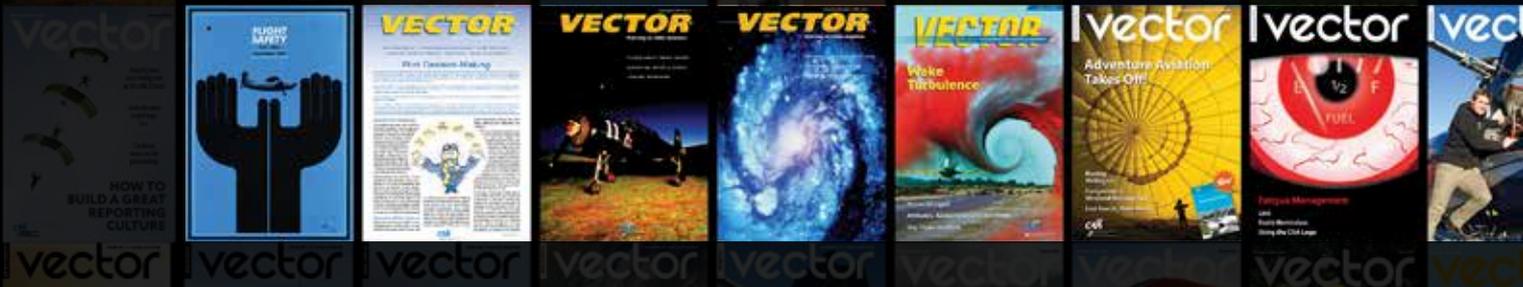


YEARS OF VECTOR

WHAT'S CHANGED?

Vector turns 50 this year. So, what has improved in the field of aviation safety since 1972? What's still a problem? »



Here are some of the aviation concerns catalogued in Volume 1, Number 1, of what was then called *Flight Safety*.

Mountain flying

The cover story was about a Piper Cherokee's fatal attempt to escape low-level turbulence in a mountainous area. The magazine noted that the pilot had prepared himself well, and was conscientious about keeping within VFR limitations.

He elected to "vacate in good time an area where flight conditions were unacceptable to him". But, tragically, he chose "an escape route which, in the prevailing conditions, took him into the rotor zone of a typical mountain wave system where the worst type of turbulence is normally present".

The magazine went on to say, "...it is essential that all pilots become thoroughly familiar with the basic theory of airflow over mountains and learn how to avoid the hazards".

Commenting on what's happened since 1972, CAA Aviation Safety Advisor Carlton Campbell says, "In the 15 years leading up to the introduction of a compulsory five hours of mountain flying training in the PPL syllabus – and an additional five for the CPL – there were 29 deaths in GA fixed-wing mountain flying accidents.

"Since then, there've been only four deaths in two such accidents, to my knowledge.

"So obviously things have improved greatly.

"I would, however, encourage any PPL candidate to get at least 10 hours training. The first five hours are, in any case, mandatory PPL training in terrain and weather awareness. Basic mountain flying exercises do not kick in until CPL training, but I recommend PPL-holders get this training anyway. It will give them, not just the basics to survive, but the competence to fly in mountains with more confidence."

Helicopter safety

Another article described a double fatality tragedy where two deer hunters, very experienced in the safe approach to a helicopter, inexplicably, made a direct approach to

the aircraft, rather than from the side. They were killed on impact with the moving rotor blade.

A second accident involved an insecure loading procedure. Hardboard sheets had been fastened to the freight loading racks, but the downwash of the rotor blades blew the sheets away, creating asymmetrical loading, and resulting in an accident.

CAA stats indicate that from 1991-2005, there were 265 helicopter safety incidents either on the ground or in the air. Since 2006, there have been 959.

But CAA Flight Examiner (helicopter) Andy McKay says the almost quadrupling of the number of reported occurrences does not reflect a deteriorating safety culture in the helicopter sector.

"Reporting was virtually non-existent back then and the fleet size was less than half the size it is today.¹ Obviously, the combination of more reporting and an increase in the size of the fleet has led to the increase in reported occurrences.

