

# Oh dear, the screen's gone green

Anthony Preston, a rare example of the old and bold pilot, on why low flying plus low inertia equals high risk – and why all pilots should be taught spin recovery



Spitfire pilot Neil Williams in action (top), and stunt flying in MH434 during the filming of *A Bridge Too Far*

A GENTLE wingover should please them on the ground. Sure we're low, but there's plenty of room to recover.

Oops, it's turning into more of a stall turn than I'd intended. Really must resist that urge to show off. Near the vertical. Watch the ASI. Best go right – left rudder in climb so more rudder to use. Boot it in. Wing pretty well at right angles to horizon. Bit late, but she'll go round. Halfway there. Chop throttle. Will the engine keep running? Something feels wrong. Can't put finger on it. What's different?

Ground looks a lot closer than it should. She's not flying, but then I shouldn't expect her to. Prop hesitates, clunking unwillingly over compressions, making noise as if being swung. I can hear the click of the impulse mag. We're slicing down from a stall turn that nearly has a tailslide in it.

Here's where nearness of the ground plays games with the pilot. The ground looms large. We're pointing directly down at it. There's no response to the controls. At 2000ft, it would feel normal. At 1000ft, errors are made.

Memory tells me this is an unacceptable attitude

to be in. It would be, in a heavier machine. Even in a low-inertia aircraft there's a tendency to pull out of the dive too hard, too soon, running the risk of a high-speed stall. Pride, anyway, dictates I hold the vertical for a respectable instant.

Flying close to the ground concentrates the mind; hard contact with it hurts. At the same time, it's a lively stimulant for the making of mistakes.

How come it suddenly feels wrong in such a situation? In most cases it's imagined: partly because it matters more, partly because the ground introduces hazards you don't find at altitude, partly because of hubris.

Safety in flying is the product of knowing your aircraft, yourself and the environment in which you fly. To know each intimately you need to experience their limits, so nothing can catch you unprepared.

This is why it makes sense for every pilot to be taught spin recovery, aerobatics, formation and low flying. Only by appreciating what can happen is it possible to be sure you can deal with it if it does.

Fear of the unknown leads to panic. Flying is for

our delight. There's no place for the unknown.

If the aircraft you normally fly is not cleared to spin, that could be because its spin is ugly. If a microlight, it's just not allowed to. Does the aircraft somehow know the rules?

It may have the sort of spin you wouldn't want to get into by mistake; a mistake that's less likely if you've experienced deliberate spinning. So find someone who has a machine that spins and who can show you what it's all about; how to enter, what it's like to be in and how to recover. A spin close to the ground is not good. A dizzy spin in the head makes it worse. The mind is calmer if confident of recovery.

Getting to know and love aerobatics provides you with experience of extreme attitudes and knowledge of the aircraft's limits. Better acquaintance with the spin as a precision manoeuvre, in an aerobatic sequence, soon removes all anxiety. You learn to enter at a precise point, execute an exact number of revolutions and continue along the chosen axis. A flick roll is nothing more than a spin executed at a higher airspeed, often in the horizontal. Randal Porteus, test

pilot for Auster back in the '50s, used to carry out a flick from inverted at the top of a loop. First called a Porteus Loop, it is better known today as the avalanche.

The secret to taming the spin is in the speed and authority of control deflection. How many lives might have been saved if a microlight pilot knew as a result of training exactly what to do? Isn't that what training is for? The too-often neglected role of the rudder

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assumes ascendancy. If he or she is to recover with minimum loss of height there must be nothing timid, no hesitation in applying corrective action.

Another benefit of aerobatics is learning to register g. Non-aerobatic aircraft are not fitted with ac- ➤



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▷ celerometers. It follows that most microlight pilots are unable to tell how many g they're pulling in recovery from a dive.

Seat-of-the-pants flying relies upon the eyes, the semi-circular canals and the buttocks. I tell my students that I'm in constant communication with my buttocks during a lesson. Clenched and things aren't going too well. Relaxed and he or she will

soon be going solo. It explains their occasional glances at me to deduce if I'm taller or smaller in my seat.

Pulling g and knowing how close you are to the structural limit would seem to be vital information when close to the ground and keen to keep flying. In the absence of a gauge, a few hours of joyful aerobatics are a good investment. Even buttocks can be taught.

Another benefit is learning to feel comfortable with the ground suddenly anywhere: from immediately underneath the tail to above your head.

Formation flying is also an effective training tool, and much under-rated. Apart from the fact that manoeuvring close to another concentrates the mind, it also gives a valuable lesson in developing intuitive control inputs.

Because the forming pilot needs to respond to changes instantly, he has no time to think about pitch, roll, and yaw, just position. Also, like nothing else, it develops coordinated control inputs.

Next time you watch an inexperienced formation pair, observe how the forming aircraft is being flown cross-controlled. Even the best do it. There's little time to glance at the slip ball, but when the pilot does, you can be sure he curses as he straightens one leg.

A word of advice: beware blinkered, concentrated view of lead aircraft when line astern. Peripheral vision must not be ignored. It's as important to be conscious of the general environment as to take an

occasional quick glance at cockpit instruments, particularly the slip ball.

I have a friend who started up a school at Biggin using the Fournier avion-planeur. They put on duo formation displays. One time he was number two executing a low formation loop. The leader judged his recovery nicely but forgot my friend, stationed behind and below, who made and stayed in contact with the ground.

Every pilot does a lot of low flying – when taking off and landing. And, ominously, it can be with deliberately crossed controls.

