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ATSB Aviation Safety Survey – Pilots' Flying Experiences

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EXECUTIVE SUMMARY

The aim of this study was to provide information to the flying community about issues that have the potential to affect safety in the hope that increased knowledge and insight could lead to improved safety. The ATSB distributed the 'Aviation Industry Safety Survey' in November 2003 to 5,000 commercial pilots throughout Australia. Pilots were asked to respond to a series of questions regarding their flying experiences in the 12 months prior to receiving the survey. The survey consisted of two sections: Part A and Part B. Information about Part A has been reported in the *ATSB Aviation Safety Survey – Safety Climate Factors* (2004) publication. The analysis of one question (relating to common flying errors by respondents) in Part B was reported in the *ATSB Aviation Safety Survey – Common Flying Errors* (2004) publication. This report addressed six questions (39 to 44) in Part B of the survey (reproduced in Attachment A).

Information concerning pilot age, highest licence held, hours flown, type of operation and aircraft details were obtained from the survey responses. Pilots were grouped on the basis of the type of flying – regular public transport, charter, aerial work, and private operations – in which they were most frequently involved during the 12 months prior to receiving the survey.

Four questions (39 to 42) consisted of multiple items. On a 5-point scale, pilots were asked how often they had personally seen a range of issues negatively affect flight safety (question 39). These issues were: lack of pilot skills, knowledge or experience; fatigue; alcohol, drugs or medication; medical conditions; and personal stress. The overall results indicated that pilots perceived lack of pilot skills, knowledge or experience and to a lesser extent, fatigue and personal stress, as having a greater detrimental effect on flight safety than alcohol, drugs or medication or medical conditions. Skills, knowledge or experience was considered by about 40 per cent of pilots to have 'sometimes' had a negative impact on safety. About 66 per cent of respondents nominated medical conditions, and about 77 per cent of respondents nominated alcohol, drugs or medication, as having 'never' negatively impacted on safety.

Question 40 asked respondents how frequently they had encountered significant safety deficiencies on the same 5-point scale as for question 39. The seven sub-components of question 40 addressed air traffic control; meteorological information; aircraft maintenance; aircraft weight and balance; runways and runway facilities; aircraft airworthiness; and aircraft to aircraft communications. Aircraft to aircraft communications was considered by pilots to be the most frequently experienced safety deficiency by pilots. Issues with aircraft maintenance and meteorological information were identified by pilots to be the next most significant safety deficiencies. The least significant factors rated by pilots were aircraft airworthiness and aircraft weight and balance.

Pilots' open-ended responses to the three biggest safety hazards or problems affecting flight safety were analysed and 12 top-level categories were identified: airspace management; air traffic control; collision with airborne object; communication issues; fitness for duty; flight planning; maintenance; operating costs; organisation issues; procedures and regulations; training and experience; and other. Each top-level category consisted of a number of sub-components. Private and commercial pilots identified very similar hazards or problems affecting safety (i.e. both groups shared six of the seven top-level categories). The groups differed predominantly in the order or proportion of pilots identifying them as issues.

Respondents were asked whether they had been involved in any of 13 types of incidents in the 12 months preceding the survey. Incident types included engine failure or problem (in-flight), low fuel problem, near collision with other aircraft (in-flight), etc. Involvement in incident types

varied according to flight category (e.g. aerial work appeared to involve a greater percentage of near collisions with terrain, water or obstacle in-flight, than RPT) and incident types (e.g. a failure to comply with ATC instructions or clearances appeared to occur more frequently than loss of aircraft control in-flight).

Finally, pilots were asked about the perceived level of safety in their flight category and any changes in safety over the year preceding the survey. Irrespective of flight category, about 59 per cent of pilots indicated that their flying category had been ‘safe’ during the 12-month period preceding the survey; 65 per cent of pilots indicated that their flying category had remained ‘unchanged’.

1 INTRODUCTION

1.1 The ATSB Aviation Safety Survey – Pilots' Flying Experiences

The *ATSB Aviation Safety Survey – Pilots' Flying Experiences* report follows two similar previous ATSB reports published in 2004.

In November 2003, the ATSB carried out a sample survey of pilots registered on the Civil Aviation Safety Authority (CASA) database. The sample consisted of 5,000 Australian Air Transport Pilot Licence (ATPL) and Commercial Pilots' Licence (CPL) holders with current medical certificates. Pilots' names and addresses were supplied by CASA under a confidentiality agreement with a mail distribution service that conducted the survey mail-out for the ATSB. At no point was the ATSB aware of the identity and/or contact details of respondents, nor were pilots' survey responses made known to CASA.

