CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

Aviation Safety Summary

1 July to 30 September 2016

Winter 2016

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Introduction to the Quarterly Safety Summary Report

Welcome to the quarterly safety summary report for the winter of 2016 (Jul/Aug/Sep).

The purpose of this document is to summarise the accidents and serious incidents that occurred during the winter quarter of 2016. As accidents occur as essentially isolated events, it can be difficult to gain a picture of overall safety performance. By listing the significant safety events within the period, this document aims to provide a brief summary of safety in the NZ aviation system.

To maintain the focus on accidents and serious incidents, this document has been cut down to remove some of the aircraft activity and accident rate information. Processing of aircraft activity reporting was delaying production of this safety summary. Aircraft activity reported to CAA will still be available via the six-monthly Aviation Industry Safety Update.

The next six monthly Aviation Safety Update will be published before the 23rd of December 2016.

Safe flying,

J.D. Stanton
Manager Intelligence, Safety & Risk Analysis

jack.stanton@caa.govt.nz

Executive Summary - Aviation Safety to 30 Sep 2016

- There were 14 accidents in the winter of 2016. This is the lowest number of accidents in a winter quarter since 2013, (which also had 14 accidents).
- There were no fatal accidents in this quarter.
- The aircraft groups with reduced numbers of accidents this quarter were:
  - Small Aeroplanes (two accidents in this quarter)
  - Helicopters (two accidents this quarter)
  - Sport aircraft (five accidents this quarter)
  - Hang Gliders (two accidents this quarter)
  - Parachutes (no accidents this quarter).
- There were two serious injuries during an adventure aviation operation (a tandem paragliding flight). See page 6.
- Six minor injuries occurred on an airline operations helicopter flight, and one minor injury occurred during an adventure aviation operation (skydiving). There was also an accident during aeroplane agricultural operations (no injuries). See pages 6 and 7.
- There were also nine accidents in the private sectors including:
  - a glider accident; and
  - a paraglider accident;

  both of which resulted in a serious injury.
- And without injury there were:
  - an aeroplane accident;
  - a helicopter accident;
  - three microlight accidents; and
  - two sport aeroplane accidents;

  for details see pages 7 and 8.

The most concerning aspect of the accidents that occurred this winter was the number of injuries associated with tourism aviation operations. The tandem paraglider pilot and passenger, and the 5 passengers and one pilot of the helicopter, were both operations providing recreational aviation experiences for the paying public. In each of these accidents the margins of safety remaining between moderate injury and a fatality was evidently quite small. There is a high customer expectation of safety in these types of operations so these incidents will receive scrutiny from the CAA and industry.

Section 1 - Accidents

Accidents by Safety Target Group

Quarterly Comparison

Safety Target Group	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Airline Operations - Large Aeroplanes	**1**	0	0.0
Airline Operations - Medium Aeroplanes	0	0	0.0
Airline Operations - Small Aeroplanes	0	0	**0.7**
Airline Operations - Helicopters	**1**	**1**	**0.7**
Sport Transport	**2**	**1**	**1.3**
Other Commercial Operations - Aeroplanes	0	**1**	**1.3**
Other Commercial Operations - Helicopters	0	**2**	**0.3**
Agricultural Operations - Aeroplanes	**1**	0	**1.0**
Agricultural Operations - Helicopters	0	0	**1.3**
Agricultural Operations - Sport Aircraft	0	0	0.0
Private Operations - Aeroplanes	**1**	**3**	**1.0**
Private Operations - Helicopters	**1**	**2**	**0.3**
Private Operations - Sport	**7**	**14**	**7.3**
Other	0	0	0.0
Total	**14**	**24**	**15.3**

Comment

Overall accident numbers in the 2016 winter quarter have decreased by 10 (42%) in comparison to the 2015 winter quarter. The biggest decrease is within the Private Operations - Sport group.

Summary of Injury Accidents and Destroyed Aircraft Accidents

This section describes accidents which resulted in injuries or destroyed the aircraft that occurred during the period 1 July to 30 September 2016. These accidents are classified according to the highest level of injury sustained and the safety target group. Not all of these accidents were investigated by the CAA, and some of the CAA investigations have not been completed, so the text may be condensed from the original accident notification.

Fatal Injury Accidents

In the 1 July to 30 September 2016 quarter, there were **no accidents** which caused fatal injuries.

Serious Injury Accidents

Airline Operations - Large Aeroplanes

- A passenger's lower leg bones were fractured while being wheelchaired off the aircraft (serious injury) after a passenger transport A to B flight. (Occurrence Number 16/5045, CAA not investigating)

Sport Transport

- Two commercial tandem paragliders collided in mid-air resulting in one of the paragliders impacting terrain and causing serious injuries to the pilot and passenger. (16/5173)
  CAA safety investigation 17/SAI/96 in progress. Initial investigation reveals paragliders were flying in formation when one turned toward the other. The CAA investigation is examining pilot-in-command issues.

Private Operations - Sport

- A glider landed hard, damaging the canopy, elevator and undercarriage. The pilot received serious injuries. (16/3904, CAA not investigating)
- A paraglider came in too high and banked too steeply. The pilot landed on his back and sustained a serious injury. (16/4259, CAA not investigating)

Minor Injury Accidents

Airline Operations - Helicopters

- The Eurocopter AS 350 B2 Ecureuil/Squirrel impacted terrain short of the intended alpine landing site on a passenger transport A to B flight. The aircraft rolled and was substantially damaged. The pilot and 5 passengers all received minor injuries. (16/4800)
  TAIC investigation 16-006 and CAA safety investigation 17/SAI/66 in progress. No aircraft serviceability issues identified at this time.

