

# Aviation Safety Summary

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1 April to 30 June 2017



**Autumn 2017**



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## Introduction to the Quarterly Safety Summary Report

Welcome to the quarterly safety summary report for the autumn of 2017 (Apr/May/Jun).

The purpose of this document is to summarise the accidents and serious incidents that occurred during the autumn quarter of 2017.

This autumn there were five fatal accidents with six people killed. This is the highest number of fatal accidents in an autumn quarter for 14 years. All five of these fatal accidents occurred in sport aircraft, which were operating for recreational purposes. Investigations are continuing but none of the three microlights and two paragliders involved appear to have suffered any mechanical failure in flight. In the sport aviation sector, the cause of recent accidents seems more associated with the human factors of flying, than inherent features of the aircraft.

Human factors are not confined to sport aviation. There are 23 of potentially serious events involving medium to large aircraft on regular passenger transport and freight operations reported on pages 10 to 12. Of the 23 incidents, only four were aircraft defects. All the rest involve human factors to a large degree. The undesirable aircraft states reported arose mostly through the decisions and actions of trained crews and personnel. They appear in these pages due to conscientious reporting by the persons involved.

While human factors often initiate the safety occurrences in both large and small aircraft operations, in this quarter the fatalities highlight how much the outcome is influenced by the effectiveness of the remaining system safety layers. The concentration of fatalities in the sport sector reflects the sometimes unforgiving nature of these basic aircraft.

The next six monthly Aviation Safety Update will be published before the 31<sup>st</sup> of December 2017.

Safe flying,

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## Executive Summary - Aviation Safety to 30 June 2017

- There were 18 accidents in the autumn of 2017.
- There were five fatal accidents in this quarter. This is the highest number of fatal accidents in an autumn quarter since 2003, (which had six fatal accidents):
  - three private microlight accidents with four fatalities (another passenger suffered serious injuries);
  - two private paraglider accidents with two fatalities;  
see page 6.
- There were seven serious injuries in accidents:
  - one person on the ground near an agricultural helicopter operation;
  - the passenger of a private microlight where the pilot was killed;
  - the pilot and passenger of a microlight on a dual training flight;
  - one pilot of a private parachute flight;
  - two pilots of private paraglider flights;  
see page 7.
- There were four minor injuries in accidents:
  - two pilots and one passenger of private microlight flights;
  - one pilot of a private parachute flight that collided with another parachute;  
see page 7.
- And without injury there were:
  - one large aeroplane airline accident during taxi (the wing of one aircraft contacted the rudder of another aircraft causing damage to the rudder only);
  - one commercial helicopter accident (pole relocation);
  - one private amateur built aeroplane accident;
  - one private microlight accident;
  - one accident involving a foreign registered helicopter on a ferry/positioning flight within New Zealand;  
for details see page 8.

## Section 1 - Accidents

### Accidents by Safety Target Group Quarterly Comparison

Safety Target Group	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
<b>Airline Operations - Large Aeroplanes</b>	1	0	0.0
Airline Operations - Medium Aeroplanes	0	0	0.0
Airline Operations - Small Aeroplanes	0	0	0.7
Airline Operations - Helicopters	0	0	1.0
Sport Transport	0	1	1.7
Other Commercial Operations - Aeroplanes	0	0	2.3
<b>Other Commercial Operations - Helicopters</b>	1	2	1.0
<b>Other Commercial Operations - Sport</b>	1	0	2.7
Agricultural Operations - Aeroplanes	0	2	1.3
<b>Agricultural Operations - Helicopters</b>	1	0	0.7
Agricultural Operations - Sport Aircraft	0	0	0.0
Private Operations - Aeroplanes	0	1	1.7
Private Operations - Helicopters	0	2	1.3
<b>Private Operations - Sport</b>	13	7	7.7
<b>Other</b>	1	0	0.0
<b>Total</b>	<b>18</b>	<b>15</b>	<b>22.0</b>

#### Comment

Overall accident numbers in the 2017 autumn quarter have increased by 3 (20%) in comparison to the 2016 autumn quarter. The biggest increase is within the Private Operations - Sport group.

## **Summary of Accidents**

This section describes all accidents that occurred during the period 1 April to 30 June 2017. 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 Accidents***

#### **Private Operations - Sport**

- Class 1 microlight, Pio Pio: Aircraft crash reported to RCC by Fire Service. The pilot received fatal injuries. CAA safety investigation in progress. On-site scene examination completed. Enquiries continue regarding the pilot and aircraft. (17/1785)
- Class 2 microlight, Balclutha: Fatal Microlight crash on a rural property. The pilot and passenger were killed. The microlight was destroyed. CAA safety investigation in progress. On-site scene examination completed. Enquiries continue regarding the pilot and aircraft. (17/1635)
- Class 2 microlight, Otago: Fatal Microlight aircraft crash while on cross-country flight. The pilot was killed, and the passenger received serious injuries. CAA safety investigation in progress. On-site scene examination completed. Enquiries continue regarding the operation and aircraft type. (17/3767)
- Paraglider, Port Hills: During flight, the paraglider hit a barrier and crashed, fatally injuring the pilot. CAA safety investigation in progress. On-site scene examination completed. The investigation has entered the report writing phase. (17/2035)
- Paraglider, Queenstown: Canopy collapsed during aerobatics and pilot failed to pull reserve chute. Paraglider crashed into a building at a primary school, fatally injuring the pilot. Pilot was a staff member of a local paragliding organisation but was on a recreational flight. CAA safety investigation in progress. On-site scene examination completed. The investigation has entered the report writing phase. (17/2075)

