

Aviation Industry Safety Update

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Introduction

This report uses calendar years; the first quarter is 1 January to 31 March.

Data in tables may not sum exactly to the total shown due to rounding.

Occurrence Statistics

The “Twelve Month Moving Average” graphs in the Occurrence Statistics sections give an indication of the levels of safety failure in New Zealand aviation during the period 1 October 2002 to 30 September 2005. They are constructed from data in the Civil Aviation Authority Management Information System, and use actual data reported to the CAA.

Industry Activity Statistics

Registered Aircraft

The following table summarises the number of aircraft on the register by aircraft group at 30 September 2005 and 6 months prior:

Aircraft Group	31 Mar 2005		30 Sep 2005		Change	
	Number	Percentage	Number	Percentage	Number	Percentage
13,608 kg and above	95	2.5	96	2.5	+ 1	+ 1.1
5,670 to 13,608 kg	68	1.8	66	1.7	- 2	- 2.9
2,721 to 5,670 kg	132	3.4	145	3.7	+ 13	+ 9.8
Below 2,721 kg	1,553	40.6	1,555	39.9	+ 2	+ 0.1
Sport	1,376	35.9	1,405	36.1	+ 29	+ 2.1
Helicopters	604	15.8	629	16.1	+ 25	+ 4.1
Total	3,828		3,896		+ 68	+ 1.8

Licences

The following table summarises the number of private pilot, commercial pilot, airline transport pilot, air traffic controller and aircraft maintenance engineer licences on the register at 30 September 2005 and 6 months prior:

Licence Type	Medical Certificate	31 Mar	30 Sep	Change	
		2005	2005	Number	Percentage
Private Pilot	Class 1 & 2	3,655	3,683	+ 28	+ 0.8
Commercial Pilot	Class 2 only	1,505	1,458	- 47	- 3.1
Commercial Pilot	Class 1	1,979	2,082	+ 103	+ 5.2
Airline Transport Pilot	Class 2 only	571	549	- 22	- 3.9
Airline Transport Pilot	Class 1	1,175	1,253	+ 78	+ 6.6
Air Traffic Controller	Class 3	302	312	+ 10	+ 3.3
Aircraft Maintenance Engineer	N/A	2,003	2,055	+ 52	+ 2.6
Total Licences		11,190	11,392	+ 202	+ 1.8

Note — The statistics above for pilot licences count only those with active class 1 or active class 2 medical certificates. 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). The statistics above for Air Traffic Controller Licences count only those with an active class 3 medical certificate.

The statistics above do not show the number of licence holders as each client may hold more than one licence [e.g. PPL (helicopter) and PPL (aeroplane), or PPL (Helicopter) and CPL (Balloon), held by one client counts as two licences].

Certificated Operators

The following tables show the number of Civil Aviation Rule Part certificate holders at 30 September 2005 and 6 months prior.

Rule Part	31 Mar 2005	30 Sep 2005	Change	
			Number	Percentage
Part 119 Air Operator	164	165	+ 1	+ 0.6
Part 119 Air Operator – Pacific	1	2	+ 1	+ 100.0
Part 129 Foreign Air Operator	36	35	- 1	- 2.8
Part 137 Agricultural Aircraft Operator	115	118	+ 3	+ 2.6
Part 139 Aerodromes	26	25	- 1	- 3.8
Part 140 Aviation Security Services	1	1	0	0.0
Part 141 Aviation Training Organisation	52	49	- 3	- 5.8
Part 145 Aircraft Maintenance Organisation	51	53	+ 2	+ 3.9
Part 146 Aircraft Design Organisation	11	11	0	0.0
Part 148 Aircraft Manufacturing Organisation	20	20	0	0.0
Part 149 Recreation Organisation	6	6	0	0.0
Part 171 Aeronautical Telecommunication Service Organisation	3	3	0	0.0
Part 172 Air Traffic Service	1	1	0	0.0
Part 174 Meteorological Service Organisation	2	2	0	0.0
Part 175 Aeronautical Information Service Organisation	2	2	0	0.0
Part 19 Supply Organisation Certificate of Approval	51	53	+ 2	+ 3.9
Part 92 Dangerous Goods Packaging Approval	42	38	- 4	- 9.5

Note: the figures show the total number of approvals held by organisations with Part 92 certificates.

Part 119 Air Operator	31 Mar 2005	30 Sep 2005	Change	
			Number	Percentage
Part 108 Security Programme	18	18	0	0.0
Part 121 Large Aeroplanes	11	12	+ 1	+ 9.1
Part 125 Medium Aeroplanes	11	12	+ 1	+ 9.1
Part 135 Helicopters and Small Aeroplanes	150	152	+ 2	+ 1.3

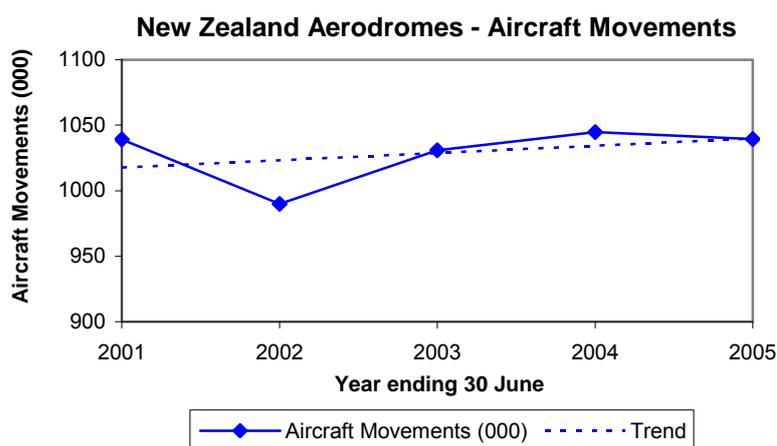
Part 129 Foreign Air Operator	31 Mar 2005	30 Sep 2005	Change	
			Number	Percentage
Part 108 Security Programme	26	25	- 1	- 3.8

Aircraft Movements

The following graph and table show the number of aircraft movements at the following aerodromes: Auckland, Christchurch, Dunedin, Gisborne, Hamilton, Invercargill, Milford Sound, Napier, Nelson, New Plymouth, Ohakea, Palmerston North, Queenstown, Rotorua, Taupo, Tauranga, Wellington, Whenuapai and Woodbourne.

Long-Term Change in Aircraft Movements

The following graph shows the number of aircraft movements for the five-year period 1 July 2000 to 30 June 2005.



The number of aircraft movements decreased by 4.7% from the year ended 30 June 2001 to the year ended 30 June 2002 when a low of 989,833 was reached. Since 2002 the number of aircraft movements increased at an average of 1.7% each year to 1,039,431 in the year ended 30 June 2005.

Six-Monthly Comparison

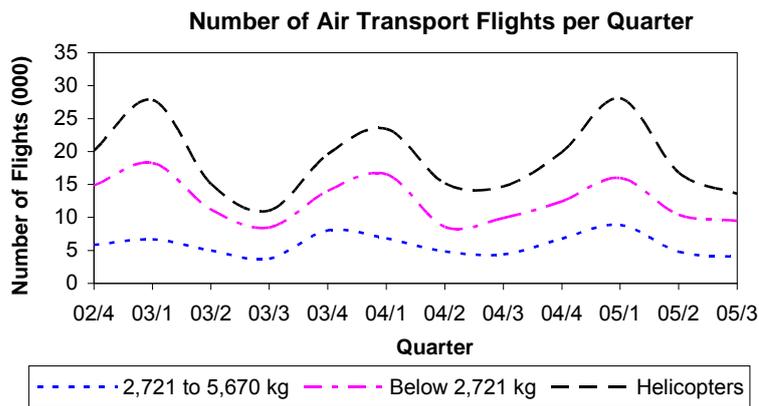
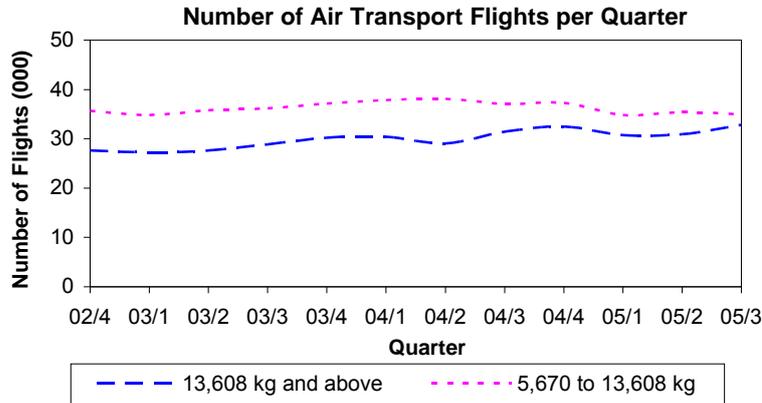
Number of Aircraft Movements

Activity	1 Jan to 30 Jun	1 Jan to 30 Jun	Change	
	2004	2005	Number	Percentage
Aircraft Movements	528,898	532,102	+ 3,204	+ 0.6

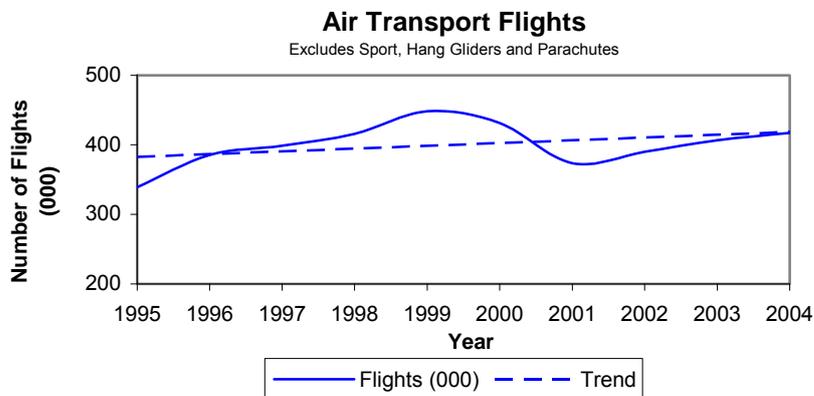
Air Transport Flights

Note that these graphs exclude sport aircraft, hang gliders and parachutes, and foreign registered aircraft that are operated in New Zealand.

The following graphs show the number of air transport flights per quarter during the period 1 October 2002 to 30 September 2005.

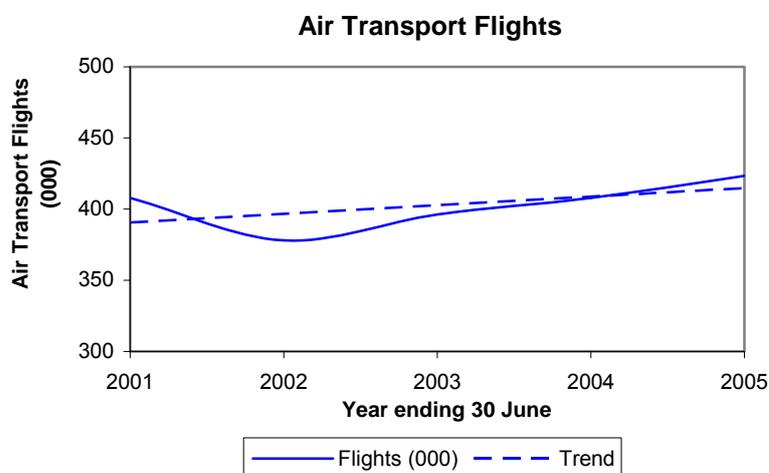


The following graph shows the number of air transport flights (excluding the sport group) for the years 1995 to 2004.



Long-Term Change in Air Transport Flights

The following graph shows the number of air transport flights (excluding the sport group) for the five-year period 1 July 2000 to 30 June 2005.



The number of air transport flights decreased by 7.3% from 407,780 in the year ended 30 June 2001 to 378,053 in the year ended 30 June 2002. Since 2002 the number of flights increased at an average of 4.0% each year to 423,249 in the year ended 30 June 2005.

Six-Monthly Comparison

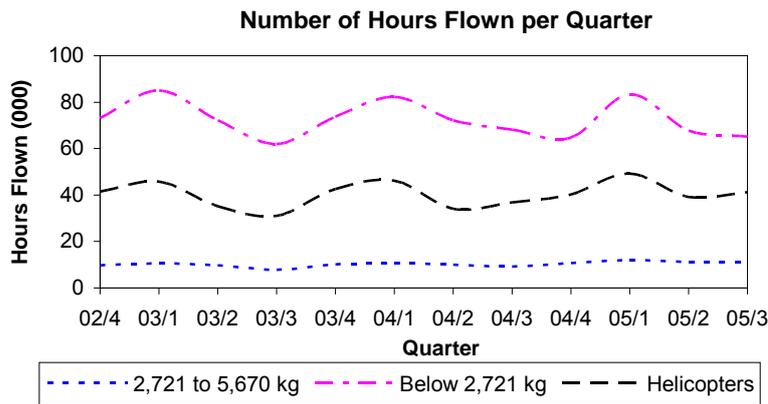
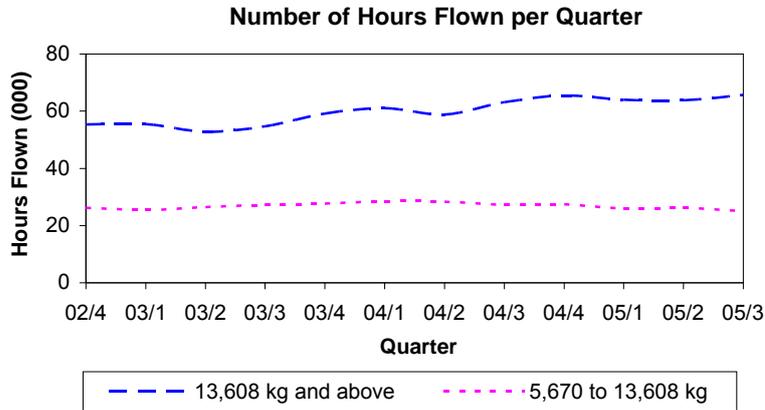
Number of Air Transport Flights

Aircraft Group	1 Jan to 30 Jun	1 Jan to 30 Jun	Change	
	2004	2005	Number	Percentage
13,608 kg and above	59,415	61,659	+ 2,244	+ 3.8
5,670 to 13,608 kg	75,959	70,171	- 5,788	- 7.6
2,721 to 5,670 kg	11,657	13,698	+ 2,041	+ 17.5
Below 2,721 kg	25,147	26,375	+ 1,228	+ 4.9
Helicopters	38,589	44,913	+ 6,324	+ 16.4
Total	210,767	216,816	+ 6,049	+ 2.9

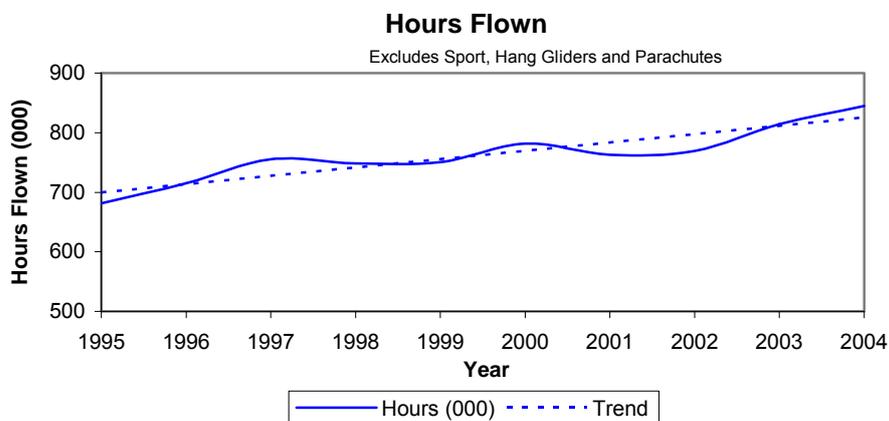
Hours Flown

Note that these graphs exclude sport aircraft, hang gliders and parachutes, and foreign registered aircraft that are operated in New Zealand.

The following graphs show the number of hours flown by aircraft during the period 1 October 2002 to 30 September 2005.

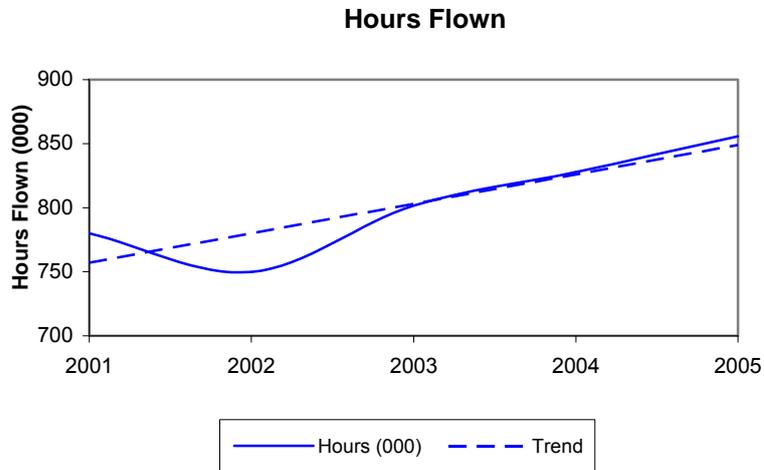


The following graph shows the number of hours flown by aircraft (excluding the sport group) for the years 1995 to 2004.



Long-Term Change in Hours Flown

The following graph shows the number of hours flown (excluding the sport group) for the five-year period 1 July 2000 to 30 June 2005.



The total number of hours flown decreased by 3.9% from 779,848 in the year ended 30 June 2001 to 749,809 in the year ended 30 June 2002. Since 2002 the number of hours increased at an average of 4.7% each year to 855,675 in the year ended 30 June 2005.

Six-Monthly Comparison

Number of Hours Flown

Aircraft Group	1 Jan to 30 Jun	1 Jan to 30 Jun	Change	
	2004	2005	Number	Percentage
13,608 kg and above	119,835	127,916	+ 8,081	+ 6.7
5,670 to 13,608 kg	56,747	52,002	- 4,745	- 8.4
2,721 to 5,670 kg	20,571	23,201	+ 2,630	+ 12.8
Below 2,721 kg	154,381	151,129	- 3,252	- 2.1
Helicopters	80,236	88,261	+ 8,025	+ 10.0
Total	431,771	442,509	+ 10,738	+ 2.5

1 January to 30 June 2004

Category	13,608 kg and above	5,670 to 13,608 kg	2,721 to 5,670 kg	Below 2,721 kg	Helicopters	Totals
Revenue pax & freight	119,438	55,926	7,087	16,544	20,096	219,090
Revenue (other)	57	462	11,412	106,321	53,562	171,813
Non-revenue	341	360	2,073	31,516	6,579	40,869
Totals	119,835	56,747	20,571	154,381	80,236	431,771

1 January to 30 June 2005

Category	13,608 kg and above	5,670 to 13,608 kg	2,721 to 5,670 kg	Below 2,721 kg	Helicopters	Totals
Revenue pax & freight	127,579	51,458	7,345	17,102	21,804	225,289
Revenue (other)	71	293	13,250	104,232	58,333	176,178
Non-revenue	266	251	2,606	29,795	8,125	41,042
Totals	127,916	52,002	23,201	151,129	88,261	442,509

Industry Size and Shape

The following table shows the size and shape of the industry as determined by aircraft that returned Aircraft Operating Statistics in the relevant safety target group categories for the period 1 January to 30 June 2005. The number of seats for aircraft with no seats recorded on the database was estimated using (maximum takeoff weight (lb) of the aircraft/1000). This does not take into account aircraft that are used for freight only, because the small number of aircraft in this category has a minimal effect on the overall outcome. For each safety target group the average number of seats is multiplied by the total hours flown, to give the number of seat hours offered by the group.

Safety Target Group	Average No. of Seats	Seat Hours Offered (1,000's)	Percentage Seat Hours
13,608 kg and above revenue pax & freight	182.2	23,248	90.5
5,670 to 13,608 kg revenue pax & freight	26.5	1,365	5.3
2,721 to 5,670 kg revenue pax & freight	11.0	81	0.3
Below 2,721 kg revenue pax & freight	5.6	96	0.4
Below 2,721 kg revenue (other)	3.3	344	1.3
Below 2,721 kg non-revenue	3.7	109	0.4
Helicopters revenue pax & freight	5.1	111	0.4
Helicopters revenue (other)	4.8	283	1.1
Helicopters non-revenue	4.7	38	0.1

This table shows that around 91% of seat hours are offered by the 13,608 kg and above revenue pax & freight group, around 5% by the 5,670 to 13,608 kg revenue pax & freight group, with the remaining 4% of seat hours offered being split between the other safety target groups.

Note that this table excludes revenue (other) and non-revenue hours flown by the 2,721 kg and above groups because these activities are not included in the Accident Rate Reduction Target graphs.

The following table shows the size and shape of the industry as determined by aircraft that returned Aircraft Operating Statistics in all categories for the period 1 January to 30 June 2005.

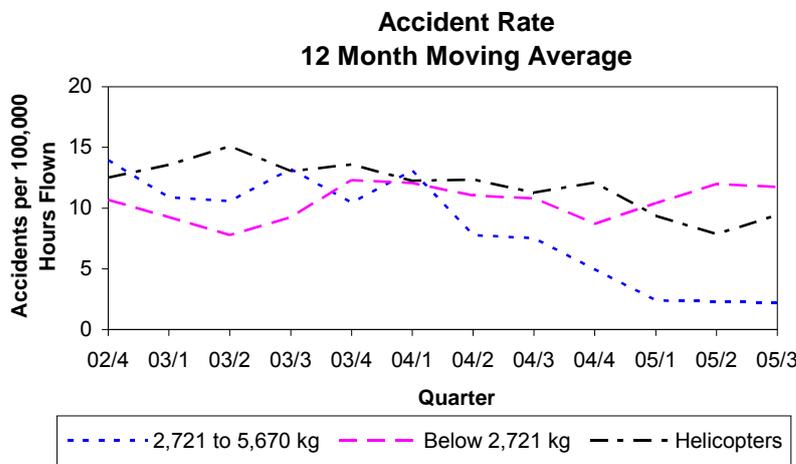
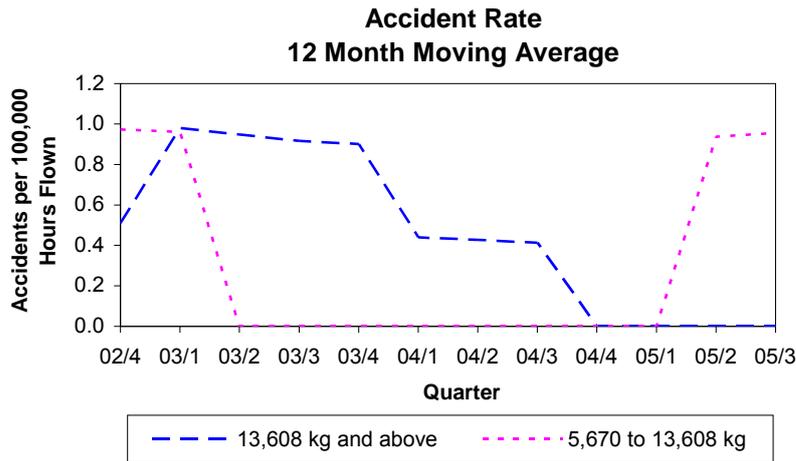
Aircraft Group	Average No. of Seats	Seat Hours Offered (1,000's)	Percentage Seat Hours
13,608 kg and above revenue pax & freight	182.2	23,248	90.0
13,608 kg and above revenue (other)	106.3	8	0.0
13,608 kg and above non-revenue	96.1	26	0.1
5,670 to 13,608 kg revenue pax & freight	26.5	1,365	5.3
5,670 to 13,608 kg revenue (other)	23.3	7	0.0
5,670 to 13,608 kg non-revenue	22.5	6	0.0
2,721 to 5,670 kg revenue pax & freight	11.0	81	0.3
2,721 to 5,670 kg revenue (other)	7.2	95	0.4
2,721 to 5,670 kg non-revenue	7.2	19	0.1
Below 2,721 kg revenue pax & freight	5.6	96	0.4
Below 2,721 kg revenue (other)	3.3	344	1.3
Below 2,721 kg non-revenue	3.7	109	0.4
Helicopters revenue pax & freight	5.1	111	0.4
Helicopters revenue (other)	4.8	283	1.1
Helicopters non-revenue	4.7	38	0.1

Occurrence Statistics

Aircraft Accidents

Occurrence Trend

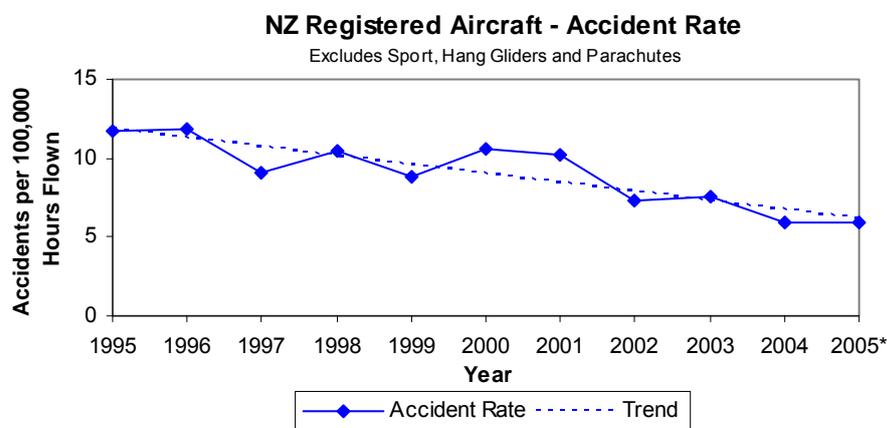
The following graphs show the aircraft accident rates (accidents per 100,000 hours flown) twelve month moving average for the three-year period 1 October 2002 to 30 September 2005 (excluding Sport).



