

Flight Training in New Zealand Safety Report

May 2018



The following safety report provides information to the flight training sector on the activities and the safety performance of flight training operations. Going forward we will endeavour to produce these Safety Reports quarterly.

In recent years there has been some decline in training activity and license issues in New Zealand, however flight training continues to be a vibrant and active sector within the aviation industry. Over the last 5 years there has been a marked decrease in accident and incident rates in flight training, and with the introduction of SMS not too far away, this is hoped to decline further.

Please contact me if you have any questions or require further information on the content of this report.

Charlotte Rose

Regulatory Intelligence Analyst

Charlotte.rose@caa.govt.nz

Training Activity

Total reported training hours for both aeroplanes and helicopters combined are shown by quarter over the period 2007 to the end of the first quarter of 2018* in figure 1. It can be seen that there has been a decrease in flight training hours in both dual and solo training since 2009, but over the last 5 years, activity has been relatively stable. Table 1 shows a breakdown of total reported flight training hours by quarter.

*Reported training hours for the first quarter of 2018 are yet to be finalised therefore may be subject to change.

FIGURE 1: FLIGHT TRAINING HOURS BY QUARTER

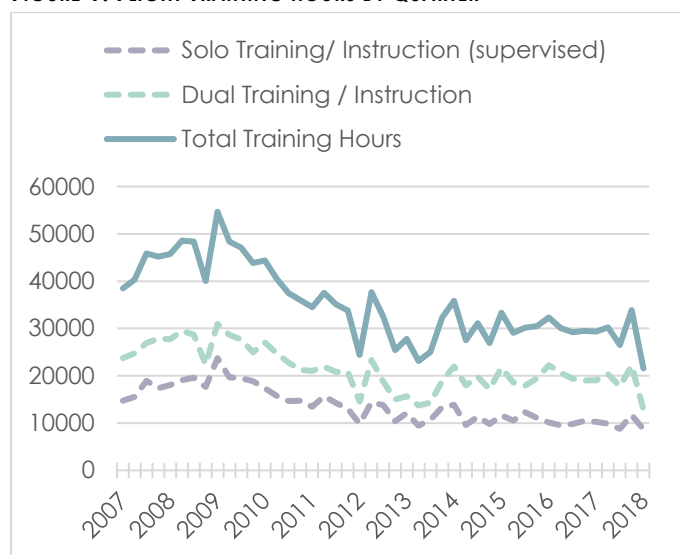


TABLE 1: FLIGHT TRAINING HOURS FOR AEROPLANE AND HELICOPTERS BY YEAR

Year	Dual Training	Dual % of Total	Solo Training	Solo % of Total	Total Training Hours
2007	103250	61%	66529	39%	169778
2008	108308	59%	74418	41%	182725
2009	112261	58%	81731	42%	193992
2010	95851	61%	62503	39%	158354
2011	84532	60%	56441	40%	140973
2012	71493	60%	48456	40%	119949
2013	62615	58%	45666	42%	108281
2014	76929	63%	44499	37%	121428
2015	77649	63%	45478	37%	123127
2016	81201	67%	39897	33%	121098
2017	79317	66%	40613	34%	119930
Q1 2018	12833	60%	8706	40%	21540

Licences Issued

In line with the downward trend in training hours flown, there has also been a steady decline in the number of both fixed wing and rotary ATPL and CPL licences being issued. Commercial Helicopter Pilot Licences have seen the most pronounced decline over the last 6 years, but saw a slight increase in the last half of 2017. Fixed wing PPL issues dropped from 2011 to 2014, but have seen an increase over the last 3 years. The figures below show the number of both fixed wing and rotary pilot licences issued per year and quarter. Licence issue data is sourced from the CAA database.

