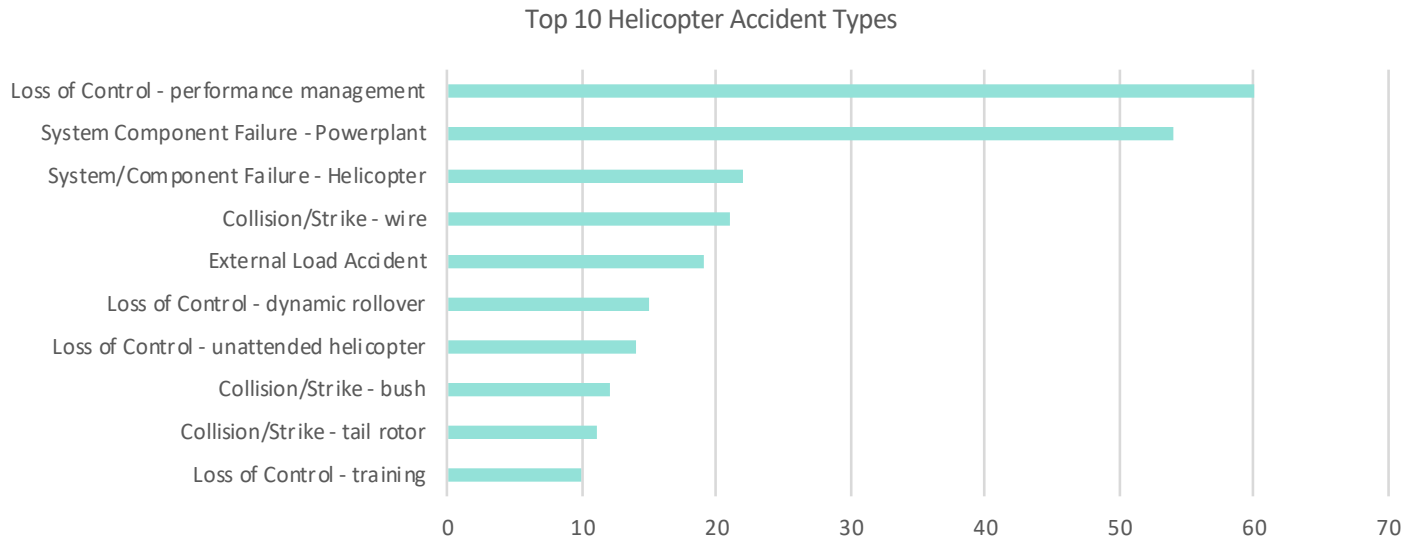
SAFETY NOTICE

LOSS OF CONTROL - PERFORMANCE MANAGEMENT

The most commonly-occurring helicopter accident is Loss of Control due to poor Performance Management (LOC-PM) based on an analysis of all New Zealand Helicopter accidents from 2000 – 2019 by the New Zealand Helicopter Association and CAA.



WHAT IS A LOSS OF CONTROL – PERFORMANCE MANAGEMENT ACCIDENT?

These accidents occur when insufficient power or rotor RPM are maintained for the prevailing conditions. The main causes are:

- out of wind,
- in light and variable wind,
- at or above the operating limitations of the helicopter, particularly over the all up weight for the density altitude.

"It is vital that a helicopter pilot know the direction of the wind in any flight regime. So much so that the simplest manoeuvre can turn into a disaster if the wind is coming from an unexpected direction."

Greg Whyte in 'Fatal Traps for Helicopter Pilots'.

NZ HELICOPTER ASSOCIATION

CAA CIVIL AVIATION AUTHORITY OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

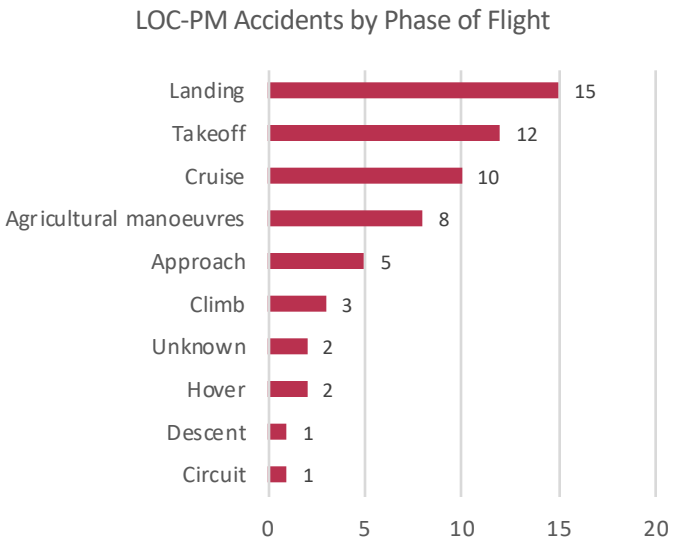
WHAT HELICOPTER TYPES ARE INVOLVED?