Take the wing-down method of dealing with a crosswind landing. It's sideslipping. In a low-inertia aircraft it has the advantage of placing runway and machine in line, from approach to touchdown.

The crabbing technique relies upon inertia and is better suited to heavier machines, but trickier for light ones.

The trouble with crossed controls, though, is that they invite a spin if speed falls too low.

Crabbing, on the other hand, is good training. You have to learn greater finesse in a low-inertia aircraft, kicking it straight the instant before its wheels contact the ground.

Just as formation teaches instinctive coordination of controls, and aerobatics teaches the extent of the performance envelope, so low flying teaches us to appreciate the two elements, air and earth, understanding their inter-relationship as they affect our aircraft.

At altitude we're wholly concerned with the air we fly in. The relevance of the earth is solely for navigation. It's odd how such a simple fact is still difficult for some quite experienced aviators to grasp. It's the: “Which way does the flag fly in an airborne balloon?” syndrome.

The closer to the ground, the more crucial the pilot's appreciation of the air mass he's flying in. The ground, as friendly terrain to be navigated, becomes a threat in several ways: as destroyer in the event of impact, as disturber of smooth airflow, as source of distracting visual cues, and as corrupter of measured reasoning.

Operating from farm strips calls for a good appreciation of low-flying imperatives: drift, rotor, wind gradient, terrain details and relative velocity. The relatively smooth air mass at altitude becomes dis-

turbed close to the ground, by relief and surface irregularities. These disturbances obviously influence the behaviour of the flying machine. The apparent velocity of the aircraft, due to visual cues from the ground, can lead to misjudgment. Proximity to the ground can force errors.

Not so long ago I had the good fortune to be invited to fly free of the restraints imposed by the Rules of the Air as they relate to low flying. The reason was *The Medallion*, a Jacky Chan film to be filmed in the Wicklow mountains in Ireland.

The relevant aviation authority issued a temporary exemption for the purposes of filming, and the ex-Richard Branson CFM Shadow flew without front canopy, with a lurid colour scheme and machine guns under the wings.

The best bit was being shown into the wardrobe trailer and directed to the kit labelled “stunt pilot”.

I was supposed to be Lee Evans, in aid of which I was given a brown wig and a silly grin, although in truth the latter came automatically from flying an open cockpit microlight with such freedom.

Lessons learned in the RAF and many hours flying over the unrestricted bush in Central Africa came back. You think about the probable behaviour of the prevailing wind, as influenced generally by the mountains and specifically by the woods and trees, as you skim the brow of a hill – shadow meeting Shadow – and plunge down into a narrow river valley or skim the surface of a deep, steep-sided mountain lake. You think about the terrain: is there sufficient room to turn back? Is the slope greater than the climb angle of the aircraft?

Recall the great Neil Williams, magical pilot, who just once made a misjudgment and didn't live to regret it.

Then there's the downwash from the filming helicopter to avoid (of whose presence one was only made aware by seeing his shadow little more than a rotor blade's length away from one's own).

You remember past mistakes. You make no assumptions: like the time in a J3 Cub in Southern Rhodesia flying down one side of a strip of eucalyptus trees and, in climbing up and over to reverse down the other side, discovering too late it was L-shaped, then stopping at the far side of Mount Hampden airfield to pluck the offending branches from the undercarriage before taxiing in.

Practice at flying close to the ground, when not thinking only of getting the flying machine to become neatly a land machine, is valuable experience. It reinforces the important lesson about flying through the air, unfazed by closeness to the ground.

It may save your life, if forced low by bad weather. It will make you more confident in the circuit and more capable when flying the approach to a tree-lined farm strip. It will make you a more competent pilot.

As will a spell with a friend who's qualified on instruments, especially if you've ever been flying blithely through open blue sky lumped with a few, 2 oktas, bright, white, handsome and towering cumulus tufts, and found yourself suddenly entering one by mistake.

Thinking it presents a momentary distraction, nothing more than a moment's white-out, you turn to your passenger with a comforting smile and settle back in the seat to seem more relaxed.



Time passes. Instead of getting lighter, it gets darker. The hairs on the back of your neck are alerted. Sweat forms on upper lip.

No gyro instruments. Which way is up? Which way down? What does it feel? Hurried look at instruments, wondering which might help the most. I'm turning. Or is that just compass swinging in the turbulence? Did I mention the turbulence?

Engine revs increasing. Ball well off centre. I didn't do that. Why would I? I'm doing everything I can to fly straight and level. But where's straight, where's level?

Panic knocking on the door.

Throttle back. ASI? Altimeter? Seat of pants? Ball? Tachometer? Hobbs meter? Christ!

Suddenly, painfully aware that ignorance rules.

Mindless terror takes over. Now I know what it would be like riding fast along a motorway on the Ducati when suddenly made blind. Helpless. Utterly. No time to enjoy the near-death euphoria we're told about. I have a passenger.

It's getting darker. I've no idea what attitude I'm in, or what to adopt. Farewell cruel world.

Or lucky and, like me, you may escape.

But you will never enter cloud again. Never, ever. Unless your aircraft is properly equipped and your mind properly and recently trained and you know about clouds.

Check them out to see for yourself with a qualified friend in a qualified aircraft. Then we know you'll never, ever enter cloud in a microlight.

Which, along with experiences of low flying, spin, aerobatics and formation, make up the perfect recipe for Flying for Delight.

**Above**  
Ranald Porteous, who gave his name to the manoeuvre called the Porteous Loop; and formation flying!

**Right**  
Anthony Preston flying the Shadow as designed for *The Medallion* movie; and the paint scheme of the open-cockpit aircraft