FIGURE 2: TOTAL FIXED WING LICENCE ISSUES BY YEAR, TO DATE

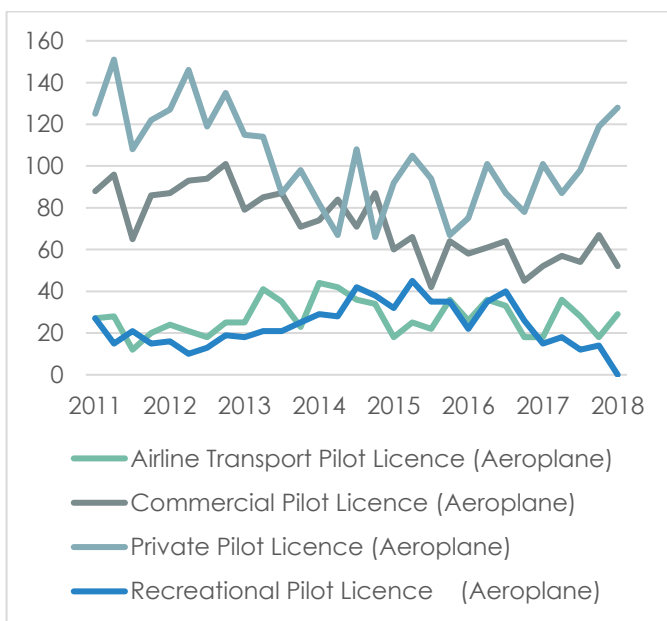
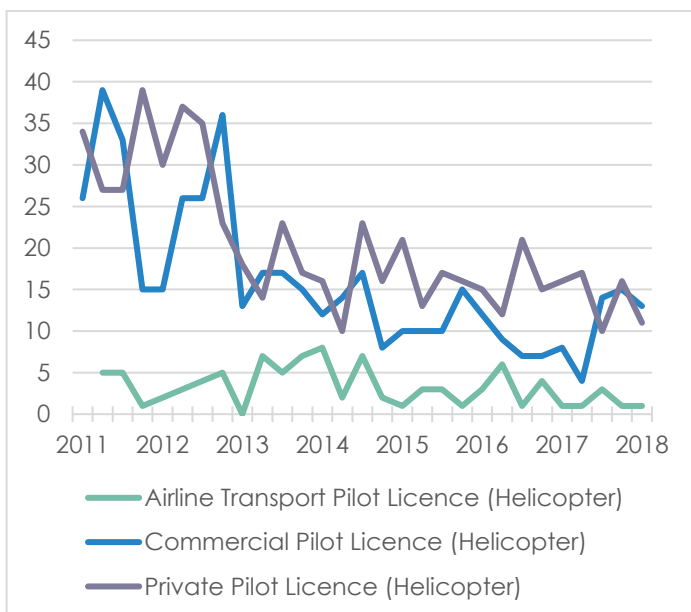


FIGURE 3: TOTAL ROTARY LICENCE ISSUES BY YEAR, TO DATE



Ratings Issued

Fixed wing instrument and instructor rating issues have declined slowly since 2013, although since 2016 there has been a small increase in B Cat rating issues. Rotary instrument and instructor rating issues have seen a big decrease since 2013, with only 2 ratings issued in 2017, both B Cat ratings. The figures below show the numbers of ratings issued by type since 2011. Rating issue data is sourced from ASPEQ.