Both piston and turbine helicopters. Light piston helicopters are more to likely suffer power management issues than turbine machines.

ARE ANY PARTICULAR FLIGHT PHASES INVOLVED MORE?

Yes,

1. landing,
2. takeoff,
3. cruise; and
4. low level manoeuvres such as in agricultural work.

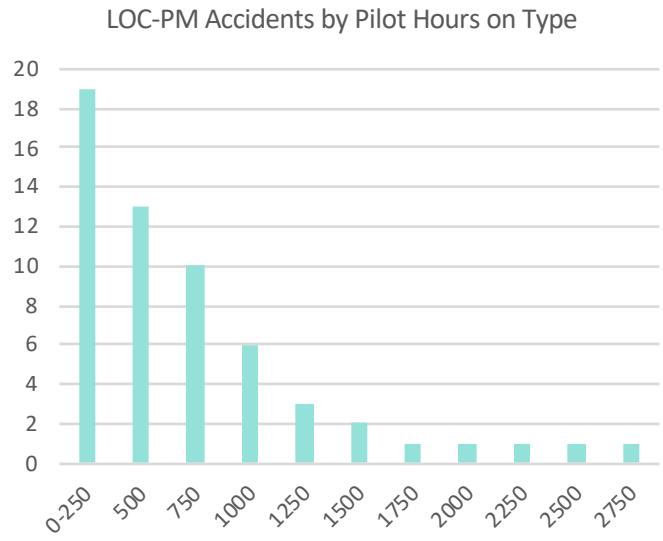


DOES PILOT EXPERIENCE PLAY A ROLE?

Yes. experienced pilots (>5000 hours) have these types of accidents too but you are at greater risk if you have:

- less than 250 hours on type or
- less than 1500 hours total time.

The ‘experience factor’ is also evident when we look at the number of accidents by pilot total time.



WHAT ARE THE MAIN CAUSAL FACTORS?

In their analysis of LOC – PM accidents, the International Helicopter Safety Team identified the following as the top causal factors.

- **Inadequate consideration of aircraft performance**
- **Inadequate consideration of weather / wind**
- **Failed to recognize cues to terminate current course of action or manoeuvre.**

WHAT CAN YOU DO?

- Plan your aircraft performance
- Operational power checks
- Know the wind direction all the time (Wind indicators: smoke, water (wind lanes and shadowing), leaves on trees (silver side up), drift, turbulence relative to terrain, firure 8, constant bank 360 degree turn)
- Draw a line between the pedals, the wind direction is perpendicular to that line
- Use survey tape (wind indicator) where possible.

ACCIDENT EXAMPLES


December 2006


Mount Ruapeha


Hughes 500


Loss of control - performance management

On 11 December 2006, a Kawasaki-Hughes 369HS helicopter took off with the pilot and 4 passengers on board from near Crater Lake on Mount Ruapehu, at an elevation of about 8300 feet. The pilot could not climb the helicopter above the surrounding terrain, so he descended towards the lake to accelerate the helicopter towards its best-angle-of-climb speed. The helicopter hit the lake surface and came to rest on the shore of the lake. All of the occupants were injured and the helicopter was destroyed. No technical defect was identified with the helicopter, but because of post-accident damage and deterioration to the engine, the possibility of reduced engine performance for an undetermined reason could not be excluded. The take-off weight was estimated to have been 40 lb over the maximum allowable. It was highly likely that the take-off weight exceeded the maximum certificated weight. The helicopter did not have sufficient power, under the prevailing environmental and load conditions, to achieve a safe take-off.

READ THE FULL HEPORT HERE:
https://www.taic.org.nz/sites/default/files/inquiry/documents/Report%2006-007vFINAL.pdf


February 2003


Kaimanawa Ranges


Hughes 300


Loss of control - performance management

The pilot was carrying out a demonstration flight for a potential client, and intended to land on a peak in the Kaimanawa Ranges. On approach, the pilot misjudged the wind direction and encountered a higher than expected rate of closure with the intended touchdown point. The pilot attempted to retrieve the situation by running the helicopter on to the ground then taking off again. However there was insufficient space for this manoeuvre and the helicopter nosed over. The pilot received minor injuries and the two passengers were seriously injured.


July 2008


Canterbury


Hughes 500


Loss of control - performance management

On approach for a landing by a hut in high country terrain, the Pilot decided to land at another site, turned to go back down the valley and got caught by a strong gust of wind. The helicopter hit the ground and slid 50 metres. The pilot's inexperience meant he did not fully appreciate or evaluate the risks involved in making the manoeuvre to change landing sites in the gusting conditions that prevailed at the time.