Sport Transport

- As the skydiver went to leave the small aeroplane he misplaced his foot on the step causing him to slip forward. He managed to hold on and take his weight to better position himself to vacate the aircraft, but in doing so hyperextended his bicep muscles (minor injury). After leaving the aeroplane he deployed the parachute and landed safely. Surgery was required to repair the torn bicep tendon on both arms. (16/3583, CAA not investigating)

Destroyed Aircraft Accidents

In the 1 July to 30 September 2016 quarter, there were **no accidents** where the aircraft was destroyed without injuries.

Summary of Other Accidents

This section describes the other accidents that occurred during the period (in addition to the fatal/injury/destroyed accidents already described). For brevity the text may be condensed from the original occurrence notification.

Agricultural Operations - Aeroplanes

- During take-off, an Air Tractor with 1 person on board, ran over a 45 cm tree root on the airstrip damaging the port brakes. The pilot jettisoned the aircrafts load while maintaining directional control. The aeroplane momentarily got airborne but then settled heavily into a rough paddock ahead damaging the main undercarriage and tail wheel. The aeroplane then successfully got airborne and was flown to an aerodrome for inspection. (Occurrence Number 16/5196)
  CAA safety investigation 17/SAI/142 in progress and awaiting operator investigation report.

Private Operations - Aeroplanes

- A Cessna 150M with one person on board had a minor forced landing accident at Tauranga. At approximately 100 ft after take-off the aeroplane experienced a power reduction and the pilot decided to land back on the remaining runway. The aeroplane ran through the end of the strip with the nose gear hitting a shallow culvert, causing the nose gear to fail and the aeroplane to come to rest on its nose. (16/3999, CAA not investigating)

Private Operations - Helicopters

- The Hughes 269C with one person on board reported a suspected tail rotor failure on approach to a run on landing. Tail rotor authority was lost. After initial touchdown, the helicopter bounced and the pilot attempted to take-off by increasing collective input, but without sufficient throttle correlation the helicopter yawed and impacted the ground. (16/3752)
  CAA safety investigation 17/SAI/23 near completion, no indications of mechanical failure prior to impact.

Private Operations - Sport

- The pilot of an unregistered class 1 microlight attempted to go-around prior to touch down due to perceived insufficient distance left to land. The aircraft wheels collided with a fence. The pilot was attempting to land on the airfield contrary to layout and operational vector. (16/4417, CAA not investigating)
- A class 2 microlight with one person on board had a minor landing accident. During the rollout phase of an off-airport landing on a large flat shingle area in a riverbed, the nosewheel struck a concealed hole and the propeller tips contacted the ground. The propeller was damaged and the nosewheel yoke and axle were bent. (16/3620, CAA not investigating)
- The nose wheel of a class 2 microlight collapsed on landing at Wanaka. (16/5176)
  CAA safety investigation 17/SAI/97 in progress.
- A North American T-28B with 1 person on board was carrying out a test flight. On gear retraction the nose gear indicated unsafe. An attempt was made to lower the landing gear, but the gear lever was jammed in the up position. The aircraft held overhead for two hours to action abnormal checklists and a variety of other actions in an attempt to lower the gear lever and landing gear. After exhausting all possibilities the aircraft was landed gear up on a taxiway parallel to a grass runway. (16/5195)
  CAA safety investigation 17/SAI/141 in progress.
- A special category aeroplane was on a VFR transit flight when the engine backfired, ran rough and failed. During the forced landing the aeroplane struck the top of a 1 m high hedge and the aircraft tipped upside down. (16/5463, CAA not investigating)

Section 2 - Incidents

This section describes selected incidents[1] from the period which had a high potential risk. For brevity the text may be condensed from the original occurrence notification.

Summary of Selected Injury Incidents

Airline Operations - Large Aeroplanes

Aircraft Incident - Critical Severity

- A disembarking passenger from a transport A to B flight fell off platform placed at the bottom of the stairs and broke their hip (serious injury). (Occurrence Number 16/4212)

Sport Transport

Aircraft Incident - Minor Severity

- The passenger of a tandem parachute suffered a dislocated shoulder (minor injury) during the drogue fall phase. The passenger advised after the jump that they had dislocated that shoulder several times in the past while surfing, but had not disclosed this history prior to the jump when they had the opportunity to do so. (16/5251)

Other

Aircraft Incident - Critical Severity

- An elderly passenger fell off the stairs after exiting a foreign registered large aeroplane after a passenger transport A to B flight, injuring her head and leg (minor injuries). (16/5270)

Summary of Selected Critical Incidents (no injuries)

Private Operations - Aeroplanes

Airspace Incident

- Motueka: A small aeroplane with 2 people on board joined for runway 02 after mistaking the runway in use to be '02' instead of '20'. The approaching aeroplane came into very close proximity with another small aeroplane taking off from runway 20 after a touch and go. The incident occurred as the approaching aircraft was passing 100 ft on final. The approaching aeroplane continued with the landing to increase separation with the climbing departing traffic. (16/4232)

[1] In the period 1 July to 30 September 2016 there were a total of 1,570 incidents reported to the CAA, the ones presented here have been selected on the basis of potential risk of injury.

