AVIATION SAFETY SUMMARY

JULY– SEPTEMBER 2019

CIVIL AVIATION AUTHORITY
OF NEW ZEALAND
Te Mana Rererangi Tauatanoa o Aotearoa

Introduction

Welcome to the Aviation Safety Summary Report for the winter quarter of 2019, covering the period 1 July to 30 September. This report provides a summary of aviation safety in the period and an overview of the long term safety performance within each aviation sector. The report examines performance in each of the three principal sectors that the Civil Aviation uses to characterise flying activity.

- Commercial Passenger (Air Transport & Part 115 operations)
- Commercial non-passenger operations and.
- Private or recreational operations.

These principal sectors reflect the CAA's regulatory operating model. The regulatory model recognises the public has higher expectations of safety (and regulation) in relation to passenger air transport, and commercial aircraft, than for private and recreational flying.

The report has two purposes, to provide a summary of recent aviation accidents, and to provide a record of each sectors safety performance in the medium to long term. The provision of accident details is intended to inform and assist other aviation operators in the management of safety risk. The accident details are summaries of the reports as received, they may be incomplete or still under investigation and are not intended to attribute cause or blame.

The long term safety performance trends are included to provide context. The number of accidents over the short term is highly variable and the CAA uses the long term performance of a sector as guide to selecting an appropriate regulatory response.

The winter quarter is usually a quiet one for commercial and recreational flying, with a proportional decrease in accidents. From the CAA's perspective the most significant accident this quarter was the helicopter snow landing incident. While the damage was slight and no persons were injured, it provides insight into the unpredictable hazards that can be encountered at remote landing sites.

Safe Flying,

Jack Stanton
Manager Intelligence, Safety & Risk Analysis

Cover Photo: Winter sunrise, Paraparaumu. J D Stanton

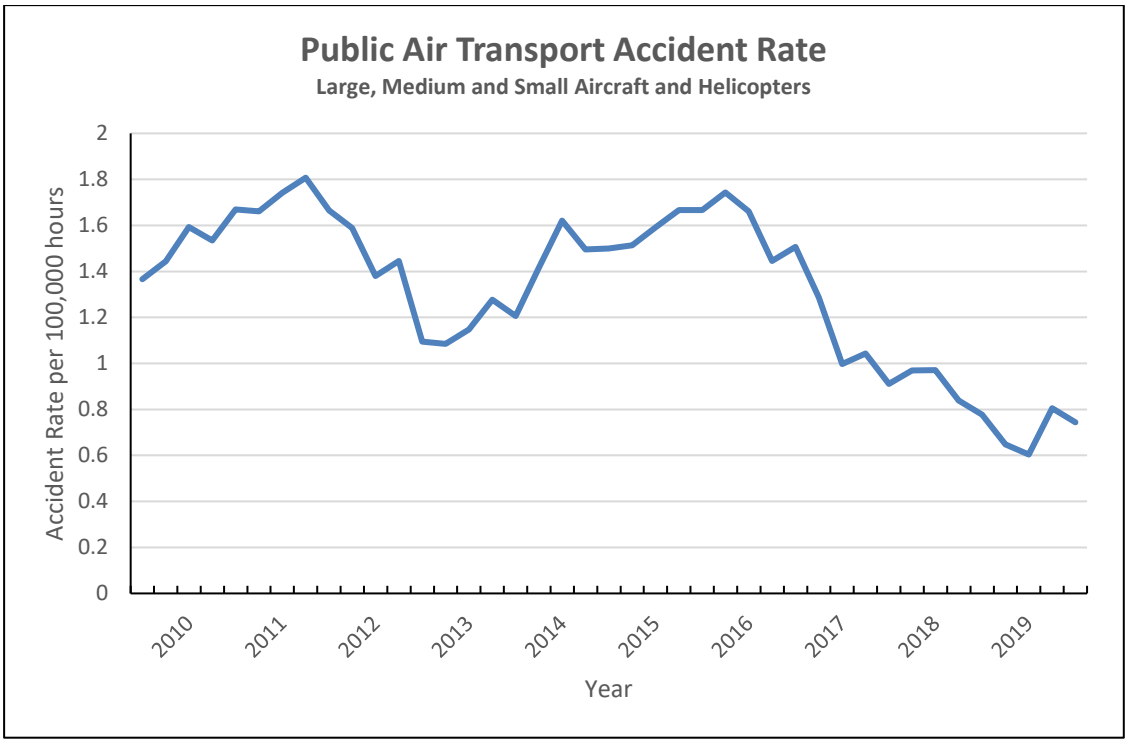
Accidents - 1 July to 31 September 2019					
Commercial Passenger		**Commercial Non-Passenger**		**Private & Recreational**	
3	0 Deaths 0 Injuries	**2**	0 Deaths 0 Injuries	**9**	2 Deaths 1 Injuries
YTD	22	YTD	21	YTD	44
Last Year	13	Last Year	22	Last Year	57

There were 14 accidents in this quarter compared with 21 in the same quarter last year.