## ***Injury Accidents***

### **Agricultural Operations - Helicopters**

- Eurocopter AS 350 B2, near Otorohanga: As the helicopter lifted for take-off the hose was still connected to the spray tank. The pilot felt the hose tug and settled the helicopter back on the ground. A person was noted on the ground nearby holding their knee. It appeared that the hose had pulled around the side of his knee during the lift, causing a serious injury. CAA health and safety assessment in progress. (17/2945)

### **Other Commercial Operations - Sport**

- Class 2 microlight, Hokitika: An aircraft on a dual training flight had a loss of power on take-off resulting in a hard landing and runway excursion. The pilot suspects that this was caused by the throttle cable breaking in climb. Both people on board received serious injuries. The aircraft was destroyed. CAA safety investigation in progress. The operator confirmed through inspection that the cable broke, likely due to corrosion. RAANZ and other operators of this type of aircraft have been advised to look at this area of concern. (17/2074)

### **Private Operations - Sport**

- Class 2 microlight, Dargaville: Forced landing accident. The engine began to run rough then failed. During the forced landing the undercarriage was destroyed, causing major damage to the aircraft. The pilot and passenger received minor injuries. No CAA investigation commenced. (17/2058)
- Class 2 microlight, Pukekohe: Forced landing accident during a test flight. Engine power loss while airborne, made a precautionary landing on insufficient runway ahead, ran through boundary fence, over turned, and came to rest inverted on the road. The pilot received minor injuries. No CAA investigation commenced. (17/3342)
- Parachute, Ashburton: Parachute entanglement close to the ground caused the canopy to deflate. The pilot fell from approximately 8 to 10 m, landing with a heavy impact on the ground, sustaining serious injuries (broken ankle, dislocated elbow and a broken vertebra). No CAA investigation commenced. (17/3506)
- Parachutes, Parakai: Two parachutes collided at approximately 1,000 ft agl. The lower parachutist's canopy started failing and the pilot decided to activate the reserve chute, but not cut away the main one as he was too low. When the reserve began to inflate, it started entangling due to the presence of the main chute and entered a spiral. The pilot adopted the emergency landing procedure before impact, receiving minor injuries (bruising to ribs). The other parachutist was not injured. (17/2224)
- Paraglider, Banks Peninsula: Paraglider crashed resulted in the pilot suffering serious injuries (lower body). (17/2513)
- Paraglider, Treble Cone: Paragliding pilot seriously injured after landing badly. (17/2512)



## ***Non-Injury Accidents***

### **Airline Operations - Large Aeroplanes**

- Turboprop, Whanganui: During taxi, the aircraft's wing contacted another turboprop's rudder. A wing walker was in position and indicating adequate clearance at the time of the incident. The first aeroplane returned to the apron for inspection and was cleared for flight. The rudder of the second aeroplane was replaced. No CAA investigation was commenced. (17/2362)

### **Other Commercial Operations - Helicopters**

- BK117, near Porirua: The helicopter was relocating poles from one side of an inlet to the other. The pilot reported that during the cruise at approximately 300 ft the aircraft started an un-commanded yaw, at which point he released the sling load and entered into an auto rotation. The aircraft impacted the water. TAIC safety investigation in progress. (17/2280)

### **Private Operations - Sport**

- Amateur built aeroplane, Waimakariri: The aircraft with two people on board was on approach to land on a gravel river beach. During the final moments before touchdown, the aircraft encountered abrupt sink due to a sudden tailwind gust. The pilot applied full power and adopted the climb attitude, however the aircraft contacted the water and overturned immediately. (17/2454)
- Class 2 microlight, Loburn: Forced landing accident with one person on board. The engine suddenly lost power and stopped. In the subsequent forced landing the microlight landed heavily causing the undercarriage to collapse, the aircraft then slid into a deer fence. The microlight was substantially damaged and written off. (17/3497)

### **Other**

- Foreign registered helicopter, near Taupo: The helicopter failed to arrive from a ferry/positioning flight, and was found crashed and destroyed. The pilot reported that there had been a fire in flight and a forced landing had to be made. CAA safety investigation in progress. Collaborative investigation being conducted with CASA, resulting in maintenance and other aircraft records being forwarded to CAA. Early assessment as to possible contributing factor, based on report from pilot, is an electrical fault. (17/3636)

## Section 2 - Incidents

This section describes selected incidents from the period which had a high potential risk. In the period 1 April to 30 June 2017 there were a total of 1,729 incidents reported to the CAA, the 55 incidents presented here have been selected on the basis of potential risk.