Aircraft Group	Straight Line Trend of 12 Month Moving Average
13,608 kg and above	Trending down
5,670 to 13,608 kg	Constant
2,721 to 5,670 kg	Trending down
Below 2,721 kg	Trending up
Helicopters	Trending down

The slope of the trend line for the 5,670 to 13,608 kg group is zero, and the slopes of the trend lines for the 13,608 kg and above and below 2,721 kg groups are close to zero.

The following graph shows the overall accident rate per 100,000 hours flown (excluding the sport group, hang gliders and parachutes) for the years 1995 to 2004. The data point for 2005* is for 1 January to 30 September 2005 only.



Note that this graph does not show a moving average.

Six-Monthly Comparison

Number of Aircraft Accidents

Aircraft Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	0	0	0
5,670 to 13,608 kg	0	1	+ 1
2,721 to 5,670 kg	1	0	- 1
Below 2,721 kg	9	18	+ 9
Helicopters	12	6	- 6
Sport	9	17	+ 8
Hang Gliders	4	6	+ 2
Parachutes	1	1	0
Unknown	3	0	- 3
Total	39	49	+ 10

Severity***Six-Monthly Comparison***

Aircraft Group	Severity	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	Critical	0	0	0
	Major	0	0	0
	Minor	0	0	0
5,670 to 13,608 kg	Critical	0	1	+ 1
	Major	0	0	0
	Minor	0	0	0
Below 5,670 kg, Helicopters and Sport	Critical	7	8	+ 1
	Major	22	22	0
	Minor	2	11	+ 9
Hang Gliders and Parachutes	Critical	2	0	- 2
	Major	0	4	+ 4
	Minor	3	3	0
Unknown	Critical	0	0	0
	Major	2	0	- 2
	Minor	1	0	- 1
Total	Critical	9	9	0
	Major	24	26	+ 2
	Minor	6	14	+ 8

Accident Reduction Targets

Number of Accidents

The following table shows the number of accidents for the years 1995 to 2004. The data for 05* is for 1 January to 30 June 2005 only.

Safety Target Group	95	96	97	98	99	00	01	02	03	04	05*
13,608 kg and above revenue pax & freight	3	0	1	0	0	2	0	1	1	0	0
5,670 to 13,608 kg revenue pax & freight	0	1	1	0	0	0	0	0	0	0	1
2,721 to 5,670 kg revenue pax & freight	1	1	2	1	0	2	1	1	3	0	0
Below 2,721 kg revenue pax & freight	7	11	5	2	6	6	2	4	0	3	2
Below 2,721 kg revenue (other)	24	17	13	17	12	23	28	15	21	10	7
Below 2,721 kg non-revenue	22	21	20	21	23	26	18	12	15	16	10
Helicopter revenue pax & freight	1	2	2	3	2	5	2	3	2	2	0
Helicopter revenue (other)	20	20	17	22	15	8	14	8	14	9	4
Helicopter non-revenue	2	7	6	10	8	8	8	7	5	8	2

The following table shows the number of accidents in six-monthly periods.

Safety Target Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above revenue pax & freight	0	0	0
5,670 to 13,608 kg revenue pax & freight	0	1	+ 1
2,721 to 5,670 kg revenue pax & freight	0	0	0
Below 2,721 kg revenue pax & freight	1	2	+ 1
Below 2,721 kg revenue (other)	5	7	+ 2
Below 2,721 kg non-revenue	4	10	+ 6
Helicopter revenue pax & freight	1	0	- 1
Helicopter revenue (other)	6	4	- 2
Helicopter non-revenue	5	2	- 3

30 June 2005 Accident Rate Reduction Targets

Targets that were achieved:

- 13,608 kg and above revenue pax & freight,
- 5,670 to 13,608 kg revenue pax & freight,
- below 2,721 kg revenue (other),
- helicopter revenue pax & freight, and
- helicopter revenue (other) operations.

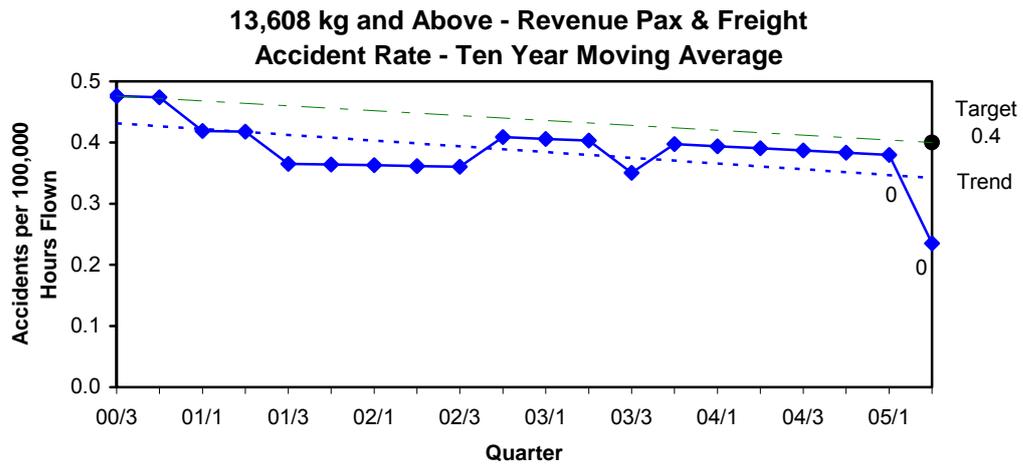
Targets that were not achieved:

- 2,721 to 5,670 kg revenue pax & freight,
- below 2,721 kg revenue pax & freight,
- below 2,721 kg non-revenue, and
- helicopter non-revenue operations.

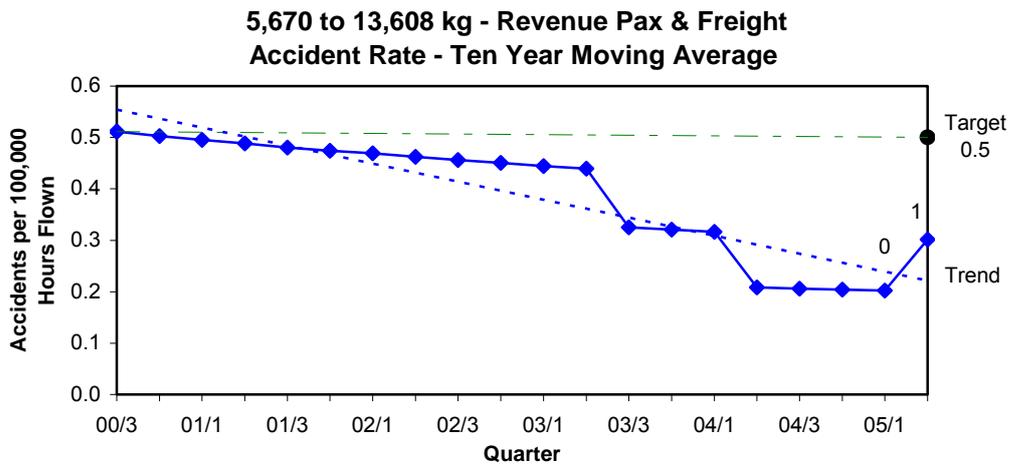
Graphs

The “Target” lines begin at the accident rates that existed at the start of the 5-year target period.

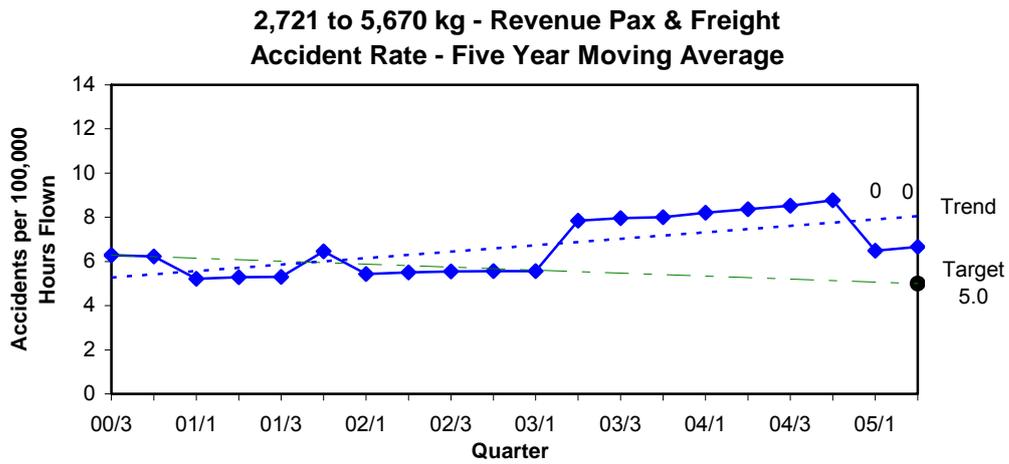
The actual numbers of accidents for the quarters 2005/1 and 2005/2 are shown next to the accident rates, and the trend is a dashed line.



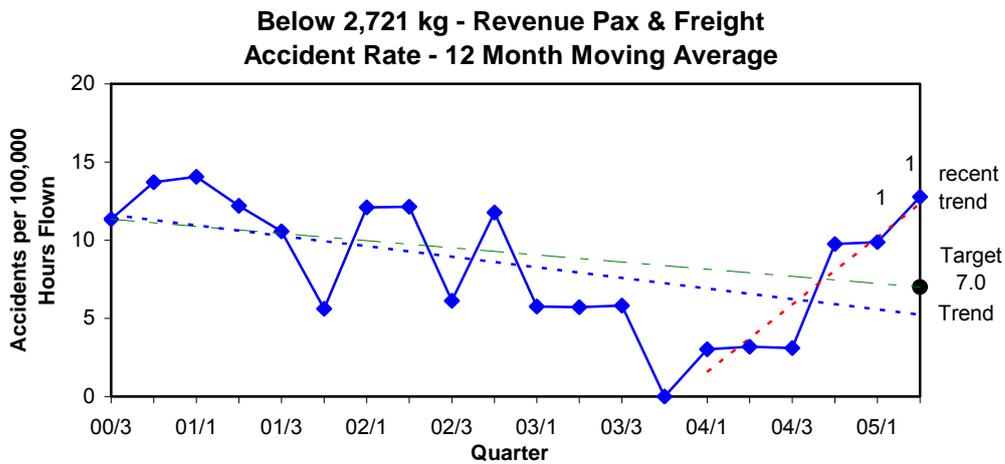
The accident rate for the period ended 30 June 2005 and the trend line are below the “Target” line. The target for the five year period 2000-2005 was achieved.



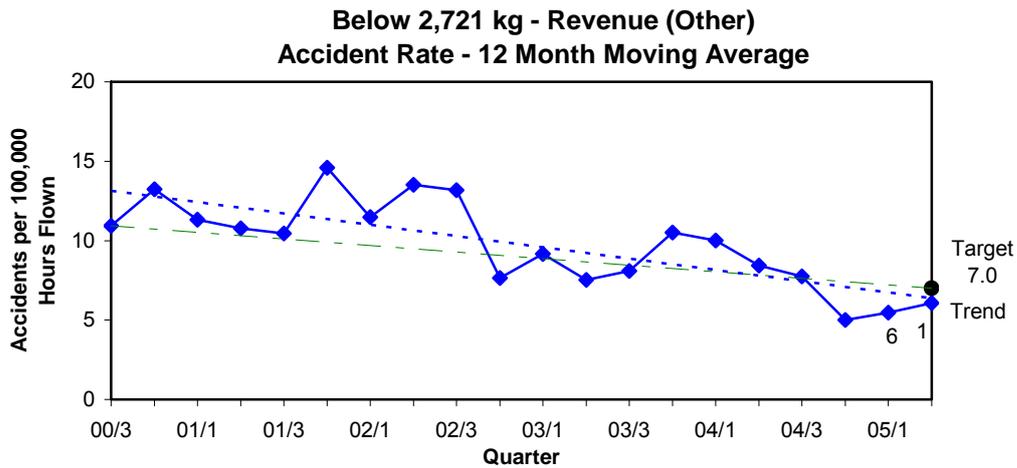
The accident rate for the period ended 30 June 2005 and the trend line are below the “Target” line. The target for the five year period 2000-2005 was achieved.



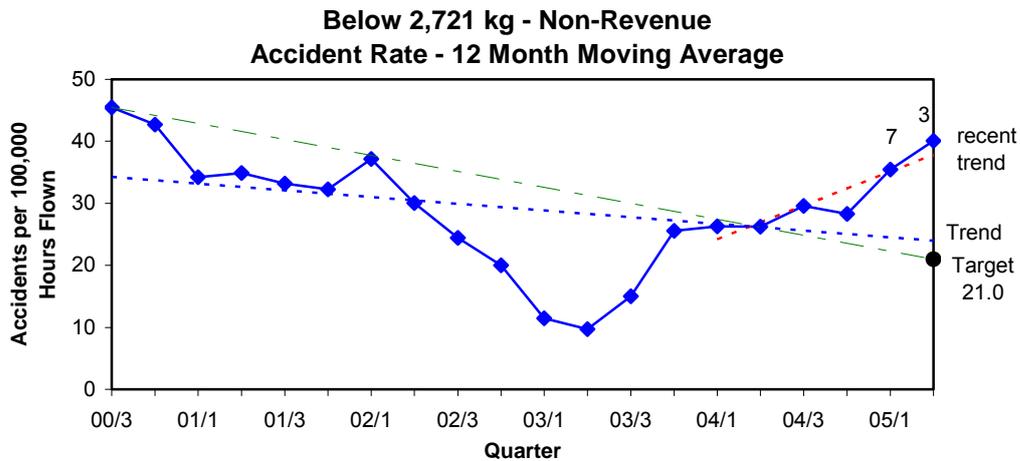
The accident rate for the period ended 30 June 2005 and the trend line are above the “Target” line. The target for the five year period 2000-2005 was not achieved.



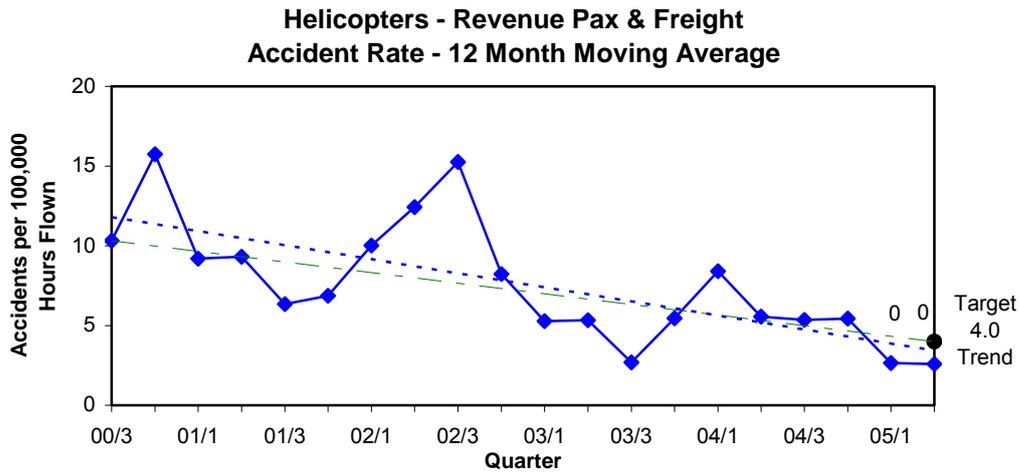
The accident rate for the period ended 30 June 2005 and the ‘recent’ trend line are above the “Target” line. The target for the five year period 2000-2005 was not achieved. However, the trend line is below the “Target” line.



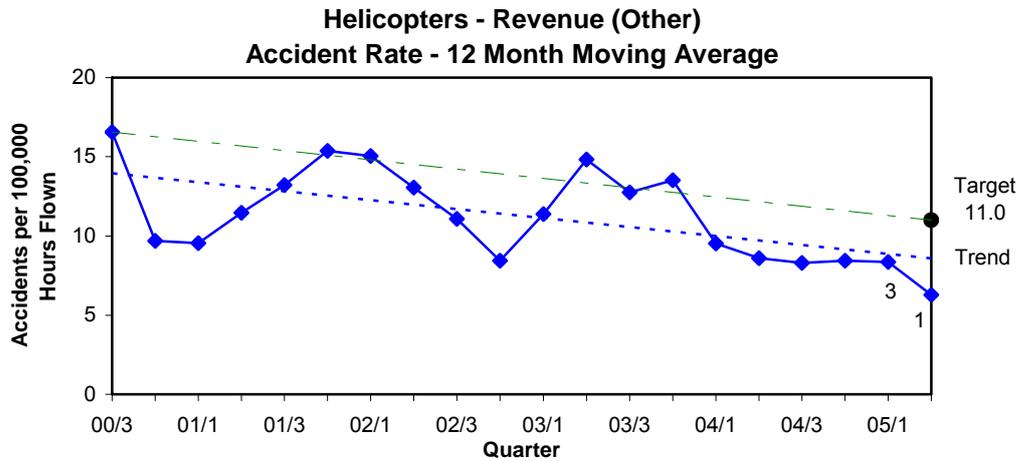
The accident rate for the period ended 30 June 2005 and the trend line are below the “Target” line. The target for the five year period 2000-2005 was achieved.



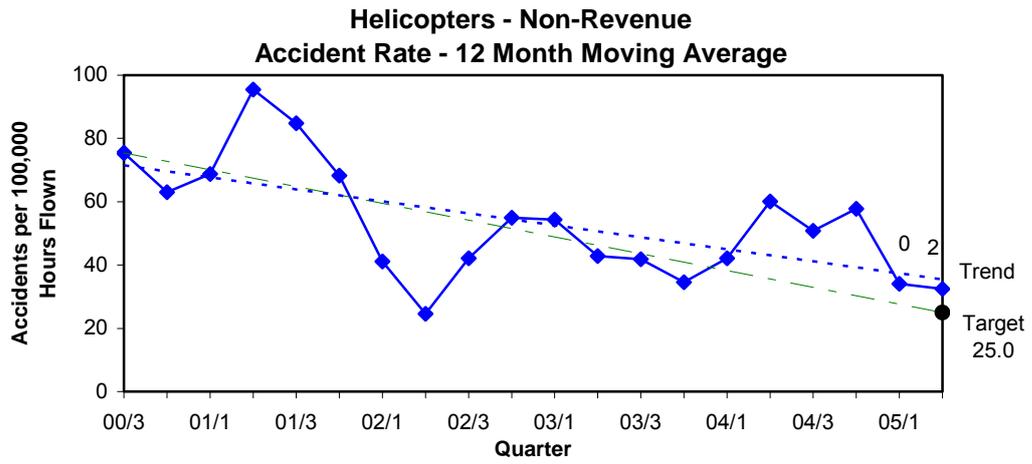
The accident rate for the period ended 30 June 2005, the ‘recent’ trend line and the trend line are above the “Target” line. The target for the five year period 2000-2005 was not achieved.



The accident rate for the period ended 30 June 2005 and the trend line are below the “Target” line. The target for the five year period 2000-2005 was achieved.



The accident rate for the period ended 30 June 2005 and the trend line are below the “Target” line. The target for the five year period 2000-2005 was achieved.



The accident rate for the period ended 30 June 2005 and the trend line are above the “Target” line. The target for the five year period 2000-2005 was not achieved.

Other Accidents

The following tables and graphs show the aircraft groups that are not included in the 30 June 2005 Accident Rate Reduction Targets section (excluding the “unknown” group).

Number of Accidents

The following table shows the number of accidents for the years 1995 to 2004. The data for 05* is for 1 January to 30 June 2005 only.

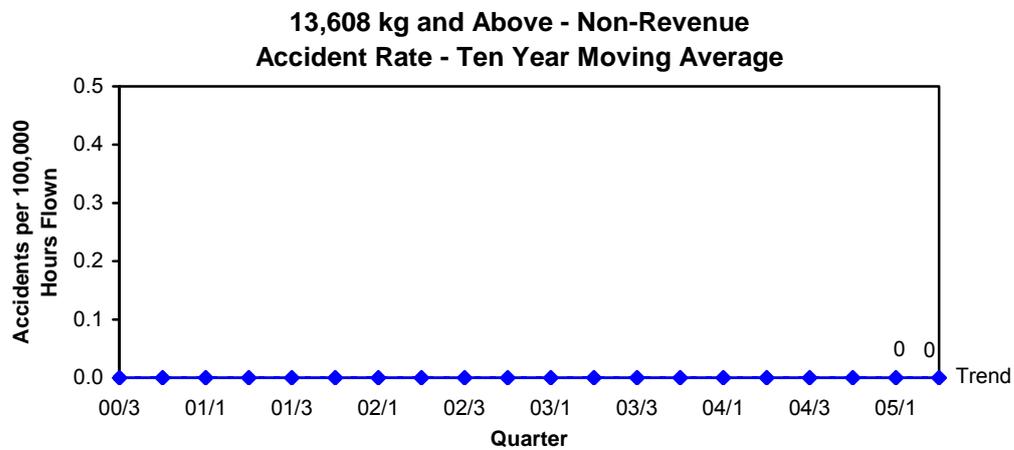
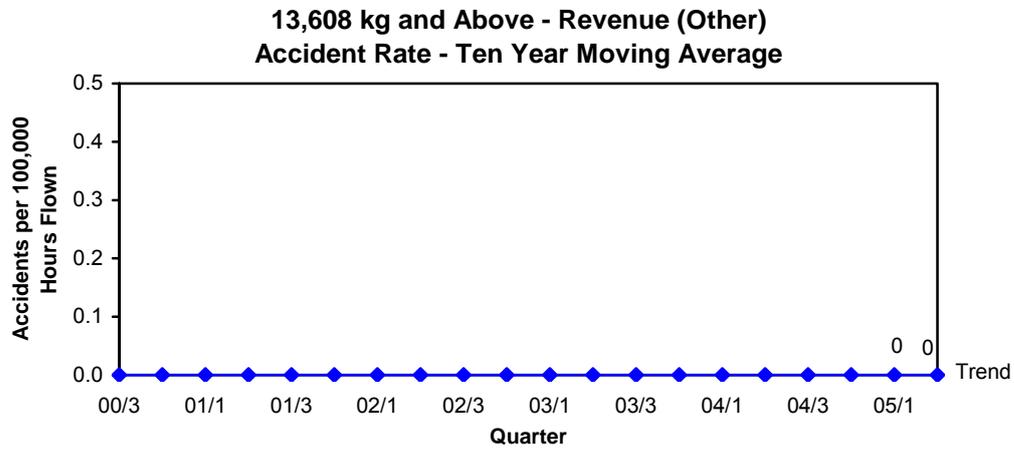
Group	95	96	97	98	99	00	01	02	03	04	05*
13,608 kg and above revenue (other)	0	0	0	0	0	0	0	0	0	0	0
13,608 kg and above non-revenue	0	0	0	0	0	0	0	0	0	0	0
5,670 to 13,608 kg revenue (other)	0	0	0	0	0	1	1	0	0	0	0
5,670 to 13,608 kg non-revenue	0	0	0	0	0	0	0	1	0	0	0
2,721 to 5,670 kg revenue (other)	0	4	1	0	0	1	3	3	0	2	0
2,721 to 5,670 kg non-revenue	0	1	1	2	0	1	1	1	1	0	0
Sport	15	19	30	33	25	31	24	24	21	21	17
Hang Gliders	9	4	8	8	7	7	21	11	8	7	6
Parachutes	6	7	3	4	0	2	3	1	3	1	0

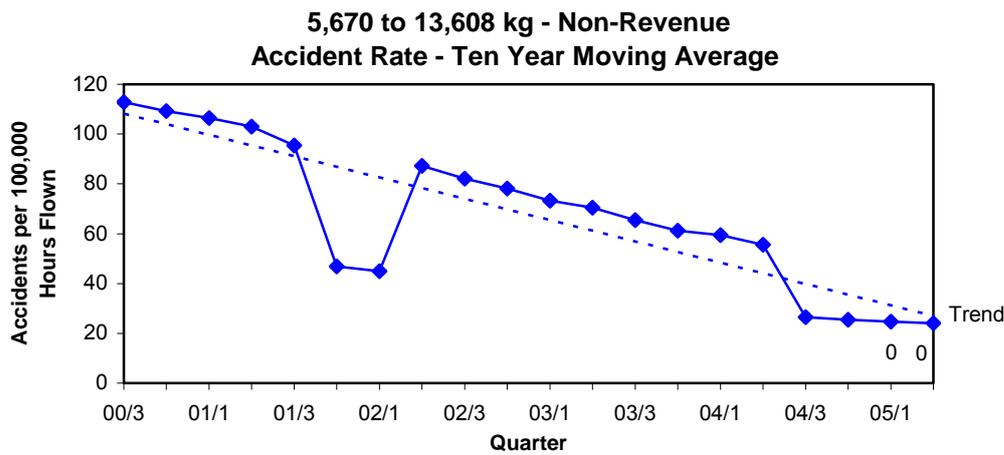
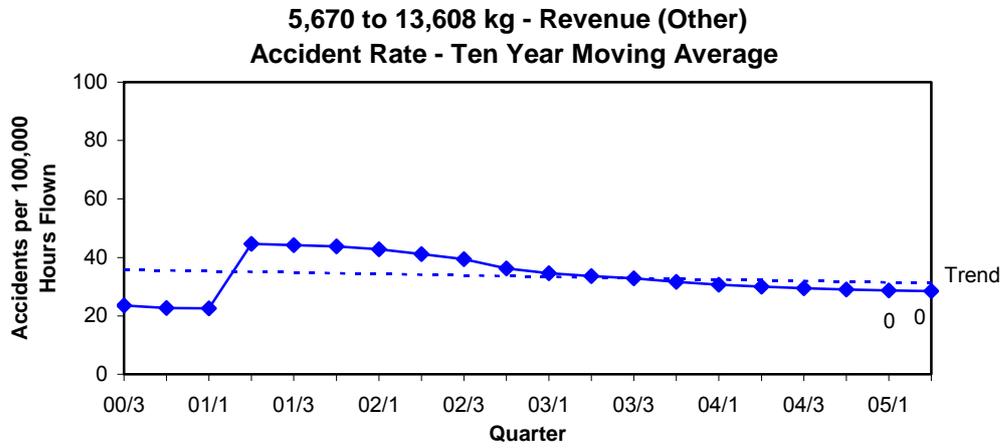
The following table shows the number of accidents in six-monthly periods.

