

Aviation Safety Summary

1 July to 30 September 2015



Winter 2015

Introduction to the Quarterly Safety Summary Report

Welcome to the CAA's quarterly safety summary report for the winter quarter of 2015. This report is designed to provide a summary of accidents, incidents and safety occurrences that were reported to the CAA for the period 1 July to 30 September 2015.

This winter there were 23 accidents, up from 15 for the same period last year. Of course not all accidents are equal and the outcomes of these 23 were fortunately all non-fatal.

There was only 1 minor injury in a commercial operations accident, which involved a paraglider in the Sport Transport group.

The airline and other commercial sectors had 3 non-injury accidents including a loss of control of a helicopter after the passengers had disembarked, a helicopter flight training related landing accident and an aeroplane flight training related take-off accident.

There were 19 accidents in the non-commercial sector. There were 3 serious and 8 minor injuries occurring within the private sport microlight, hang gliding, paragliding and parachuting subsectors.

The quarterly Aviation Safety Summary report has long relied upon social cost as a measure of the significance of an accident to the aviation system. However, using social cost as a measure, which accounts for fatal, serious and minor injuries and aircraft destroyed, the majority of the social cost in the winter of 2015 arose from accidents involving sport aircraft (including parachutes and hang gliders).

This reveals one of the limitations of using accident outcomes to assess underlying risk and prioritise interventions. Accordingly, for this issue we have included brief details of non-injury accidents and selected incidents that occurred in the reporting period. This is intended to provide a better overall picture of underlying risk in NZ aviation, which is the purpose of this publication.

Safe flying,

J.D. Stanton

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Cover photograph courtesy of Rob Fletcher, Helicopters NZ Ltd.

Executive Summary - Aviation Safety to 30 Sep 2015

- There were a total of 23 accidents in the July to September quarter, the winter of 2015. There were 4 serious and 9 minor injuries in these accidents and injury incidents (there were no fatal injuries). Social cost in this quarter has accrued from accidents and injury incidents in the following safety target groups:
 - Sport Transport 1 minor injury
 - Private Operations - Sport 3 serious and 8 minor injuries
 - Other 1 serious injury (to an aircraft refueller)

There were additional accidents in the groups above and other safety target groups that were not serious enough to contribute to the social cost outcome this quarter (no injuries or aircraft destroyed), but still represent safety risks, see page 3.
- The Annual Social Cost is now \$60 million (three year average). The social cost has halted its upward trend and now shows a neutral trend. In the last four years the cost has decreased by 9% from \$66M to \$60M. See page 4.
- The overall accident rate over the period October 2010 to September 2015 has decreased to 4.4 accidents per 100,000 hours flown, which is below the average of approximately 5.0 accidents per 100,000 hours flown over the previous four years, see page 7.
- Defect incident rates are increasing for helicopters, see page 10.
- Aircraft incident rates are increasing for small aeroplanes, see page 11.
- Airspace incident rates are increasing for large aeroplanes, small aeroplanes, agricultural aeroplanes and helicopters, see page 12.
- The total annual number of hours flown for the year ending December 2014 is 10% lower than the year ending December 2010. The number of agricultural hours flown is increasing, but the numbers of other commercial and private hours are decreasing. See page 15.
- The annual number of air transport flights for the year ending December 2014 is 8% lower than the year ending December 2010, see page 16.
- The total annual number of aircraft movements from certificated aerodromes is continuing to decrease, by 12% from the year ending September 2011 to the year ending September 2015. See page 17.
- The number of Recreational Pilot Licences (with a medical fitness certificate) increased from 311 at 30 September 2014 to 385 at 30 September 2015, an increase of 74 (24%).

Section 1 - Social Cost and Accidents

Social Cost Quarterly Safety Outcome

The following table displays the social cost contribution from injuries and aircraft losses for each of the safety target groups for the quarter 1 July to 30 September 2015. The table also shows the number of accidents in this quarter.

Legend:

†	+	+	↓	△
Fatal Injuries	Serious Injuries	Minor Injuries	Aircraft Destroyed	Accidents

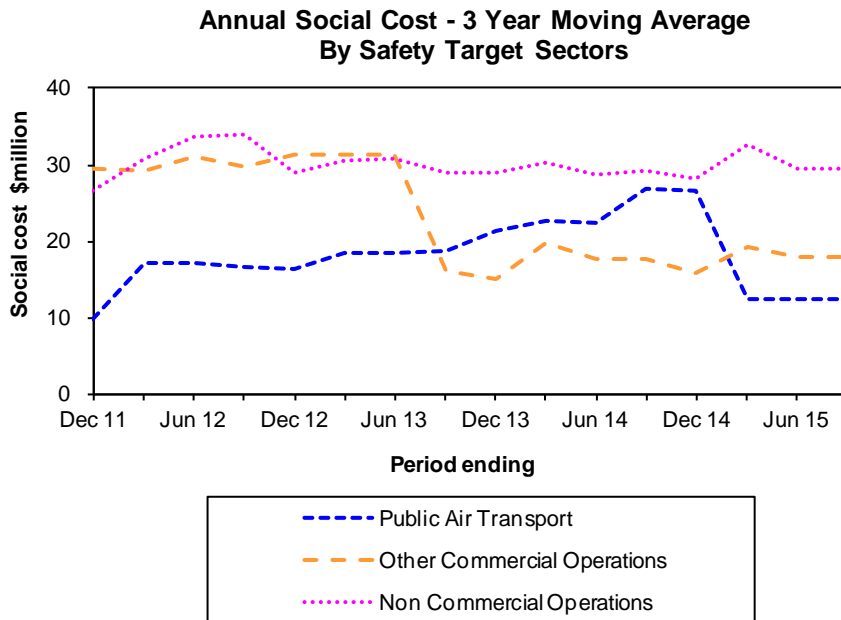
Total Safety Cost \$1.40 m	Public Air Transport \$0.02 m	Airline Operations - Large Aeroplanes	Social Cost	†	+	+	↓	△
		\$0.00 m	0	0	0	0	0	
		Airline Operations - Medium Aeroplanes	Social Cost					
		\$0.00 m	0	0	0	0	0	
		Airline Operations - Small Aeroplanes	Social Cost					
	\$0.00 m	0	0	0	0	0		
	Airline Operations - Helicopters	Social Cost						
	\$0.00 m	0	0	0	0	1		
	Sport Transport	Social Cost						
	\$0.02 m	0	0	1	0	1		
	Other Commercial Operations \$0.00 m	Other Commercial Operations - Aeroplanes	Social Cost					
		\$0.00 m	0	0	0	0	1	
		Other Commercial Operations - Helicopters	Social Cost					
		\$0.00 m	0	0	0	0	1	
		Agricultural Operations - Aeroplanes	Social Cost					
\$0.00 m		0	0	0	0	0		
Agricultural Operations - Helicopters	Social Cost							
\$0.00 m	0	0	0	0	0			
Agricultural Operations - Sport	Social Cost							
\$0.00 m	0	0	0	0	0			
Non Commercial Operations \$1.39 m	Private Operations - Aeroplanes	Social Cost						
	\$0.00 m	0	0	0	0	3		
	Private Operations - Helicopters	Social Cost						
\$0.00 m	0	0	0	0	2			
Private Operations - Sport	Social Cost							
\$1.39 m	0	3	8	0	14			