FIGURE 4: TOTAL FIXED WING RATING ISSUES BY YEAR AND TYPE

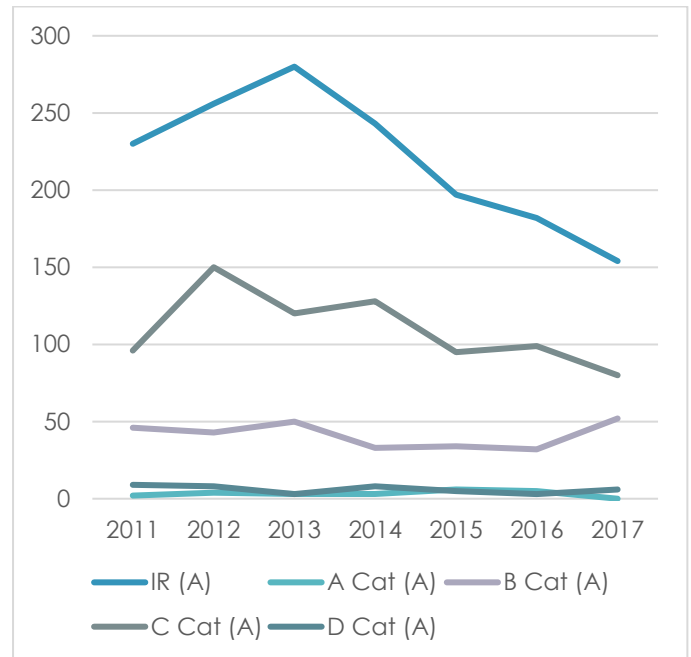
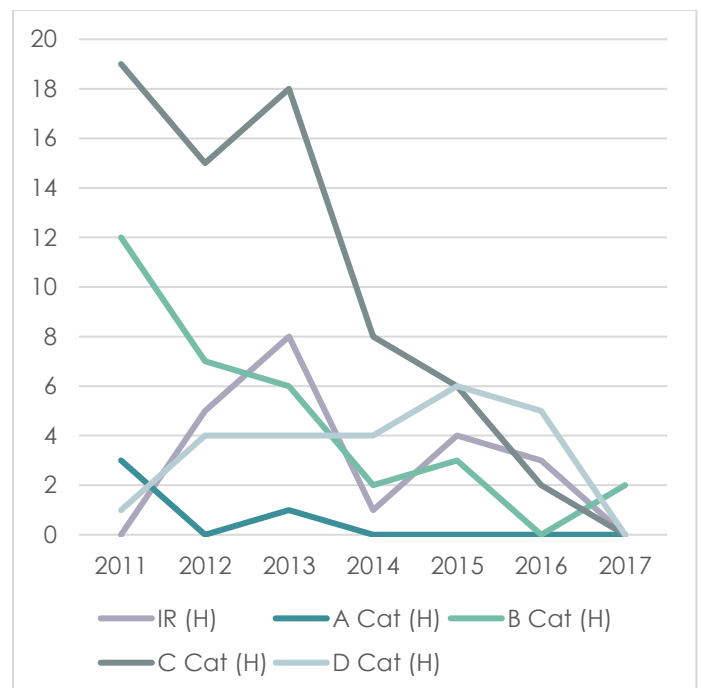


FIGURE 5: TOTAL ROTARY RATING ISSUES BY YEAR AND TYPE



Safety Occurrences

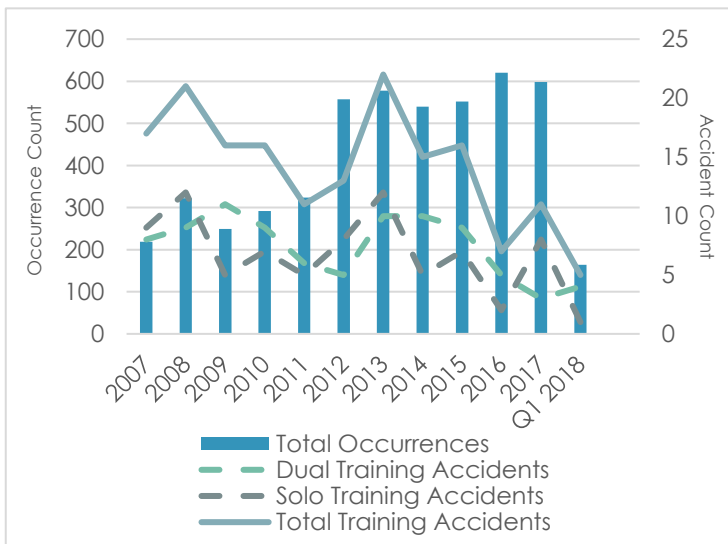
In the last year (30 March 2017 to 30 March 2018) there have been a total of 591 occurrences reported to the CAA involving training flights. The most common type of occurrences are airspace occurrences during solo training flights, which saw 238 occurrences in the last twelve months. There were no training accidents resulting in fatalities in the last year however training accidents did result in 7 injuries, 2 serious and 5 minor.

TABLE 2: REPORTED OCCURRENCES INVOLVING TRAINING OPERATIONS.

Occurrence Type	TRAINING DUAL	TRAINING SOLO	Total
Accident	6	8	14
Aerodrome Incident	9	18	27
Airspace Incident	117	238	355
Defect Incident	74	42	116
Operational Incident	22	57	79

As shown below in figure 6, 2017 saw a higher number of training accidents than in 2016, but the numbers continue to trend downward from 2013. There were slightly less overall occurrence reports in 2017 compared to 2016, but compared to the previous 5 years, there has been an increase in overall training occurrence reports. Accidents in 2017 were primarily solo training accidents. Quarter 1 2018 saw 5 accidents, 4 of which were during solo training, and one during dual. Below is a depiction of the total number of occurrences by year and the numbers of accidents by year.