For brevity the text may be condensed from the original occurrence notification. In some cases the aircraft model descriptions have been reduced to a sector (e.g. large jet). This is done for two reasons:

- to maintain the privacy of the reporter, and
- to focus on the nature of the incident.

In many incidents such as airspace occurrences, the specific aircraft type is not relevant to the problem. By comparison for defect incidents the specific model is highly relevant, but the location is not. The occurrences are grouped by sector to enable consideration of specific risks. While this is intended to assist operators to identify their sector relevant risks, there will be some events occurring in a given sector that could equally occur in other sectors.

### **Critical Incidents**

#### **Airline Operations - Helicopters**

##### **Aircraft Incident**

- Helicopter, Whirinaki Forest Park: Whilst unloading a group of hunters and their gear, started to receive gunshots with impacts to the left of the group and helicopter. Helicopter reloaded and departed back to base where the police notified via 111. Police found the suspects, investigation is underway. (17/2748)

#### **Other Commercial Operations - Aeroplanes**

##### **Aerodrome Incident**

- Hamilton, Alpha R2160 (small aeroplane): Runway Incursion during a dual training flight. The Robin called ready at the run-up area and was instructed to taxi to Holding Point C3, was then cleared to taxi to, and hold at, holding point E2 cross RWY 18R (due to DV20 on short final for touch and go on RWY 18L). The Robin was then observed to have entered RWY 18L without a clearance, come to a stop at the intersection of taxiway E and RWY 18L. The DV20 was accelerating in the touch and go at this time passing the Robin with a horizontal distance of approximately 20 m. CAA safety investigation completed. (17/2681)

#### **Other Commercial Operations - Helicopters**

##### **Airspace Incident**

- Kaikoura, Turbine helicopter: Avoiding action required to miss sluicing bucket from helicopter in front that had come into circuit out of sequence. (17/5130)

#### **Private Operations - Sport**

##### **Airspace Incident**

- Kerikeri, glider: A glider was operating in the MBZ, with no transponder and not making any radio calls causing a near collision with a large aeroplane on approach. The crew of the large aeroplane advised that the aircraft came to within 200 ft of each other and within a wing span. (17/1961)

## **Other**

### **Aircraft Incident**

- Unmanned aircraft: RPAS rotors struck the forehead of the operator as it started yawing during a flight test. The operator received 16 stitches to the top of his forehead (serious injury). CAA health and safety assessment in progress. (17/4107)

## **Selected Major Incidents**

### **Airline Operations - Large Aeroplanes**

#### **Aerodrome Incident**

- Auckland: Aircraft was cleared to land while another large turbine aeroplane was lined up, waiting for take-off clearance. The crew of the turbine aeroplane on the runway reminded ATC that they were waiting for take-off clearance and the landing clearance for the aircraft on approach was cancelled. Departure clearance issued for aircraft lined up and landing clearance for approach aircraft re-issued once runway was clear. CAA safety investigation completed. (17/2180)
- Queenstown, Turbine aeroplane: PAPI white lights not visible on the approach due to snow. (17/2961)

#### **Aircraft Incident**

- Turbine, Auckland: Lock found down nil fit position 12 after arrival to Auckland ex Coolangatta. (17/2098)
- Turboprop, Auckland: Bounce on landing. Go-around called but not actioned. The Captain took control and executed the go round from a low airspeed. CAA safety investigation completed. (17/3486)
- Turbine, Brisbane: Load control error, missing cargo. During offloading the Ramp Loading Supervisor identified that 500 kg of cargo listed in position 21 on the OIR was not on board the aircraft. (17/3290)
- Turbine, Cairns: Loose ULD Straps Locks Down Nil Fit Pos 12 on arrival Auckland ex Cairns. After the front hold was opened it was found that the AKH 46330NZ that was allocated into position 13 was found in position 12 unsecured. The locks between position 11-12 were raised. (17/3644)
- Turbine, Christchurch: During main deck loading, crew observed the freight aircraft pitch up significantly to the point where the nose-wheel oleo was fully extended and the tail pole was within centimetres of the ground. Incorrect loading procedure. CAA safety investigation in progress. (17/2962)
- Turbine, Christchurch: Alpha Floor Activation and Flap Overspeed on visual approach and go- around. CAA safety investigation in progress. (17/3565)
- Christchurch: Load controller noted weights of two ULD's were clearly incorrect so required weighing all cans to ensure weight and balance sheet of the freight flight correct. (17/4175)