Summary of Selected Major Incidents (no injuries)

Airline Operations - Large Aeroplanes

Airspace Incident

- Auckland: Coordination between Tower and Radar control not carried out regarding what separation was going to be applied between a departure and a large aeroplane conducting a missed approach. The tower controller advised that the departing aircraft was seen turning left but the radar controller believed radar separation was not in existence at the time of radio contact by both aircraft. (16/5336)
- Auckland Oceanic: An aeroplane climbed through the level of another large aeroplane with no procedural separation in place. (16/3693)
- Christchurch: An aeroplane was instructed to go-around due to lack of required runway separation with another (departing) large aeroplane. Terminal radar control was advised of the go-around and assumed that the departure was being held on the runway and would be departed after the aircraft going-around. The departing aircraft contacted Terminal radar with less than the minimum radar separation. No coordination had been effected to ensure separation was maintained. (16/4093)
- Christchurch: Separation between aircraft reduced to 2.5 NM while on final. (16/4583)
  CAA safety investigation 17/SAI/63 in progress.
- Napier: An aeroplane descended below MSA without visual reference. (Descended to 6,000 ft, published MSA is 6,700 ft.) (16/5214)
- Wellington: Loss of separation occurred as the aeroplane descended. Separation was reduced to 4.8 NM. The following aircraft was given a left turn to restore separation. (16/4431)

Defect Incident

- DHC-8-311: Engine shutdown due to large fluctuations in Torque on the #1 (Left) Engine from approximately 200 ft AGL. Elected to shut the engine down above 400 ft AGL whilst climbing straight ahead, made a PAN call and carried out a left hand circuit at 1,500 ft AGL to land. (16/3504)
  CAA safety investigation 17/SAI/16 in progress.
- DHC-8-311: An aeroplane was evacuated due to fumes in the cabin. The cause of the haze in the cabin was later assessed as being vapourised Skydrol hydraulic fluid. This was also seen leaking from the underside of the fuselage at the midpoint. (16/5160)
  CAA safety investigation 17/SAI/95 in progress.

Aircraft Incident

- After rotation with positive climb, the flap retracted instead of the landing gear (during a critical phase of flight). (16/3705)
- After take-off, flaps retracted instead of the landing gear (during a critical phase of flight). (16/3703)
- During cruise at FL200, the cabin pressure warning light came on. Carried out emergency descent to 10,000 ft. After take-off, the first officer had inadvertently turned only one bleed on. This was noted while doing the climb checks, but instead of turning the remaining bleed on, the pilot turned the other bleed off, hence a slow decompression. (16/4229)

- During take-off the captains seat slid full aft at approximately 50 kts. The decision was made to continue as aborting would have been difficult without full control and early control was handed to CM2. CM1 performed a quick situation scan after the handover and noticed the power levers were about 2 cm out of the notch (pulled out accidently when the seat flew back). Performance was considered and take-off continued with no further issues. (16/4867)
  CAA safety investigation 17/SAI/86 in progress.
- Experienced severe prop vibration during descent. (16/3636)
- Ground staff concern. The start attendant didn't know how to operate the handset and had to be coached by the Captain on how to use it. The start attendant didn't speak into the mouth piece properly and the flight crew struggled to communicate with him. The communication from the start attendant was appalling and non-standard phraseology was used. If an emergency situation had eventuated the start attendant would not have the required skills to deal with it properly. (16/5086)
- Load shifted in flight. Crew reported several loud thumps from forward lower fuselage during flight. On landing found container unlocked in Position 11 when it should have been locked into 12. (16/4751)
- Loading error on a freight flight. Aircraft exceeded Max Landing Weight. Can in position 2 weighed 564 kg more than recorded on the load sheet. Crew informed of the error after landing. (16/3688)
- On arrival loader noted that all locks in the front hold were in the down position. The laterals were in the up position and the door sill locks were up. (16/4839)
- During the climb out cabin crew reported an electrical burning smell in the cabin around rows 6-8. The smell came and went throughout the flight (climb, cruise and descent). Crew couldn't find any hot spots or obvious sources. The flight was diverted. On entering the cabin, on the gate after shut down, the pilots could also smell the smell. (16/3757)
- Overtorque #1 engine in the cruise, crew have no idea how long for. (16/3732)
- A passenger boarded the aircraft unscreened. The passenger was a stem cell courier who had been escorted to the bag room to load package. (16/4223)
  CAA safety investigation 17/SAI/57 has been completed.
- ULD shift in flight - locks not secured. A number of loud bangs were heard from the underfloor area of the forward cabin and flight deck during descent and approach. (16/3725)
- Wrongly loaded cargo. An incorrect weight and documented "freight can" loaded into Position 2. The load sheet recorded can #4303 as 1,210 kg, however can #4317 at 2,562 kg was loaded to Position 2 in error. The load capability for the sector was Landing Weight Limited to 56,245 kg. This flight was operating to the maximum landing weight limit, the extra undocumented 1,352 kg's meant the aircraft was out of take-off trim and landed over the structural landing weight limit. 2 POB (16/4833)
- Insecure ULD's. On arrival noted ULD locks between 31 and 42 were left down, and the ULD lock between 41 and 42 was not locked properly. (16/5487)

Facility Malfunction Incident

- Aircraft failed in attempts to contact South Control on handover from AA Oceanic Control due to frequency receiver issues. The frequency issue has been ongoing for approximately 2 years. Controllers concerned that important aircraft transmissions, including emergencies may be missed because of the issue. (16/4072)
  CAA safety investigation 17/SAI/45 in progress.