Notes:

1. Individual values in the table may not sum exactly to the subtotals or total shown due to rounding.
2. Sport groups include hang gliders and parachutes.
3. An explanation of the 2014 Safety Target Groups is provided by the diagram in the Definitions section.
4. Social cost is the cost of fatal, serious and minor injuries, and aircraft destroyed, expressed in 2014 dollars.
5. A serious injury in the 'Other' Safety Target Group (to an aircraft refueller) is not included in the table above.

Social Cost Trends

To provide context to this quarter's social cost outcome, the following graph shows the annual social cost (three year moving average) for the four-year period 1 October 2011 to 30 September 2015, (including the Sport Safety Target Groups).



Social Cost Analysis

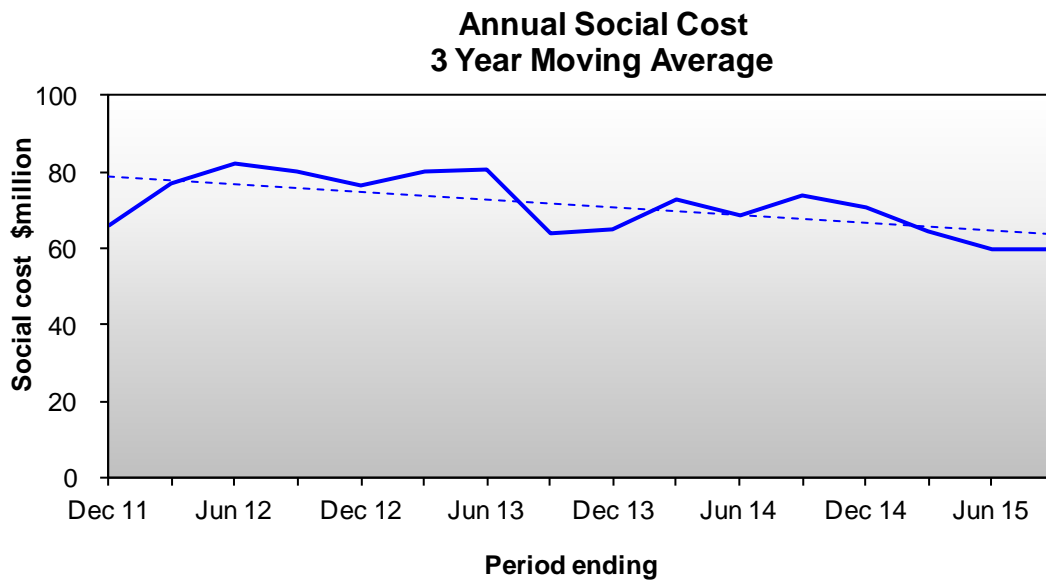
The graph above indicates the social cost contribution of each safety target sector averaged over the previous three years. In this graph both Public Air Transport and Other Commercial show marked step down reductions. The value plotted is the three year average and the step down reductions are due to the contribution of significant accidents more than three years ago ceasing. The social cost in the 'Non-Commercial' sector has been relatively constant now at approximately \$30M (three year average).

The largest contribution to social cost in this quarter was from the Non Commercial sector as a result of 9 accidents in the Private Operations - Sport group (1 serious and 3 minor injuries in microlights, 2 serious and 5 minor injuries in hang gliders, paragliders and parachutes).

There was also a minor injury in the Public Air Transport sector (Sport Transport group - paragliding).

There was 1 other accident in the Public Air Transport sector, 2 accidents in the Other Commercial sector, and 10 accidents in the Non Commercial sector which did not cause injury or significant aircraft damage.

The combined annual social cost of all three sectors is shown in the graph on the next page and has decreased by 9% from \$66M to \$60M between 2011 and 2015.