- Turboprop, Dunedin: Aircraft landed beyond the touchdown zone. Aircraft initially held due to visibility. Commenced approach then reported going around. Subsequently elected to land but aircraft touched down beyond the touchdown zone. CAA safety investigation completed. (17/2872)
- Turboprop, Dunedin: Stick shaker activation during approach in turbulent conditions. Night landing, icing conditions. 2,000 ft wind 230/50 kt. Glide slope not captured, rate of descent reduced to zero followed by turbulence and large airspeed fluctuations, stick shaker activation with AP disconnect. Airspeed deteriorated twice further; firstly stick shaker, then stick push, secondly stick shaker. CAA safety investigation in progress. (17/3689)
- Turboprop, En-route: Failed to turn on bleed air after take-off. Received Master Warning Cabin Pressure through 12,300 ft. (17/3887)
- Turbine, Melbourne: While preparing the freight aircraft for departure the lower aft fire warning illuminated, investigation revealed an acrid smelling haze was visible in the hold. Remaining freight off loaded. No smoke source could be located, haze dissipated. Flight departed minus the freight originally in the hold. (17/2897)
- Turbine, Melbourne: After the arrival of the freight flight into Melbourne a strong solvent smell noted from an upper deck container. (17/4174)
- Turboprop, Napier: Beacon turned off while engine # 2 was still running. Flight crew also cleared the cabin crew to open the door. The ground staff correctly refused to approach the aircraft until both props were stopped and queried the flight crew afterwards. CAA safety investigation completed. (17/2263)
- Turboprop, Nelson: Visual approach RH RWY 20, the aircraft's wings rolled level at approximately 200 ft on final. CAA safety investigation in progress. (17/3101)
- Turboprop, Taupo: Skydivers landed on the airport with a large turboprop aeroplane on the back track after landing. (17/3550)
- Turbine, Wellington: On arrival locks noted down between CPT41 and 32. ULD 46551 was found in CPT32, had moved during flight. (17/3226)
- Turboprop, Near Wellington: Bleeds not selected on after take-off. Cabin pressure warning climbing through 13,000 ft. (17/3745)
- Turbine, Perth: ULD's of a freight aircraft found in incorrect position on completion of loading. Error picked up by the Load Master prior to departure. (17/3782)

#### **Airspace Incident**

- Wellington, Turboprop: Aircraft was cleared to intercept the ILS and to descend to 3,000 ft but crew set 300 ft by mistake. Aircraft descended below the radar terrain and MSAW activated when aircraft was passing 1,800 ft. ATC instructed aircraft to climb to 3,000 ft and re-cleared it for another approach. (17/3743)

### **Defect Incident**

- Turbine, Auckland: Left lower wing skin trailing edge wing station 270 noted edge corrosion. Found Exfoliation corrosion nearly through full thickness of lower plank (.350") and moving forward under rear spar cap. (17/4320)
- Turbine, En-route: Left hand engine shutdown at TOD due to slight vibration and engine surge. CAA safety investigation completed. (17/2102)
- Turboprop, Approach Nelson: Gear unsafe indication on approach. Remained unsafe indication after gravity extension. Diverted to airfield with longer runway. Landed safely. TAIC and CAA safety investigations in progress. (17/1787)
- Woodbourne: Engine shutdown. Departing Woodbourne, starboard engine shutdown through 2,400 ft. PAN declared, flight continued to Wellington. CAA safety investigation in progress. (17/2758)

### **Airline Operations - Small Aeroplanes**

#### **Airspace Incident**

- Ardmore, Piper PA-23-250: Duty RWY 03. A Beech 76 on asymmetric climb after take-off from RWY 03 had to take avoiding action against a PA23 on final for RWY 21. When queried by Ardmore Unicom the PA23 pilot stated they would join downwind for RWY 03 confirmed they had the Beech 76 in sight. CAA safety investigation in progress. (17/3236)
- Ardmore, DHC-2 Beaver Mk 1: DHC-2 joined incorrectly for RWY 21 at Ardmore Airport and failed to give way to traffic already established in the circuit. The DHC-2 joined the circuit against the left hand circuit direction and traffic. (17/3931)
- En-route: Cleared Level Deviation. Was given intermediate levels due the pass with a north bound large turbine aeroplane. Was cleared to FL200, the large aeroplane to FL210. Medium turboprop aeroplane noticed climbing through FL202, was queried, got as high as FL204. Pilot advised they still had QNH set at 998, rather than 1013, accounting for the approximately 400 ft difference. CAA safety investigation completed. (17/2207)

#### **Defect Incident**

- Gippsland GA8, Ardmore: During taxi the aircraft's wing came in contact with a hangar wall. Damage to the wingtip noted by the pilot, no engineering inspection carried out, operated next flight with 4 passengers, then return leg as pilot ferry flight. (17/2417)

### **Airline Operations - Helicopters**

#### **Airspace Incident**

- Queenstown, Turbine helicopter: Loss of separation between helicopter and large turbine aeroplane on the approach. ATC had anticipated that the helicopter would vacate controlled airspace or land prior to conflicting with the aeroplane. CAA safety investigation in progress. (17/3735)

### **Sport Transport**

#### **Defect Incident**

- Cessna A185E, Ashburton: On taxi, the parachute drop aircraft's axle on the front right wheel sheared off. Aircraft came to rest on intersection of runway and taxiway. CAA safety investigation completed. (17/1834)

## **Other Commercial Operations - Aeroplanes**

### **Aircraft Incident**

- Cessna 152, Gisborne: Solo training pilot on cross country contacted ATC declaring INCERFA as he was unsure of where he was and aircraft had 30 minutes fuel remaining. Aircraft assisted to Gisborne and landed with 10 minutes fuel remaining. CAA safety investigation completed. (17/2458)
- Diamond DA 42, Hamilton: Dual training aircraft was established in the TAYLA HOLD and declared a PAN-PAN with BAY sector due to a fire warning in the left engine. Once on the ground emergency stood down due a false fire warning indication. CAA safety investigation completed. (17/2918)