FIGURE 6: TOTAL REPORTED FLIGHT TRAINING ACCIDENTS OCCURRENCES PER YEAR, TO DATE



Occurrence Rates

While the numbers of different types of occurrences help to paint a picture of the safety performance of the training sector, occurrence rates allow comparisons to previous years, taking into account activity levels. The following graphs show the yearly accident and incident* rates **per 10,000 flying hours** for fixed wing aircraft, over the last 5 years.

FIGURE 7: FIXED WING ACCIDENT RATE

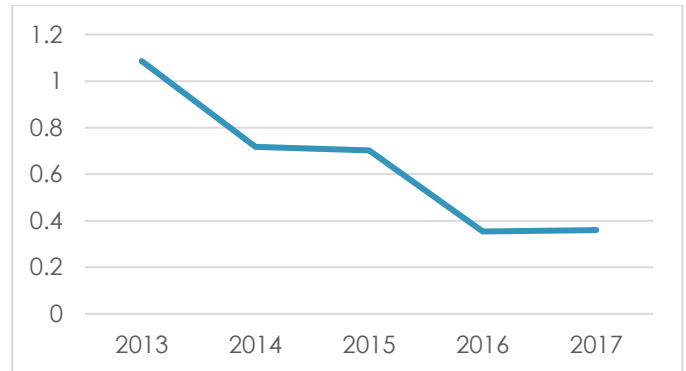
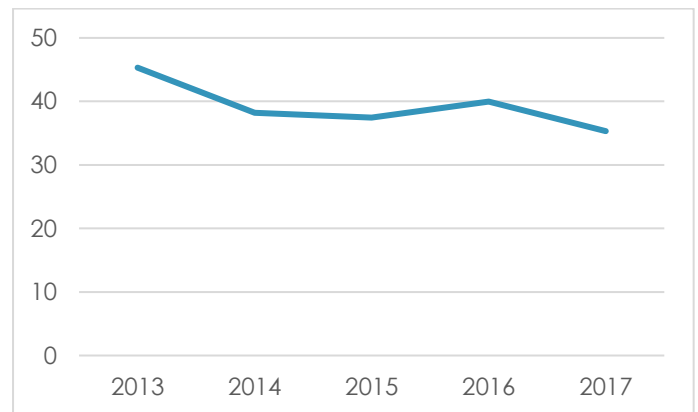
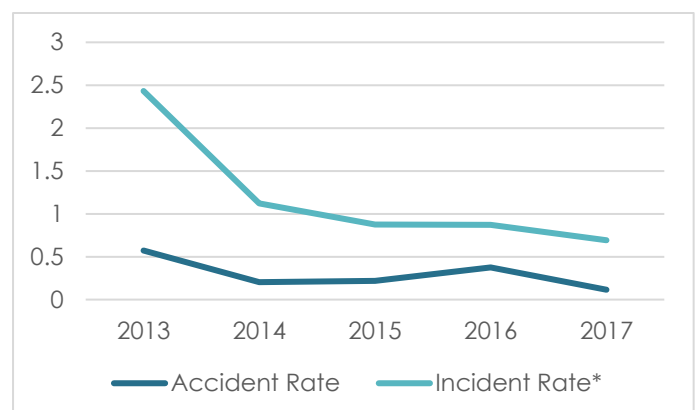


FIGURE 8: FIXED WING INCIDENT* RATE



The following graph shows the accident and incident* rates for rotary aircraft, per **1000 flying hours**.

FIGURE 9: ROTARY ACCIDENT AND INCIDENT* RATES



*Incidents include Airspace Incidents, Aerodrome Incidents and Operational Incidents.

Occurrences

Below are some examples of occurrences reported to the CAA in the last 12 months, which highlight some key occurrence themes seen in the sector over this period. As you read these occurrences, consider: could this could happen to your organisation? What are or could you doing to prevent incidents like these?

Occurrence One – Weather

-  Solo Training
-  North Island
-  Diamond Katana
-  Cruise

Reduced vertical terrain clearance over a mountain range due descending cloud base.