Accidents by Safety Target Group
Quarterly Comparison

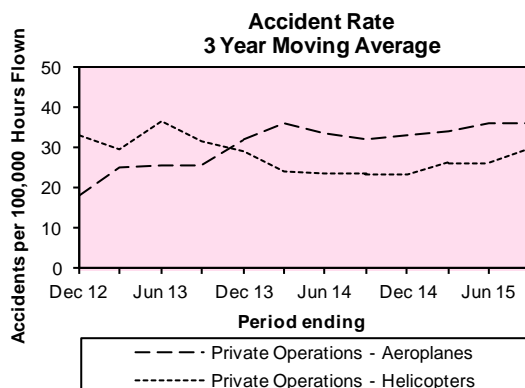
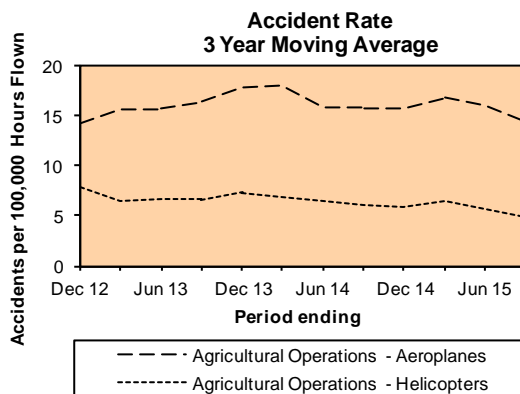
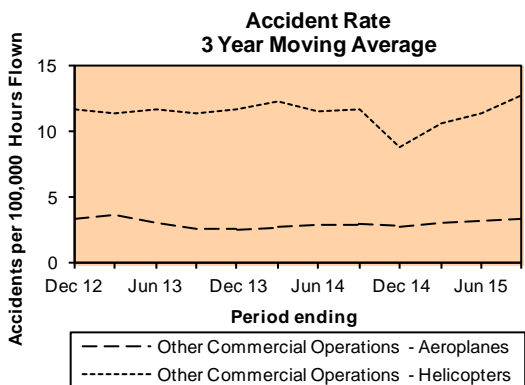
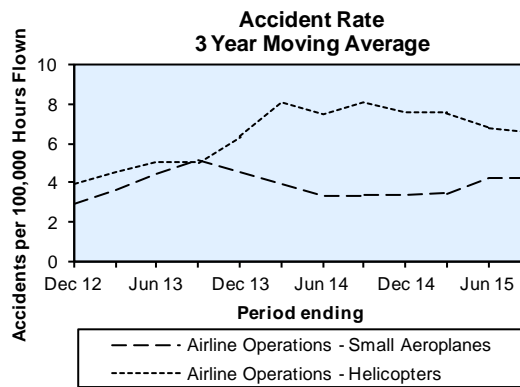
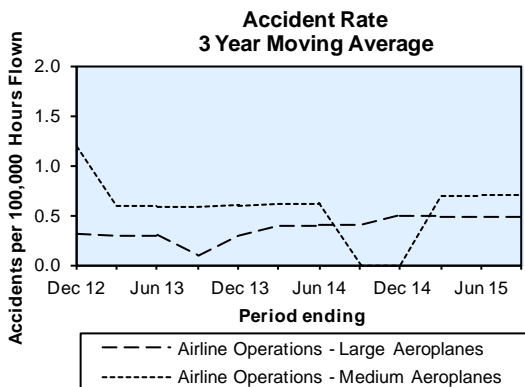
Safety Target Group	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
Airline Operations - Large Aeroplanes	0	0	0.0
Airline Operations - Medium Aeroplanes	0	0	0.3
Airline Operations - Small Aeroplanes	0	1	0.7
Airline Operations - Helicopters	1	1	0.3
Sport Transport	1	3	1.0
Other Commercial Operations - Aeroplanes	1	1	1.3
Other Commercial Operations - Helicopters	1	1	0.3
Agricultural Operations - Aeroplanes	0	0	1.0
Agricultural Operations - Helicopters	0	1	1.7
Agricultural Operations - Sport Aircraft	0	0	0.0
Private Operations - Aeroplanes	3	0	1.3
Private Operations - Helicopters	2	1	0.3
Private Operations - Sport	14	6	7.3
Other	0	0	0.3
Total	23	15	16.0

Comment

Overall accident numbers in the 2015 winter quarter have increased by 8 (53%) in comparison to the 2014 winter quarter. The biggest increase is within the Private Operations - Sport group.

Trends

The following graphs show the aircraft accident rates (three year moving average) for the three-year period 1 October 2012 to 30 September 2015 (excluding the Sport Safety Target Groups, for which no accurate activity information is available).



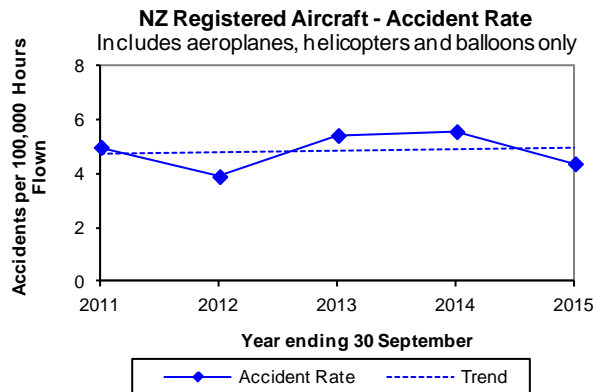
No accident rate information available for Sport Transport or Private Operations - Sport.

Sport Transport (Part 115) data not available for this period but may be provided from a future period.

Activity data is not provided by all aircraft classes in the Private Operations - Sport group (private amateur built aircraft, microlights, gliders, hang gliders and parachutes do not provide activity reports).

Overall Accident Rate

The following graph shows the overall accident rate per 100,000 hours flown. This data includes the aircraft classes aeroplane, helicopter and balloon only. Other aircraft classes such as amateur built aircraft, microlights, gliders, hang gliders and parachutes are excluded from this rate information. Data shown is for the five-year period 1 October 2010 to 30 September 2015. The accident rate has decreased to 4.4 accidents per 100,000 hours flown, which is below the average of approximately 5.0 accidents per 100,000 hours flown over the previous four years.



Note that this graph shows an annual rate and not a 3 year moving average.

Summary of Injury Accidents and Destroyed Aircraft Accidents

This section describes injury accidents, and accidents where there were no injuries but the aircraft was destroyed, that occurred during the period 1 July to 30 September 2015. These descriptions 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

There were **no fatal accidents** in the 1 July to 30 September 2015 quarter.

Serious Injury Accidents

Private Operations - Sport

- A class 2 microlight went missing during a flight. The aircraft wreckage was found and the two occupants were taken to hospital, the pilot with minor injuries and the passenger with serious injuries.
- The main chute malfunctioned at approximately 900 ft. The skydiver managed to correct this but started spinning and fell, and received serious injuries (a broken arm, ribs and a punctured lung).
- The hang glider pilot was intending to land on a sports field in a residential area, but missed due to the wind. The pilot ended up landing on the balcony of a nearby house, sustaining serious injuries.

Summary of Injury Accidents and Destroyed Aircraft Accidents continues on next page.

Minor Injury Accidents

Sport Transport

- During a paragliding landing on a passenger transport A to A flight, the passenger was unable to lift their legs for landing, and touched the ground with one foot resulting in a minor injury (ankle fracture).

Private Operations - Sport

- The pilot of a class 2 microlight on a dual training flight carried out a forced landing shortly after take-off, after the aircraft suffered an engine power loss during climb out. The two crew members received minor injuries. The aircraft was substantially damaged.
- While practising reverse launching, the hang glider pilot was dragged behind the launch down a 1 m bank. The pilot received minor injuries.
- The hang glider pilot was lifted by approximately 0.5 m while attempting to reverse launch. The pilot landed on one leg during the landing, which twisted awkwardly, and received minor injuries.
- A full frontal collapse of the leading edge of the paraglider's wing caused the paraglider to fall approximately 25 m to the ground. The pilot received minor injuries.
- A paraglider had a low level canopy collapse and fell approximately 20 ft. The pilot received minor injuries.
- A hang glider on a solo training flight crashed into a hedge on landing. The pilot received minor injuries.