### **Airspace Incident**

- Ardmore, Cessna 172R: Go-around due a Cessna 172R (on a dual training flight) lining up in front of a Piper PA-38-112 on short final. During the go-around the Cessna commenced take-off roll beneath after being warned by UNICOM that an aircraft was on short final. (17/3698)
- Auckland, Turboprop (small aeroplane): 180 day check HN-AA-HN, dual training flight. Part way down the ILS approach after previously being cleared onwards to NZHN via Lakes and the REKIS 2Q departure by AA Approach, The tower instruction to vacate the zone VFR via Seagrove from the MAP due traffic. Weather to the south was broken layers of cloud the lowest on the hilltops to the south of the river and visibility reducing in rain. Tower dismissive of crews' safety concerns/requests, and appear to have no idea regarding Cat C performance aircraft requirements. CAA safety investigation completed. (17/4019)
- Hamilton, Diamond DA 42: Aircraft on a solo training flight was cleared to join the right hand circuit after completing the VOR/DME approach onto RWY 36, but was observed turning into a narrow downwind, converging with another aircraft on final. Aircraft was advised of traffic on final but proceeded to turn base in front of the traffic on final. Aircraft was re-sequenced as #1 and traffic on final #2. (17/2563)
- Hamilton, Piston engine small aeroplane: An aircraft was cleared for take-off, with a piston engine aeroplane on a dual training flight on short final, creating a conflict as the piston engine aeroplane conducted a go-around. CAA safety investigation completed. (17/3033)
- Hamilton, Alpha R2160 (small aeroplane): Aircraft was a solo flight and instructed to follow a Diamond DA 42 (dual training) into the circuit. Aircraft conflicted with leading aircraft on the crosswind position. The Diamond descended to remain clear of the Alpha. The crew of the Diamond suspected that the Alpha passed approximately 200 ft above. (17/3832)
- Motueka, Piper PA-38-112: A Cessna 172R (#1 in the sequence) had landed and rolled ahead to vacate at the end, two thirds down the runway, a Piper PA-38-112 (#2) made a radio call saying he was "backtracking and lining up 20". It would appear the Piper landed on the runway behind the preceding with less than half the runway length, preceding still rolling ahead. (17/3646)

### **Defect Incident**

- Piston engine (small aeroplane), Hamilton: 3 occurrences of cracking in roll pins found in the elevator trim system. CAA safety investigation in progress. (17/3962), (17/3977), (17/4345)

## **Other Commercial Operations - Helicopters**

### **Aircraft Incident**

- MD Helicopters 500N, En-route: Whilst on a ferry/positioning flight in the cruise over hilly terrain encountered strong turbulence, a sudden strong gust from the right resulted in the RH Front passenger door perspex breaking and blowing out. Aircraft descended, landed. Inspection revealed nil damage. (17/2233)

### **Airspace Incident**

- Hastings, Kawasaki BK117 B-2: Air proximity between a Bk117 on an air ambulance flight approaching Hastings Hospital and a NORDO agricultural aeroplane departing NZHS to the west. The aeroplane allegedly flew beneath the helicopter. CAA safety investigation completed. (17/3510)
- Kaikoura, Turbine helicopter: A fixed wing aircraft travelling north at approximately 500 ft on an opposite heading to helicopter causing the helicopter to take evasive action to avoid a potential collision. No calls were heard on the operational frequency at the base or other helicopters. CAA safety investigation completed. (17/2276)

### **Defect Incident**

- Hughes 369D, Kaikoura: Helicopter lifting a drilling rig. Departing with the drilling rig slung from a 30 m line. During a left hand turn the manual release cable was activated and released the load. The load landed in the ocean at a depth of 12 m. The load was retrieved. CAA safety investigation in progress. (17/3848)

## **Agricultural Operations - Aeroplanes**

### **Airspace Incident**

- Feilding, NZ Aerospace FU24-950M: The Cessna 152 had been the only aircraft operating in the circuit and was using RWY 28. On downwind crew decided to change runway to 10 and used the appropriate procedure for this. On first approach, aircraft was too high and a missed approach was initiated. After the initial go-around, a Fletcher was observed on short final for RWY 28 (ferry/positioning flight). No radio calls had been received from this aircraft. During a discussion after flight, the Fletcher pilot indicated that he had been making radio calls but had not received any response. Later checks indicated that the aircraft's radio was not working. (17/2120)

## **Agricultural Operations - Helicopters**

### **Airspace Incident**

- Waipori Station, Bell 206L-1: Alerted via radio communications by Forestry client who was on the ground, to the presence of an incoming low flying helicopter on collision course with Bell 206L in the work area during spraying operations. Alerted whilst returning from loading site to the treatment area, approximately 50 m from treatment area. Pilot slowed and turned to the left and contacted the approaching Helicopter pilot on aviation radio 119.1. The low flying helicopter banked sharply to the right and passed abeam of the Bell 206L at the same altitude, approximately 40 m away. CAA safety investigation in progress. (17/2228)