Airline Operations - Medium Aeroplanes

Airspace Incident

- L369: An R22 operating in and out of CFZ681 had to take avoiding action against a Cessna Caravan which had entered CFZ681 without any radio calls. (16/3956)
  CAA safety investigation 17/SAI/47 has been completed.

Defect Incident

- Fairchild SA227-CC Metro 23: LH pressure instruments failure on a freight flight. Immediately after take-off the Captains altimeter remained at AD elevation, VSI at zero, and airspeed indicator decreasing to zero. Returned to aerodrome. (16/4091)

Aircraft Incident

- As the aircraft was about to taxi, it was observed to tip backwards onto its tail. Four passengers on board were taken off the aircraft onto another. Damage observed on tail by airport company personnel. No report received from Operator yet. (16/4917)
  CAA safety investigation 17/SAI/87 in progress.

- A medium aeroplane on a passenger transport A to B flight with 9 people on board landed on a snow field, the prop was feathered prior to coming to a complete stop. The aeroplane did not actually come to a complete stop but began to slide back down the take-off tracks. The pilot elected to take-off again, but full take-off power was not available until late in the take-off run due to the delay caused by the prop having to come out of feather. This reduced the take-off run available, and on becoming airborne one ski clipped the protruding edge of a slot in the snow. The pilot aborted the second attempt to land and diverted to another snow field. (16/5129)

Airline Operations - Helicopters

Defect Incident

- 10 Mustang Personal Flotation Devices (PFD's) were found defective. (16/5240, 16/5242, 16/5243)
  CAA safety investigations 17/SAI/146, 17/SAI/147, 17/SAI/148 in progress.

Other Commercial Operations - Aeroplanes

Airspace Incident

- Christchurch: Two small aeroplanes (one on a dual training flight) came within close proximity of each other, one departing an aerodrome and the other joining for another nearby aerodrome (approximately 18 km away). The aeroplane departing failed to adhere to departure procedure. Opposing runways in use at the time. (16/4585)
  CAA safety investigation 17/SAI/64 in progress.

- Feilding: Close proximity. As a small aeroplane was carrying out a dual training asymmetric circuit lesson another small aeroplane joined on base. The pilot of the training aeroplane decided to climb to 1,500 ft as they had not yet sighted the other aeroplane before it had reached the base position. As the training aeroplane was passing 1,300 ft they spotted the other aeroplane on base, close to where the training aeroplane was. (16/4274)

- Hamilton: A small aeroplane on a solo training flight was instructed to follow another small aeroplane ahead but was observed turning base inside of the traffic. Essential traffic information passed to both aeroplanes. (16/3828)

- Hamilton: A small aeroplane on a solo training flight was instructed to make an orbit on left hand downwind for runway 18, when brought it into conflict with following traffic (sport aeroplane). Traffic information between the two aeroplanes was passed and the leading aeroplane was issued a late instruction to widen the orbit and track south. (16/4586)
  CAA safety investigation 17/SAI/65 in progress.

- Napier: Inadequate instruction on an air ambulance flight. Traffic information was passed late to the aircraft on a visual approach of a VFR small aeroplane which was not operating where they should have been. The air ambulance aircraft received a TCAS RA. (16/3949)
  CAA safety investigation 17/SAI/44 has been completed.

Defect Incident

- Cessna 172R: A small aeroplane on a dual training flight carried out a forced landing from overhead an aerodrome due to fuel exhaustion. (16/3642)
  CAA safety investigation 17/SAI/25 in progress.

- Diamond DA42: When removing the R/H engine mounting frame of a small aeroplane for other work, three of the mounting frame to firewall attachment bolts were found to have varying degrees of corrosion. One bolt in particular was severely corroded and has wasted due to possible fretting on the engine mounting frame. (16/4201)

Aircraft Incident

- A small aeroplane on a dual training flight contacted the Tower on the aerodrome frequency with a Pan Pan call notifying of a left engine fire indication. The crash alarm was then activated and a full emergency was declared. The aeroplane landed without further incident. (16/4006)

Agricultural Operations - Aeroplanes

Airspace Incident

- Hamilton: An aeroplane on a ferry/positioning flight with 2 people on board was cleared for arrival, then told to join right hand downwind runway 18, descent unrestricted. Made turning downwind call, asked ATC to confirm number 3 in the sequence, which was confirmed. Positioned behind 2 aircraft on final, about to turn final when had to take avoiding action against a 4th aircraft turning final in front. (16/3882)
  CAA safety investigation 17/SAI/40 has been completed.

Private Operations - Aeroplanes

Airspace Incident

- Paraparaumu: A small aeroplane established in the circuit was making correct radio calls, then when on right base had to take avoiding action against another small aeroplane joining the circuit from the north which ignored the first small aeroplanes call of being #1 and pushed in front of the sequence. (16/4196)

Private Operations - Sport

Airspace Incident

- Dunedin: A microlight flying around in the dark with no lights, transponder or radio, caused a large aeroplane to conduct a missed approach and other aircraft to hold in the circuit. (16/3808)

- Feilding: A small aeroplane on a dual training flight was tracking through a transit lane when had to take immediate avoiding action against an opposite direction class 2 microlight which had made no radio calls. (16/3724)
  CAA safety investigation 17/SAI/24 has been completed.

