



## **Know yourself, know your aircraft.**

Most modern GA aircraft are designed to be easy to fly. They are stable, have gentle stalling characteristics and are predictable at low speed. However, if 'provoked' all aeroplanes will eventually 'bite'! Take, for example, a Cessna 172, probably the most successful General Aviation design of all time; a rugged, reliable, proven design with benign handling qualities, especially at low speed.



A 172 is spin resistant, the ailerons will work at the stall and during the recovery. One of the key design features that allow this is 'washout' which means that angle of attack of the outboard section of the wing is less than the inboard part of the wing. However whilst modern aircraft are docile, safe and easy to fly, all designs, old and new, produce lift in the same way; when the critical angle of attack for a wing is exceeded lift reduces, sometimes dramatically.

Of course everyone knows this, it has been taught since the early days of flying. Stall/Spin awareness training is well established. However, we still get caught out; every year since the Wright Brothers first took to the air aircraft accidents happen due to loss of control - often with un-survivable consequences. Over 25% of all GA fatal accidents worldwide are caused by loss of control at low level. But it is not just light GA aircraft that suffer loss of control. Most aviators will be aware of the Air France 447 loss of control disaster<sup>4</sup>, loss of control also happens to air-show performers. The common thread is unintentional loss of control due to high angle of attack. Often a startle factor causes us to do something inappropriate - like pulling back on the stick if the ground is rushing up, or applying opposite aileron if an un-commanded roll occurs.

Most modern GA pilots fly aircraft that whose controls are cleverly designed so that unless they are grossly mishandled, the shock of aerodynamic loss of control is highly unlikely. Most modern GA aircraft are designed to be spin resistant - the equivalent to an imaginary fence that has been

erected a few metres back from the edge of a cliff. Most pilots will never step beyond the fence and peer straight down. If they suddenly find themselves there, especially unintentionally, it's such a shock that by the time they figure out what to do about it, it's likely to be too late.

A PPL allows the holder to fly a huge variety of aircraft. With the appropriate 'complex' and 'tailwheel' endorsements in their logbook a PPL-holder can legally fly anything from a benign trainer to a demanding fire-breathing monster designed in the 1940s for aerial combat.



Only insurance companies demand 'hours on type' these days and even then 'hours on type' don't actually equate to competence on type. Proper handling and Loss of Control awareness training is vital if a new type is to be flown. Awareness of the potentially significant difference between an aircraft's REAL glide performance with a wind-milling propeller compared to that with an idling engine might be the difference between a survivable crash-landing and a loss of control followed by an impact that causes injury or worse.

It is vital to learn the technical aspects of any aircraft before acting as Pilot in Command. Large aircraft require a type rating; realistic simulators help with keeping current. A basic 'type data sheet' is suggested to assist in learning type-specific parameters. An example is available from the downloads section of the GASCI.ie library <http://gasci.weebly.com/downloads.html>

Most organisations have a currency system whereby pilots must keep their skills up-to-date by regular practice of specific events. In the GA world, apart from the minimum requirements prescribed for taking passengers, (3 take-offs & landings in the last 90 days), currency is a personal responsibility. A simple personal 'currency' system is a good idea to maximise the value of time in the air, especially when the opportunity to go flying is limited. A suggested basic templates is available from the downloads section of the GASCI website <http://gasci.weebly.com/downloads.html>