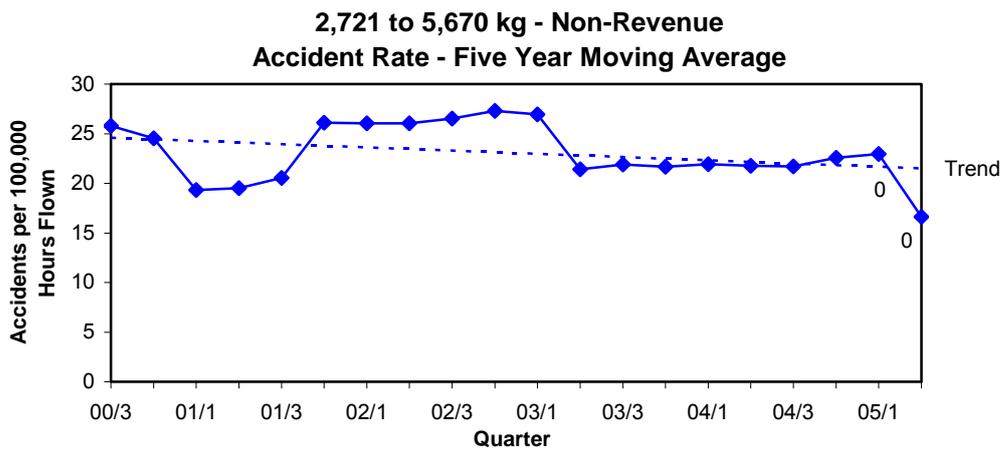
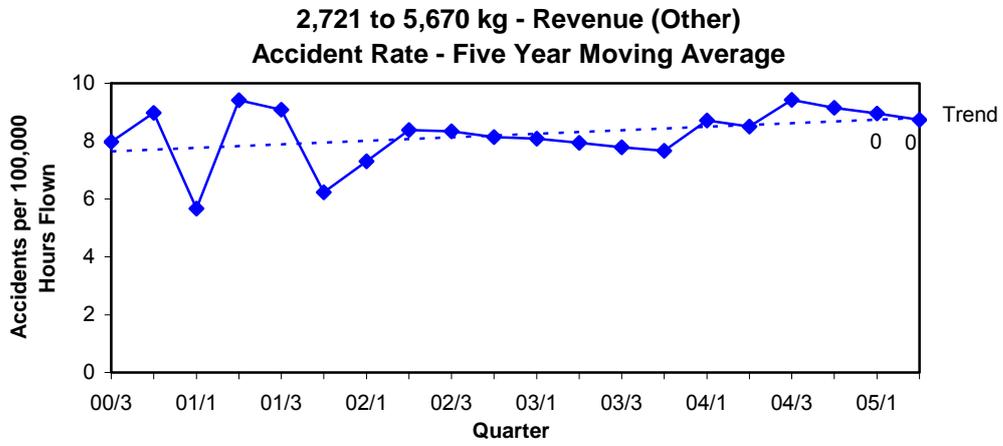
Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above revenue (other)	0	0	0
13,608 kg and above non-revenue	0	0	0
5,670 to 13,608 kg revenue (other)	0	0	0
5,670 to 13,608 kg non-revenue	0	0	0
2,721 to 5,670 kg revenue (other)	1	0	- 1
2,721 to 5,670 kg non-revenue	0	0	0
Sport	9	17	+ 8
Hang Gliders	4	6	+ 2
Parachutes	1	0	- 1

Graphs

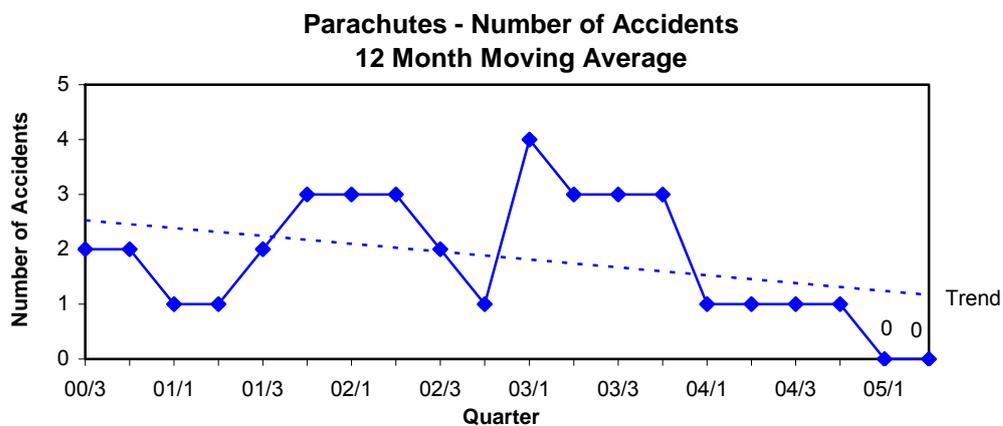
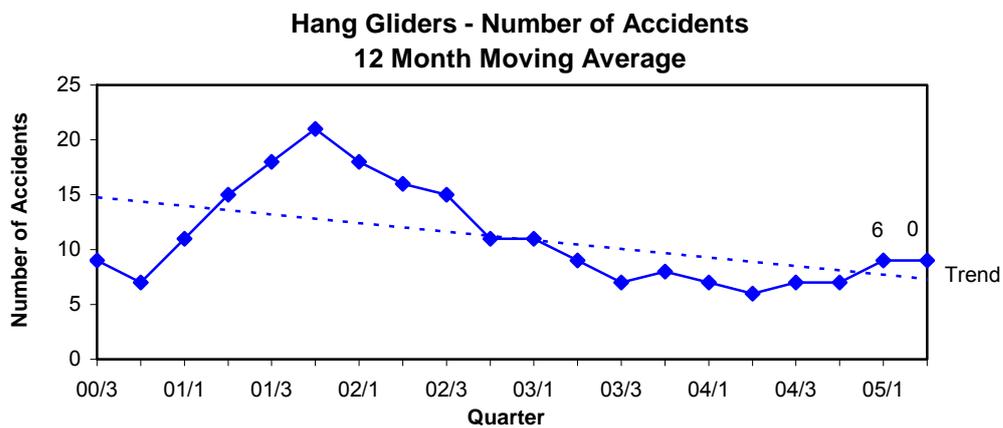
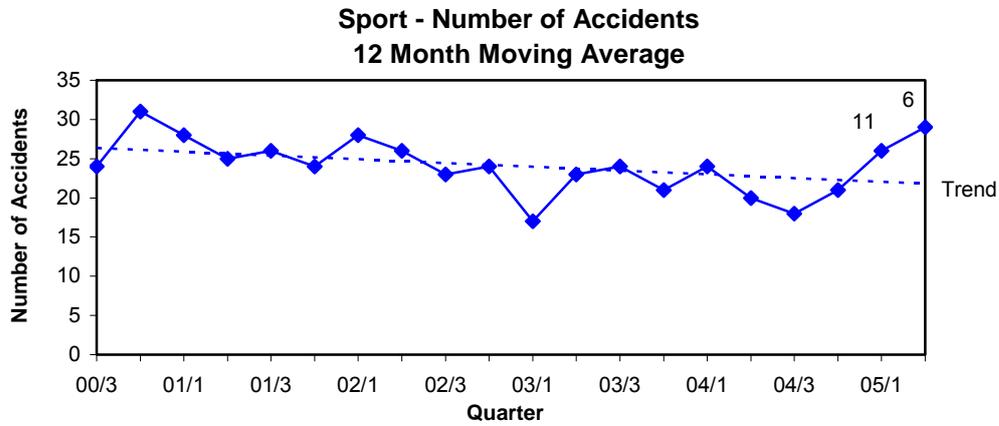
The actual numbers of accidents for the quarters 2005/1 and 2005/2 are shown next to the accident rates, and the trend is a dashed line.







The actual numbers of accidents for the quarters 2005/1 and 2005/2 are shown next to the 12 month moving average of the number of accidents, and the trend is a dashed line.



Safety Outcome Targets for 2010

The Civil Aviation Authority has developed Safety Outcome Targets to be achieved by the year 2010. The new targets came into effect on 1 July 2005. These targets follow on from the Safety Outcome Targets set for the period 2000-2005.

The CAA has identified two key benefits of setting Safety Outcome Targets. The targets provide a strategic goal for the CAA and provide links to its Vision of “New Zealand aviation free from safety failure, and contributing to an integrated, responsive, and sustainable transport system.” The targets also provide a means of monitoring the success of the aviation community as a whole in influencing safety outcomes. The Safety Outcome Targets enable the Government, the public, and the aviation community to measure safety performance against an appropriate yardstick.

Consultation

To begin the process of setting Safety Targets for 2010, the CAA used a commercial survey organisation to help gather the views of passengers, people who charter aircraft, and members of the wider community who may be affected by aviation risk. The overall objective was to gain an understanding of general perceptions regarding the level of aviation safety within New Zealand.

Aviation community consultation was also vital to this project. To achieve this, the CAA sent consultation packs directly to 40 organisations that CAA senior managers believed would be interested in expressing their views. All consultation material was posted on the CAA web site, along with an open invitation for interested parties to complete and return the questionnaire. The consultation period finished at the end of January 2005. The analysis of the aviation community’s input and the Colmar Brunton survey of the general public are available on the CAA web site under “Safety information – Towards 2010 Safety Targets for the Year 2010”.

After consultation, it was decided that the Safety Outcome Targets for 2010 would be set in terms of social cost to the nation, rather than continuing to use accident rates.

The Social Cost of Accidents

The use of accident rates can be misleading, because each accident has a different economic and social impact: a minor accident where there is no injury, and a fatal accident where two people are killed, are each recorded as one accident, even though the economic and social consequences are very different. Estimating the social cost of accidents is also a way of determining what the real cost of aviation accidents is to the nation.

The main components of the social cost of accidents are fatalities, serious injuries, and aircraft destroyed in fatal or serious injury accidents. The value to the nation of fatalities (\$2.84 million each) is the value of statistical life (VOSL) estimated by the Land Transport Safety Authority (LTSA) in June 2004 dollars. The value of serious injuries (\$0.284 million each) is also the LTSA’s figure. Aircraft destroyed are valued using estimates of aircraft values made by the CAA on the basis of market prices in a number of developed aviation nations (in 1999 dollars). These values, along with the value of statistical life, will shortly be reviewed and expressed in 2005 dollars.

The total estimated social cost of accidents for the nine 2005 safety target groups and the sport group over the 10 years 1 July 1995 to 30 June 2005 is \$647.30 million (on average \$64.7 million per annum). This represents the cost of 207 fatalities, 105 serious injuries, and 99 aircraft destroyed in fatal and serious injury accidents. While 96% of the aviation activity in New Zealand is undertaken by large and medium airline aircraft, almost 97% of the cost of accidents is incurred by aeroplanes below 5,670 kg, helicopters, balloons, and sport aircraft, i.e. 4% of the activity is responsible for 97% of the social cost.

The data used to calculate accident rates will still be collected; this does not change with the move to using social cost for safety targets. Accident rate information, therefore, will not be lost. It will still be used for safety analysis, and the new social cost data will be in addition to the current accident rate information produced by the CAA Safety Analysis Unit.

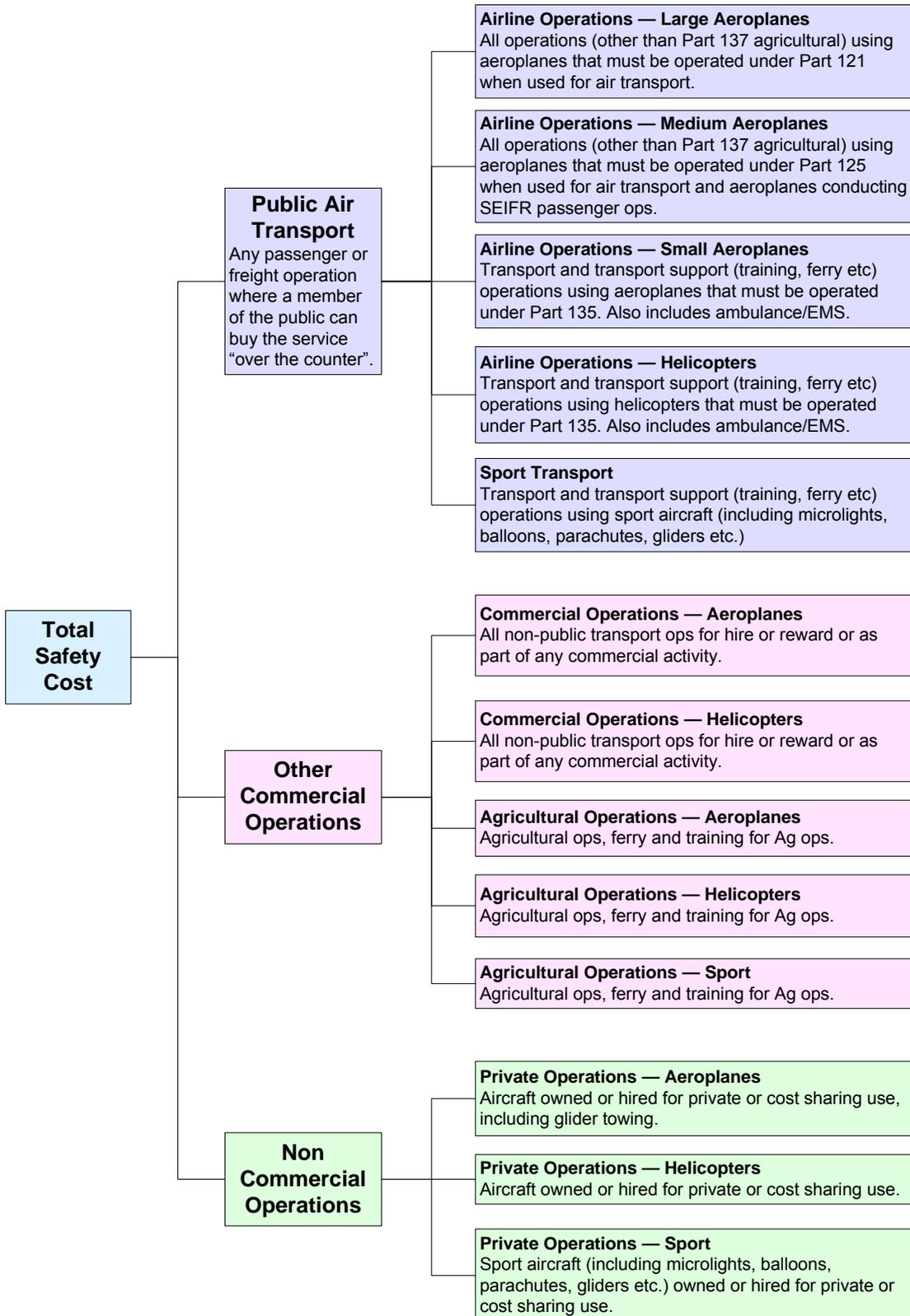
Safety Target Structure

The 2005 Safety Target Groups were based on the type of aircraft, weight and the type of operation being carried out at the time of the accident. The 2010 Safety Target Groups will see all New Zealand aviation classified under three broad headings: Public Air Transport, Other Commercial Operations, and Non-Commercial Operations.

Thirteen further sub-groups have been created under these headings to enable differentiation between aeroplanes, helicopters, and sport aircraft, and to allow for different weight groups.

The following table displays the social cost for each Safety Target Group for the six-monthly period 1 January to 30 June 2005. Cost per fatal and serious injury in 2004 dollars, cost per aircraft destroyed in 2005 dollars.

Safety Outcome Target Group	Social Cost \$m
Airline Operations - Large Aeroplanes	-
Airline Operations - Medium Aeroplanes	6.68
Airline Operations - Small Aeroplanes	8.69
Airline Operations - Helicopter	-
Sport Transport	-
Other Commercial Operations - Aeroplane	5.81
Other Commercial Operations - Helicopter	0.01
Agricultural Operations - Aeroplane	0.30
Agricultural Operations - Helicopter	-
Agricultural Operations - Sport Aircraft	-
Private Operations - Aeroplane	-
Private Operations - Helicopter	-
Private Operations - Sport	6.33



Safety Outcome Targets for 2010

Each “target group” has its own target level expressed as social cost per unit of passenger exposure, the unit being per seat hour. For target groups that are not predominantly passenger carrying a surrogate of 500 kg of aircraft weight is used instead of passenger exposure. These outcomes represent the maximum level of social cost considered acceptable for each group.

Historical data indicates that the 13,608 kg and above and 5,670 to 13,608 kg revenue pax and freight groups account for 96% of New Zealand aviation exposure units, and have the lowest social cost per seat hour (\$0.13 and \$0.00 respectively). This safety outcome reflects the significance of 6 fatalities in the 13,608 kg and above group, and 0 fatalities in the 5,670 to 13,608 kg group over the past 10 years. An outcome target of \$0.10 per seat hour for the new Public Air Transport – Large and Medium Aeroplanes groups is considered both reasonable, and achievable, representing less than 3 fatalities in these groups over the next 5 years.

Historical data indicates that for the remaining groups the safety outcomes using the new social cost system would have been in the range of \$6.44 to \$174.06 per seat hour. These are several orders of magnitude worse than the outcomes achieved by Large and Medium Transport Aeroplanes. The lower end of this range (in terms of fatalities per hour of flying) is roughly equivalent to what is being achieved by Part 135 operations in the USA, and accordingly an outcome of \$6.50 per seat hour has been targeted for most New Zealand commercial aviation. It should be noted that research indicates this outcome is almost twice the social cost (on an equivalent exposure basis) associated with the operation of private motor cars in New Zealand.

For non-commercial and some commercial operations, it is unlikely that social costs can be reduced even to these levels in the short term, and accordingly ‘softer’ targets have been set for these groups.

The table on the next page shows the starting point for the new Safety Outcome Targets for the period ending 30 June 2005 in 2004 dollars (excluding the cost of aircraft destroyed). On 1 July 2005 calculations showed that some groups were already achieving or bettering their desired outcome target level, which is very pleasing. This is because there were less fatal and serious injury accidents in the 12 months leading up to 1 July 2005 than the 12-month average for the 5-year period used when the targets were developed. These base line estimates will be confirmed or adjusted when operating data for the January to June 2005 period has been received and processed. The shaded target groups are the groups where the major safety improvements need to be achieved.

Safety Outcome Target Group	Type of Injuries						Previous Estimate \$	Current Estimate \$	Target \$
	Fatal Crew	Serious Crew	Minor Crew	Fatal Pax	Serious Pax	Minor Pax			
Airline Operations - Large Aeroplanes*	2	2			1		0.13	0.03	0.10
Airline Operations - Medium Aeroplanes*	2	1		5	1	2		0.13	0.10
Airline Operations - Small Aeroplanes	2	1		4	1		65.18	85.91	6.50
Airline Operations - Helicopter							55.46		6.50
Sport Transport							113.21		13.00
Other Commercial Operations - Aeroplane	1			1			6.44	21.31	6.50
Other Commercial Operations - Helicopter			1				36.76	0.07	6.50
Agricultural Operations - Aeroplane	1						141.90	109.05	14.00
Agricultural Operations - Helicopter		1	1				85.44	18.45	14.00
Agricultural Operations - Sport Aircraft									28.00
Private Operations - Aeroplane			2				115.51	0.22	10.00
Private Operations - Helicopter							98.31		10.00
Private Operations - Sport	2	6	3		2	3	174.06	137.27	20.00

Previous Estimate:

This was the estimate of social cost of injuries over exposure used during the development of the Safety Outcome Targets.

- For large and medium aeroplane operations 10 years of injury data was considered
- For all other operations 5 years of injury data was considered.

It was not feasible to estimate the previous performance of the new Airline Operations – Medium Aeroplanes target group because it comprises elements from two previously disparate groups.

There is no previous history for the Agricultural Operations – Sport group.

Current Estimate:

This is the estimated social cost of injuries over exposure during the relevant averaging period.

- For large and medium aeroplane operations 10 years of injury data*
- For all other operations 1 year of injury data
- The 4 groups with no injuries recorded in the previous 12 months have been left blank.

The current position for the Airline Operations – Medium Aeroplanes group reflects the significance of injury accidents involving aircraft that are now required to be operated in accordance with Part 125. These accidents occurred prior to the development and implementation of the improved standards required by Part 125.

The table below shows the new Safety Outcome Targets for the period ending 30 September 2005 in 2004 dollars (excluding the cost of aircraft destroyed). The shaded target groups are the groups where the major safety improvements need to be achieved.