- In the commercial passenger sector there were three accidents. One of the accidents involved helicopter passenger transport in a snow landing event, with no injuries. The other 2 accidents in this sector were adventure aviation passenger operations.
- In the commercial non-passenger sector there were two accidents, a landing accident during fixed wing agricultural operations and landing accident in pilot training ultimately caused by a nose wheel component failure.
- In the private & recreational flying there were nine accidents and including one accident with two fatalities. This was lower than the 17 accidents reported in the same quarter last year.

Passenger Air Transport Operations - Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/6020	Estuary Burn Minaret	AS 350 B2	0	0	To pick up heli-skiers the pilot was conducting a 'power-off' landing, which requires the aircraft to remain in flight idle as the passengers are loaded. As the last passenger was loaded, the helicopter broke through the snow layer and the tracking finger on two of the main rotor blades contacted the snow surface of the hill face in front of the helicopter. The pilot immediately shut the aircraft down for inspection, and the guide and passengers disembarked and were transferred to another aircraft. The organisation has conducted an internal investigation and concluded that the following factors may have contributed to the incident: The guide's selection of the landing site, and soft snow not being stamped down prior to the landing, and The pilot's insufficient risk assessment of the landing site, and the decision to do a 'power-off' landing. As a result the organisation discussed the incident with all pilots and guides and a company safety notice issued, on the importance of appropriate site selection and preparation. **CAA RESPONSE**: CAA Investigation completed.



Accident Rate

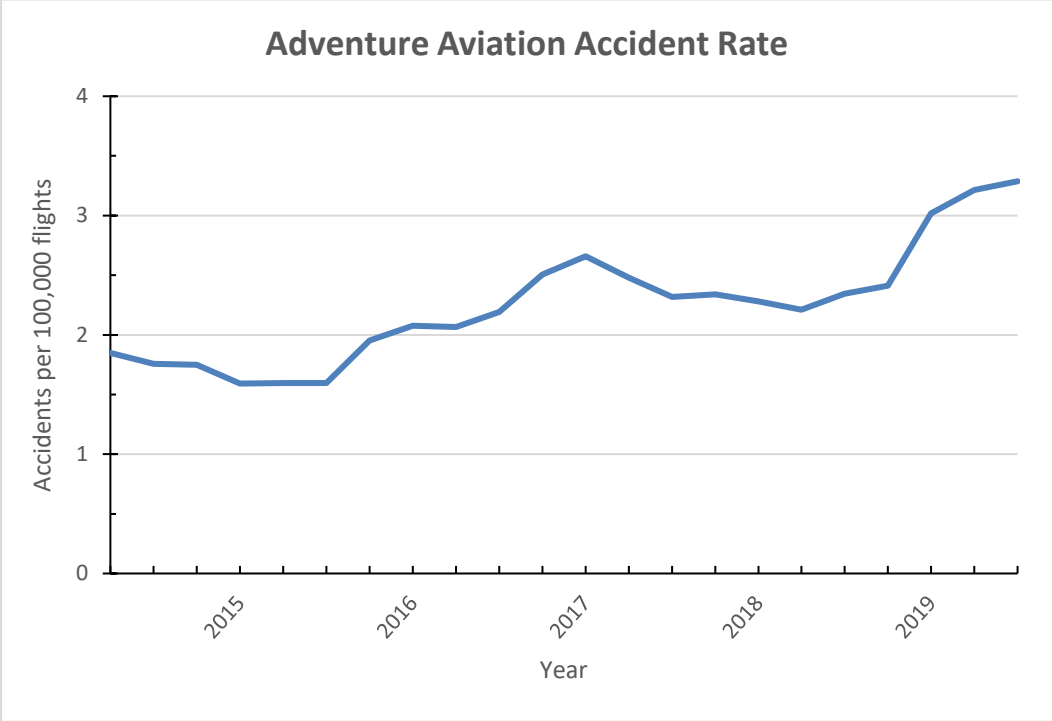
This displays the accident rate for all public air transport operations, in aeroplanes and helicopters. It does not include Part 115 adventure aviation. The accident rate is this sector remains very low. In this 3rd quarter of 2019 there was 1 accident which is consistent with previous quarters in which this sector typically has 0 or 1 accidents per quarter.