Destroyed Aircraft Accidents

In the 1 July to 30 September 2015 quarter, there were **no accidents** where the aircraft was destroyed without injuries.

Other Accidents and Selected Incidents

The quarterly Aviation Safety Summary report has long relied upon social cost as a measure of the significance of an accident, with the implication that CAA and industry resources be directed towards prevention of accidents with the highest social cost. For the winter of 2015 this leads to the result that the majority of the social cost accrued from hang gliders, parachutes and class 2 microlights. These are all uncertified aircraft built to varying airworthiness and occupant protection standards. This reveals one of the limitations of using accident outcomes to assess underlying risk. Accordingly, for this issue we have included brief details of non-injury accidents and selected incidents. Although the consequence of each of these accidents was fortunately minor, these accidents and incidents may provide a better overall picture of underlying risk in NZ aviation.

Airline Operations - Helicopters

Accidents

- After landing on a mountain and disembarking passengers, the Eurocopter AS 350 B3 weather-cocked during a gust of wind and continued to slide rearwards down a gentle slope for approximately 2 m at which point the rear snowshoes broke through the snow stopping the rearward movement. As the aircraft settled tail down in the snow the tail rotor contacted the snow resulting in minor damage.

Other Commercial Operations - Aeroplanes

Accidents

- On the third take-off during solo circuit consolidation the pilot lost directional control, and the Cessna 172 (small aeroplane) departed the runway and ran through a fence.

Other Commercial Operations - Helicopters

Accidents

- Approximately 15 ft above the ground, during the landing flare, the Guimbal Cabri G2 started yawing to the left. The student did not correct this yaw and when the helicopter passed through approximately 180 degrees the yaw quickened to a point where control was lost. The helicopter completed just over two full rotations before impacting the ground resulting in substantial damage.

Aircraft Incidents

- As an R44 II was flying a sling load (other aerial work), the pilot heard a loud bang, followed by a loss of power. The pilot jettisoned the load and carried out a successful auto-rotation onto a ridge.
- A Hughes 369E was carrying out fertiliser application with an under slung bucket (agricultural operation), in a valley where a set of main transmission wires spanned overhead. The pilot elected to carry out a run underneath the wires and in doing so the fertiliser bucket made brief contact with the ground causing minor damage to the buckets spinner.
- When a Hughes 369D landed with an under slung bucket attached (agricultural operation), one of the attachment wire strops looped around the back of the spray gear mounts. As the helicopter lifted off again the weight of the bucket strop pulled the mount out of the belly of the helicopter.

Summary of Other Accidents and Selected Incidents continues on next page.

Private Operations - Aeroplanes

Accidents

There were three landing accidents involving small aeroplanes, each resulting in minor damage.

Private Operations - Helicopters

Accidents

- During pre-flight checks on smooth concrete, the R44 yawed to the right and contacted the fence, resulting in minor damage to the vertical stabiliser and tail rotor.
- The R22 Beta suffered an engine failure thought to be due to contaminated fuel taken from a jerry can. An auto-rotation was carried out, into a steep sided creek, with the helicopter coming to rest in the creek bed resulting in substantial damage.

Private Operations - Sport

Accidents

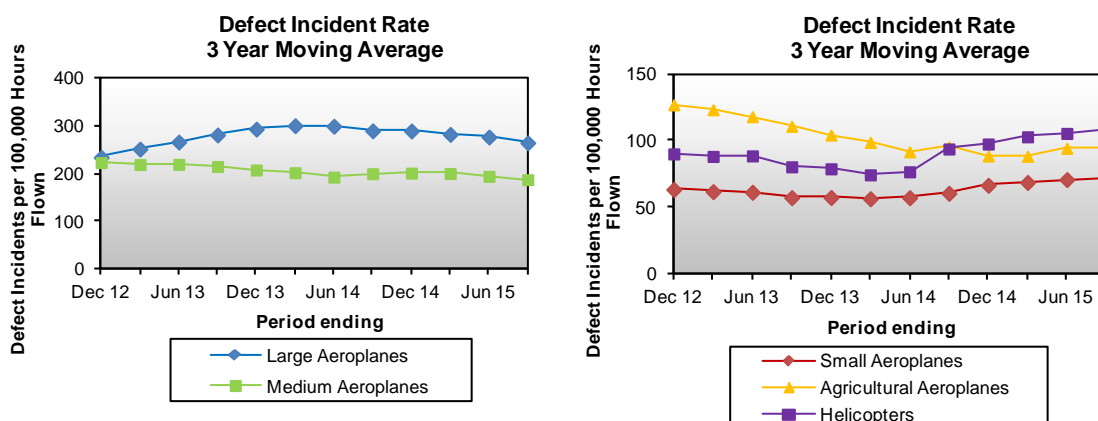
- The engine of a class 2 microlight started misfiring after gear and flap retraction at about 150ft after take-off, with further deterioration immediately after. The pilot carried out a forced landing straight ahead on the remaining runway available. The microlight landed with gear up, sustaining minor damage to the propeller and belly.
- During a go-around at 200 ft, the engine of the class 1 microlight started losing power and the pilot decided to land in a paddock. The microlight sustained minor damage due to the soft ground and long grass.
- The class 2 microlight was climbing out from a touch and go during a dual training flight, when at about 30 ft the engine lacked power above 4000 rpm. The pilot put the nose down but the lack of speed and height led to a hard landing, resulting in minor damage to the right main undercarriage.
- During taxi on a dual training flight, the nose leg fork of the class 2 microlight failed resulting in minor damage to the microlight (the propeller was destroyed during a propeller strike, and the crankshaft runout is now outside limits).
- An amateur built aeroplane bounced on landing and veered off the runway into a fence, causing substantial damage to both undercarriage legs and both wings.

Section 2 - Incidents

Defect Incidents by Aircraft Statistics Category

Trends

The following graphs show the reported defect incident rates (three year moving average) for the three-year period 1 October 2012 to 30 September 2015 (excluding the Sport Aircraft statistics category).



Quarterly Comparison

Number of Reported Defect Incidents

Aircraft Statistics Category	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
◆ Large Aeroplanes	131	154	272.0
■ Medium Aeroplanes	29	31	28.7
◆ Small Aeroplanes	59	65	48.7
▲ Agricultural Aeroplanes	6	15	7.3
■ Helicopters	36	135	34.3
Sport Aircraft	7	5	4.3
Unknown Aircraft	20	34	15.0
Total	288	439	410.3

Severity of Reported Defect Incidents

Severity	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
Critical	0	0	0.3
Major	15	141	64.3
Minor	273	298	345.7

No critical defect incidents were reported in the 1 July to 30 September 2015 quarter.