### **Defect Incident**

- Turbine, Rimutaka Forest Park: Forced landing. During bucket operations climbing through 2,000 ft experienced an engine power loss. The pilot released the bucket and initiated a successful autorotation onto a nearby riverbed. No damage. CAA safety investigation in progress. (17/3533)

## **Private Operations - Aeroplanes**

### **Defect Incident**

- Piston engine (small aeroplane), En-route: Aircraft suffered an engine failure, carried out a forced landing onto an airstrip. CAA safety investigation completed. (17/2009)

## **Private Operations - Sport**

### **Airspace Incident**

- Wellington, Piston engine aeroplane: Aircraft entered controlled airspace without clearance, conflicting with a large turboprop on approach into Wellington. The turboprop had to make a turn to avoid the piston engine aeroplane. CAA safety investigation completed. (17/1993)

## **Other**

### **Airspace Incident**

- Auckland, Foreign registered large turbine passenger transport aeroplane: Loss of runway separation as aircraft crossed the threshold while a departing turbine aeroplane was still on the runway. (17/2423)



## Defect Incidents by Aircraft Statistics Category

### Quarterly Comparison

#### Number of Reported Defect Incidents

Aircraft Statistics Category	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
◆ Large Aeroplanes	229	194	235.7
■ Medium Aeroplanes	13	12	23.3
◆ Small Aeroplanes	81	73	52.7
▲ Agricultural Aeroplanes	2	13	8.7
■ Helicopters	39	34	49.3
Sport Aircraft	6	5	6.0
Unknown Aircraft	31	17	14.3
<b>Total</b>	<b>401</b>	<b>348</b>	<b>390.0</b>

#### Severity of Reported Defect Incidents

Severity	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
Critical	0	1	0.3
Major	19	13	40.7
Minor	382	334	349.0

No critical defect incidents were reported in the 1 April to 30 June 2017 quarter.

## Aircraft Incidents by Aircraft Statistics Category

### Quarterly Comparison

#### Number of Reported Aircraft Incidents

Aircraft Statistics Category	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
◆ Large Aeroplanes	359	179	118.0
■ Medium Aeroplanes	2	7	13.3
◆ Small Aeroplanes	16	19	25.0
▲ Agricultural Aeroplanes	0	0	2.0
■ Helicopters	8	9	8.0
Sport Aircraft	1	10	5.7
Unknown Aircraft	86	66	37.0
<b>Total</b>	<b>472</b>	<b>290</b>	<b>209.0</b>

#### Severity of Reported Aircraft Incidents

Severity	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
Critical	2	0	0.7
Major	24	20	38.3
Minor	446	270	170.0

Of the 2 critical aircraft incidents reported in the 1 April to 30 June 2017 quarter:

- 1 was in the 'Helicopters' statistics category (Occurrence Number 17/2748, see page 9 for details); and
- 1 was in the 'Unknown Aircraft' statistics category, an RPAS/unmanned aircraft (Occurrence Number 17/4107, see page 10 for details).

## Airspace Incidents by Aircraft Statistics Category

### Quarterly Comparison

#### Number of Reported Airspace Incidents

Aircraft Statistics Category	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
◆ Large Aeroplanes	57	55	38.0
■ Medium Aeroplanes	10	13	14.3
◆ Small Aeroplanes	89	110	122.3
▲ Agricultural Aeroplanes	2	1	4.7
■ Helicopters	22	21	23.3
Sport Aircraft	12	19	20.0
Unknown Aircraft	160	169	109.7
<b>Total</b>	<b>352</b>	<b>388</b>	<b>332.3</b>

#### Severity of Reported Airspace Incidents

Severity	1 Apr to 30 Jun 2017	1 Apr to 30 Jun 2016	Average Of Same Quarter In Previous 3 Years
Critical	2	1	3.0
Major	24	19	25.0
Minor	326	368	304.3

Of the 2 critical airspace incidents reported in the 1 April to 30 June 2017 quarter:

- 1 was in the 'Helicopters' statistics category (Occurrence Number 17/5130, see page 9 for details); and
- 1 was in the 'Unknown Aircraft' statistics category (a glider) (Occurrence Number 17/1961, see page 9 for details).

#### Attributability

Of the 352 reported airspace incidents in the 1 April to 30 June 2017 quarter, 16% are Air Traffic Service (ATS) attributable, 75% are pilot attributable, 3% are ATS and pilot attributable, and 7% are unknown attributable.

(Note that the percentages may not sum exactly to 100% due to rounding.)

Since July 2014 the long-term trend of the ATS attributable airspace occurrence rate is neutral and the long-term trend of the pilot attributable rate is neutral.

### **Bird Incident Rates**

Bird hazard monitoring has been carried out for the period ended 30 June 2017.

There were 2 aerodromes with strike rates in the high risk category of the CAA standard (10.0 and above bird strikes per 10,000 aircraft movements), both having long-term upward trends.

There were 10 aerodromes with strike rates in the medium risk category (5.0 to 10.0 per 10,000 movements), 6 having long-term upward trends, 1 having a long-term constant trend and 3 having long-term downward trends.