Safety Outcome Target Group	Type of Injuries						Current Estimate \$	Target \$
	Fatal Crew	Serious Crew	Minor Crew	Fatal Pax	Serious Pax	Minor Pax		
Airline Operations - Large Aeroplanes*	2	2			1		0.03	0.10
Airline Operations - Medium Aeroplanes*	2				1	2	0.13	0.10
Airline Operations - Small Aeroplanes	2	1		4	1		85.91	6.50
Airline Operations - Helicopter								6.50
Sport Transport								13.00
Other Commercial Operations - Aeroplane	1			1			21.31	6.50
Other Commercial Operations - Helicopter			1				0.07	6.50
Agricultural Operations - Aeroplane	1	1					120.43	14.00
Agricultural Operations - Helicopter		1	1				18.45	14.00
Agricultural Operations - Sport Aircraft								28.00
Private Operations - Aeroplane	1		1	1			48.88	10.00
Private Operations - Helicopter	1		1		1		98.33	10.00
Private Operations - Sport	2	6	5		2	3	100.95	20.00

Current Estimate:

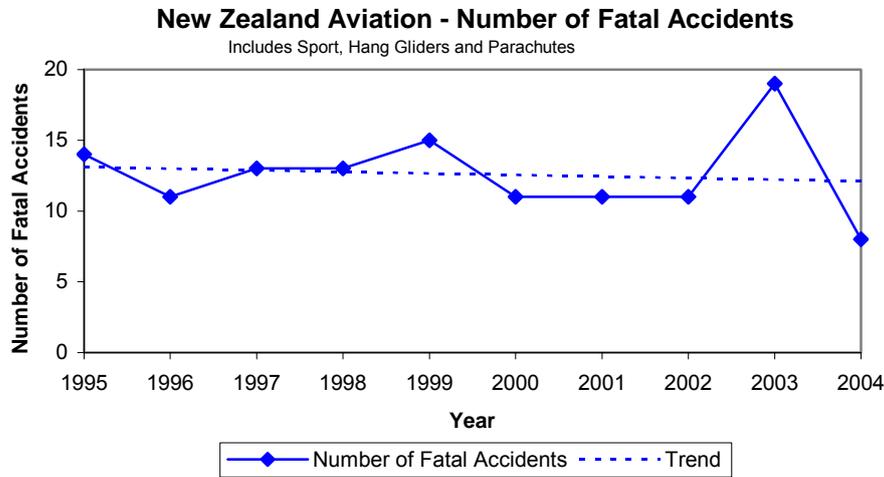
This is the estimated social cost of injuries over exposure for the relevant averaging period ending 30 September 2005.

- For large and medium aeroplane operations 10 years of injury data*
- For all other operations 1 year of injury data
- The 3 groups with no injuries recorded in the previous 12 months have been left blank.

Graphs displaying the new Safety Outcome Targets and the progress over each quarter will be developed once there are sufficient data points to show.

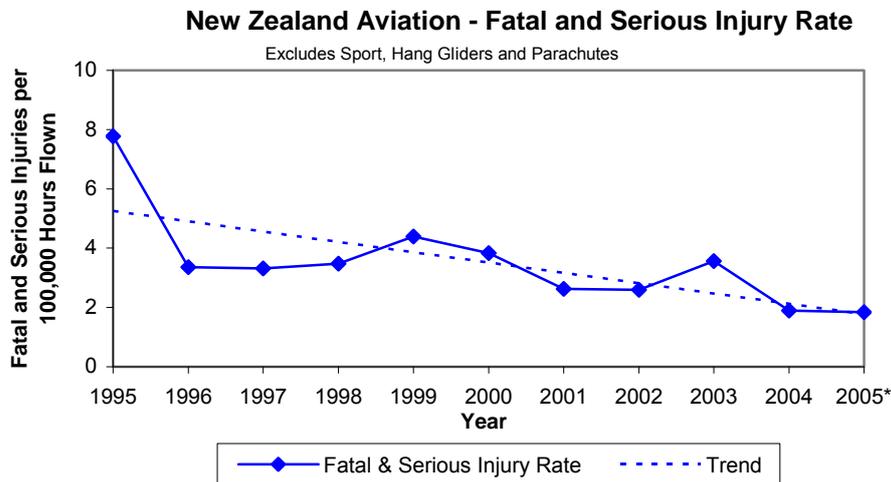
Injury Accidents

The following graph shows the number of fatal accidents in the years 1995 to 2004 (including sport, hang gliders and parachutes).

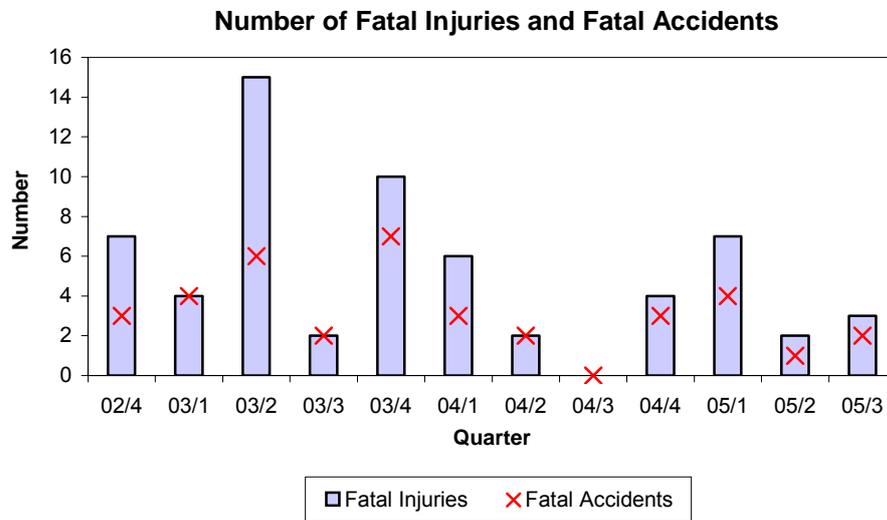


Note: from the report for 1 July to 31 December 2000 this graph includes hang glider and parachute accidents.

The following graph shows the overall fatal and serious injury rate per 100,000 hours flown (excluding sport, hang gliders and parachutes) for the years 1995 to 2004. The data point for 2005* is for 1 January to 30 September 2005 only.



The following graph shows the number of fatal injuries and fatal accidents (including sport, hang gliders and parachutes) for the three-year period 1 October 2002 to 30 September 2005.



Since October 2002 the long-term trends of the number of fatal injuries and the number of fatal accidents are downward. However, the slope of the trend line for the number of fatal accidents is close to zero.

Six-Monthly Comparison*Number of Fatal Accidents (and Number of Fatal Injuries)*

Aircraft Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	0	0	0
5,670 to 13,608 kg	0	1 (2)	+ 1 (+ 2)
2,721 to 5,670 kg	1 (2)	0	- 1 (- 2)
Below 2,721 kg	0	2 (5)	+ 2 (+ 5)
Helicopters	4 (6)	0	- 4 (- 6)
Sport	0	2 (2)	+ 2 (+ 2)
Hang Gliders	0	0	0
Parachutes	0	0	0
Unknown	0	0	0
Total	5 (8)	5 (9)	0 (+ 1)

Number of Serious Injuries

Aircraft Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	0	0	0
5,670 to 13,608 kg	0	0	0
2,721 to 5,670 kg	0	0	0
Below 2,721 kg	0	1	+ 1
Helicopters	1	0	- 1
Sport	0	2	+ 2
Hang Gliders	2	3	+ 1
Parachutes	0	0	0
Unknown	0	0	0
Total	3	6	+ 3

Number of Minor Injuries

Aircraft Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	0	0	0
5,670 to 13,608 kg	0	0	0
2,721 to 5,670 kg	0	0	0
Below 2,721 kg	1	0	- 1
Helicopters	0	2	+ 2
Sport	0	4	+ 4
Hang Gliders	0	0	0
Parachutes	0	0	0
Unknown	0	0	0
Total	1	6	+ 5

Flight Phase

The following table shows the flight phase recorded for accidents.

Flight Phase	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
Landing	17	25	+ 8
Cruise	8	11	+ 3
Takeoff	5	6	+ 1
Agricultural Manoeuvres	2	2	0
Approach	1	2	+ 1
Climb	0	2	+ 2
Circuit	2	0	- 2
Aerobatics	1	0	- 1
Hover	1	0	- 1
Hover Taxi	1	0	- 1
Taxiing	1	0	- 1
Descent	0	0	0
Holding	0	0	0
Parked	0	0	0
Total	39	48	+ 9

Note: from the report for 1 July to 31 December 2002 this table includes hang glider and parachute accidents.

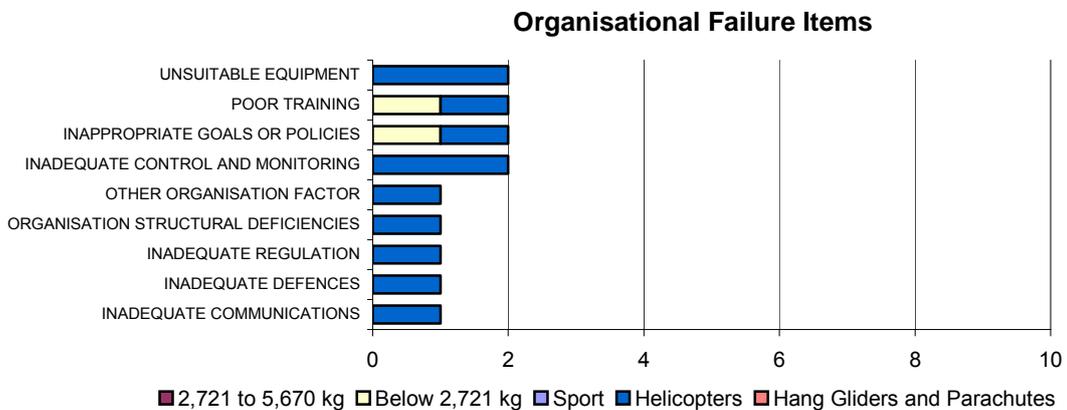
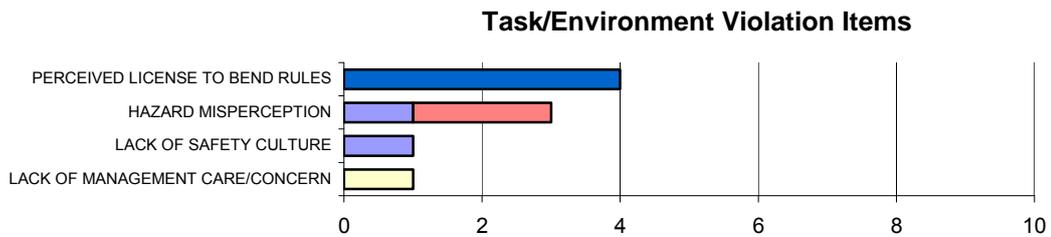
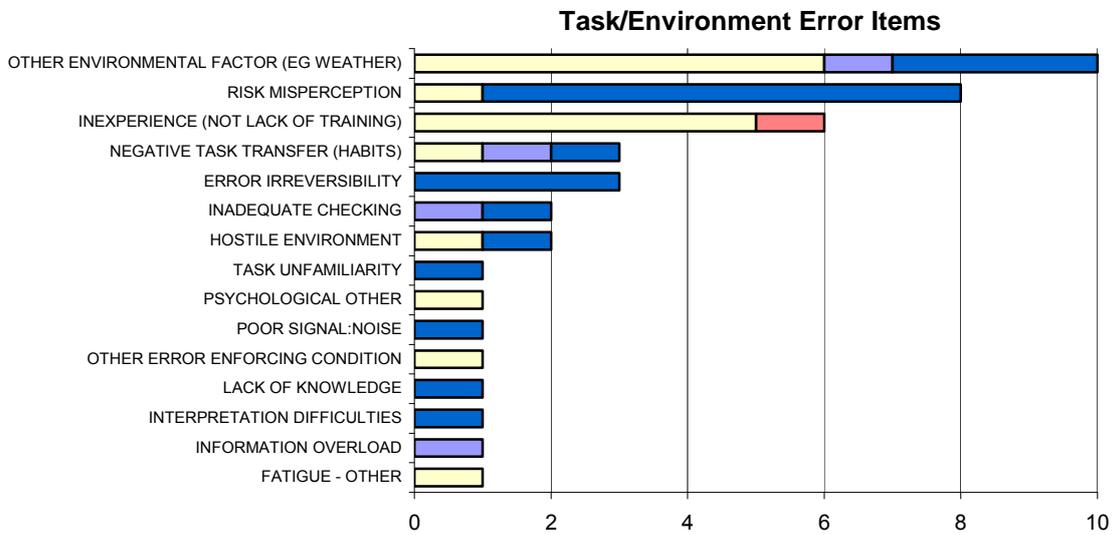
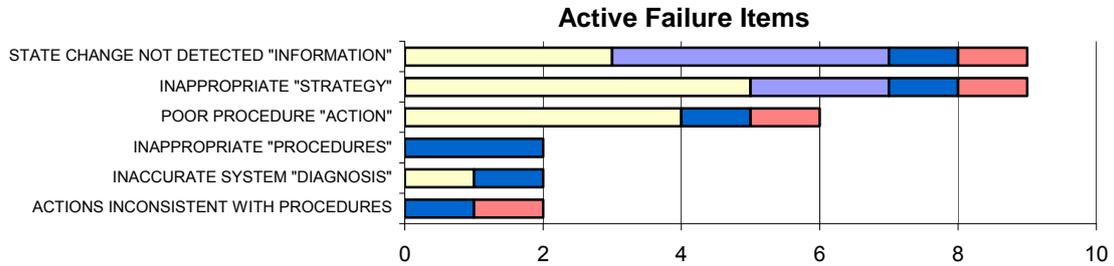
Accidents in the period 1 January to 30 June 2005 were most common during the Landing phase (52%).

Analysis of recorded occurrence descriptors for Landing phase accidents in the 1 January to 30 June 2005 period shows that the most common descriptor is Landing Occurrence (35%).

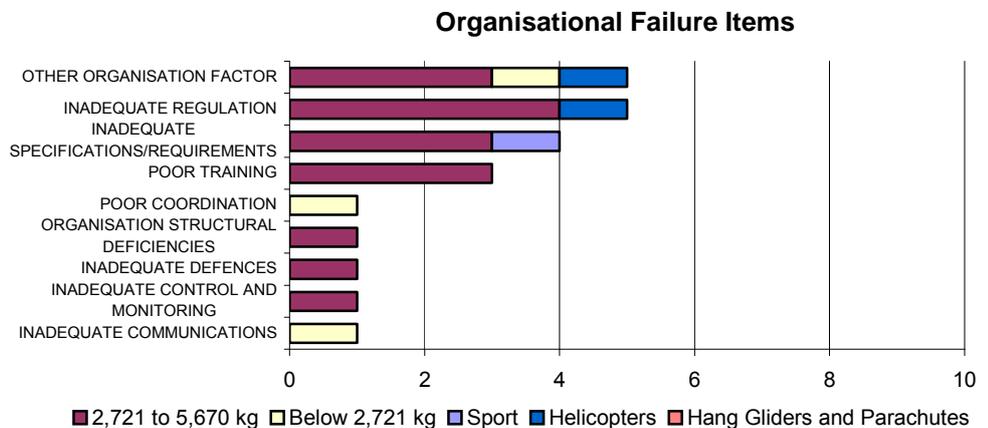
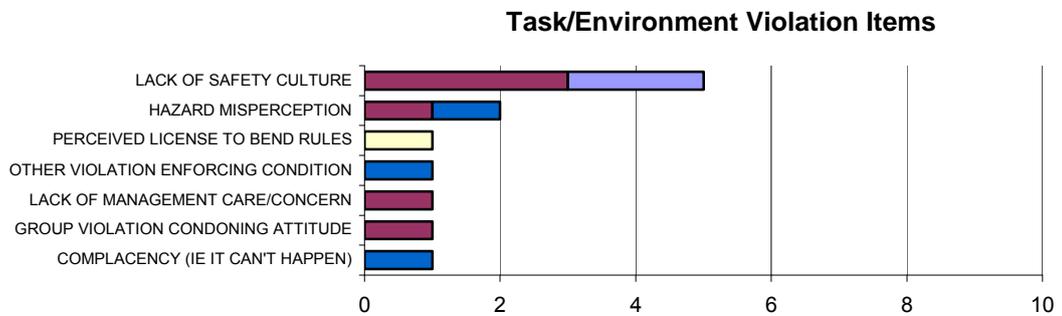
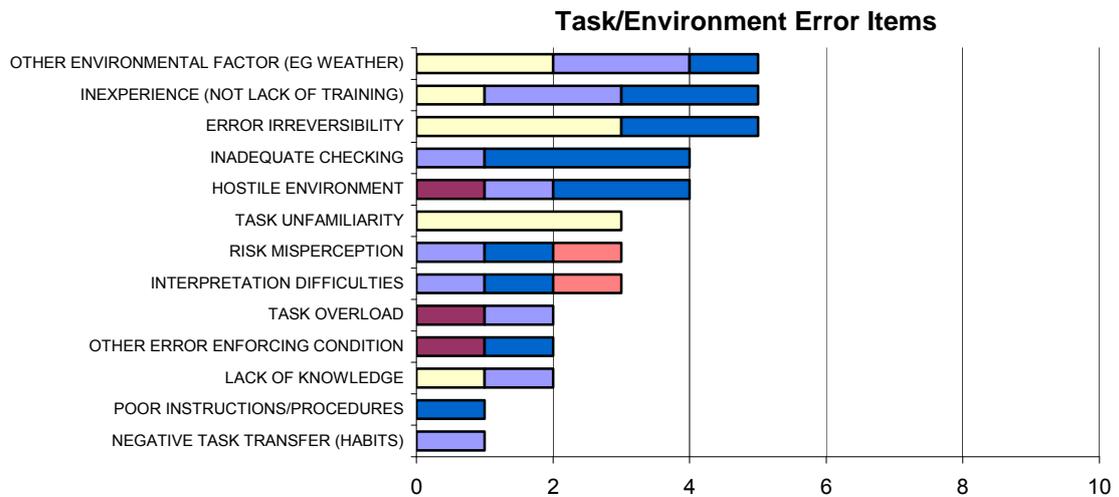
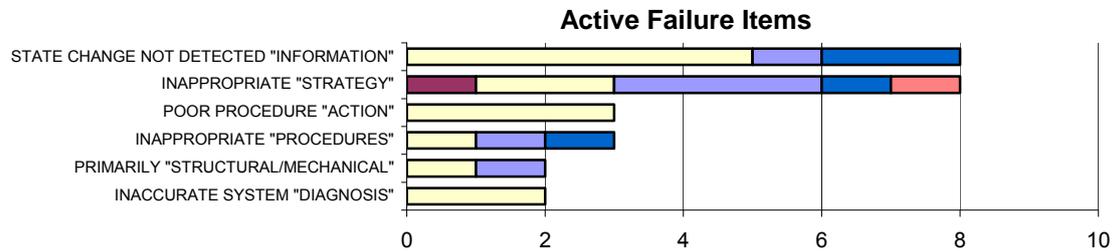
Analysis of recorded causes for Landing phase accidents shows that the most common cause is Active Failure Factor – Inappropriate “Strategy” (20%).

Accident Causal Factors by Aircraft Group

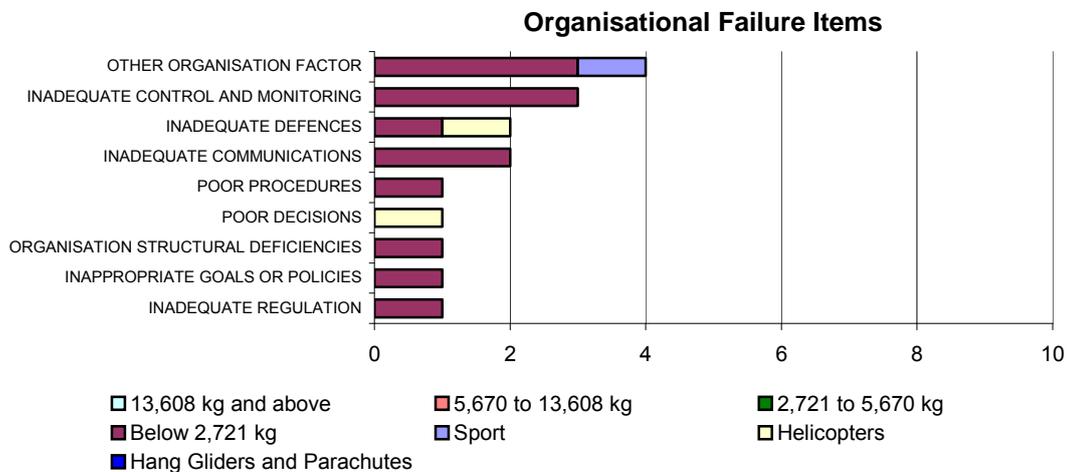
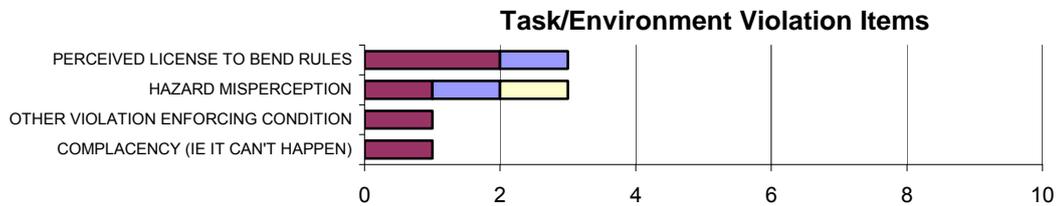
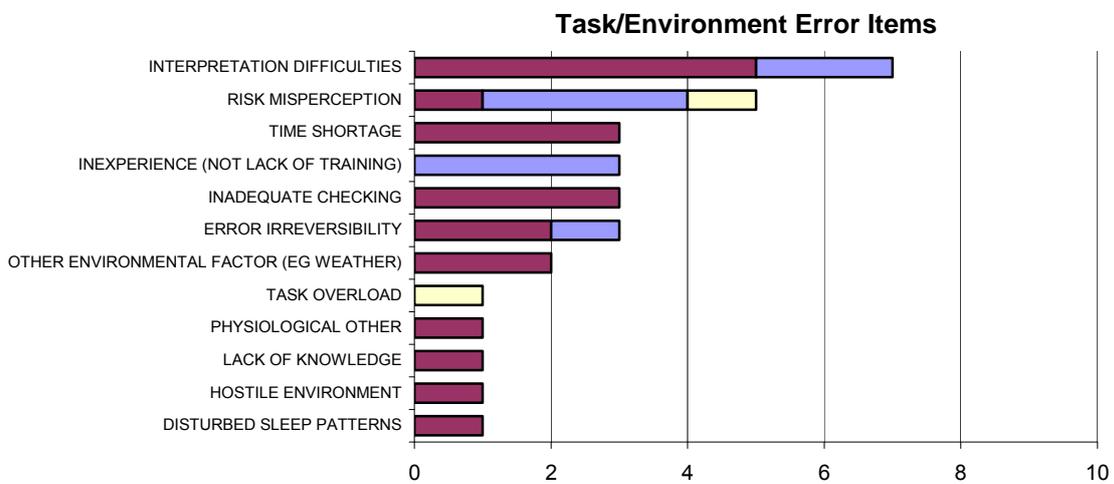
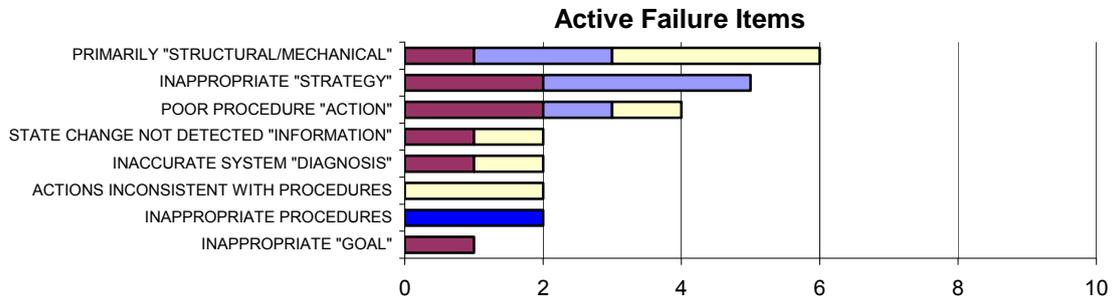
The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 1998 for the various aircraft groups. Causal factors have been assigned to 71% of the 63 accidents.



The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 1998 for the various aircraft groups. Causal factors have been assigned to 77% of the 60 accidents.