Rate Monitoring

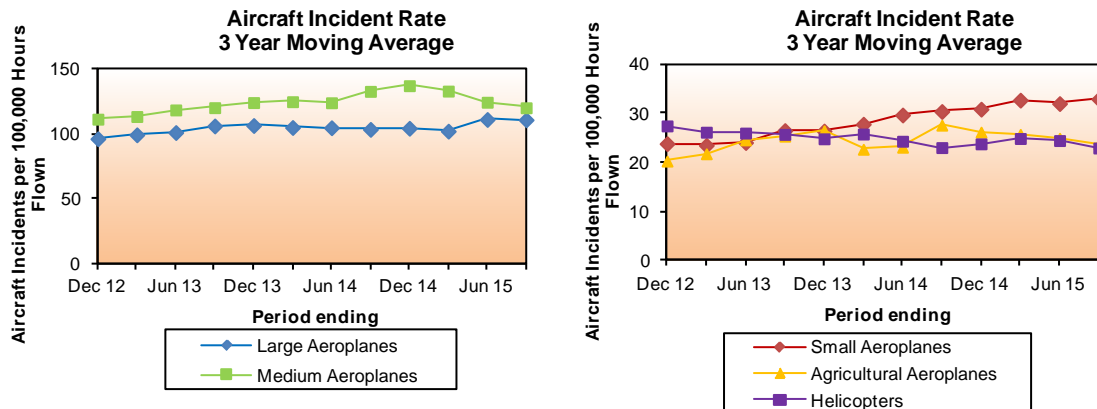
Defect incident rate monitoring of individual types of large and medium air transport aircraft has been carried out for the period ended 30 September 2015, using estimated data for some of the aircraft types due to a shortage of returned Aircraft Operations Statistics for these aircraft. Analysis shows that 2 of the 14 monitored aircraft types have defect rates above the “trigger level” for CAA action (2 of the 3 types of medium aeroplane).

Medium and large aeroplane categories include all aircraft with more than 10 passenger seats operated under CAR Part 125 or 121.

Aircraft Incidents by Aircraft Statistics Category

Trends

The following graphs show the reported aircraft incident rates (three year moving average) for the three-year period 1 October 2012 to 30 September 2015 (excluding the Sport Aircraft statistics category). An aircraft incident is any safety occurrence related to the operation of an aircraft that does not result in an accident and is not classified as one of the other nine incident types. Examples of aircraft incidents include hard landings, lightning strikes, icing encounters, turn backs, diversions and go-arounds.



Quarterly Comparison

Number of Reported Aircraft Incidents

Aircraft Statistics Category	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
◆ Large Aeroplanes	92	84	101.3
■ Medium Aeroplanes	10	20	14.7
◆ Small Aeroplanes	32	24	28.0
▲ Agricultural Aeroplanes	2	5	1.7
■ Helicopters	7	10	17.7
Sport Aircraft	6	8	2.7
Unknown Aircraft	54	41	37.7
Total	203	192	203.7

Severity of Reported Aircraft Incidents

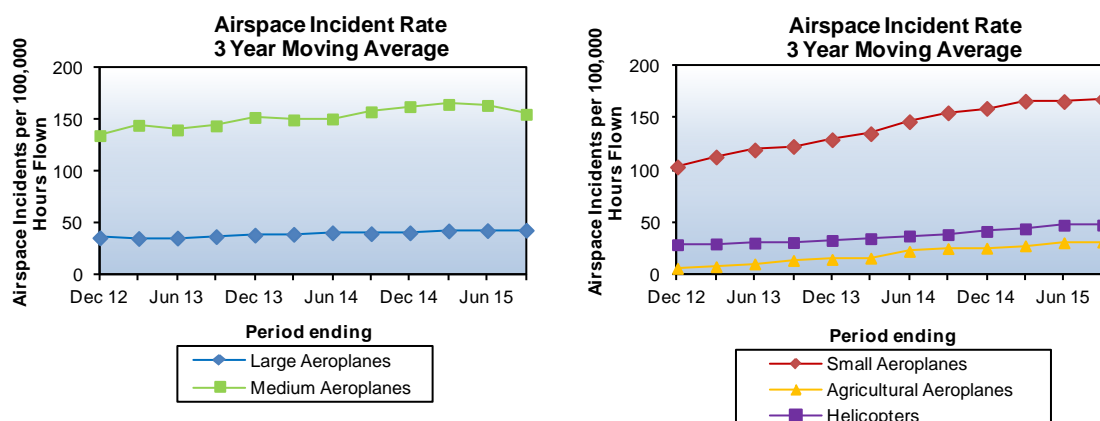
Severity	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
Critical	0	0	2.0
Major	8	19	24.7
Minor	195	173	177.0

No critical aircraft incidents were reported in the 1 July to 30 September 2015 quarter.

Airspace Incidents by Aircraft Statistics Category

Trends

The following graphs show the reported airspace incident rates (three year moving average) for the three-year period 1 October 2012 to 30 September 2015 (excluding the Sport Aircraft statistics category).



Quarterly Comparison

Number of Reported Airspace Incidents

Aircraft Statistics Category	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
◆ Large Aeroplanes	31	30	35.0
■ Medium Aeroplanes	11	20	19.7
◆ Small Aeroplanes	129	170	112.7
▲ Agricultural Aeroplanes	1	3	1.7
■ Helicopters	18	23	15.7
Sport Aircraft	18	18	13.7
Unknown Aircraft	153	122	100.7
Total	361	386	299.0

Severity of Reported Airspace Incidents

Severity	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
Critical	0	0	4.0
Major	20	25	32.0
Minor	341	361	263.0

No critical airspace incidents were reported in the 1 July to 30 September 2015 quarter.

Analysis of reported airspace incidents continues on next page.

Attributability

Of the 361 reported airspace incidents in the 1 July to 30 September 2015 quarter, 15% are Air Traffic Service (ATS) attributable, 76% are pilot attributable, 2% are ATS and pilot attributable, and 7% are unknown attributable.

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

Since October 2012 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 2015.

There were 4 aerodromes with strike rates in the high risk category of the CAA standard (10.0 and above bird strikes per 10,000 aircraft movements), all 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, 2 having long-term constant trends and 2 having long-term downward trends.

