



Académie de l'Air et de l'Espace

Air and Space Academy

– CONFERENCE –

AIR TRANSPORT PILOTS FACING THE UNEXPECTED

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Aviation is the safest means of transport in the world, but media coverage of the infrequent accidents, the latter's financial impact on airlines and the permanent search for greater safety have encouraged authorities worldwide to regulate air transport more strictly than any other sector. Each of its constituent activities – manufacturing, maintenance, operations, training – is subject to exhaustive regulations, detailed certification procedures and constant monitoring.

The air transport sector – a global activity par excellence – was quick to standardise and/or group together the various national sets of regulations drawn up within the framework of ICAO (many of which were based on the European EASA or American FAA regulations, very similar to each other) and allow for reciprocal agreements on a large scale.

Air transport pilots are directly concerned by these regulations which stipulate the skills they must possess and the means to demonstrate them (FCL or Flight Crew Licensing): by taking a theoretical and practical training course on aircraft and simulator validated by examinations, a pilot obtains a licence, then has to go on to qualify on specific aircraft and operating conditions. Periodic renewal of both licence and qualifications is subject to tests under strict conditions.

In order to maintain the validity of the licence, the pilot is required to pass certain physical and mental tests and obtain a medical certificate.

Pilots must also be able to attest to a given amount of experience in certain predetermined conditions.

Lastly airlines must satisfy a set of operational requirements which are in fact mainly implemented by pilots.

The European FCL (Flight Crew Licensing) regulations, which came into force in 1999, put the stress on airline pilots' ab initio training since, unlike the US, Europe could not count on enough pilots coming from the ranks of the military or general aviation to meet commercial airlines' needs. While safety was the main goal, financial aspects were not completely absent. At the end of an ATP (Air Transport Pilot) integrated course, followed by a type rating on a commercial airliner, a young pilot can be taken on as a co-pilot on an aircraft such as an A320 or B737 after only 200 flying hours and a period of in-house adaptation.

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There are currently thousands of pilots trained in this manner who fly very satisfactorily. Of course, like surgeons, novice pilots can also be said to benefit from a kind of apprenticeship. By flying alongside more experienced pilots, young co-pilots gain experience and enrich their flying culture.

When this new set of European regulations came into force, the Air and Space Academy monitored the results and published a report (Dossier 20) in 2002 on “Pilot training” in which it drew attention to a few noted deficiencies, in particular a lack of training for the unexpected. In practice, pilot training focuses on mastering the flight path and executing a number of exercises and procedures. The exercises taught are selected from a list of known (therefore finite) dysfunctions, and each dysfunction is classed according to its probability of occurrence and its danger level. The training sessions are rigidly structured and do not allow for unforeseen initiatives, since the cost parameter of the training course is uppermost. Solo flights are reduced to the relevant proportion.

“Pilot training is carried out within a context in which the pupil must conform permanently to well-defined procedures and demonstrate their aptitude to carry out standardised exercises satisfactorily. Nothing is left to chance and the final control tests are codified. At no time is the pilot tested on their capacity to deal with unexpected situations. Pilots are trained, throughout their entire career, to deal with situations which they may never encounter, but they are not trained to face the unexpected”.

This observation, which was included in other documents published by the Academy, gave rise to little feedback. However, in France, the two major flying schools – ENAC and the Air France Ecole des cadets – integrated into the regulatory programme a module on manoeuvrability and familiarisation with unusual positions on aerobatic aircraft.

The aeronautics world has also become aware that regulations on pilot training must keep abreast of the technical evolution of aircraft and the operational context. Paradoxically, the fact that aircraft are safer does not mean that pilots’ capacity to face the unexpected has improved. The main organisations involved – ICAO, IATA, EASA, FAA, professional organisations etc. – have begun looking into the issue and have come up with some innovative projects: ITQI, EBT, MPL, etc.

But a careful reading of these projects reveals that at no time is the unexpected taken into account explicitly. The only documents referring to the unexpected were issued by the Flight Safety Foundation (FSF) and the International Federation of Airline Pilots Associations (IFALPA).

Almost ten years after sounding the alarm, the Air and Space Academy decided it was time to throw fresh light on the subject by organising an international conference on the theme “Air Transport Pilots facing the Unexpected”, on 29 and 30 November 2011.

Jean-Claude Bück
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