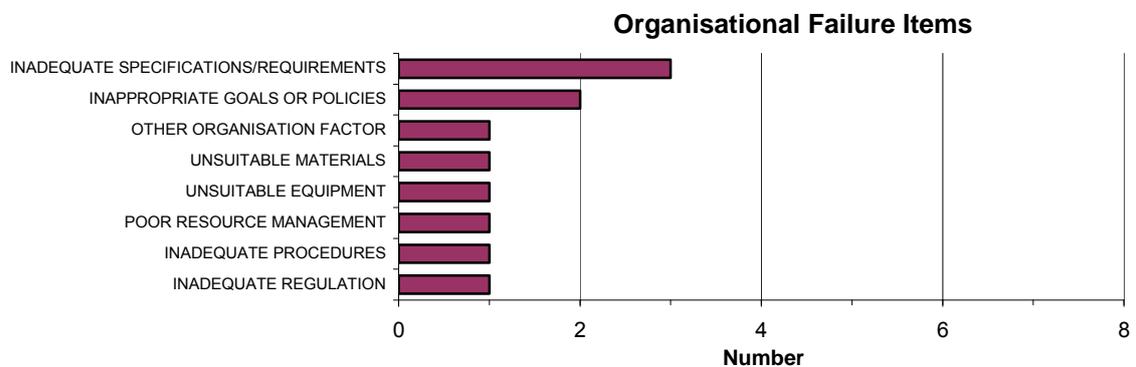
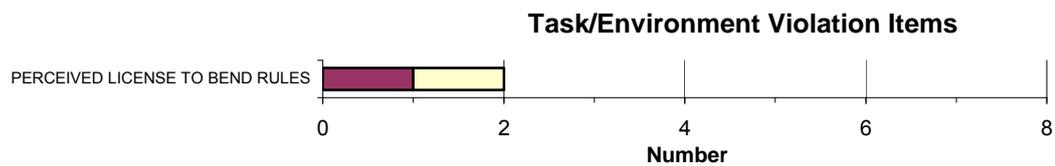
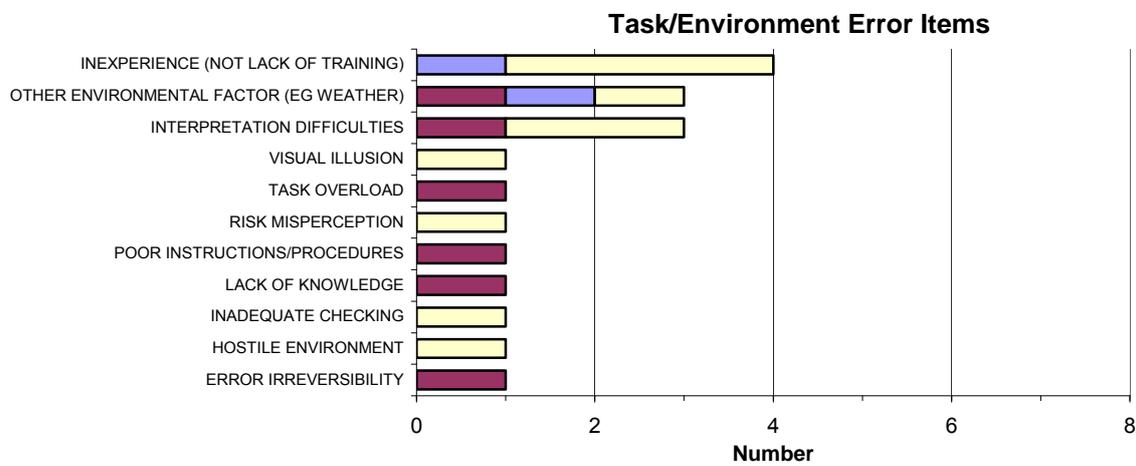
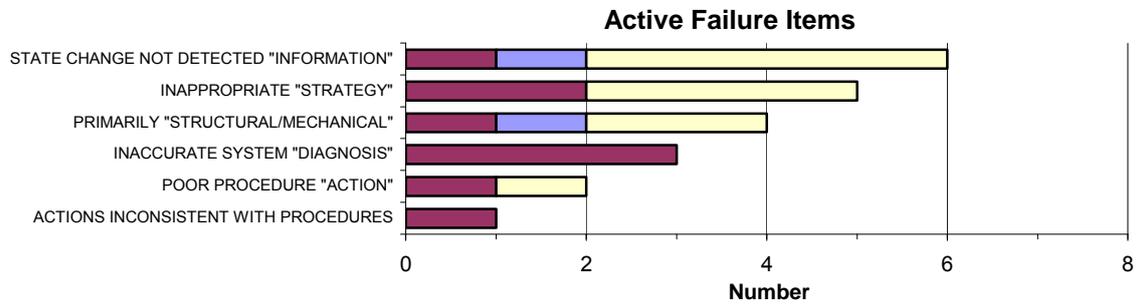


The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 1999 for the various aircraft groups. Causal factors have been assigned to 78% of the 51 accidents.



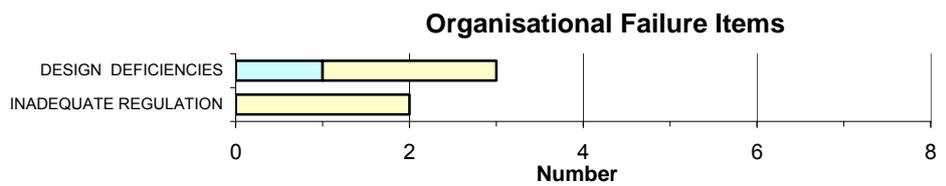
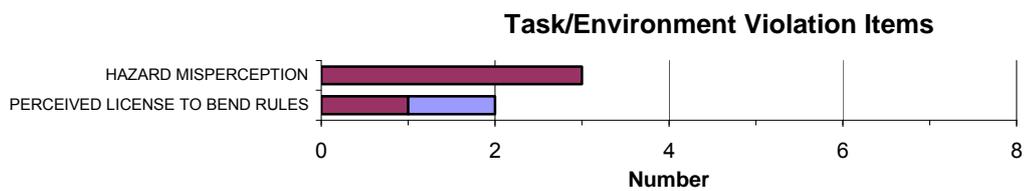
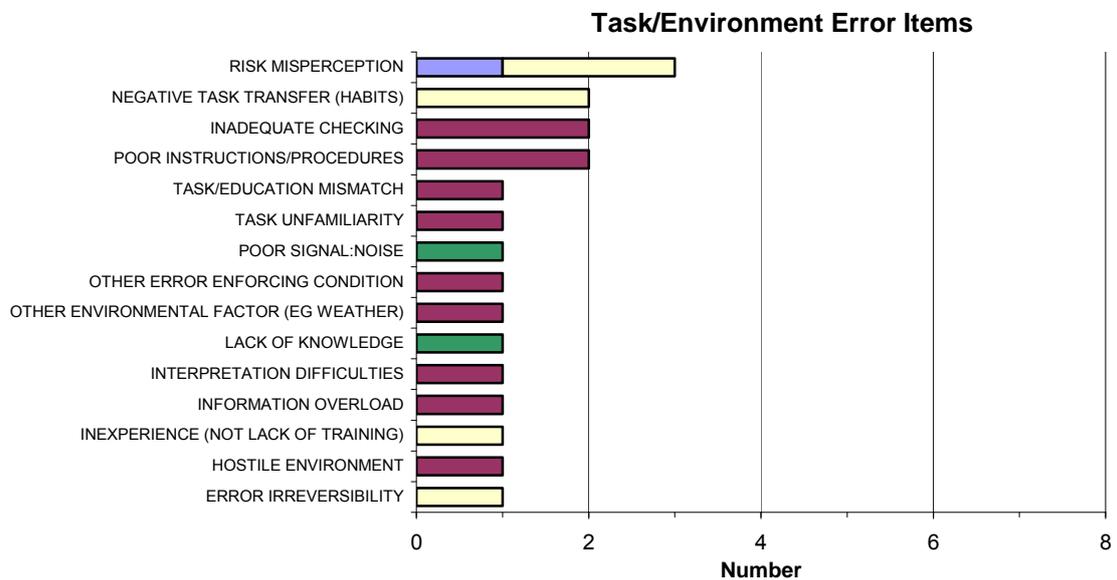
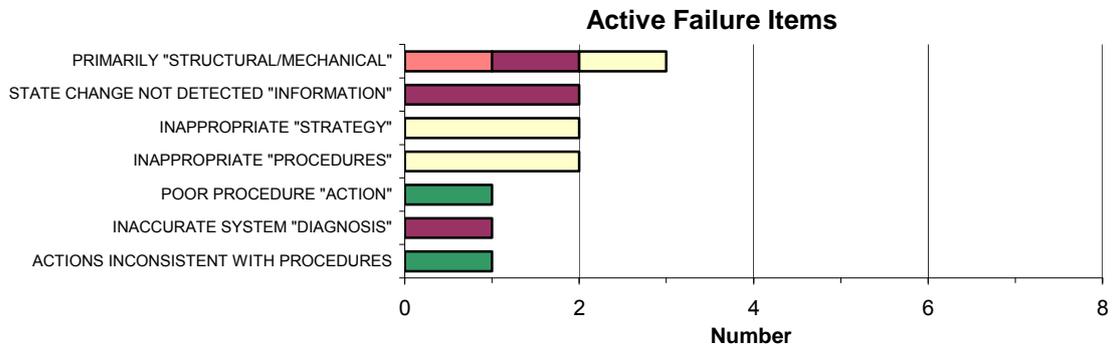
13,608 kg and above
 5,670 to 13,608 kg
 2,721 to 5,670 kg
 Below 2,721 kg
 Sport
 Helicopters
 Hang Gliders and Parachutes

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 1999 for the various aircraft groups. Causal factors have been assigned to 46% of the 48 accidents.



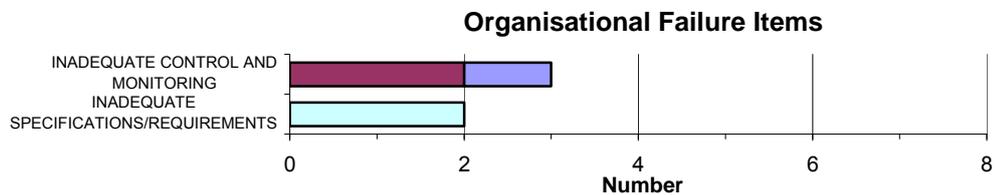
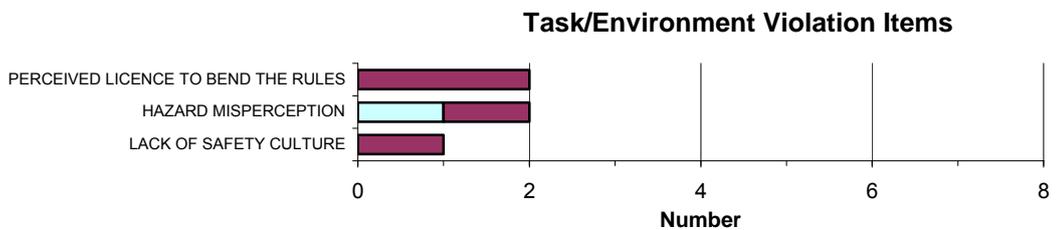
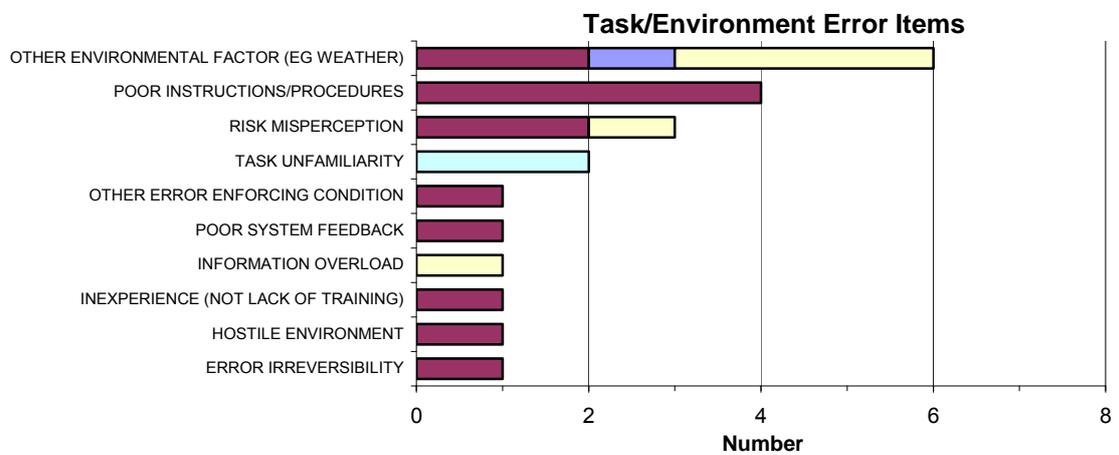
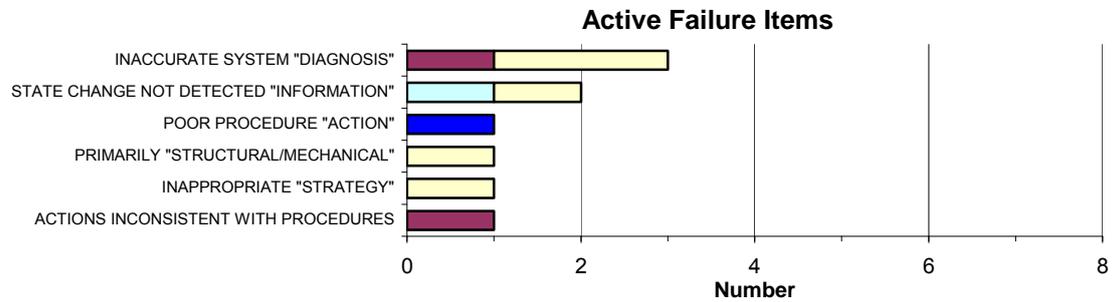
13,608 kg and above
 5,670 to 13,608 kg
 2,721 to 5,670 kg
 Below 2,721 kg
 Sport
 Helicopters
 Hang Gliders and Parachutes

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 2000 for the various aircraft groups. Causal factors have been assigned to 41% of the 71 accidents.



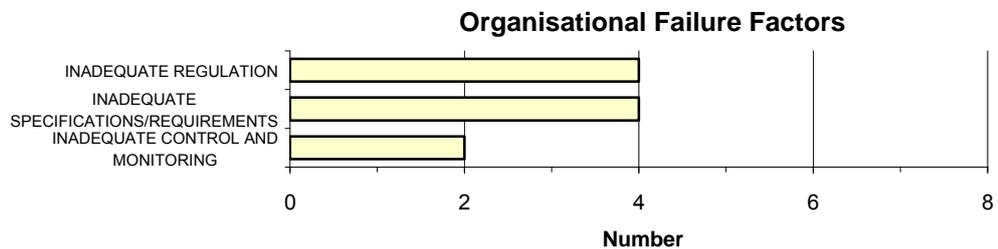
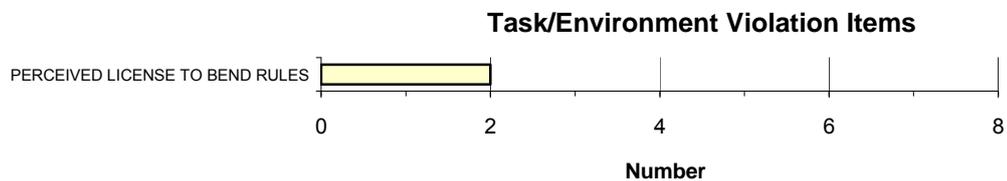
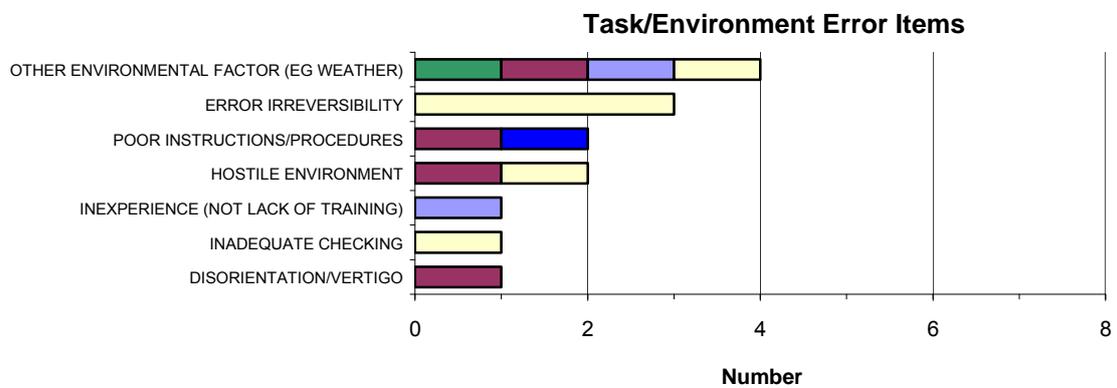
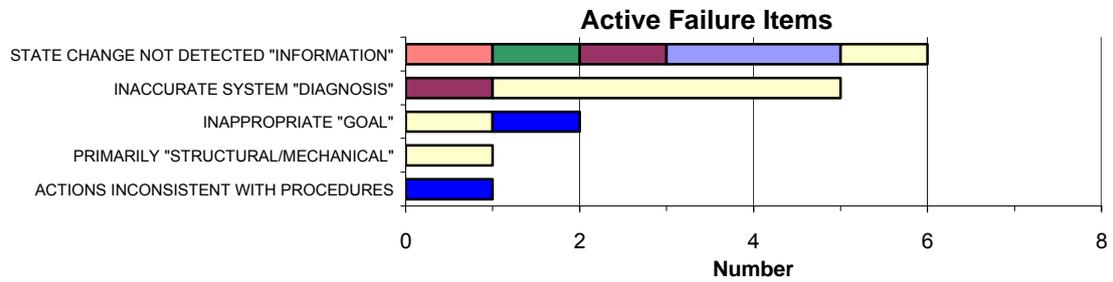
■ 13,608 kg and above ■ 5,670 to 13,608 kg ■ 2,721 to 5,670 kg
■ Below 2,721 kg ■ Sport ■ Helicopters
■ Hang Gliders and Parachutes

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 2000 for the various aircraft groups. Causal factors have been assigned to 25 (48%) of the 52 accidents.



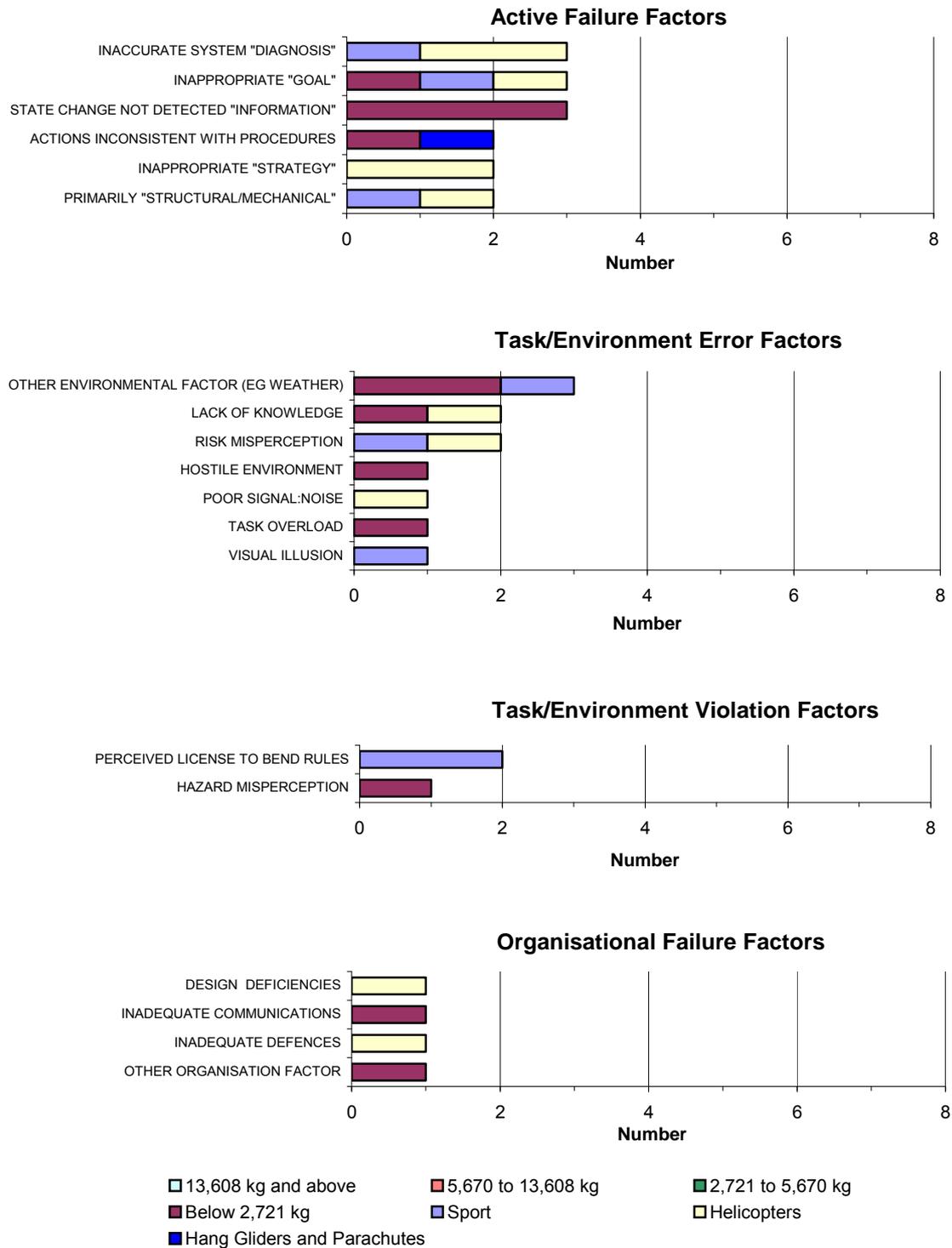
- 13,608 kg and above
 5,670 to 13,608 kg
 2,721 to 5,670 kg
- Below 2,721 kg
 Sport
 Helicopters
- Hang Gliders and Parachutes

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 2001 for the various aircraft groups. Causal factors have been assigned to 28 (44%) of the 63 accidents.

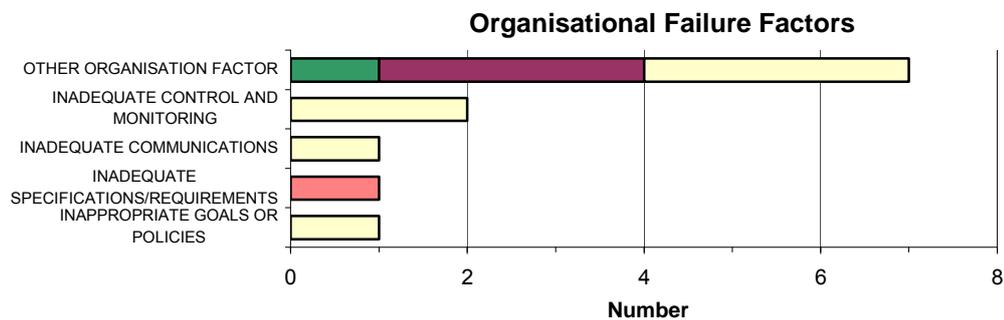
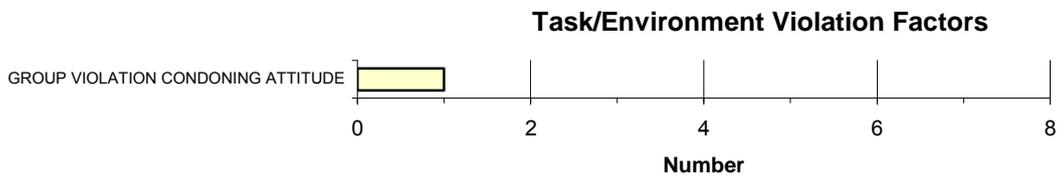
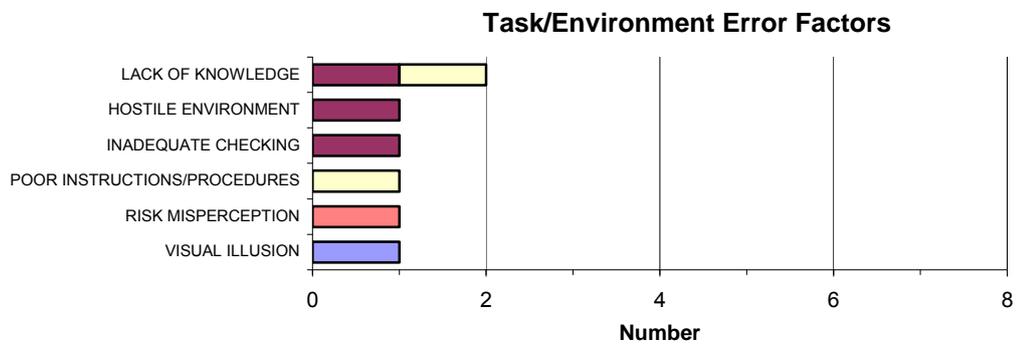
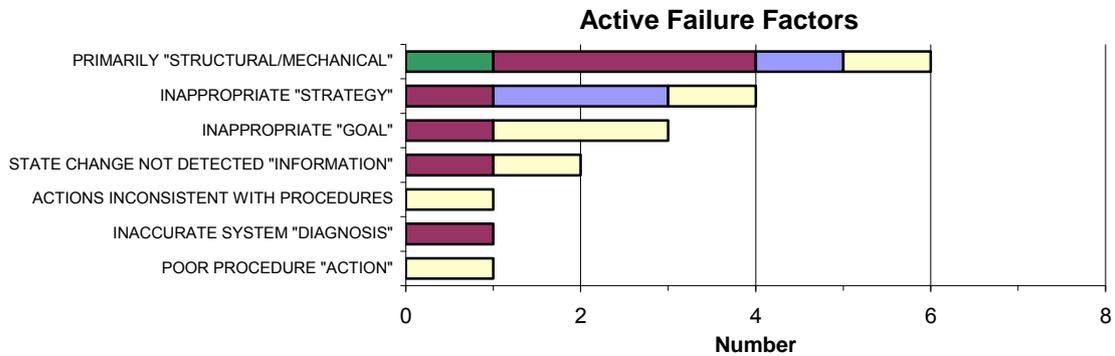


- 13,608 kg and above
- 5,670 to 13,608 kg
- 2,721 to 5,670 kg
- Sport
- Hang Gliders and Parachutes
- Helicopters

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 2001 for the various aircraft groups. Causal factors have been assigned to 24 (38%) of the 63 accidents.