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

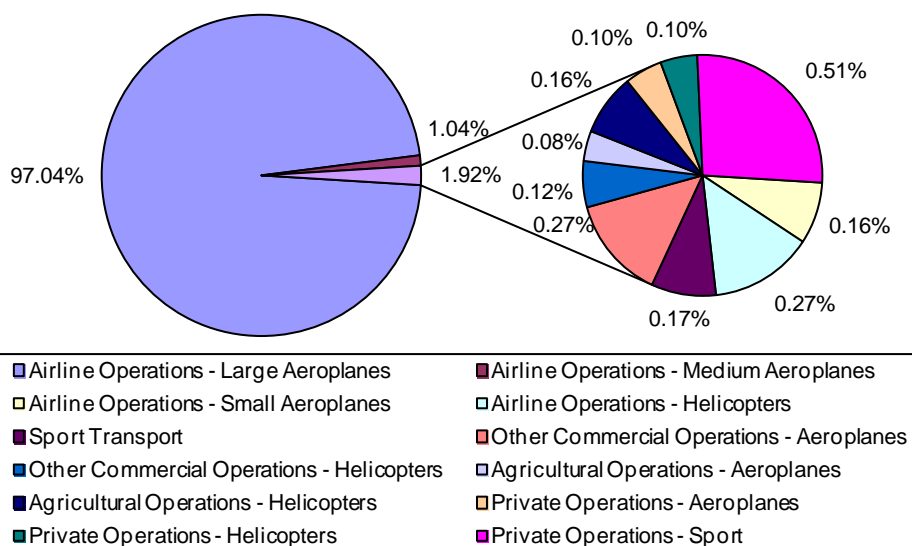
For more information visit the 'Bird Hazard Reports' section of the CAA web site http://www.caa.govt.nz/safety_info/safety_reports.htm

Section 3 - Activity

Industry Size and Shape by Safety Target Group

The following graph and table show the size and shape of the aviation industry as determined from Aircraft Operating Statistics in the relevant Safety Target Group categories for the period 1 October to 31 December 2014 (the most recent quarter for which adequate data are available) with an allowance for aircraft for which reports were not received. Adequate flying hours data for the 1st, 2nd and 3rd quarters of 2015 are not available yet due to later returns from operators. For each Safety Target Group the total number of hours flown is multiplied by the average number of seats and the appropriate load factor, to give the number of seat hours utilised by the group (person exposure). For Safety Target Groups that are not predominantly passenger carrying a surrogate of 500 kg of aircraft weight is used instead of person exposure. For the Sport Safety Target Groups a standard estimate of seat hours offered is used as well as reported data for such aircraft in these groups, as most sport aircraft do not report hours or seats.

Percentage Sector Seat Hours



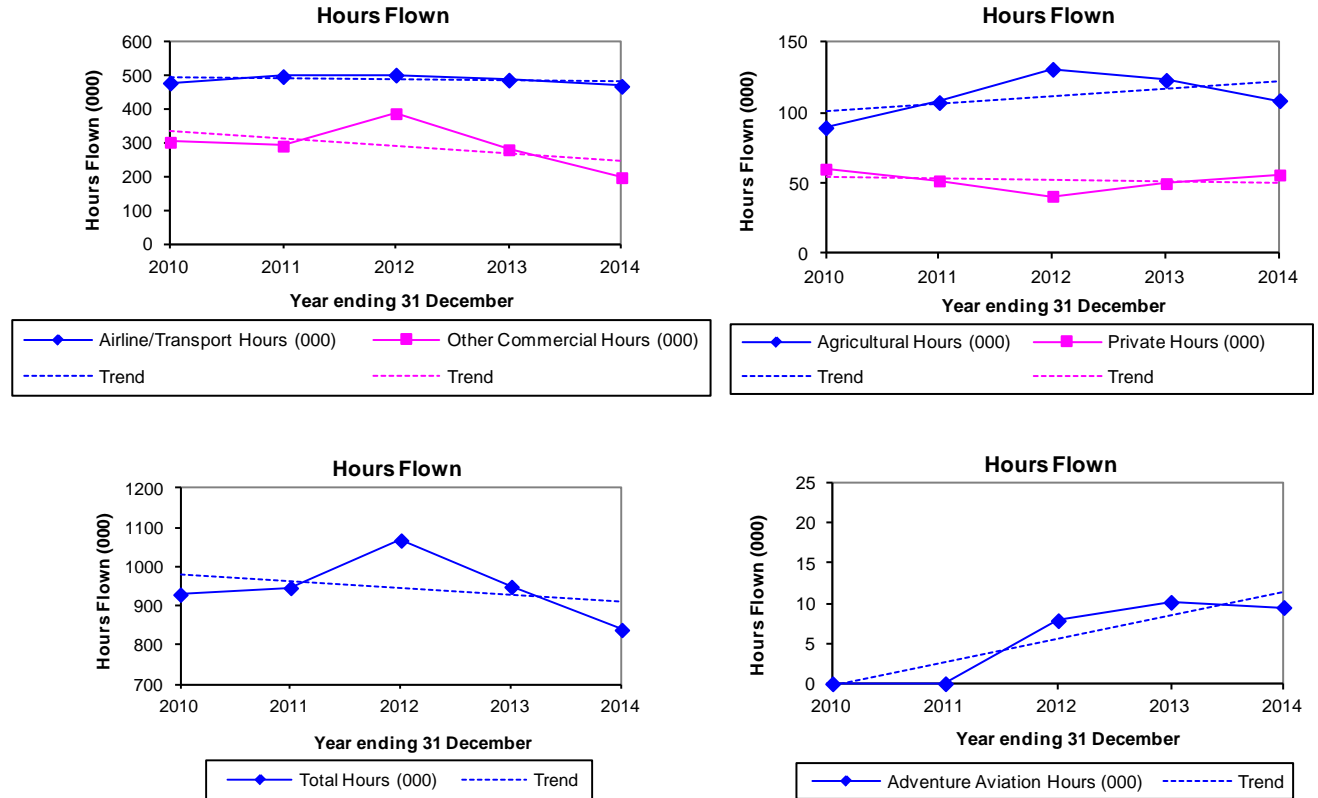
Safety Target Group	Percentage Sector Seat Hours
Airline Operations - Large Aeroplanes	97.04
Airline Operations - Medium Aeroplanes	1.04
Airline Operations - Small Aeroplanes	0.16
Airline Operations - Helicopters	0.27
Sport Transport	0.17
Other Commercial Operations - Aeroplanes	0.27
Other Commercial Operations - Helicopters	0.12
Agricultural Operations - Aeroplanes	0.08
Agricultural Operations - Helicopters	0.16
Agricultural Operations - Sport	-
Private Operations - Aeroplanes	0.10
Private Operations - Helicopters	0.10
Private Operations - Sport	0.51

Note that the percentages may not sum exactly to 100.00% due to rounding.