A student pilot was conducting a solo cross country training flight. Whilst tracking the route the student pilot observed the cloud base to be lower than expected. The student pilot made the decision to fly through a gap in the clouds over the ranges which resulted in probable flight below 500 feet AGL.

The student pilot reported that the angle of the sun combined with haze made it difficult for them to determine the height of the aircraft above the terrain.

Occurrence Two – Situational Awareness

-  Solo Training
-  North Island
-  Cessna Skyhawk
-  Circuit

Cessna turned base in front of a Katana which was ahead in the circuit. The Katana crew took avoiding action by turning left and away from the Cessna. Distance between the aircraft estimated to be approximately 1.5 wing spans. The pilot of the Cessna turned on to a base leg in front of a Katana who were ahead in the circuit.

The student pilot of Cessna had approximately 40 hours flying time, and was conducting a solo glide approach circuit lesson at the time of the occurrence.

Occurrence Three – Airworthiness

-  Dual Training
-  North Island
-  Cessna
-  Parked



Aircraft was flown over 13 hours past its maintenance inspection date as specified on the technical log. It was noted by the operator that there was a lack of education given to students about checking tech logs for aircraft serviceability and a need for supervision on this. In addition there was an issue identified with communications with the maintenance provider after organisational changes.

This occurrence highlights the importance of continued inter-organisational communication through periods of change.

Occurrence Four – Helicopters

-  Dual Training
-  South Island
-  Cabri G2
-  Landing

Helicopter suffered heavy landing during a practice autorotation. The heavy landing caused the helicopter to roll over onto its side. There was substantial damage to the aircraft resulting from the impact, but no injuries to the student or instructor.

Focus on: SMS

Implementation Plans



With the date for part 141 organisations to submit their Safety Management System implementation plans on the horizon, it's a good time to look at some things to consider for the a creation of a successful SMS.

Just Culture

Instilling the values of Just Culture in aviation students sets the foundation for a generation of confident, empowered individuals who have the ability to make positive contributions to a safe aviation system. While errors happen, especially while still learning, it is important to have an organisational culture which encourages both staff and student reporting and responds fairly to all events. Training organisations are the gateway to the aviation system, and are the prime environment to establish an honest, blameless attitude toward the reporting of safety occurrences. This is especially important as students are learning not only about flying, but how the aviation system works as a whole. Reporting errors and incidents provides not only important safety related information to the organisation but also valuable learning opportunities for the students.



Reporting errors and incidents provides not only important safety related information to the organisation but also valuable learning opportunities for the students.



Know your risks..

..and manage them. The key to an effective safety management system is knowing the risks which affect your organisation, and managing them in such a way that reduces them to as low as reasonably practicable (ALARP). In flight training, complete elimination of risk would mean that no one learns to fly, so it is important to identify hazards and areas of high risk, and work on proportionate mitigations without negatively effecting operations. This can be a fine art, but when done well, the reduction of cost and the increase of safety in the long run is invaluable. Doing internal investigations of occurrences, gathering and analysing data and looking at daily events and issues can all help to paint a picture of where your areas of higher risk are. Communicating with other organisations about shared and common risks and hazards as well as using data from the CAA are great tools to get to know your risks.

Hazards in the Flight Training Environment



The three nationwide 2017 CAA Flight Instructor Seminars gathered some valuable information from industry participants on perceived hazards which pose significant risks to the Flight Training Sector. While priorities slightly differed by region, overall there were similar themes identified across the sector as a whole. Below is a breakdown of the hazards which pose risk to Flight Training identified and prioritised by industry participants. The map below shows the top three identified hazards split by North and South Island.

If any of these hazards apply to you and your organisation, cover all your bases: analyse the hazard, do a risk assessment, consider mitigations and include it in your SMS.

Prioritised Hazards	
Priority ↑ HIGH LOW	Other Hazards*
	Instructor Experience
	Student Supervision
	Instructor Supervision
	Weather
	Inconsistent Aircraft Fit Out
	Aging Fleet

*Summary of Other Hazards	
Priority ↑ HIGH LOW	Organisational Pressures
	Miscellaneous
	English Barriers
	Financial Pressures
	Culture
	Instructor Issues
	Other Operators
	Airspace
	Distractions