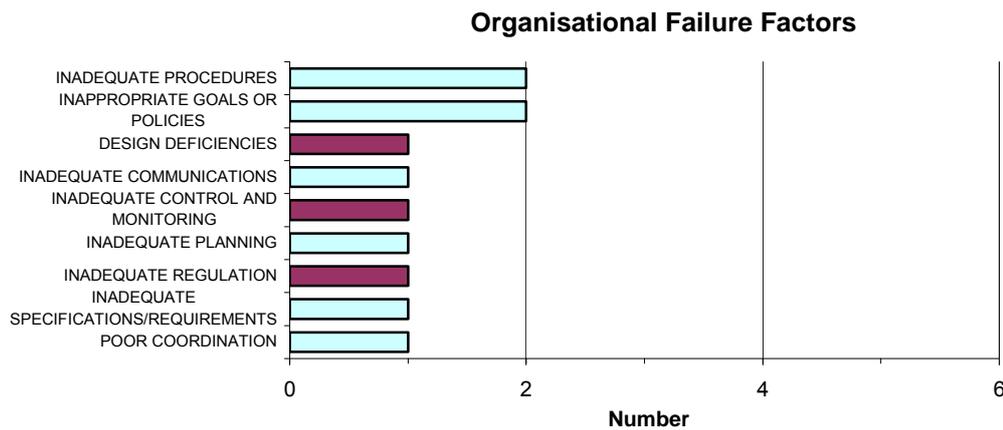
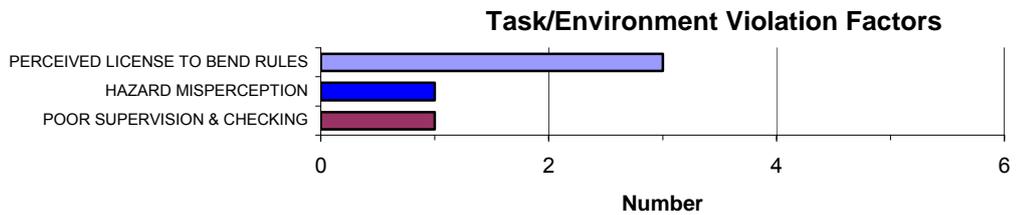
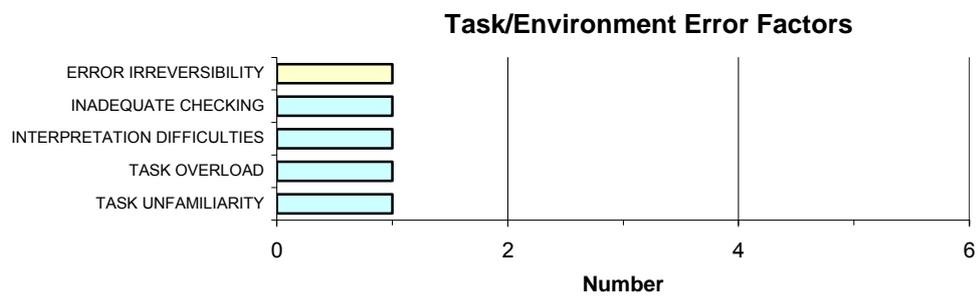
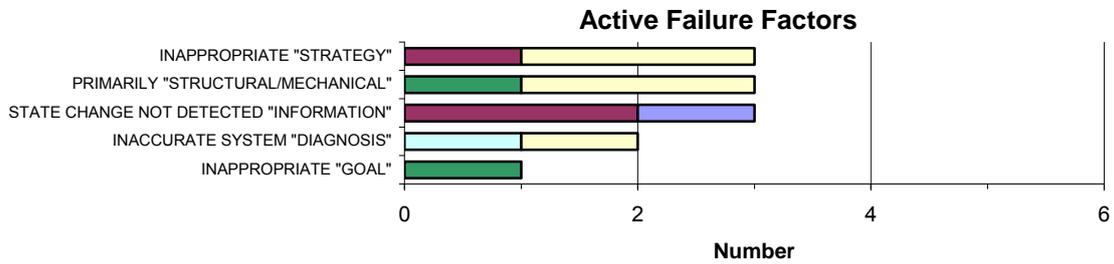


The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 2002 for the various aircraft groups. Causal factors have been assigned to 21 (39%) of the 54 accidents.



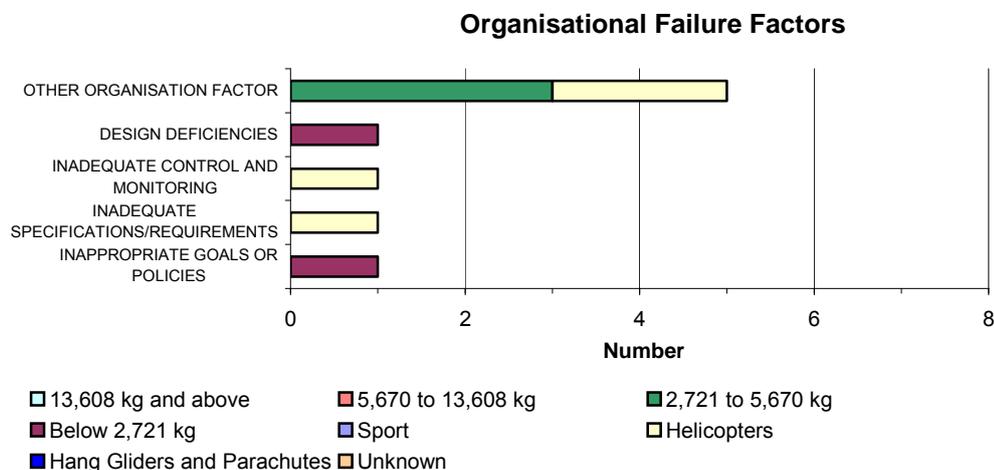
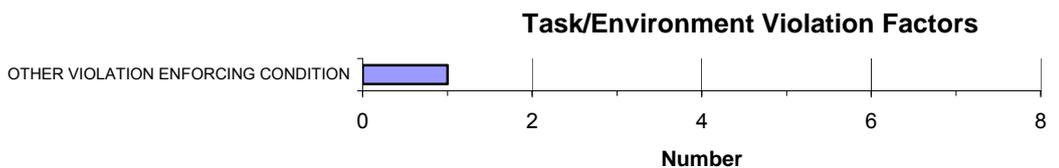
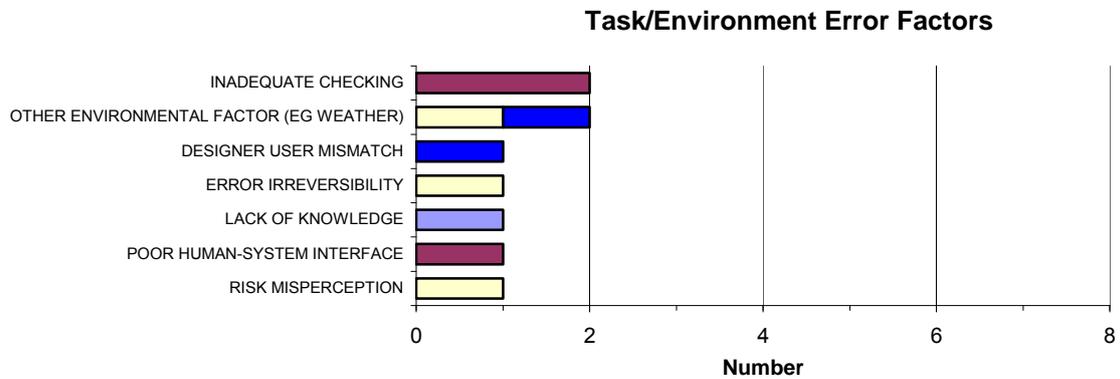
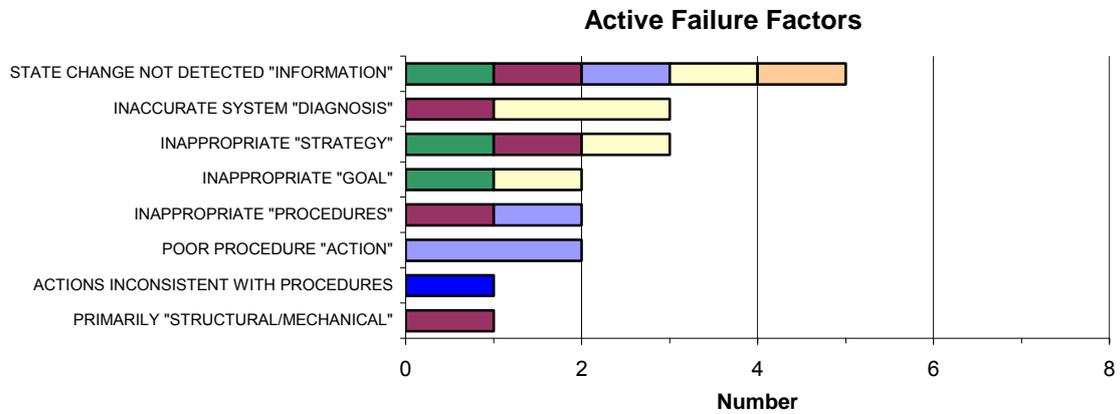
13,608 kg and above
 5,670 to 13,608 kg
 2,721 to 5,670 kg
 Below 2,721 kg
 Sport
 Helicopters
 Hang Gliders and Parachutes

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 2002 for the various aircraft groups. Causal factors have been assigned to 16 (40%) of the 40 accidents.



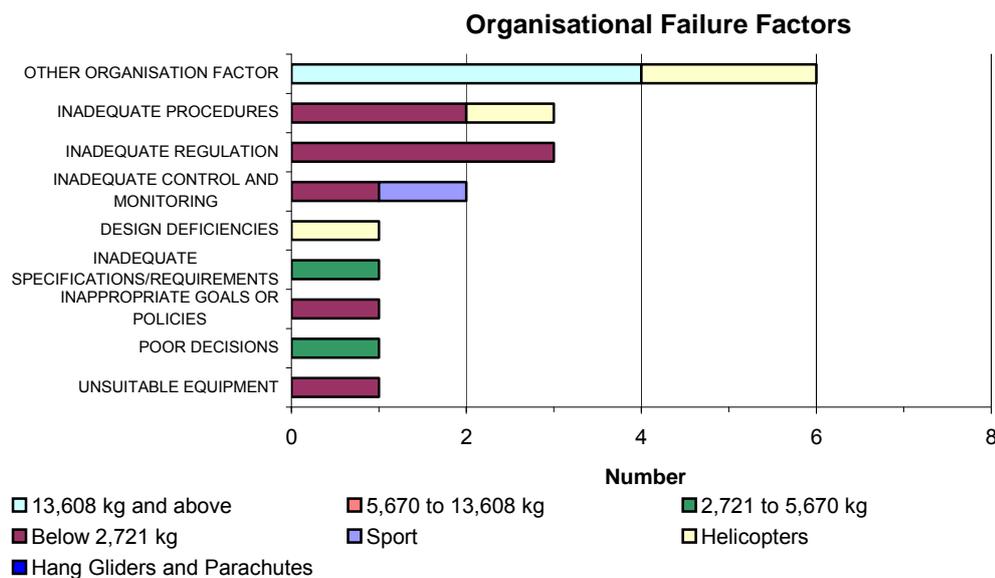
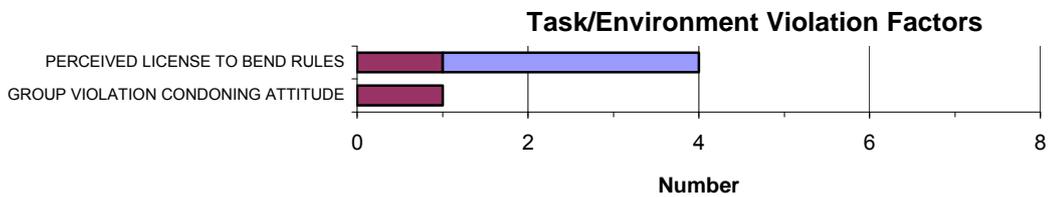
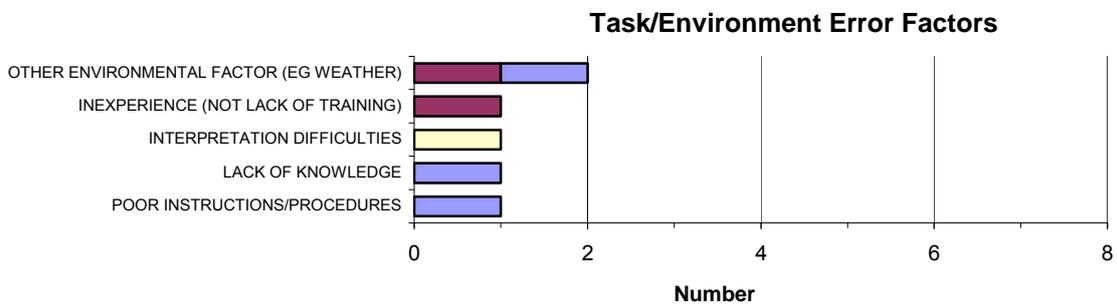
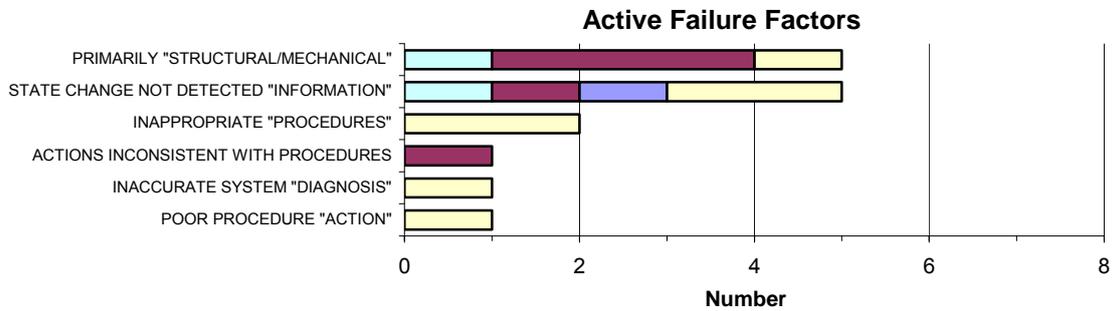
- 13,608 kg and above
- 5,670 to 13,608 kg
- 2,721 to 5,670 kg
- Below 2,721 kg
- Sport
- Helicopters
- Hang Gliders and Parachutes

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 2003 for the various aircraft groups. Causal factors have been assigned to 25 (51%) of the 49 accidents.

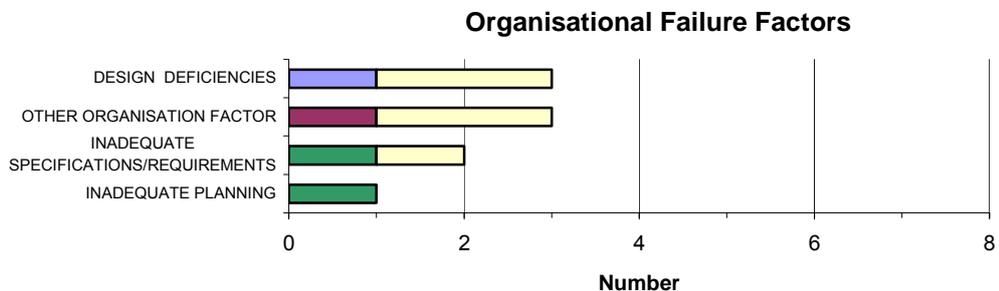
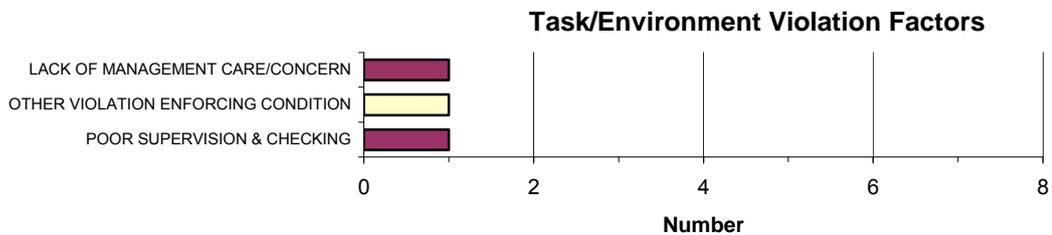
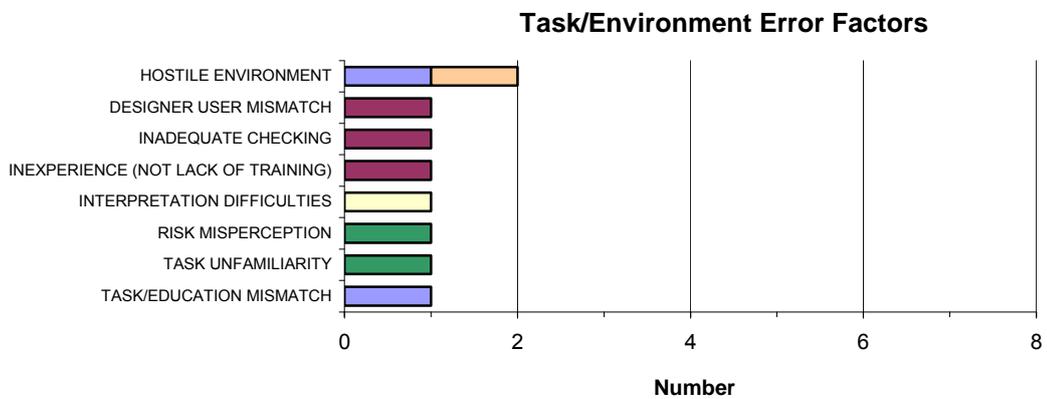
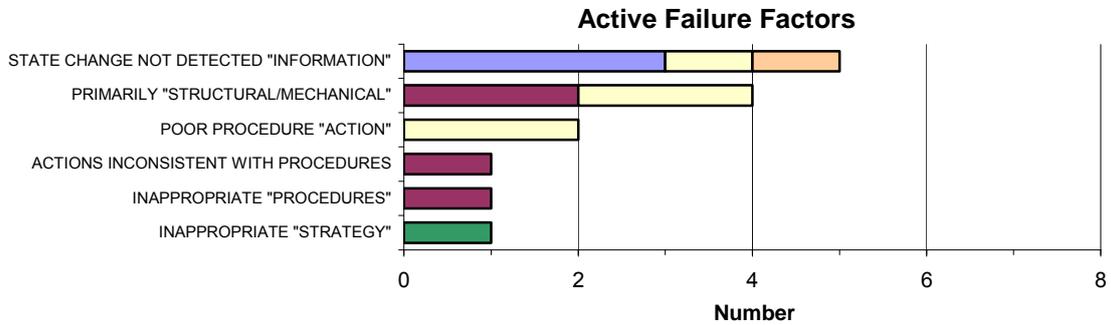


13,608 kg and above
 5,670 to 13,608 kg
 2,721 to 5,670 kg
 Below 2,721 kg
 Sport
 Helicopters
 Hang Gliders and Parachutes
 Unknown

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 2003 for the various aircraft groups. Causal factors have been assigned to 22 (47%) of the 47 accidents.

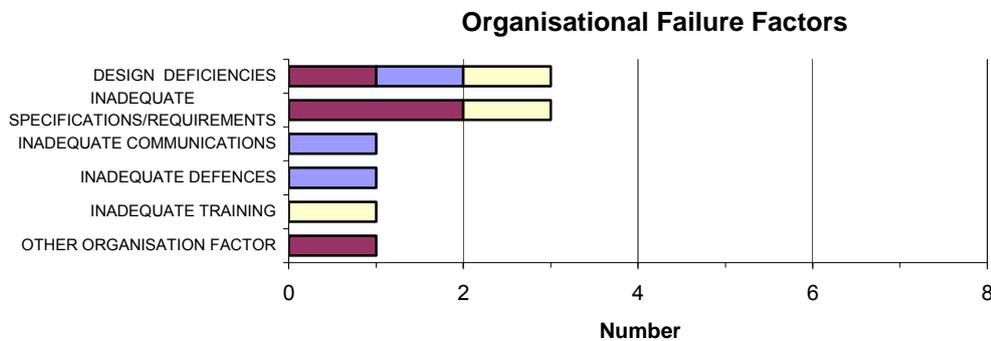
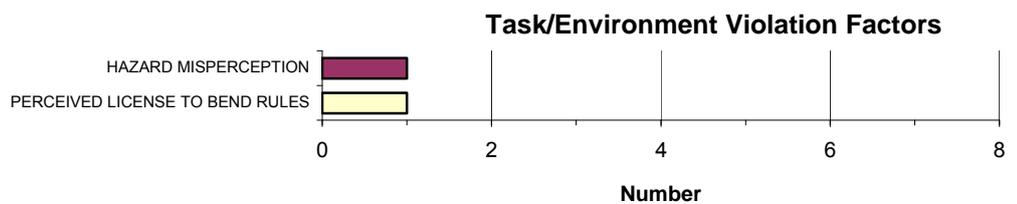
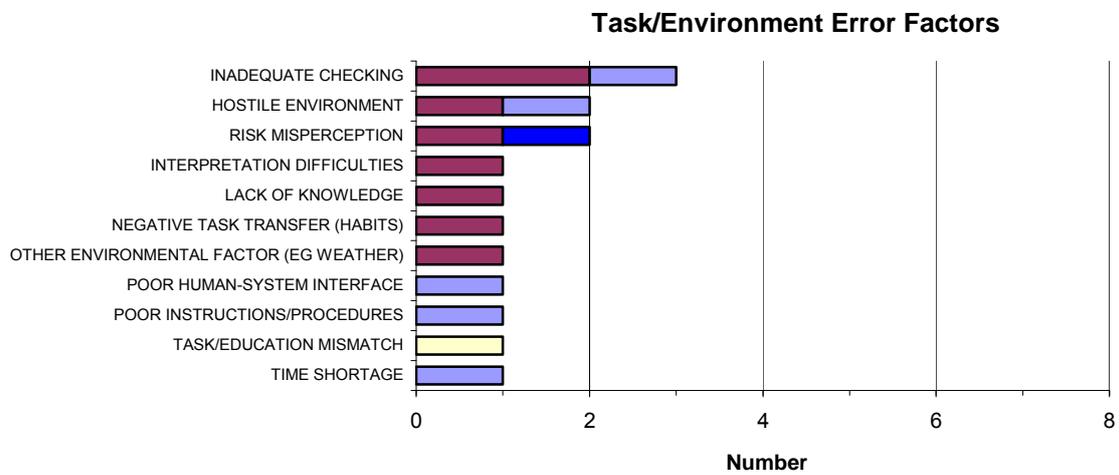
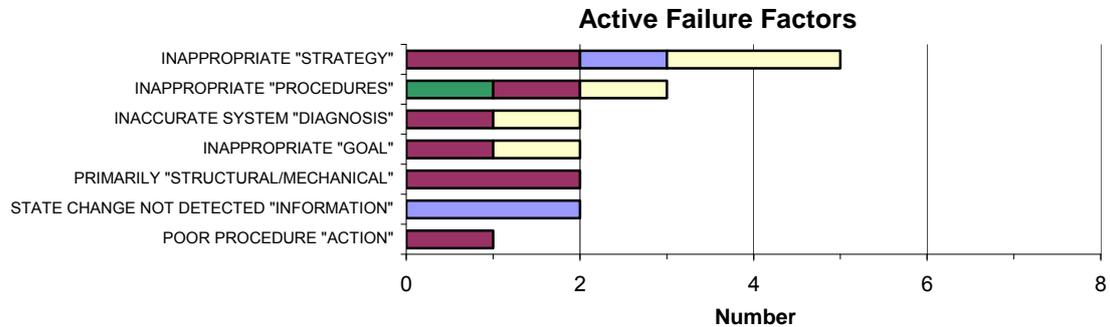


The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 2004 for the various aircraft groups. Causal factors have been assigned to 24 (62%) of the 39 accidents.