Hours by Operation Type

Trends

The following graphs show the number of hours flown (annual data) for the five-year period 1 January 2010 to 31 December 2014 (for the aircraft classes aeroplane, helicopter and balloon only). Adequate flying hours data for the 1st, 2nd and 3rd quarters of 2015 are not available yet due to later returns from operators.



Note that the scales on some of these graphs do not start at zero.

Note that the reporting of adventure aviation hours as a separate category began in 2012.

Quarterly Comparison

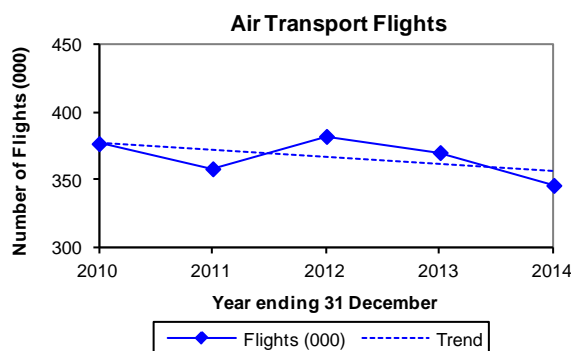
Activity	1 Oct to 31 Dec 2014	1 Oct to 31 Dec 2013	Average Of Same Quarter In Previous 3 Years
Airline/Transport Hours	122,423	121,254	132,495
Adventure Aviation Hours	2,397	2,588	1,215
Other Commercial Hours	44,446	67,133	82,137
Agricultural Hours	28,307	32,803	28,403
Private Hours	14,726	12,816	12,715
Total Hours	212,299	236,596	256,966

Note that these assessments include the aircraft classes aeroplane, helicopter and balloon only and exclude other aircraft classes such as hang gliders and parachutes, and foreign registered aircraft that are operated in New Zealand. These assessments are based on the reported Aircraft Operating Statistics for periods up to the quarter ended 31 December 2014 (the most recent quarter for which adequate data are available) with an allowance for aircraft for which reports were not received.

Air Transport Flights

Trends

The following graph shows the number of air transport flights (annual data) for the five-year period 1 January 2010 to 31 December 2014 (for the aircraft classes aeroplane, helicopter and balloon only).



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

Quarterly Comparison

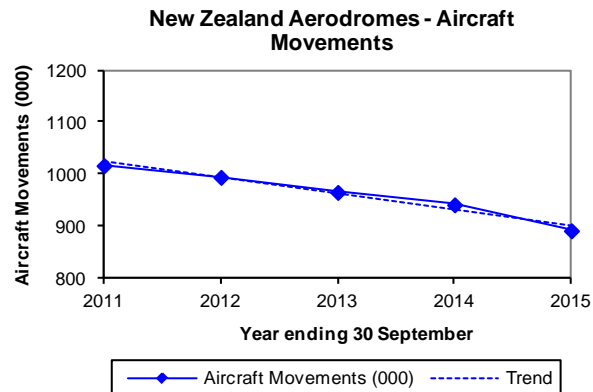
Activity	1 Oct to 31 Dec 2014	1 Oct to 31 Dec 2013	Average Of Same Quarter In Previous 3 Years
Air Transport Flights	92,947	94,318	100,396

Note that these assessments include the aircraft classes aeroplane, helicopter and balloon only and exclude other aircraft classes such as hang gliders and parachutes, and foreign registered aircraft that are operated in New Zealand. These assessments are based on the reported Aircraft Operating Statistics for periods up to the quarter ended 31 December 2014 (the most recent quarter for which adequate data are available) with an allowance for aircraft for which reports were not received.

Aircraft Movements

Trends

The following graph shows the number of aircraft movements at certificated aerodromes (annual data) for the five-year period 1 October 2010 to 30 September 2015.



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

Quarterly Comparison

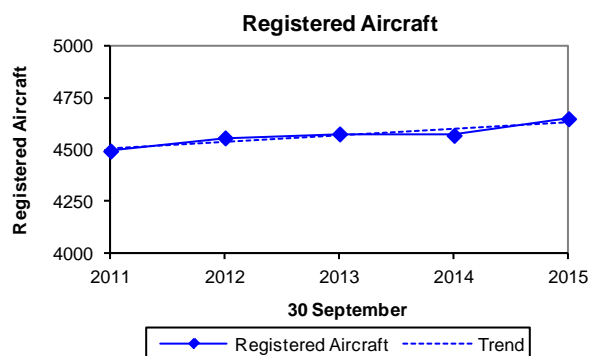
Activity	1 Jul to 30 Sep 2015	1 Jul to 30 Sep 2014	Average Of Same Quarter In Previous 3 Years
Aircraft Movements	222,320	232,016	244,565

Note that this covers certificated aerodromes only. These figures are as reported to CAA by Airways Corporation and Taupo Airport. Includes Auckland, Christchurch, Dunedin, Gisborne, Hamilton, Invercargill, Napier, Nelson, New Plymouth, Ohakea, Palmerston North, Paraparaumu (certificated from April 2009, included in the graph from late July 2011), Queenstown, Rotorua, Taupo, Tauranga, Wellington and Woodbourne. Excludes Chatham Islands/Tuuta Airport, Hokitika, Kerikeri/Bay of Islands, Mount Cook (certificated from Nov 2012), Te Anau/Manapouri (certificated until April 2015), Timaru, Wanganui, Westport, Whakatane (certificated from April 2015) and Whangarei.

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 2011 to 2015.



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

Quarterly Comparison

Aircraft Statistics Category	30 September 2015	30 September 2014	Average Of 30 September In Previous 3 Years
Large Aeroplanes	122	128	126
Medium Aeroplanes	79	78	80
Small Aeroplanes	1,500	1,495	1,523
Agricultural Aeroplanes	93	96	107
Helicopters	833	806	783
Sport Aircraft	2,023	1,967	1,925
Total	4,650	4,570	4,543

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 311 at 30 September 2014 to 385 at 30 September 2015, an increase of 74 (24%). The number of Private Pilot Licences (with an active class 1 or active class 2 medical certificate) decreased from 2,763 to 2,585, a decrease of 178 (6%).

