users will have an operational transponder. Since TCAS only tracks operational transponder equipped aircraft many VFR traffics (especially gliders) might go undetected by TCAS.
- Use the 'See and Avoid' technique to identify other traffic in the airspace as TCAS will not detect all traffic. Pay particular attention below cumulus clouds as there might be increased glider traffic in this area.
- Train flight crews in the limitations of the ATC system. This training should include:
  - Classes of airspace
  - Services provided
  - Separation provided
  - Rules of the air, avoidance of collisions
- Organise meetings with local airspace users (ATC, flight clubs, glider operators, military operators etc) in order to raise awareness and the mutual understanding on this issue. These meetings should include among others:
  - Routes and altitudes flown
  - Speeds and sizes of aircraft
  - Areas to avoid (e.g. STAR, training areas, etc)
  - Briefing about the use of transponder
  - Briefing on the working principles of TCAS
- Report all incidents using your reporting systems. This will help to identify hot spots in the airspace. Once identified solutions can be sought to resolve these issues. For example, there have been a lot of reported near misses with gliders in class E airspace in a certain area. After

a thorough analysis it was found out that one of the instrument approaches into that airport overlapped with a glider training area. Several solutions are possible in such a case. Change the standard instrument approach, move the glider training area or introduce a transponder mandatory zone. Introducing a transponder mandatory zone ensures that the traffic is tracked by TCAS and thus allows the TCAS to develop its full potential.

- Regularly meet with ATC units of the concerned airspace to discuss safety data.
- Organise a mutual exchange programme between the ATC controllers and pilots. This will enhance the mutual understanding of each other's working environment. Controllers should get observer flights and the flight crews should visit the control tower/radar stations.

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