Nature of Accidents this Quarter

This quarter there were no passenger injuries or fatalities, and 1 landing accident in a helicopter. The nature of the helicopter accident and the operator's subsequent safety improvements is evident from the accident details in the previous section. Due to the small number of events and minor severity, the recent small upswing is not particularly significant considering the long term, which is trending downward.

Part 115 Adventure Aviation - Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/5787	Fox Glacier	Dual Hawk	0	0	During descent, passenger complained of ear pain. Passenger taken to medical centre on landing due to ruptured eardrum. Passenger had no declared recent illness **CAA RESPONSE**: No immediate action
19/7022	Wanaka	Sigma Micro	0	0	During descent, passenger advised they had dislocated their shoulder, and then fainted. TM landed, and passenger declined further assistance as this had happened before **CAA RESPONSE**: No immediate action



Accident Rate

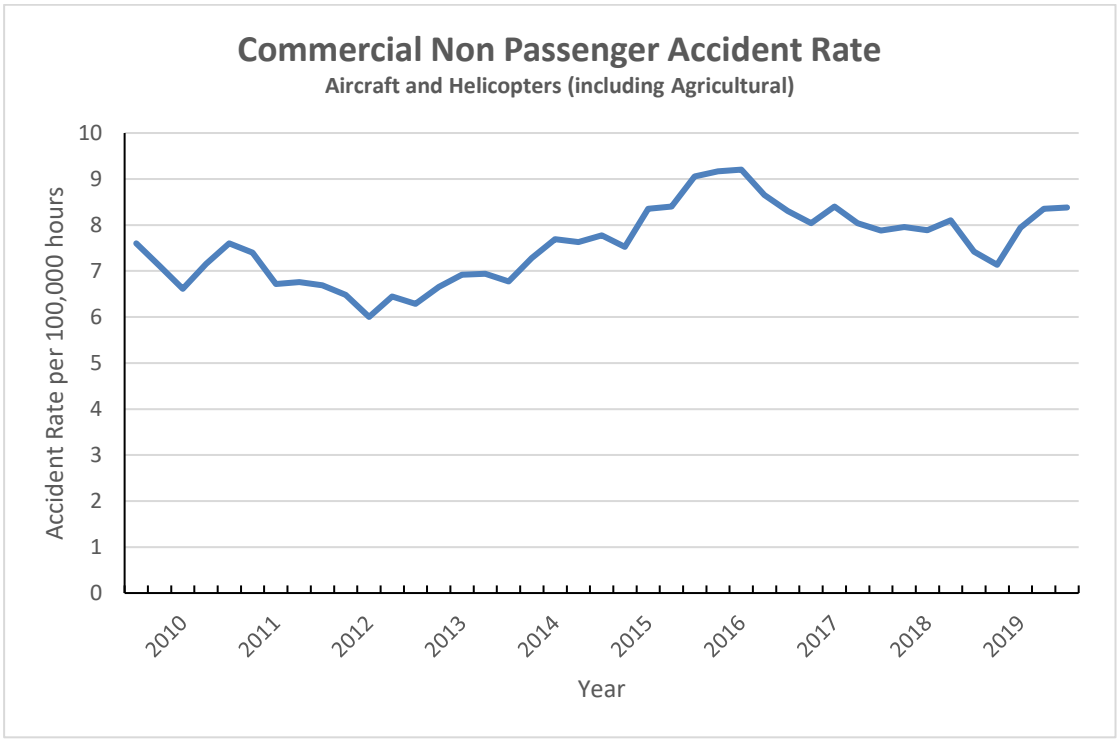
The adventure aviation rate, calculated in accidents per flight/jump has continued to increase. The increase is slight, an increase of 0.5 in the rate implies an extra accident every 200,000 jumps.