Other

Airspace Incident

- Auckland Oceanic: Loss of separation as a foreign registered aeroplane was climbed through the level of an opposite direction large aeroplane. (16/4720)
  CAA safety investigation 17/SAI/69 in progress.

- M301: Airspace infringement, cleared level deviation. A foreign registered aeroplane on a test flight entered a military operating area during live firing. Also deviated from cleared level when returning to the departure aerodrome. (16/4331)

Facility Malfunction Incident

- Cass Peak SSR data was lost six times over a fifteen minute period. The outages lasted approximately 10 seconds each time and during this time, all low level targets in CH TMA and south of showed as Primary targets only. During these periods, no flag was present on Barcos advising the loss of Radar data from Cass Peak. A reset of the link/timing for Cass rectified the fault. (16/3717)
  CAA safety investigation 17/SAI/27 has been completed.

- Complete power failure at Ohakea Tower at 1810. Two generators failed to start. UPS ran out after approximately 25 minutes of commencement of initial power loss. Power restored at 1933. (16/4077)
  CAA safety investigation 17/SAI/46 in progress.

Not Recorded

Security Incident

- A passenger of a large aeroplane breached the departure lounge area of the terminal by entering via the arrival doors and by-passing AVSEC screening. When alerted, AVSEC attempted to identify the passenger but he had already made his way to his aircraft, boarded the plane and departed. (16/3793)
  CAA safety investigation 17/SAI/28 has been completed.

Defect Incidents by Aircraft Statistics Category

Quarterly Comparison

Number of Reported Defect Incidents

Aircraft Statistics Category	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Large Aeroplanes	256	134	241.0
Medium Aeroplanes	3	29	30.3
Small Aeroplanes	50	59	55.7
Agricultural Aeroplanes	4	8	8.7
Helicopters	40	39	67.3
Sport Aircraft	5	7	4.7
Unknown Aircraft	26	20	25.3
Total	**384**	**296**	**433.0**

Severity of Reported Defect Incidents

Severity	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Critical	0	0	0.3
Major	17	16	92.7
Minor	367	280	340.0

No critical defect incidents were reported in the 1 July to 30 September 2016 quarter.

Aircraft Incidents by Aircraft Statistics Category

Quarterly Comparison

Number of Reported Aircraft Incidents

Aircraft Statistics Category	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Large Aeroplanes	226	92	97.7
Medium Aeroplanes	6	10	18.0
Small Aeroplanes	25	32	28.3
Agricultural Aeroplanes	0	2	3.3
Helicopters	10	11	15.0
Sport Aircraft	6	6	5.0
Unknown Aircraft	65	54	41.0
Total	**338**	**207**	**208.3**

Severity of Reported Aircraft Incidents

Severity	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Critical	4	1	2.0
Major	23	8	23.7
Minor	311	198	182.7

Of the 4 critical aircraft incidents reported in the 1 July to 30 September 2016 quarter:

- 1 was in the ‘Large Aeroplanes’ statistics category (Occurrence Number 16/4212, see page 9 for details);
- 2 were in the ‘Small Aeroplanes’ statistics category (16/4220 and 16/5182); and
- 1 was in the ‘Unknown Aircraft’ statistics category (16/5270, see page 9 for details).

Airspace Incidents by Aircraft Statistics Category

Quarterly Comparison

Number of Reported Airspace Incidents

Aircraft Statistics Category	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Large Aeroplanes	46	33	32.3
Medium Aeroplanes	10	11	21.7
Small Aeroplanes	127	129	130.7
Agricultural Aeroplanes	2	0	2.7
Helicopters	9	18	18.0
Sport Aircraft	16	18	16.3
Unknown Aircraft	170	153	115.3
Total	**380**	**362**	**337.0**

Severity of Reported Airspace Incidents

Severity	1 Jul to 30 Sep 2016	1 Jul to 30 Sep 2015	Average Of Same Quarter In Previous 3 Years
Critical	1	0	2.3
Major	22	22	28.7
Minor	357	340	306.0

The critical airspace incident reported in the 1 July to 30 September 2016 quarter was in the ‘Small Aeroplanes’ statistics category. Occurrence Number 16/4232, see page 9 for details.

Attributability

Of the 380 reported airspace incidents in the 1 July to 30 September 2016 quarter, 15% are Air Traffic Service (ATS) attributable, 72% are pilot attributable, 3% are ATS and pilot attributable, and 9% are unknown attributable.
(Note that the percentages may not sum exactly to 100% due to rounding.)

Since October 2013 the long-term trend of the ATS attributable airspace occurrence rate is upward and the long-term trend of the pilot attributable rate is upward.

Bird Incident Rates

Bird hazard monitoring has been carried out for the period ended 30 September 2016.

There was 1 aerodrome with a strike rate in the high risk category of the CAA standard (10.0 and above bird strikes per 10,000 aircraft movements), with a long-term upward trend.

There were 5 aerodromes with strike rates in the medium risk category (5.0 to 10.0 per 10,000 movements), 3 having long-term upward trends, 1 having a long-term constant trend and 1 having a long-term downward trend.