16 aerodromes had strike rates in the low risk category (below 5.0 per 10,000 aircraft movements), 6 having long-term upward trends, 2 having long-term constant trends and 8 having long-term downward trends.

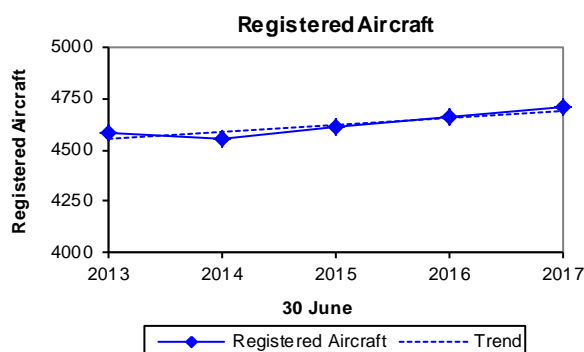
For more information visit the 'Bird Hazard Reports' section of the CAA web site <http://www.caa.govt.nz/safety-info/safety-reports.htm> (or look up Aviation Info, Safety Info, Safety reports)

## Section 3 - Activity

### Registered Aircraft by Aircraft Statistics Category

#### Trends

The following graph shows the number of registered aircraft at 30 June for each of the five-years 2013 to 2017.



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

#### Quarterly Comparison

Aircraft Statistics Category	30 June 2017	30 June 2016	Average Of 30 June In Previous 3 Years
Large Aeroplanes	135	131	124
Medium Aeroplanes	70	75	78
Small Aeroplanes	1,508	1,498	1,510
Agricultural Aeroplanes	91	93	100
Helicopters	838	825	804
Sport Aircraft	2,062	2,035	1,964
<b>Total</b>	<b>4,704</b>	<b>4,657</b>	<b>4,580</b>

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

#### Licences and Organisations

The number of 'Part 129 Foreign Air Operators' increased from 36 at 30 June 2016 to 43 at 30 June 2017, an increase of 7 (19%). Over the same period 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 54 to 46, a decrease of 8 (15%).

At 30 June 2017 there were 89 'Part 102 Unmanned Aircraft Operators', this certificate was introduced on 1 August 2015.

At 30 June 2017 there were 38 'Recreational Helicopter Pilot Licences', this licence was introduced in April 2016.

## Section 4 - Quarterly Statistics

Quarter	2014/3	2014/4	2015/1	2015/2	2015/3	2015/4
<b>Social Cost \$ million<sup>1</sup></b>	17.20	15.55	43.83	3.37	1.90	33.35
<b>Number of Fatal Accidents<sup>2</sup></b>	2	2	4	0	0	1
<b>Number of Fatal Injuries<sup>2</sup></b>	2	2	9	0	0	7
<b>Number of Serious + Minor Injuries<sup>2</sup></b>	16	23	13	11	12	15
<b>Number of Aircraft Accidents<sup>2</sup></b>						
Large Aeroplanes	0	1	0	0	0	0
Medium Aeroplanes	0	0	1	0	0	0
Small Aeroplanes	2	4	7	6	4	7
Agricultural Aeroplanes	0	1	1	1	0	0
Helicopters	4	3	7	2	5	4
Sport Aircraft	2	13	8	5	7	9
Unknown Aircraft	0	0	0	0	0	0
Hang Gliders	5	7	6	7	7	8
Parachutes	2	3	1	2	1	4
<b>Number of Incidents<sup>3</sup></b>	1,379	1,288	1,432	1,432	1,233	1,310
<b>Number of Aviation Related Concerns<sup>4</sup></b>	214	227	244	188	171	136
<b>Number of Hours Flown<sup>5</sup></b>	199,715	209,012	244,904	193,755	197,169	218,320
<b>Number of Air Transport Flights<sup>5</sup></b>	77,733	91,697	110,624	83,020	85,321	101,483
<b>Number of Aircraft Movements<sup>6</sup></b>	232,016	220,846	237,404	211,137	222,320	227,208
<b>Number of Aircraft on the Register<sup>7</sup></b>	4,570	4,615	4,662	4,610	4,650	4,679
<b>Number of Part 119 Certificated Operators</b>						
Air Operator – Large Aeroplanes	9	8	8	7	7	8
Air Operator – Medium Aeroplanes	13	12	13	13	13	15
Air Operator – Helicopters and Small Aeroplanes	167	165	163	163	163	164
<b>Number of Part 137 Agricultural Aircraft Operators</b>	98	97	101	103	104	104
<b>Number of Part 115 Adventure Aviation Operators</b>	27	27	27	28	30	30
<b>Number of Part 102 Unmanned Aircraft Operators</b>	0	0	0	0	4	16
<b>Number of Part 141 Training Organisations</b>	55	55	56	56	57	55
<b>Number of Part 149 Recreation Organisations</b>	8	8	8	8	8	8
<b>Number of Licences (Type of Medical Certificate)<sup>8</sup></b>						
Recreational Pilot Licence (RPL Medical)	311	320	337	366	385	395
Private Pilot Licence (Class 1 & 2)	2,763	2,617	2,587	2,580	2,585	2,530
Commercial Pilot Licence (Class 2 only)	2,515	2,442	2,390	2,448	2,376	2,316
Commercial Pilot Licence (Class 1)	2,107	2,125	2,141	2,046	2,048	2,076
Airline Transport Pilot Licence (Class 2 only)	986	998	987	995	1,046	1,034
Airline Transport Pilot Licence (Class 1)	1,232	1,226	1,232	1,228	1,173	1,210
Air Traffic Controller Licence (Class 3)	384	379	379	387	387	383
Aircraft Maintenance Engineer Licence (N/A)	2,708	2,726	2,737	2,754	2,766	2,779