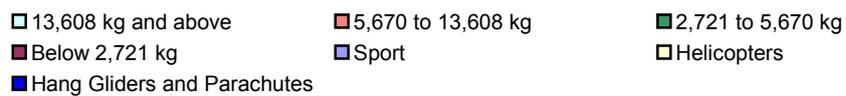
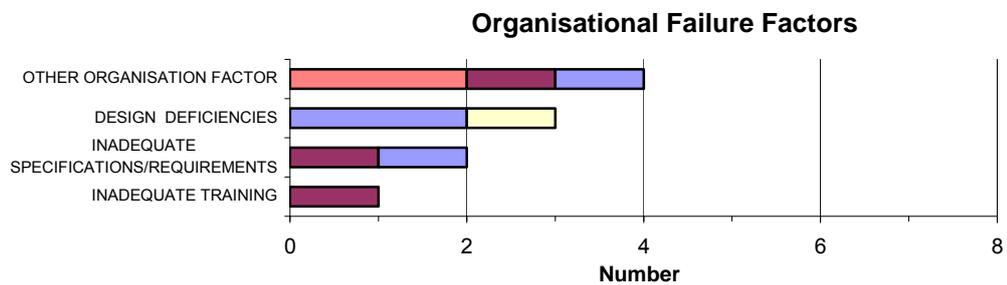
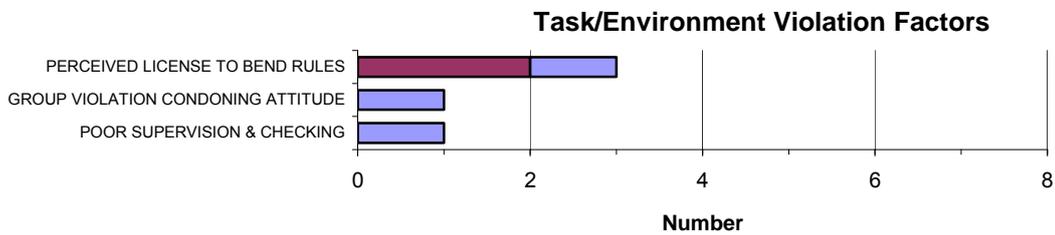
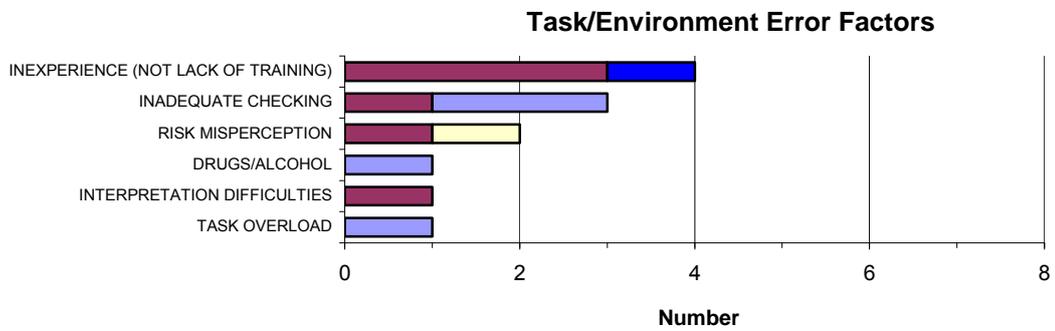
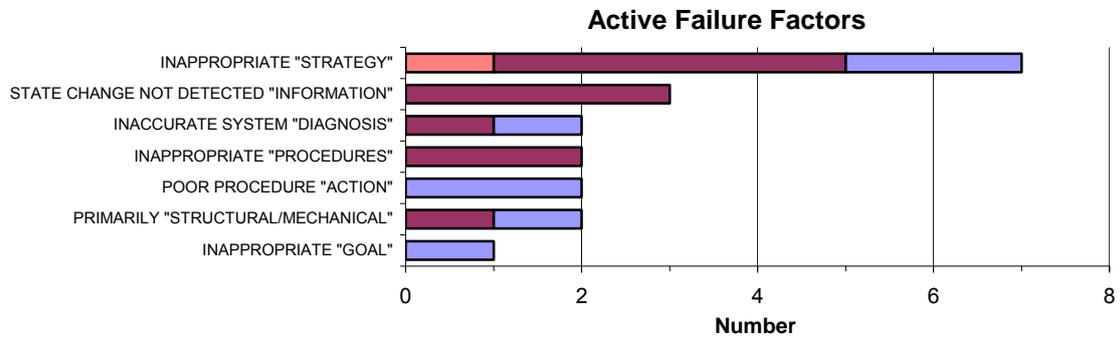
■ 13,608 kg and above	■ 5,670 to 13,608 kg	■ 2,721 to 5,670 kg
■ Below 2,721 kg	■ Sport	■ Helicopters
■ Hang Gliders and Parachutes	■ Unknown	

The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 July to 31 December 2004 for the various aircraft groups. Causal factors have been assigned to 29 (74%) of the 39 accidents.



13,608 kg and above
 5,670 to 13,608 kg
 2,721 to 5,670 kg
 Below 2,721 kg
 Sport
 Helicopters
 Hang Gliders and Parachutes

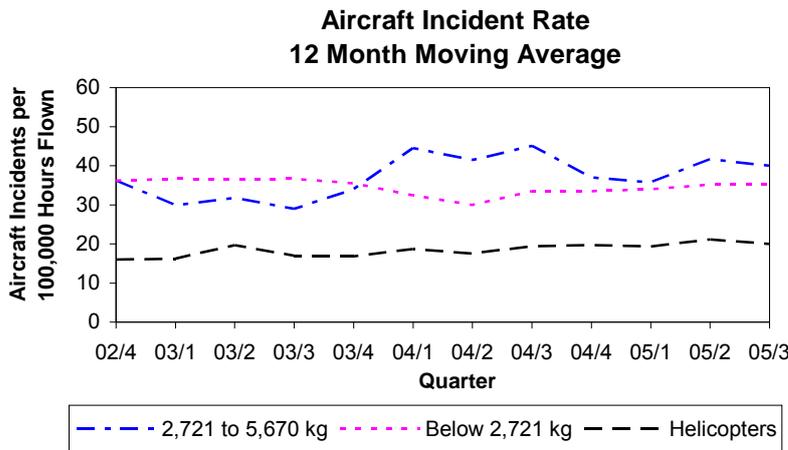
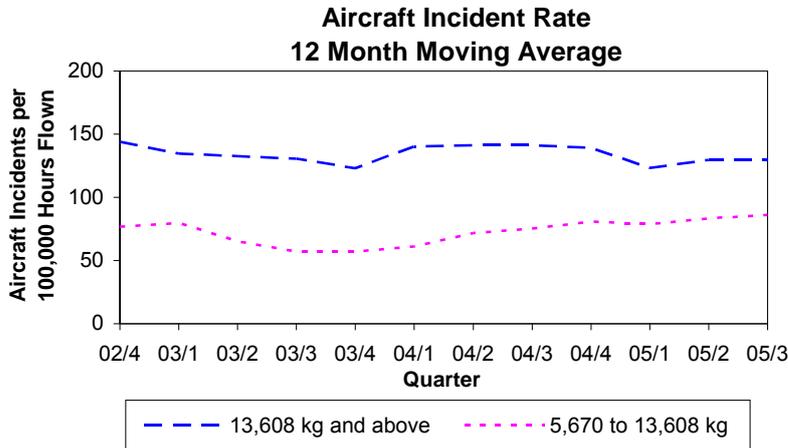
The following graphs show the number of causal factors recorded for accidents that occurred during the period 1 January to 30 June 2005 for the various aircraft groups. Causal factors have been assigned to 27 (55%) of the 49 accidents.



Aircraft Incidents

Occurrence Trend

The following graphs show the aircraft incident rates (incidents per 100,000 hours flown) twelve month moving average for the three-year period 1 October 2002 to 30 September 2005 (excluding Sport).



Aircraft Group	Straight Line Trend of 12 Month Moving Average
13,608 kg and above	Trending down
5,670 to 13,608 kg	Trending up
2,721 to 5,670 kg	Trending up
Below 2,721 kg	Trending down
Helicopters	Trending up

The slopes of the trend lines for the below 2,721 kg and helicopter groups are close to zero.

Six-Monthly Comparison

Number of Aircraft Incidents

Aircraft Group	1 Jan to 30 Jun	1 Jan to 30 Jun	Change	
	2004	2005	Number	Percentage
13,608 kg and above	176	162	- 14	- 8.0
5,670 to 13,608 kg	48	47	- 1	- 2.1
2,721 to 5,670 kg	10	13	+ 3	+ 30.0
Below 2,721 kg	51	55	+ 4	+ 7.8
Helicopters	15	19	+ 4	+ 26.7
Sport	10	12	+ 2	+ 20.0
Unknown	33	21	- 12	- 36.4
Total	343	329	- 14	- 4.1

Severity

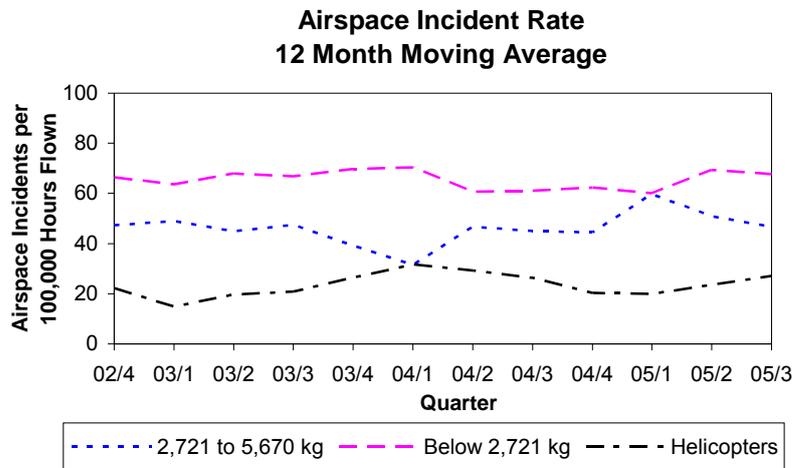
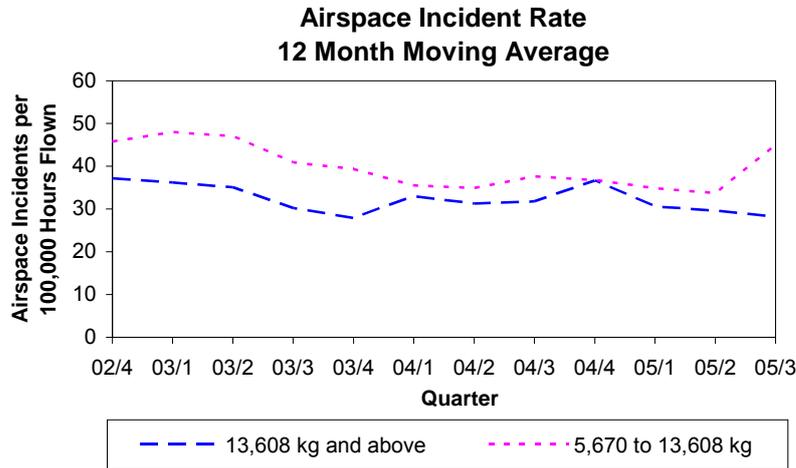
Six-Monthly Comparison

Aircraft Group	Severity	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	Critical	0	0	0
	Major	5	5	0
	Minor	171	157	- 14
5,670 to 13,608 kg	Critical	0	0	0
	Major	4	5	+ 1
	Minor	44	42	- 2
Below 5,670 kg, Helicopters and Sport	Critical	0	1	+ 1
	Major	17	12	- 5
	Minor	69	86	+ 17
Unknown	Critical	0	0	0
	Major	1	2	+ 1
	Minor	32	19	- 13
Total	Critical	0	1	+ 1
	Major	27	24	- 3
	Minor	316	304	- 12

Airspace Incidents

Occurrence Trend

The following graphs show the airspace incident rates (incidents per 100,000 hours flown) twelve month moving average for the three-year period 1 October 2002 to 30 September 2005 (excluding Sport).



Aircraft Group	Straight Line Trend of 12 Month Moving Average
13,608 kg and above	Trending down
5,670 to 13,608 kg	Trending down
2,721 to 5,670 kg	Trending up
Below 2,721 kg	Trending down
Helicopters	Trending up

The slopes of the trend lines for the below 2,721 kg and helicopter groups are close to zero.

Six-Monthly Comparison

Number of Airspace Incidents

Aircraft Group	1 Jan to 30 Jun	1 Jan to 30 Jun	Change	
	2004	2005	Number	Percentage
13,608 kg and above	47	32	- 15	- 31.9
5,670 to 13,608 kg	24	19	- 5	- 20.8
2,721 to 5,670 kg	11	15	+ 4	+ 36.4
Below 2,721 kg	90	108	+ 18	+ 20.0
Helicopters	17	24	+ 7	+ 41.2
Sport	19	16	- 3	- 15.8
Unknown	183	189	+ 6	+ 3.3
Total	391	403	+ 12	+ 3.1

Severity

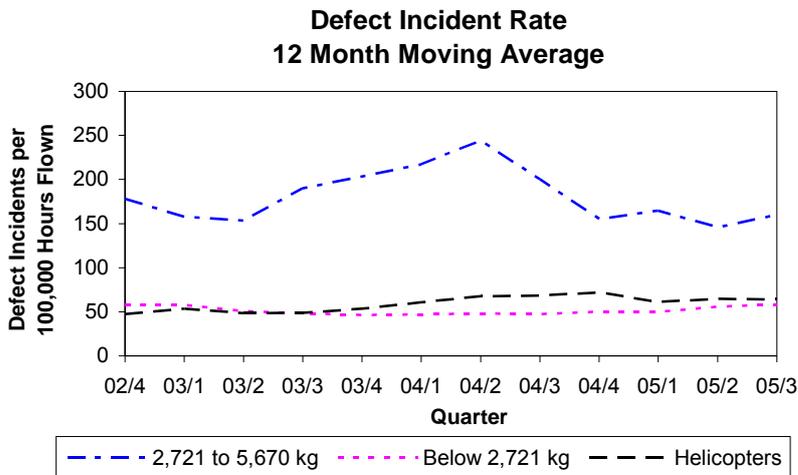
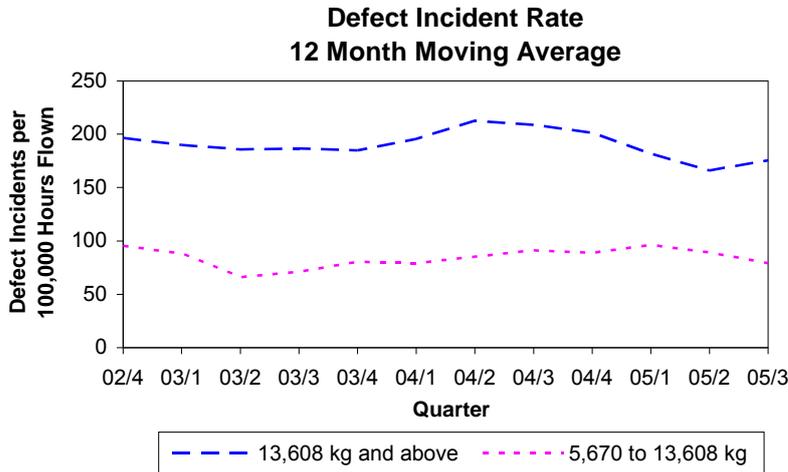
Six-Monthly Comparison

Aircraft Group	Severity	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	Critical	0	0	0
	Major	3	0	- 3
	Minor	44	32	- 12
5,670 to 13,608 kg	Critical	0	0	0
	Major	0	3	+ 3
	Minor	24	16	- 8
Below 5,670 kg, Helicopters and Sport	Critical	0	0	0
	Major	7	9	+ 2
	Minor	130	154	+ 24
Unknown	Critical	0	0	0
	Major	18	17	- 1
	Minor	165	172	+ 7
Total	Critical	0	0	0
	Major	28	29	+ 1
	Minor	363	374	+ 11

Defect Incidents

Occurrence Trend

The following graphs show the aircraft defect incident rates (incidents per 100,000 hours flown) twelve month moving average for the three-year period 1 October 2002 to 30 September 2005 (excluding Sport).



Aircraft Group	Straight Line Trend of 12 Month Moving Average
13,608 kg and above	Trending down
5,670 to 13,608 kg	Trending up
2,721 to 5,670 kg	Trending down
Below 2,721 kg	Constant
Helicopters	Trending up

The slope of the trend line for the below 2,721 kg group is zero.

Six-Monthly Comparison***Number of Defect Incidents***

Aircraft Group	1 Jan to 30 Jun	1 Jan to 30 Jun	Change	
	2004	2005	Number	Percentage
13,608 kg and above	286	212	- 74	- 25.9
5,670 to 13,608 kg	38	34	- 4	- 10.5
2,721 to 5,670 kg	48	48	0	0.0
Below 2,721 kg	73	87	+ 14	+ 19.2
Helicopters	59	53	- 6	- 10.2
Sport	5	11	+ 6	+ 120.0
Unknown	15	5	- 10	- 66.7
Total	524	450	- 74	- 14.1

Severity***Six-Monthly Comparison***

Aircraft Group	Severity	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	Critical	0	0	0
	Major	21	19	- 2
	Minor	265	193	- 72
5,670 to 13,608 kg	Critical	0	0	0
	Major	8	14	+ 6
	Minor	30	20	- 10
Below 5,670 kg, Helicopters and Sport	Critical	2	1	- 1
	Major	53	32	- 21
	Minor	130	166	+ 36
Unknown	Critical	0	0	0
	Major	1	1	0
	Minor	14	4	- 10
Total	Critical	2	1	- 1
	Major	83	66	- 17
	Minor	439	383	- 56

Bird Incident Rates

12-Month Moving Average Strike Rate per 10,000 Aircraft Movements

The following table shows the 12-month moving average strike rates for identified aerodromes for the three years ending June 2005.

Aerodrome	02/3	02/4	03/1	03/2	03/3	03/4	04/1	04/2	04/3	04/4	05/1	05/2
Auckland	3.2	3.1	2.9	2.6	2.6	2.3	2.1	2.3	2.9	3.3	3.7	3.4
Christchurch	2.0	2.0	2.1	2.0	2.4	2.0	2.4	2.6	2.6	3.0	2.8	2.7
Dunedin	4.4	4.5	2.7	2.8	4.2	5.8	4.5	5.5	5.6	4.6	6.7	7.3
Gisborne	6.5	5.6	6.9	6.1	6.1	7.8	8.4	7.1	5.8	6.5	5.3	6.6
Hamilton	4.4	2.7	1.7	1.9	2.4	2.6	3.3	2.8	2.6	2.7	2.5	2.8
Invercargill	4.1	4.4	4.7	5.3	5.4	5.5	4.1	3.7	3.4	4.1	5.3	5.9
Napier	6.7	5.9	5.6	6.0	5.1	4.6	4.5	4.0	5.6	6.8	7.8	9.1
Nelson	3.6	3.4	3.0	3.2	2.4	2.1	1.9	2.6	2.9	2.9	2.7	1.4
New Plymouth	8.3	8.7	6.9	8.1	7.1	8.4	9.0	8.5	9.0	7.8	9.0	8.5
Ohakea	2.1	1.4	1.2	1.2	0.8	1.2	2.1	3.5	4.8	5.1	4.9	5.3
Palmerston North	6.4	6.9	5.7	5.4	3.0	3.5	4.0	3.3	3.9	3.0	4.0	3.2
Queenstown	5.8	5.8	5.5	3.9	3.1	2.9	2.7	1.7	2.5	3.0	3.7	4.1
Rotorua	5.7	5.9	4.6	5.0	4.7	5.3	6.4	5.7	7.0	7.4	7.8	9.3
Taupo	3.9	3.6	2.4	2.0	1.2	1.4	1.4	1.7	1.5	0.8	1.0	0.8
Tauranga	3.2	2.6	2.0	2.1	2.8	2.9	3.9	3.2	2.4	2.3	1.4	1.9
Wellington	1.3	1.5	1.6	1.6	1.6	1.6	1.8	1.9	1.6	2.2	2.1	2.6
Whenuapai	10.6	13.6	11.9	12.5	10.8	8.7	10.8	10.3	12.1	14.1	9.5	4.7
Woodbourne	4.4	5.2	3.1	4.0	3.4	2.0	2.8	2.4	2.8	4.2	6.3	6.9

Bird occurrence rates are measured monthly, quarterly or annually by aerodrome. This is achieved by querying the database for the number of strikes at aerodromes over a period of time summarising by month, quarter or year. The results of this query are then divided by the aircraft movements at each aerodrome and multiplied by 10,000 to achieve strikes per 10,000 aircraft movements. Aircraft movements at aerodromes are obtained from the ACNZ, and where available, from individual airport companies.

CAA Actions

The CAA uses the following criteria for assessing actions to be taken with regard to identified trends in bird strike rates.