Nature of Accidents this quarter

The accidents in this quarter were minor passenger medical issues related to pre-existing conditions rather than the conduct of the operation itself. While they meet the definition of an accident they are not considered indicative of industry safety issues. However for an industry based upon the passenger experience, these are events to be avoided.

Commercial Non Passenger Operations- Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/6465	Kairangi	Cresco 08-600	0	0	Minor landing accident. Encountered sink, hard landing resulting in the RH main undercarriage leg collapsing, damage to aircraft, no injuries. **CAA RESPONSE**: No immediate action
19/4896	Gisborne	DA 40	0	0	Nose landing gear spigot failed resulting in the nose wheel separating from the aircraft during a touch and go on the grass vector. Major damage occurred to the propeller, and forward fuselage. Initial maintenance investigation has found that the aircraft was fitted with a D41-3223-10-0 spigot which required crack inspection every 100 hours if the aircraft was operated on grass, or 200 hours if operated on sealed runways. The foreign log books supplied with the aircraft indicated that the aircraft was fitted with a D41-3223-10-1 spigot which did not require the repetitive inspection. Therefore the opportunity to check the spigot fitted to the aircraft for cracks and possible failure was missed. **CAA RESPONSE**: Investigators spoke with maintenance organisation who have contacted the manufacturer (Diamond Aircraft). The physical dimensions for the spigot wall thickness are undersize for even the -00 part number. The operator have now found 5 of their fleet with crack indications. The defect information was sent to Transport Canada as the state of design.



Accident Rate

The long term safety performance of the Commercial Non-Passenger sector has been trending down for the last three years, but 2019 has seen a small increase in the three year averaged accident rate.

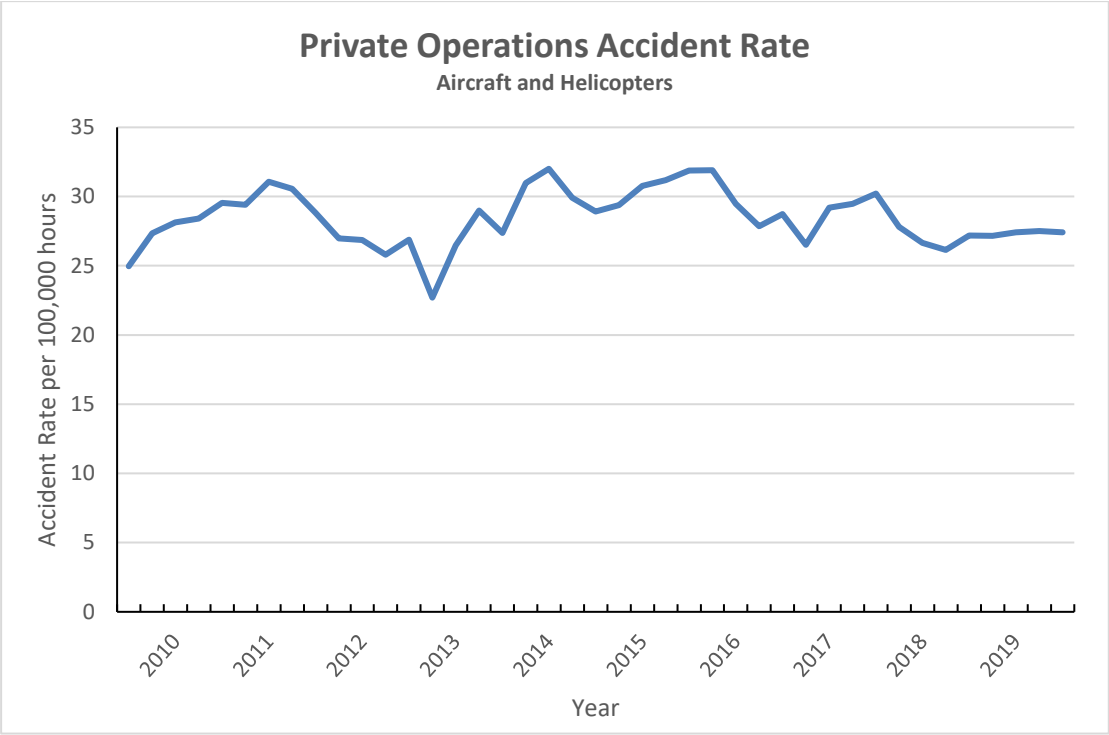
Nature of Accidents this Quarter

There were two accidents this quarter both involving landing gear although the circumstances are unrelated. The accident on the Cresco was due to a known wear and tear issue that afflicts these aircraft operating at high weights on rough strips. The training aircraft nose gear problem is still under investigation but appears related to a known manufacturing defect and compounded by poor records supplied by a previous owner outside NZ.