Over the same period the number of Part 115 certificated Adventure Aviation Operators increased from 27 to 30, an increase of 3 (11%).

Section 4 - Quarterly Statistics

Quarter	2012/4	2013/1	2013/2	2013/3	2013/4	2014/1
Social Cost \$ million¹	15.68	27.02	3.09	2.54	14.59	36.77
Number of Fatal Accidents²	3	3	0	0	2	5
Number of Fatal Injuries²	3	5	0	0	2	6
Number of Serious + Minor Injuries²	7	12	10	6	21	19
Number of Aircraft Accidents²						
Large Aeroplanes	0	0	0	0	2	2
Medium Aeroplanes	0	0	0	0	0	0
Small Aeroplanes	2	11	6	4	7	8
Agricultural Aeroplanes	4	2	3	1	3	2
Helicopters	5	5	8	1	6	5
Sport Aircraft	7	11	8	6	10	22
Unknown Aircraft	0	1	0	0	1	2
Hang Gliders	3	4	4	2	4	6
Parachutes	3	3	1	0	1	4
Number of Incidents³	1,324	1,515	1,460	1,375	1,384	1,290
Number of Aviation Related Concerns⁴	156	206	181	219	208	271
Number of Hours Flown⁵	284,443	266,122	223,070	223,324	236,596	235,844
Number of Air Transport Flights⁵	109,270	103,364	86,684	86,186	94,318	97,185
Number of Aircraft Movements⁶	248,728	256,386	227,657	232,694	240,943	247,546
Number of Aircraft on the Register⁷	4,581	4,587	4,579	4,577	4,562	4,587
Number of Part 119 Certificated Operators						
Air Operator – Large Aeroplanes	9	9	9	9	9	9
Air Operator – Medium Aeroplanes	15	16	16	16	15	15
Air Operator – Helicopters and Small Aeroplanes	168	174	173	168	166	167
Number of Part 115 Adventure Aviation Operators	33	33	33	34	34	32
Number of Part 137 Agricultural Aircraft Operators	104	103	103	98	99	99
Number of Part 141 Training Organisations	59	59	57	57	56	52
Number of Part 149 Recreation Organisations	7	7	7	8	8	8
Number of Licences (Type of Medical Certificate)⁸						
Recreational Pilot Licence (RPL Medical)	240	248	247	267	281	289
Private Pilot Licence (Class 1 & 2)	3,361	3,298	3,193	3,108	3,017	2,948
Commercial Pilot Licence (Class 2 only)	2,420	2,561	2,554	2,578	2,571	2,527
Commercial Pilot Licence (Class 1)	2,366	2,225	2,217	2,167	2,150	2,147
Airline Transport Pilot Licence (Class 2 only)	993	1,053	993	1,060	1,052	990
Airline Transport Pilot Licence (Class 1)	1,119	1,078	1,163	1,121	1,120	1,204
Air Traffic Controller Licence (Class 3)	363	363	367	375	380	381
Aircraft Maintenance Engineer Licence (N/A)	2,611	2,626	2,639	2,647	2,660	2,678

¹ All aircraft statistics categories. Includes hang gliders and parachutes. Cost of fatal, serious and minor injuries, and aircraft destroyed, in June 2014 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 2014 (the most recent quarter for which adequate data are available) with an allowance for aircraft for which reports were not received. Estimated for 2015/1, 2015/2 and 2015/3.

Quarter	2014/2	2014/3	2014/4	2015/1	2015/2	2015/3
Social Cost \$ million¹	10.79	16.52	14.73	41.89	3.27	1.82
Number of Fatal Accidents²	1	2	2	4	0	0
Number of Fatal Injuries²	2	2	2	9	0	0
Number of Serious + Minor Injuries²	6	16	23	13	11	12
Number of Aircraft Accidents²						
Large Aeroplanes	0	0	1	0	0	0
Medium Aeroplanes	0	0	0	1	0	0
Small Aeroplanes	3	2	4	7	6	4
Agricultural Aeroplanes	0	0	1	1	1	0
Helicopters	2	4	3	7	2	4
Sport Aircraft	5	2	13	8	5	7
Unknown Aircraft	0	0	0	0	0	0
Hang Gliders	0	5	7	5	7	7
Parachutes	3	2	3	1	2	1
Number of Incidents³	1,244	1,378	1,284	1,428	1,427	1,219
Number of Aviation Related Concerns⁴	171	214	226	244	188	171
Number of Hours Flown⁵	190,423	200,578	212,299	281,360	243,297	247,394
Number of Air Transport Flights⁵	78,540	77,645	92,947	108,197	100,467	91,532
Number of Aircraft Movements⁶	221,072	232,016	220,846	237,404	211,137	222,320
Number of Aircraft on the Register⁷	4,552	4,570	4,615	4,662	4,610	4,650
Number of Part 119 Certificated Operators						
Air Operator – Large Aeroplanes	9	9	8	8	7	7
Air Operator – Medium Aeroplanes	14	13	12	13	13	13
Air Operator – Helicopters and Small Aeroplanes	168	167	165	163	163	163
Number of Part 115 Adventure Aviation Operators	28	27	27	27	28	30
Number of Part 137 Agricultural Aircraft Operators	99	98	97	101	103	104
Number of Part 141 Training Organisations	53	55	55	56	56	57
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)	293	311	320	337	366	385
Private Pilot Licence (Class 1 & 2)	2,816	2,763	2,617	2,587	2,580	2,585
Commercial Pilot Licence (Class 2 only)	2,544	2,515	2,442	2,390	2,448	2,376
Commercial Pilot Licence (Class 1)	2,098	2,107	2,125	2,141	2,046	2,048
Airline Transport Pilot Licence (Class 2 only)	994	986	998	987	995	1,046
Airline Transport Pilot Licence (Class 1)	1,223	1,232	1,226	1,232	1,228	1,173
Air Traffic Controller Licence (Class 3)	381	384	379	379	387	387
Aircraft Maintenance Engineer Licence (N/A)	2,699	2,708	2,726	2,737	2,754	2,766

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 (certificated from Nov 2012), Te Anau/Manapouri (certificated until April 2015), Timaru, Wanganui, Westport, Whakatane (certificated from April 2015) 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.

Note about 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 \$3.95 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, 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