"Things have, in fact, improved dramatically in the helicopter sector over the years."

Unauthorised mods

A third story concerned unauthorised modifications. A Schliecher glider crash was found to have been caused by a steel plate being welded to the skid shoe.

On take-off, it picked up an extra cable lying on the runway. At 800 ft AGL the winch crew realised there was a problem and cut both cables. However, towing 3000 ft of cable meant that the glider was difficult to control and eventually it stalled into a nosedive 30 feet above the ground. The pilot survived but suffered compression fractures to his lower spine.

John Keyzer has been visiting North Island workshops for nearly 15 years as a CAA Aviation Safety Advisor, and he maintained rotorcraft for 30 years before that.

¹ In 1995 there were 403 helicopters on the New Zealand aircraft register. In 2022, there were 932.



“Many years ago, the industry had, to some degree, a culture of ‘giving it a go if we can get away with it’.

“We did not have a highly regulated industry, nor the oversight we must have today. Quite often, things just got done ‘in accordance with a good idea’.

“Occasionally, today, the odd modification installed may not meet the current rule requirements.”

“However, there’s much more of a safety culture. And engineers’ licences and livelihoods are too valuable to be jeopardised by doing something stupid.”

Fuel management

Another article concerned three instances of fuel exhaustion.

Between 1993 and 1999, there were nine accidents because of fuel exhaustion, but none have occurred since then. However, reported incidents are still common. There were 20 in that same period and there have been 62 since.

John Fogden, the director of aviation auditing company Total Quality Aviation, says there appears to be a continuing trend of fuel-related incidents.

“These are possibly due to inadequate flight preparation or pilots allowing themselves to be distracted during refuelling, both of which have the potential to result in an aircraft accident with fatalities.

“Attending to cellphone calls or responding to other interruptions during preflights, and particularly during refuelling, is a known precursor to critical elements of flight preparation being skipped or omitted.

“Monitor your fuel and the situation around you. Be prepared to change your plan while the state of your fuel, or your situation, still allows you options.

“If you’ve used up your fuel, you’ve used up your options. The only remaining element is luck.”

VFR into IMC

As pointed out in the Winter 2022 issue of *Vector* (*VFR into IMC - Part One*) the final main issue covered 50 years ago, was VFR pilots pressing on into hazardous weather.

In describing a fatal accident, *Flight Safety* said, “The warnings of deteriorating weather ahead were there, loud and clear in the nature of reports, and the continually worsening flight conditions”.

What’s happened since? Well, between 2000 and 2015 in New Zealand, 31 people died in about 15 CFIT accidents caused by the pilot pressing on into deteriorating weather.

According to the online aviation library, SKYbrary, 75 percent of global weather-related GA fatalities are caused by VFR-IMC events.

And it remains one of the top 10 worldwide causes of aviation accidents.

David Harrison, CAA Deputy Chief Executive (aviation safety) says that over the last half-century, New Zealand VFR pilots have become more aware of the dangers of going IMC, and have learned what to do instead, but not perhaps as much as they could have.

“Almost regardless of training, VFR into IMC occurrences are almost always about poor decision-making. And those poor decisions seem to come from some sort of self-induced pressure – to get home, to meet client expectations, to save time.

“I would also say that utter trust in an electronic device is potentially very dangerous. Two recent VFR into IMC tragedies have resulted from what appeared to be total reliance on electronic devices. They’re wonderful aids to our situational awareness, but they can be inaccurate, and the VFR pilot cannot rely on them to make up for their lack of skills and experience flying in IMC.

“Take that pressure off yourself. Plan, know what to expect, don’t completely replace looking out with relying on tech, and if unexpected IMC looms ahead, for goodness sake, just turn around – always have a plan B!” 🛩️

Download or request a free copy of the Good Aviation Practice booklets, *Mountain flying*, *VFR MET*, and *Fuel management*, and the new poster *Safety around helicopters* at aviation.govt.nz/education.