Private & Recreational Operations - Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/5741	Fielding	PA-18A-150	--	--	Take-off accident. Loss of directional control on take-off, was struck by squally x-wind just at rotate swinging the A/C off the runway striking boundary fence in airborne configuration. Aircraft smashed through the fence ground looping in paddock. Damage to A/C, no injuries. **CAA RESPONSE**: Investigation underway
19/4833	Heathcote Valley	NA	--	1	Paraglider collided with trees and a building **CAA RESPONSE**: The speed-wing pilot conducted a wing-over in gusty conditions. He knew the conditions were not suitable for doing a wing-over but as he was being videoed decided to push his boundaries. The wing caught a tree and deflated, resulting in a loss of lift and the pilot falling onto a shed and then onto the ground. Safety message put on CAA Facebook page and distributed to NZHGPA to pass on to members.
19/6240	Hollyford Airstrip	M-5-180C	--	--	Minor landing accident. Pilot reported landing with a tailwind and realised were going to run off the strip. Rather than risk a go-around and possibly strike trees, made decision for a low speed over-run into bush. No injuries, damage to aircraft.TBA **CAA RESPONSE**: No immediate action
19/4860	Motueka	R44	--	--	Upon landing the helicopter drifted right and main rotor came into contact with the hangar door **CAA RESPONSE**: No immediate action

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/4821	Cust	Magic GS-700	--	--	A weld failed on the nose gear during rollout, and the fuselage fell forward damaging propeller, cowling, firewall and associated equipment.to be scheduled **CAA RESPONSE**: No immediate action
19/5410	--	A-32	--	--	Landing accident. Operating into a local training airstrip, pilot reported: Suspected wind shear, came in above stall, then the back of the aircraft just fell out and it dropped like a stone, been operating for an hour with consistent winds of 11 to 15 kts. No injuries, damage to aircraft. **CAA RESPONSE**: No immediate action
19/6594	Inch Clutha	S-6ES Coyote II	--	--	Minor landing accident, struck a fence on the landing roll. No injuries, damage to propeller and engine frame. Prop requires replacement, engine frame repairs, engine gearbox inspection required. **CAA RESPONSE**: No immediate action
19/6687	Tararua Forest Park	P2002 Sierra RG UL	2	-	Aircraft reported missing. Wreckage located, PinC and passenger both deceased. **CAA RESPONSE**: CAA investigation underway
19/6938	Kaitoke Airstrip	Sabre 503	--	2	During simulated forced landing exercise with the engine at idle, too much altitude was lost to make the airstrip. On application of power the engine stopped resulting in a forced landing onto scrub approx 30 meters short of the runway. Minor injuries, damage to aircraft. **CAA RESPONSE**: No immediate action