<sup>1</sup> Social cost of accidents and injuries. All aircraft statistics categories. Includes hang gliders and parachutes. Cost of fatal, serious and minor injuries, and aircraft destroyed, in June 2016 dollars.

<sup>2</sup> All accidents. All aircraft statistics categories. Includes hang gliders and parachutes.

<sup>3</sup> Number of reported incidents. All incident sub-types.

<sup>4</sup> Number of reported Aviation Related Concerns.

<sup>5</sup> 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, 2016/2, 2016/3, 2016/4 and 2017/1. Data not yet available for 2017/2.

Quarter	2016/1	2016/2	2016/3	2016/4	2017/1	2017/2
<b>Social Cost \$ million<sup>1</sup></b>	8.35	9.52	3.91	29.86	15.47	30.12
<b>Number of Fatal Accidents<sup>2</sup></b>	1	2	0	3	2	5
<b>Number of Fatal Injuries<sup>2</sup></b>	1	2	0	5	2	6
<b>Number of Serious + Minor Injuries<sup>2</sup></b>	18	5	7	14	19	11
<b>Number of Aircraft Accidents<sup>2</sup></b>						
Large Aeroplanes	1	0	1	0	0	1
Medium Aeroplanes	0	0	0	0	0	0
Small Aeroplanes	8	2	2	6	6	0
Agricultural Aeroplanes	0	1	1	2	4	0
Helicopters	3	4	2	3	9	2
Sport Aircraft	7	6	5	4	8	8
Unknown Aircraft	0	0	1	0	0	1
Hang Gliders	11	2	2	4	4	4
Parachutes	3	0	0	7	7	2
<b>Number of Incidents<sup>3</sup></b>	1,428	1,612	1,631	1,674	1,846	1,729
<b>Number of Aviation Related Concerns<sup>4</sup></b>	260	202	229	235	248	267
<b>Number of Hours Flown<sup>5</sup></b>	256,501	218,101	229,529	270,816	271,285	
<b>Number of Air Transport Flights<sup>5</sup></b>	125,071	96,922	101,475	107,626	132,642	
<b>Number of Aircraft Movements<sup>6</sup></b>	237,499	213,927	221,092	231,730	233,701	222,907
<b>Number of Aircraft on the Register<sup>7</sup></b>	4,700	4,657	4,687	4,723	4,734	4,704
<b>Number of Part 119 Certificated Operators</b>						
Air Operator – Large Aeroplanes	8	8	8	7	6	6
Air Operator – Medium Aeroplanes	15	15	15	15	13	13
Air Operator – Helicopters and Small Aeroplanes	161	162	163	164	166	166
<b>Number of Part 137 Agricultural Aircraft Operators</b>	102	103	103	102	102	102
<b>Number of Part 115 Adventure Aviation Operators</b>	28	28	28	29	31	29
<b>Number of Part 102 Unmanned Aircraft Operators</b>	31	45	54	76	86	89
<b>Number of Part 141 Training Organisations</b>	54	53	51	52	53	52
<b>Number of Part 149 Recreation Organisations</b>	8	8	8	8	8	8
<b>Number of Licences (Type of Medical Certificate)<sup>8</sup></b>						
Recreational Pilot Licence (RPL Medical)	401	439	456	453	446	442
Private Pilot Licence (Class 1 & 2)	2,492	2,462	2,418	2,385	2,402	2,358
Commercial Pilot Licence (Class 2 only)	2,248	2,281	2,240	2,192	2,094	2,108
Commercial Pilot Licence (Class 1)	2,073	2,051	2,045	2,030	2,085	2,032
Airline Transport Pilot Licence (Class 2 only)	1,019	1,002	1,016	1,006	990	996
Airline Transport Pilot Licence (Class 1)	1,221	1,268	1,249	1,248	1,252	1,261
Air Traffic Controller Licence (Class 3)	380	381	373	366	360	364
Aircraft Maintenance Engineer Licence (N/A)	2,789	2,800	2,817	2,830	2,842	2,852

<sup>6</sup> 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.

<sup>7</sup> As at the last day of the quarter. Includes the sport aircraft statistics category, excluding hang gliders, paragliders and parachutes.

<sup>8</sup> 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. RPL helicopter licences were introduced in April 2016. 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 of Accidents and Injuries**

Social cost of accidents and injuries 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 \$4.14 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.

<b>Incident Sub-Types</b>	
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:

<b>Severity</b>	<b>Definition</b>
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**