22 aerodromes had strike rates in the low risk category (below 5.0 per 10,000 aircraft movements), 5 having long-term upward trends, 6 having long-term constant trends and 11 having long-term downward trends.

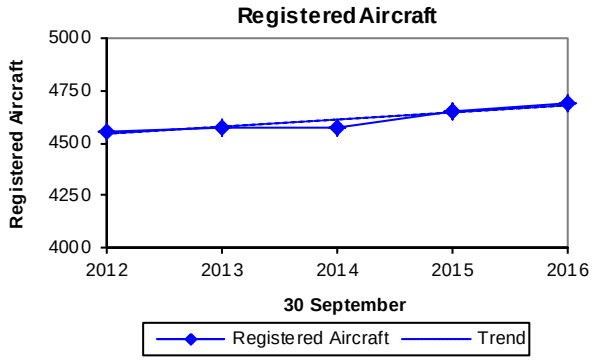
For more information visit the 'Bird Hazard Reports' section of the CAA web site http://www.caa.govt.nz/safety_info/safety_reports.htm (or look up Aviation Info, Safety Info, Safety reports)

Section 3 - Activity

Registered Aircraft by Aircraft Statistics Category

Trends

The following graph shows the number of registered aircraft at 30 September for each of the five-years 2012 to 2016.



Note that the scale on this graph does not start at zero.

Quarterly Comparison

Aircraft Statistics Category	30 September 2016	30 September 2015	Average Of 30 September In Previous 3 Years
Large Aeroplanes	136	122	127
Medium Aeroplanes	73	79	79
Small Aeroplanes	1,503	1,500	1,514
Agricultural Aeroplanes	94	93	103
Helicopters	832	833	796
Sport Aircraft	2,049	2,023	1,950
Total	**4,687**	**4,650**	**4,568**

Note that these figures include the sport aircraft statistics category but exclude hang gliders, paragliders and parachutes.

Licences and Organisations

The number of Recreational Pilot Licences (with a medical fitness certificate) increased from 385 at 30 September 2015 to 429 at 30 September 2016, an increase of 44 (11%). The number of Private Pilot Licences decreased from 2,585 to 2,418, a decrease of 167 (6%).

Over the same period the number of 'Part 129 Foreign Air Operators' increased from 30 to 38, an increase of 8 (27%); the number of 'Part 141 Aviation Training Organisations' decreased from 57 to 51, a decrease of 6 (11%); the number of 'Part 148 Aircraft Manufacturing Organisations' decreased from 20 to 17, a decrease of 3 (15%); and the number of 'Part 19 Supply Organisation Certificate of Approvals' decreased from 60 to 49, a decrease of 11 (18%).

At 30 September 2016 there were 54 'Part 102 Unmanned Aircraft Operators', this certificate was introduced on 1 August 2015.

At 30 September 2016 there were 2 'Part 147 Maintenance Training Organisations', this certificate was introduced on 1 February 2016.

Section 4 - Quarterly Statistics

Quarter	2013/4	2014/1	2014/2	2014/3	2014/4	2015/1
Social Cost $ million[1]	14.91	37.63	11.07	16.91	15.28	43.00
Number of Fatal Accidents[2]	2	5	1	2	2	4
Number of Fatal Injuries[2]	2	6	2	2	2	9
Number of Serious + Minor Injuries[2]	21	19	6	16	23	13
Number of Aircraft Accidents[2]						
Large Aeroplanes	2	2	0	0	1	0
Medium Aeroplanes	0	0	0	0	0	1
Small Aeroplanes	7	8	3	2	4	7
Agricultural Aeroplanes	3	2	0	0	1	1
Helicopters	6	5	2	4	3	7
Sport Aircraft	10	22	5	2	13	8
Unknown Aircraft	1	2	0	0	0	0
Hang Gliders	4	6	0	5	7	6
Parachutes	1	4	3	2	3	1
Number of Incidents[3]	1,384	1,290	1,244	1,379	1,288	1,432
Number of Aviation Related Concerns[4]	208	271	171	214	227	244
Number of Hours Flown[5]	236,596	235,028	189,466	199,823	208,770	251,926
Number of Air Transport Flights[5]	94,318	96,946	78,023	77,818	91,961	115,035
Number of Aircraft Movements[6]	240,943	247,546	221,072	232,016	220,846	237,404
Number of Aircraft on the Register[7]	4,562	4,587	4,552	4,570	4,615	4,662
Number of Part 119 Certificated Operators						
Air Operator – Large Aeroplanes	9	9	9	9	8	8
Air Operator – Medium Aeroplanes	15	15	14	13	12	13
Air Operator – Helicopters and Small Aeroplanes	166	167	168	167	165	163
Number of Part 137 Agricultural Aircraft Operators	99	99	99	98	97	101
Number of Part 115 Adventure Aviation Operators	34	32	28	27	27	27
Number of Part 102 Unmanned Aircraft Operators	0	0	0	0	0	0
Number of Part 141 Training Organisations	56	52	53	55	55	56
Number of Part 149 Recreation Organisations	8	8	8	8	8	8
Number of Licences (Type of Medical Certificate)[8]						
Recreational Pilot Licence (RPL Medical)	281	289	293	311	320	337
Private Pilot Licence (Class 1 & 2)	3,017	2,948	2,816	2,763	2,617	2,587
Commercial Pilot Licence (Class 2 only)	2,571	2,527	2,544	2,515	2,442	2,390
Commercial Pilot Licence (Class 1)	2,150	2,147	2,098	2,107	2,125	2,141
Airline Transport Pilot Licence (Class 2 only)	1,052	990	994	986	998	987
Airline Transport Pilot Licence (Class 1)	1,120	1,204	1,223	1,232	1,226	1,232
Air Traffic Controller Licence (Class 3)	380	381	381	384	379	379
Aircraft Maintenance Engineer Licence (N/A)	2,660	2,678	2,699	2,708	2,726	2,737