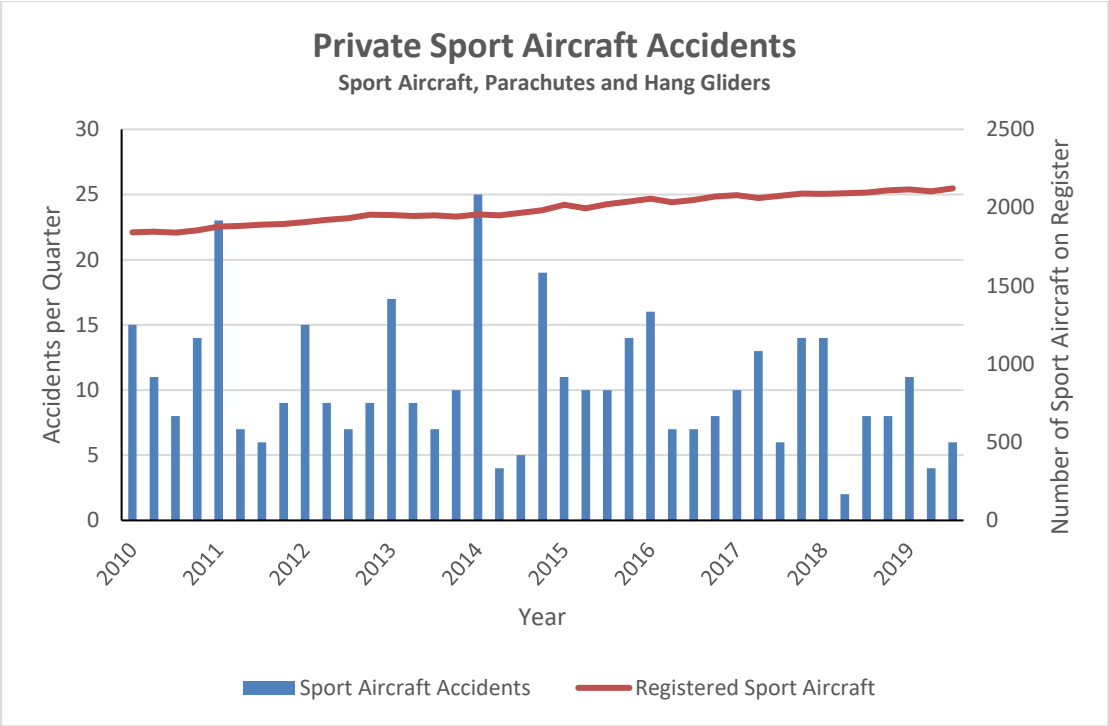


Long Term Performance

The number of accidents in private & recreational sector this winter quarter was less than last winter (9 against 17 in 2018). The long term safety performance for private operations in certified aircraft and helicopters is essentially unchanged. This graph includes only the three certified aircraft involves in the 9 accidents listed.

The 6 accidents involving Uncertified or 'sport' aircraft which includes microlights and homebuilt aircraft as well as gliders and parachutes are covered in the graph below.

As sport aircraft are not required to provide activity returns it is not possible to calculate a rate per flying hour. Instead the following chart compares the number of sport aircraft accidents each quarter along with the number of sport aircraft on the register (right-hand axis)



This chart indicates that the number of accidents involving sport aircraft is declining even as the number of sport aircraft on the register increases slowly. While the amount of flying activity is not known, it is reasonable to assume activity is proportional to the number of sport aircraft on the register, from which it can be inferred the accident rate in this sector is probably reducing in the long term.

Nature of Accidents this Quarter

Despite the improvement in overall safety performance, this quarter included one fatal accident with two people killed. The Tecnam P2002 was reported overdue from a training flight. The wreckage was located the next day on the eastern side of the Tararua ranges. The weather at the time of the accident included strong westerly conditions with associated cloud

The other eight accidents were minor landing or take-off accidents, with no serious injuries. This is consistent with previous quarters, landing and take-off accidents are common in this sector. CAA is investigating the PA-18-150 take-off accident to examine the influence of pilot training on the event. The Sabre 503 trike accident at Kaitoke illustrates the risks associated with simulated engine out landings, as the engine stopped when full power was applied for the go-around. Historically these accidents have been caused by an incorrect idle mixture adjustment, rapid throttle application or both.