Bird strikes per 10,000 aircraft movements	Risk Category	Trending Down	Constant	Trending Up
≥ 0.0 and < 5.0	Low	Monitor	Monitor	Advise Aerodrome Operator
≥ 5.0 and < 10.0	Medium	Monitor	Advise Aerodrome Operator	Advise Aerodrome Operator, Request Rectification Action
≥ 10.0	High	Advise Aerodrome Operator	Advise Aerodrome Operator, Request Rectification Action	Advise Aerodrome Operator, Request Rectification Action

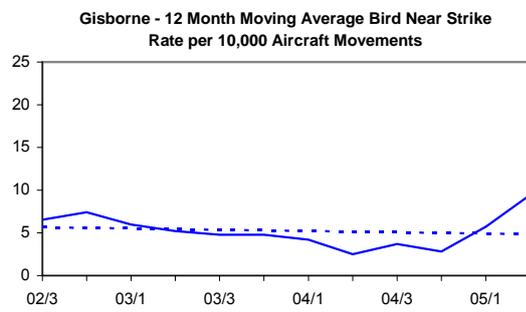
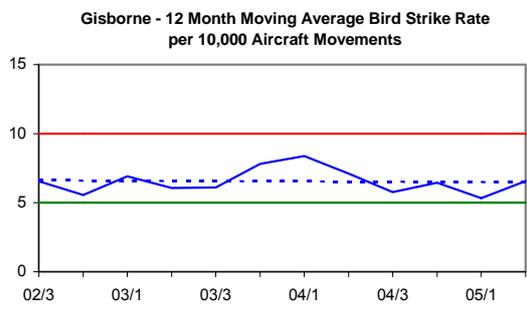
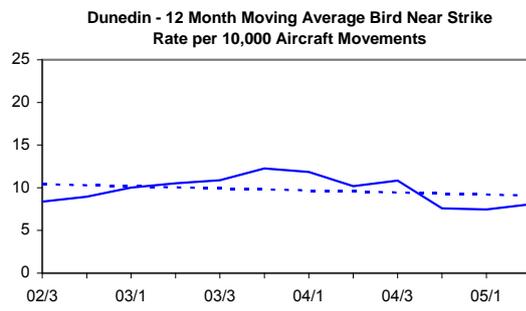
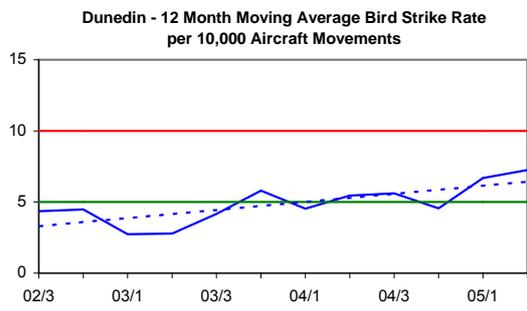
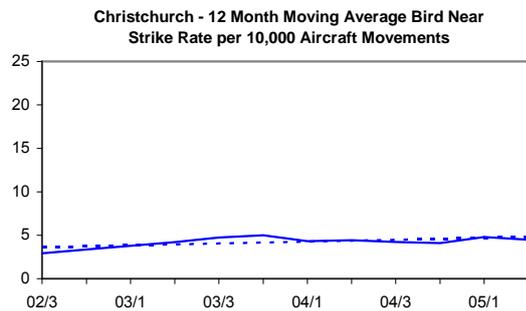
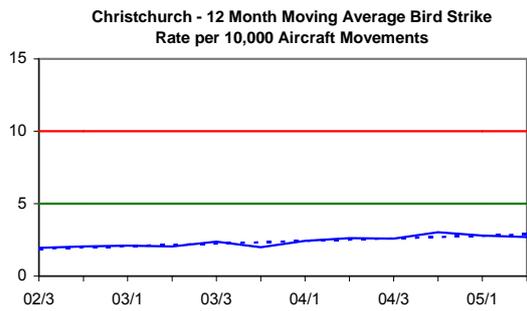
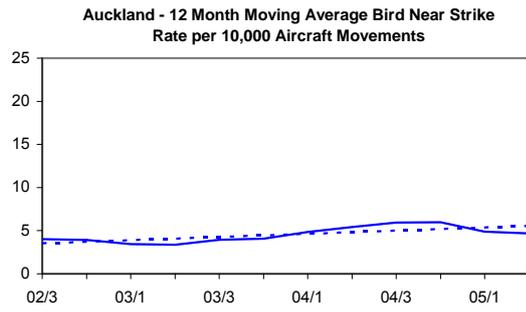
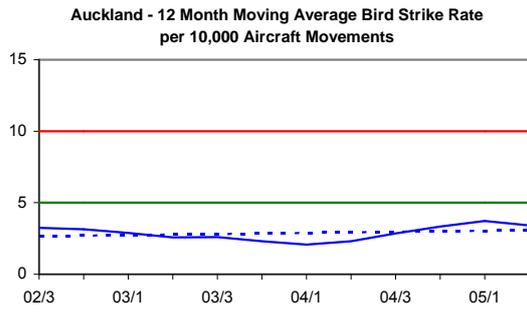
Analysis

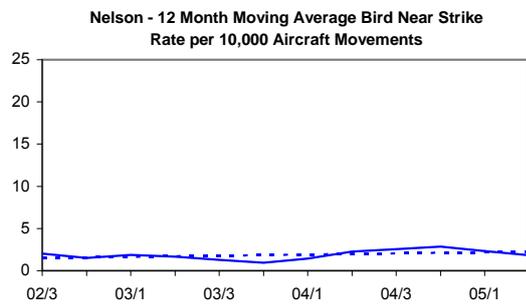
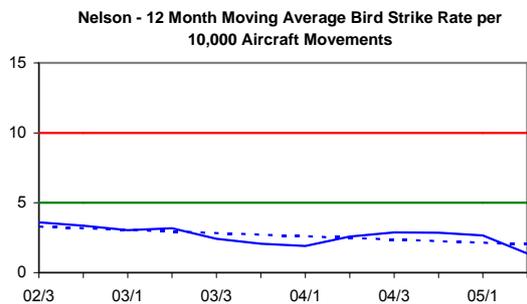
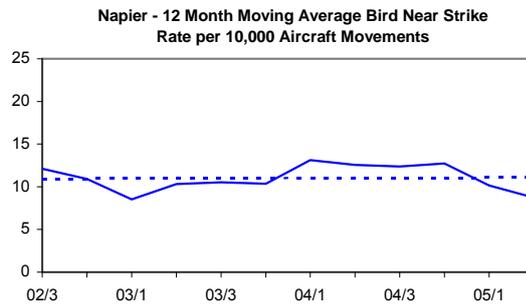
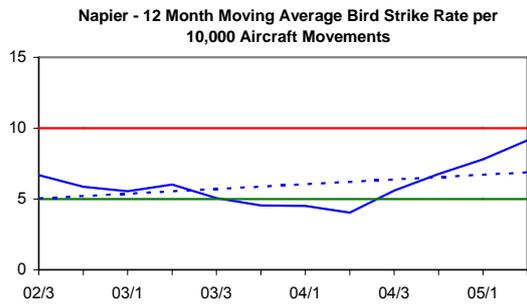
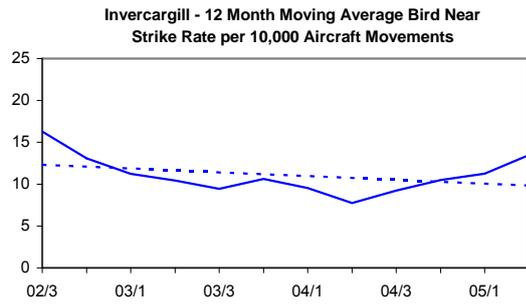
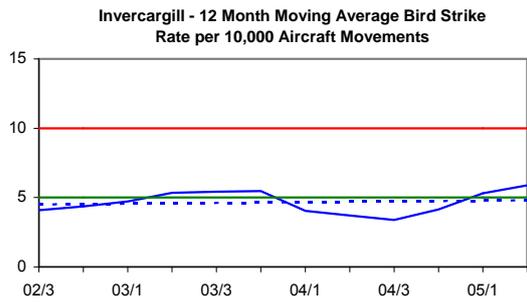
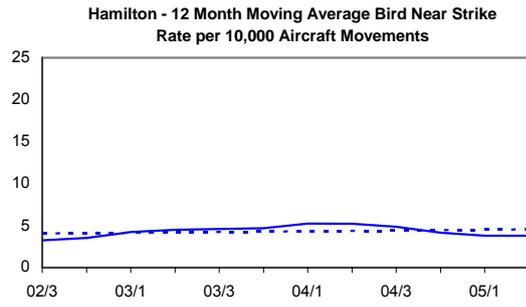
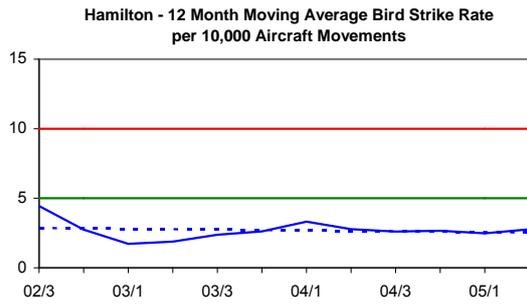
Analysis shows that 10 of the 18 monitored aerodromes have bird strike rates above the “trigger level” for CAA Action. Details were forwarded to Manager Aeronautical Services on 18 October 2005.

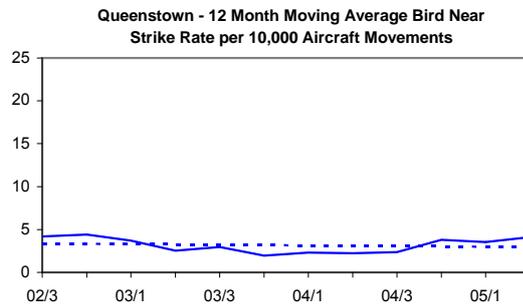
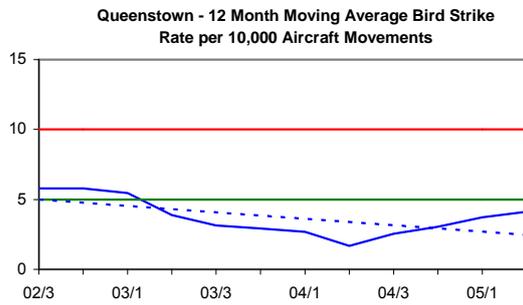
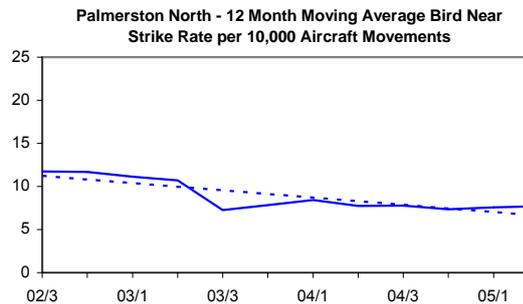
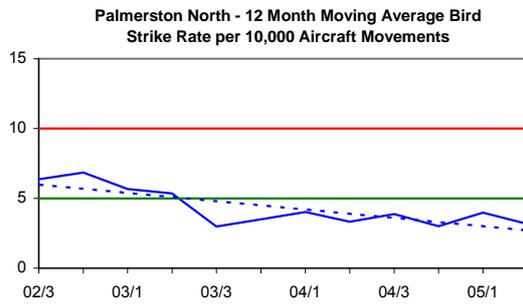
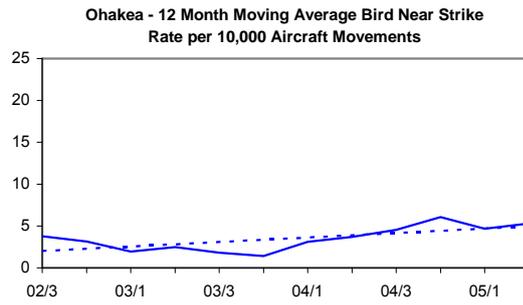
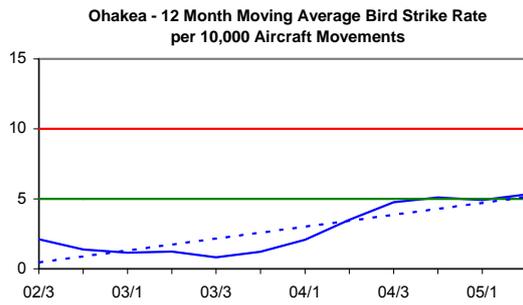
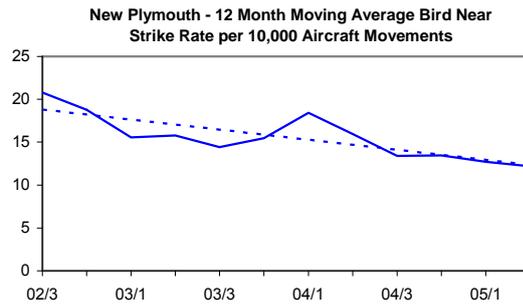
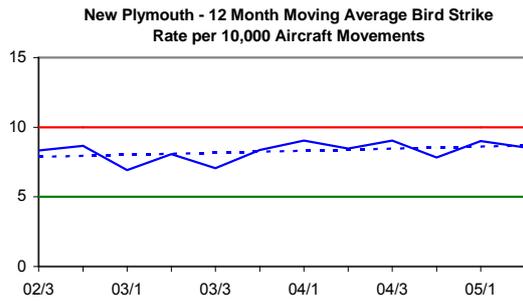
No aerodromes exhibited strike rates in the high risk category of the CAA standard (above 10.0 bird strikes per 10,000 aircraft movements). Eight aerodromes exhibited a strike rate in the medium risk category (5.0 to 10.0 per 10,000 movements) and all of these aerodromes displayed a long-term upward or constant trend. Ten aerodromes exhibited a strike rate in the low risk category (below 5.0 per 10,000 movements) and two of these aerodromes displayed a long-term upward trend.

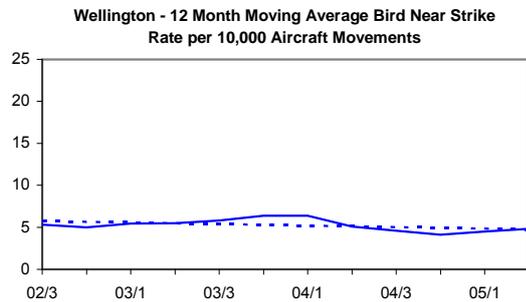
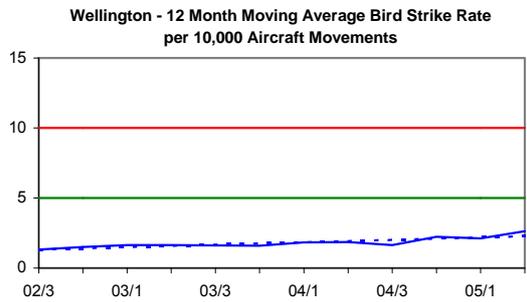
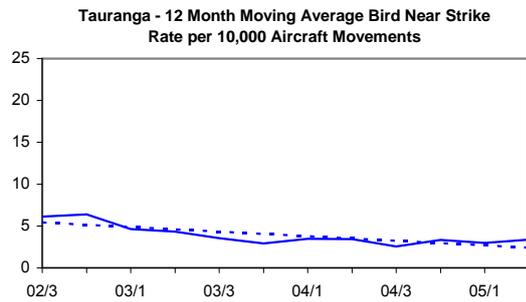
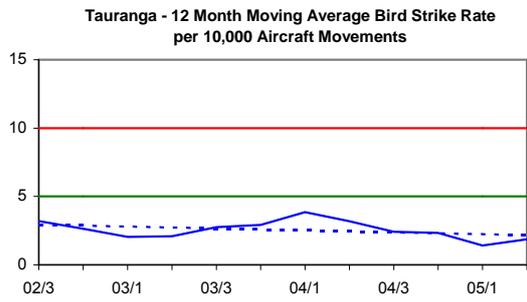
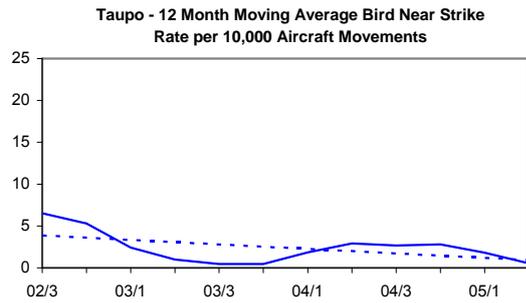
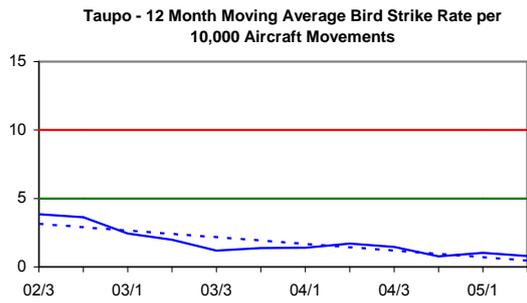
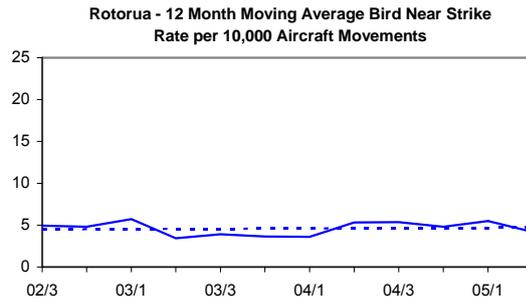
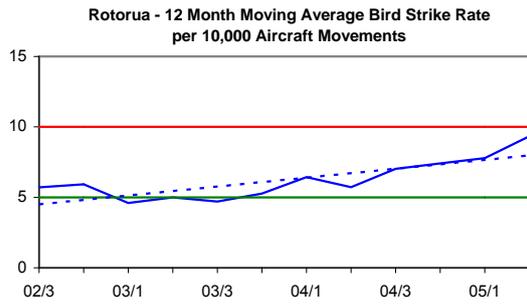
The top line on the strike rate graph shows the High risk category. The next line shows the Medium risk category.

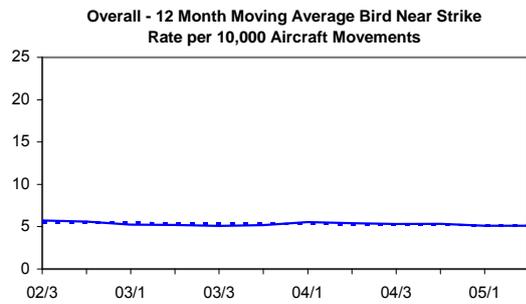
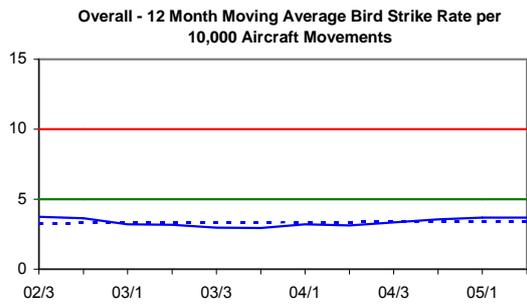
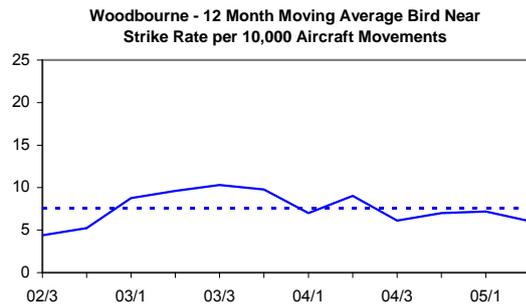
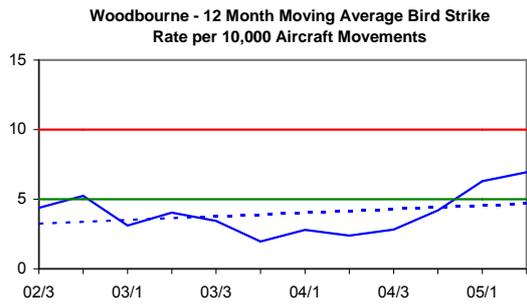
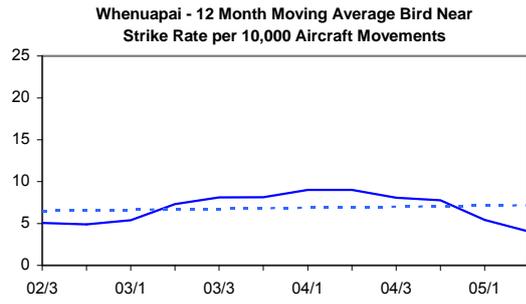
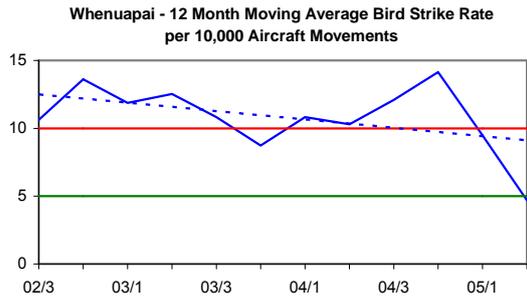
Aerodrome	Risk Category	Trend	CAA Action
Auckland	Low	Constant	Monitor
Christchurch	Low	Trending up	Advise Aerodrome Operator
Dunedin	Medium	Trending up	Advise Aerodrome Operator, Request Rectification Action
Gisborne	Medium	Constant	Advise Aerodrome Operator
Hamilton	Low	Constant	Monitor
Invercargill	Medium	Constant	Advise Aerodrome Operator
Napier	Medium	Trending up	Advise Aerodrome Operator, Request Rectification Action
Nelson	Low	Trending down	Monitor
New Plymouth	Medium	Trending up	Advise Aerodrome Operator, Request Rectification Action
Ohakea	Medium	Trending up	Advise Aerodrome Operator, Request Rectification Action
Palmerston North	Low	Trending down	Monitor
Queenstown	Low	Trending down	Monitor
Rotorua	Medium	Trending up	Advise Aerodrome Operator, Request Rectification Action
Taupo	Low	Trending down	Monitor
Tauranga	Low	Trending down	Monitor
Wellington	Low	Trending up	Advise Aerodrome Operator
Whenuapai	Low	Trending down	Monitor
Woodbourne	Medium	Trending up	Advise Aerodrome Operator, Request Rectification Action











Security Incidents

Six-Monthly Comparison

Number of Security Incidents

Aircraft Group	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
13,608 kg and above	19	33	+ 14
5,670 to 13,608 kg	2	8	+ 6
2,721 to 5,670 kg	0	0	0
Below 2,721 kg	1	3	+ 2
Helicopters	0	0	0
Sport	0	0	0
Unknown	30	45	+ 15
Total	52	89	+ 37

Severity

Severity	1 Jan to 30 Jun 2004	1 Jan to 30 Jun 2005	Change
Critical	0	2	+ 2
Major	3	3	0
Minor	49	84	+ 35

Occurrences — General

The following table shows the number of occurrences (excluding Non Reportable Occurrences) that were registered on the CAA database during each of the six months of the 1 January to 30 June 2005 period.

Month	ACC	ADI	ARC	ASP	BRD	DEF	DGD	HGA	INC	NIO	PAA	PIO	SEC	TOTAL
05/1	12	8	14	62	86	62	3	6	43	2	0	1	17	316
05/2	11	1	42	58	102	77	2	0	44	3	0	3	15	358
05/3	6	4	45	105	105	79	4	2	56	3	0	2	26	437
05/4	7	3	37	69	96	82	8	0	63	5	0	1	11	382
05/5	4	9	22	63	78	76	1	0	60	6	0	1	11	331
05/6	4	3	17	54	128	91	9	0	63	4	0	2	11	386
Total	44	28	177	411	595	467	27	8	329	23	0	10	91	2,210

ACC	Accident	HGA	Hang Glider Accident
ADI	Aerodrome Incident	INC	Aircraft Incident
ARC	Aviation Related Concern	NIO	Facility Malfunction Incident
ASP	Airspace Incident	PAA	Parachute Accident
BRD	Bird Incident	PIO	Promulgated Information Incident
DEF	Defect Incident	SEC	Security Incident
DGD	Dangerous Goods Incident		

Definitions

General

Accident (ACC)

Means 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, rotors, antennas, tyres, brakes, fairings, small dents, or puncture holes in the aircraft skin; or
- (3) the aircraft is missing or is completely inaccessible.

Aerodrome Incident (ADI)

Means an incident involving an aircraft operation and–

- (1) an obstruction either on the aerodrome operational area or protruding into the aerodrome obstacle limitation surfaces; or
- (2) a defective visual aid; or
- (3) a defective surface of a manoeuvring area; or
- (4) any other defective aerodrome facility.

Aircraft Incident (INC)

Means any incident, not otherwise classified, associated with the operation of an aircraft.

Airspace Incident (ASP)

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

- (1) avoiding collisions between aircraft; or
- (2) avoiding collisions between aircraft and other obstacles when an aircraft is being provided with an Air Traffic Service.

Bird Incident (BRD)

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.

Dangerous Goods Incident (DGD)

Means an incident associated with and related to the carriage of dangerous goods by air after acceptance by the operator, that–

- (1) results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation, or other evidence that the integrity of the packaging has not been maintained; or
- (2) involves dangerous goods incorrectly declared, packaged, labelled, marked, or documented.

Defect Incident (DEF)

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

Facility Malfunction Incident (NIO)

Means an incident that involves an aeronautical telecommunications facility.

Fatal Injury

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

Incident

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

Note: Incident has many sub-categories.

Occurrence

Means an accident or incident.

Promulgated Information Incident (PIO)

Means an incident that involves significantly incorrect, inadequate, or misleading information promulgated in any aeronautical information publication, map, or chart.

Security Incident (SEC)

Means an incident that involves unlawful interference.

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 seven 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 occurrences and to findings as the result of investigation of occurrences.

Severity Factor		Definition
CR	Critical	An occurrence or deficiency that caused, or on its own had the potential to cause, loss of life or limb;
MA	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;
MI	Minor	An isolated occurrence or deficiency not indicative of a significant system problem.

Aircraft Groups

The actual aircraft groups used to derive data in this report, although reported to the nearest kilogram, have been based on the imperial measures used in the United States design requirements which are the basis for certification of most aircraft. The relevant aircraft data is therefore recorded as pounds on the database. Since they are related to design requirements the “break” figures group aircraft with similar complexities and associated operational factors together. Attempts to query based on metric figures can lead to error where aircraft are clustered about a particular break by splitting groups that should logically be kept together.

The following table shows the actual imperial weights used in the reporting queries, the nearest metric conversion, the metric label used on graphs and tables in the report, and the nearest “nominal” metric weight break.

Actual Weight Break (lbs)	Metric Conversion (kg) [NB Rounded down]	Report Data Label (kg)	Nearest “Nominal” Metric Break (kg)
≥ 30,000	≥ 13,608	13,608 kg and above	13,600
≥12,500 and < 30,000	≥ 5,670 and < 13,608	5,670 to 13,608 kg	5,700-13,600
≥ 6,000 and < 12,500	≥ 2,721 and < 5,670	2,721 to 5,670 kg	2,700-5,700
< 6,000	< 2,721	Below 2,721 kg	2,700

The following table shows the aircraft classes included in each aircraft group.

Aircraft Group	Aircraft Class
13,608 kg and above	Aeroplane
5,670 to 13,608 kg	Aeroplane
2,721 to 5,670 kg	Aeroplane, Balloon
Below 2,721 kg	Aeroplane, Balloon
Helicopters	Helicopter
Sport	Amateur Built Aeroplane, Amateur Built Glider, Amateur Built Helicopter, Glider, Gyroplane, Microlight Class 1, Microlight Class 2, Power Glider