[1] All aircraft statistics categories. Includes hang gliders and parachutes. Cost of fatal, serious and minor injuries, and aircraft destroyed, in June 2015 dollars.
[2] All accidents. All aircraft statistics categories. Includes hang gliders and parachutes.
[3] Number of reported incidents. All incident sub-types.
[4] Number of reported Aviation Related Concerns.
[5] New Zealand registered aircraft. Includes the aircraft classes aeroplane, helicopter and balloon only; excludes other aircraft classes, hang gliders and parachutes. Based on reported Aircraft Operating Statistics for periods up to the quarter ended 31 December 2015 (the most recent quarter for which adequate data are available) with an allowance for aircraft for which reports were not received. Estimated for 2016/1. Data not yet available for 2016/2 or 2016/3.

Quarter	2015/2	2015/3	2015/4	2016/1	2016/2	2016/3
Social Cost $ million[1]	3.32	1.87	32.69	8.18	9.33	2.77
Number of Fatal Accidents[2]	0	0	1	1	2	0
Number of Fatal Injuries[2]	0	0	7	1	2	0
Number of Serious + Minor Injuries[2]	11	12	15	18	5	12
Number of Aircraft Accidents[2]						
Large Aeroplanes	0	0	0	1	0	1
Medium Aeroplanes	0	0	0	0	0	0
Small Aeroplanes	6	4	7	8	2	2
Agricultural Aeroplanes	1	0	0	0	1	1
Helicopters	2	5	4	3	4	2
Sport Aircraft	5	7	9	7	6	5
Unknown Aircraft	0	0	0	0	0	1
Hang Gliders	7	7	8	11	2	2
Parachutes	2	1	4	3	0	0
Number of Incidents[3]	1,432	1,233	1,309	1,414	1,604	1,570
Number of Aviation Related Concerns[4]	188	171	136	259	200	222
Number of Hours Flown[5]	203,612	212,486	241,477	256,270		
Number of Air Transport Flights[5]	88,297	92,965	107,243	118,757		
Number of Aircraft Movements[6]	211,137	222,320	227,208	237,499	213,927	221,092
Number of Aircraft on the Register[7]	4,610	4,650	4,679	4,700	4,657	4,687
Number of Part 119 Certificated Operators						
Air Operator – Large Aeroplanes	7	7	8	8	8	8
Air Operator – Medium Aeroplanes	13	13	15	15	15	15
Air Operator – Helicopters and Small Aeroplanes	163	163	164	161	162	163
Number of Part 137 Agricultural Aircraft Operators	103	104	104	102	103	103
Number of Part 115 Adventure Aviation Operators	28	30	30	28	28	28
Number of Part 102 Unmanned Aircraft Operators	0	4	16	31	45	54
Number of Part 141 Training Organisations	56	57	55	54	53	51
Number of Part 149 Recreation Organisations	8	8	8	8	8	8
Number of Licences (Type of Medical Certificate)[8]						
Recreational Pilot Licence (RPL Medical)	366	385	395	401	420	429
Private Pilot Licence (Class 1 & 2)	2,580	2,585	2,530	2,492	2,462	2,418
Commercial Pilot Licence (Class 2 only)	2,448	2,376	2,316	2,248	2,281	2,240
Commercial Pilot Licence (Class 1)	2,046	2,048	2,076	2,073	2,051	2,045
Airline Transport Pilot Licence (Class 2 only)	995	1,046	1,034	1,019	1,002	1,016
Airline Transport Pilot Licence (Class 1)	1,228	1,173	1,210	1,221	1,268	1,249
Air Traffic Controller Licence (Class 3)	387	387	383	380	381	373
Aircraft Maintenance Engineer Licence (N/A)	2,754	2,766	2,779	2,789	2,800	2,817

[6] Certificated aerodromes. Reported to CAA by Airways Corporation and Taupo Airport. Includes Auckland, Christchurch, Dunedin, Gisborne, Hamilton, Invercargill, Napier, Nelson, New Plymouth, Ohakea, Palmerston North, Paraparaumu, Queenstown, Rotorua, Taupo, Tauranga, Wellington and Woodbourne. Excludes Chatham Islands/Tuuta Airport, Hokitika, Kerikeri/Bay of Islands, Mount Cook, Te Anau/Manapouri (certificated until April 2015), Timaru, Westport, Whakatane (certificated from April 2015), Whanganui and Whangarei.

[7] As at the last day of the quarter. Includes the sport aircraft statistics category, excluding hang gliders, paragliders and parachutes.

[8] As at the last day of the quarter. For RPL holders, a medical fitness certificate, in accordance with the NZTA medical fitness standards that are applicable for a Class 2, 3, 4 or 5 driver licence with a passenger endorsement. For PPL, CPL & ATPL holders, an active class 1 or active class 2 medical certificate; this means that for CPL and ATPL licences, the number with a class 2 medical only, must only be exercising PPL privileges (or not flying at all). For ATCL holders, an active class 3 medical certificate. This does not show the number of licence holders as each client may hold more than one licence.