Quarter	2016/4	2017/1	2017/2	2017/3	2017/4	2018/1
Social Cost $ million[1]	29.86	15.49	30.14	1.02	20.46	18.23
Number of Fatal Accidents[2]	3	2	5	0	3	3
Number of Fatal Injuries[2]	5	2	6	0	4	3
Number of Serious + Minor Injuries[2]	14	20	12	7	15	23
Number of Aircraft Accidents[2]						
Large Aeroplanes	0	0	1	0	0	0
Medium Aeroplanes	0	0	0	0	0	0
Small Aeroplanes	6	6	0	4	4	7
Agricultural Aeroplanes	2	4	0	0	2	1
Helicopters	3	10	2	1	2	4
Sport Aircraft	4	8	8	3	11	7
Unknown Aircraft	0	0	2	0	1	0
Hang Gliders	4	4	4	3	6	7
Parachutes	7	7	2	1	4	2
Number of Incidents[3]	1,675	1,879	1,815	1,730	1,755	2,096
Number of Aviation Related Concerns[4]	235	253	278	231	322	371
Number of Hours Flown[5]	237,542	243,721	216,424	197,623	241,231	239,837
Number of Air Transport Flights[5]	106,986	99,330	82,766	89,074	114,244	118,635
Number of Aircraft Movements[6]	231,713	233,701	222,907	221,296	249,554	244,396
Number of Aircraft on the Register[7]	4,723	4,734	4,704	4,751	4,779	4,773
Number of Part 119 Certificated Operators						
Air Operator – Large Aeroplanes	7	6	6	6	6	6
Air Operator – Medium Aeroplanes	15	13	13	13	13	13
Air Operator – Helicopters and Small Aeroplanes	164	166	166	165	167	166
Number of Part 137 Agricultural Aircraft Operators	102	102	102	103	105	104
Number of Part 115 Adventure Aviation Operators	29	31	29	29	29	27
Number of Part 102 Unmanned Aircraft Operators	76	86	89	94	105	105
Number of Part 141 Training Organisations	52	53	52	52	50	51
Number of Part 149 Recreation Organisations	8	8	8	8	8	8
Number of Licences (Type of Medical Certificate)[8]						
Recreational Pilot Licence (RPL Medical)	453	446	442	440	456	426
Private Pilot Licence (Class 1 & 2)	2,385	2,402	2,358	2,348	2,367	2,402
Commercial Pilot Licence (Class 2 only)	2,192	2,094	2,108	1,992	1,927	1,864
Commercial Pilot Licence (Class 1)	2,030	2,085	2,032	2,096	2,100	2,129
Airline Transport Pilot Licence (Class 2 only)	1,006	990	996	1,031	1,064	1,077
Airline Transport Pilot Licence (Class 1)	1,248	1,252	1,261	1,232	1,201	1,206
Air Traffic Controller Licence (Class 3)	366	360	364	371	364	357
Aircraft Maintenance Engineer Licence (N/A)	2,830	2,842	2,852	2,867	2,882	2,891

Quarter	2018/2	2018/3	2018/4	2019/1	2019/2	2019/3
Social Cost $ million[1]	9.31	11.08	11.08	11.08	11.08	11.08
Number of Fatal Accidents[2]	2	2	3	2	0	1
Number of Fatal Injuries[2]	2	2	3	2	0	2
Number of Serious + Minor Injuries[2]	7	9	8	18	4	1
Number of Aircraft Accidents[2]						
Large Aeroplanes	0	0	0	0	2	0
Medium Aeroplanes	1	0	0	0	0	0
Small Aeroplanes	4	4	4	10	3	3
Agricultural Aeroplanes	1	0	0	0	1	1
Helicopters	3	2	4	5	5	2
Sport Aircraft	3	8	8	9	5	5
Unknown Aircraft	0	1	0	1	1	0
Hang Gliders	1	3	5	11	1	1
Parachutes	1	3	4	10	4	2
Number of Incidents[3]	2,042	1,630	1,788	2,041	1,885	1,676
Number of Aviation Related Concerns[4]	323	338	334	389	317	278
Number of Hours Flown[5]	201,676	210,183	229,274	160,714	207,089	210,183
Number of Air Transport Flights[5]	94,147	88,986	112,671	110,134	110,134	110,134
Number of Aircraft Movements[6]	234,833	242,644	252,758	256,334	256,334	256,334
Number of Aircraft on the Register[7]	4,770	4,789	4,825	4,843	4,812	4,861
Number of Part 119 Certificated Operators						
Air Operator – Large Aeroplanes	13	6	5	5	5	5
Air Operator – Medium Aeroplanes	12	12	11	11	11	11
Air Operator – Helicopters and Small Aeroplanes	167	165	163	160	160	160
Number of Part 137 Agricultural Aircraft Operators	104	105	106	106	105	105
Number of Part 115 Adventure Aviation Operators	27	27	27	27	26	25
Number of Part 102 Unmanned Aircraft Operators	105	110	100	105	110	126
Number of Part 141 Training Organisations	51	48	48	48	48	44
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)	363	342	348	332	300	294
Private Pilot Licence (Class 1 & 2)	2,408	2,418	2,406	2,428	2,419	2,412
Commercial Pilot Licence (Class 2 only)	1,863	1,824	1,799	1,837	1,865	1,830
Commercial Pilot Licence (Class 1)	2,143	2,189	2,203	2,168	2,126	2,188
Airline Transport Pilot Licence (Class 2 only)	1,057	1,034	1,122	1,134	1,194	1,136
Airline Transport Pilot Licence (Class 1)	1,228	1,166	1,217	1,195	1,138	1,215
Air Traffic Controller Licence (Class 3)	361	361	365	369	371	372
Aircraft Maintenance Engineer Licence (N/A)	2,898	2,914	2,918	2,937	2,940	2,958