Definitions

Accident

An occurrence that is associated with the operation of an aircraft and takes place between the time any person boards the aircraft with the intention of flight and such time as all such persons have disembarked and the engine or any propellers or rotors come to rest, being an occurrence in which–

(1) a person is fatally or seriously injured as a result of–

(i) being in the aircraft; or

(ii) direct contact with any part of the aircraft, including any part that has become detached from the aircraft; or

(iii) direct exposure to jet blast–

except when the injuries are self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to passengers and crew; or

(2) the aircraft sustains damage or structural failure that–

(i) adversely affects the structural strength, performance, or flight characteristics of the aircraft; and

(ii) would normally require major repair or replacement of the affected component–

except engine failure or damage that is limited to the engine, its cowlings, or accessories, or damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents, or puncture holes in the aircraft skin; or

(3) the aircraft is missing or is completely inaccessible.

Aircraft Incident

Any incident, not otherwise classified, associated with the operation of an aircraft which did not immediately affect the safety of an aircraft operation but which,

(1) if allowed to continue uncorrected, or

(2) if repeated in different but likely circumstances,

could affect the safety of an aircraft operation.

Social Cost

Social cost is a way of measuring safety performance by accounting for the number and severity of casualties, and aircraft damage. The values used to estimate cost to the nation of fatal, serious and minor injuries are obtained from the annual report of the ‘Social Cost of Road Crashes and Injuries’ published by the Ministry of Transport. The Ministry of Transport has directed its agencies to use social cost to permit comparisons between transport modes. The current value of statistical life is $4.06 million. Estimates of the values of aircraft destroyed or written off are made by the CAA on the basis of market prices in a number of developed aviation nations.

Aircraft Statistics Category

The following table shows the definition of each aircraft statistics category and the aircraft classes included.

Aircraft Statistics Category	Definition	Aircraft Class
Large Aeroplanes	Aeroplanes that must be operated under Part 121 when used for air transport	Aeroplane
Medium Aeroplanes	Aeroplanes that must be operated under Part 125 when used for air transport, except for those required to operate under Part 125 solely due to operating SEIFR	Aeroplane
Small Aeroplanes	Other Aeroplanes with Standard Category Certificates of Airworthiness	Aeroplane
Agricultural Aeroplanes	Aeroplanes with Restricted Category Certificates of Airworthiness limited to agricultural operations	Aeroplane
Helicopters	Helicopters with Standard or Restricted Category Certificates of Airworthiness	Helicopter
Sport Aircraft	All aircraft not included in the groups above	Aeroplane, Amateur Built Aeroplane, Amateur Built Glider, Amateur Built Helicopter, Balloon, Glider, Gyroplane, Helicopter, Jetpack, Microlight Class 1, Microlight Class 2, Power Glider

Other Aircraft Types (not included on the NZ Aircraft Register)

Hang Glider
A glider, including a powered glider, that is capable of being launched and landed solely by the use of the pilot's legs, and includes paragliders. **Paraglider** means a hang glider with no rigid primary structure.

Parachute
Any device, without a motor in operation, comprising a flexible drag, or lift/drag, surface from which a load is suspended by shroud lines capable of controlled deployment from a packed condition.

Airspace Incident

An incident involving deviation from, or shortcomings of, the procedures or rules for–

(1) avoiding a collision between aircraft; or

(2) avoiding a collision between aircraft and other obstacles when an aircraft is being provided with an Air Traffic Service.

Bird Incident

Means an incident where–

(1) there is a collision between an aircraft and one or more birds; or

(2) when one or more birds pass sufficiently close to an aircraft in flight to cause alarm to the pilot.

Defect Incident

An incident that involves failure or malfunction of an aircraft or aircraft component, whether found in flight or on the ground.

Fatal Injury

An injury which results in death within 30 days of the accident.

Incident

Any occurrence, other than an accident, that is associated with the operation of an aircraft and affects or could affect the safety of operation.

Incident Sub-Types	
Aerodrome Incident	Dangerous Goods Incident
Aircraft Incident	Defect Incident
Airspace Incident	Facility Malfunction Incident
Bird Incident	Promulgated Information Incident
Cargo Security Incident	Security Incident

Occurrence

Means an accident or incident.

Serious Injury

Means any injury that is sustained by a person in an accident and that–

(1) requires hospitalisation for more than 48 hours, commencing within 7 days from the date the injury was received; or

(2) results in a fracture of any bone, except simple fractures of fingers, toes, or nose; or

(3) involves lacerations which cause severe haemorrhage, nerve, muscle, or tendon damage; or

(4) involves injury to an internal organ; or

(5) involves second or third degree burns, or any burns affecting more than 5% of the body surface; or

(6) involves verified exposure to infectious substances or injurious radiation.

Severity

The following definitions apply to the severity accorded to accidents and incidents as the result of investigation of occurrences:

Severity	Definition
Critical	An occurrence or deficiency that caused, or on its own had the potential to cause, loss of life or limb;
Major	An occurrence or deficiency involving a major system that caused, or had the potential to cause, significant problems to the function or effectiveness of that system;
Minor	An isolated occurrence or deficiency not indicative of a significant system problem.

Safety Target Structure