The survey was designed to ask operational personnel about their perceptions of safety in their workplace and comprised two sections. The first part (Part A) investigated 'safety climate': it consisted of questions regarding management commitment; training, equipment and maintenance; rules and procedures; communication; and work schedules. The analysis of Part A has been published in the 2004 report *ATSB Aviation Safety Survey – Safety Climate Factors*. The analysis of the responses to the question in Part B on common flying errors made by pilots (question 45) has been published in the 2004 report *ATSB Aviation Safety Survey – Common Flying Errors.*

This report focuses on questions 39 to 44 in Part B (see Appendix A). These questions mainly relate to how often respondents had personally experienced or encountered issues that affected aviation safety in Australia during the 12-month period preceding the survey. There were questions about the types of hazards pilots had come across or considered important as well as questions about pilots' involvement in a range of incident types. Pilots views on the level of safety and changes in the level of safety during the 12-month period were also canvassed.

1.2 Survey information

In total, 1,263 respondents provided information relating to Part C of the survey (which contained demographic information about pilots e.g. age, flight category) representing a response rate of 25 per cent. Of these responses 355 (29.3%) were involved in regular public transport (RPT), 203 (16.8%) in charter work, 329 (27.2%) in aerial work, and 324 (26.8%) in private operations. Overall, 52 responses (4.12%) could not be used: 20 respondents were engaged in business and 32 respondents did not answer any of the items in Part B. Numbers and proportions of pilots by flying category who did not respond to Part B were: aerial work (N[1]=15, 46.9%), RPT (N=12, 37.5%), and charter (N=4, 12.5%).

[1] N = Number of respondents who answered the question or nominated a rating.

One pilot did not indicate a flight category (3.1%). Pilot age ranged from 21 to 74 years (M[2]=48.93 years, SD[3]=15.75, N=30). The number of hours flown in the previous 12 months ranged from 38 to 850 hours (M=503.03 hours, SD=191.43, N=31). These three non-response groups were excluded from further analysis.

This report provides some of the same demographic details contained in both previous reports. Comparisons among them will show slight discrepancies due to the number of pilots who responded to the different sections of the survey.

[2] M = Mean

[3] SD = Standard Deviation (a measure of central tendency or spread).

2 METHOD

Of the six Part B questions addressed in this report, four had several sub-components. Question 39 was: 'How often did you personally see the following influences negatively affect flight safety in Australia in the last 12 months?' The five influences were:

- lack of pilot skill, knowledge or experience
- fatigue
- alcohol, drugs or prescribed medication use
- medical conditions
- personal stress.

Respondents were requested to rate how often they had seen these influences on a 5-point scale: '1 = never', '2 = rarely', '3 = sometimes', '4 = often', and '5 = very often'.

Question 40 asked respondents 'how often did you personally encounter significant safety deficiencies in the following areas in Australia in the last 12 months?' The seven areas listed were:

- air traffic control
- meteorological information
- aircraft maintenance
- aircraft weight and balance
- runways and runway facilities (lights, signs, etc)
- aircraft airworthiness
- aircraft to aircraft communications.

Respondents were requested to rate how often they had encountered safety deficiencies in these areas using the same scale as for item 39.

In question 41 respondents were asked what they considered the three biggest safety hazards or problems affecting flight safety. A content analysis was conducted to convert their written responses into a format that could be statistically analysed. The categories used in the analysis were determined by three ATSB personnel. One holds an ATPL licence and has ten years' experience, including turbo prop, multi-crew and training experience across a wide range of aircraft. Another is a qualified pilot with an aeronautical engineering degree and the third is an aviation researcher in the field of human performance. Overall, 12 categories were identified:

- air space management

- air traffic control
- collision with airborne object
- communication issues
- fitness for duty
- flight planning
- maintenance
- operating costs
- organisational issues
- procedures and regulation
- training and experience
- other.

Each category had several sub-components which will be addressed further in the report.

Question 42 asked respondents to indicate if they had been involved in a range of incident types during the last 12 months. Pilots were asked to respond with either 'yes' or 'no'. These incidents were:

- violation of controlled airspace (VCA)
- failure to comply with air traffic control instructions or clearances
- unsure of position
- wheels up landing or other landing gear problem
- near collision with terrain, water or obstacle (in-flight)
- near collision with other aircraft (in-flight)
- low fuel situation (had to use reserve fuel) or other fuel-related problem
- loss of aircraft control (in-flight)
- loss of control on landing or landing roll
- weight and balance (loading) problem that affected aircraft performance
- engine failure or problem (in-flight)
- failure of critical system or component (other than engine)
- aircraft accident (substantial damage or serious injury)

Question 43 was: ‘over the last 12 months, how safe do you think flying was in your category of flying?’ Pilots were asked to rate how safe flying had been on a 5-point scale: ‘1 = very unsafe’, ‘2 = unsafe’, ‘3 = neutral’, ‘4 = safe’, and ‘5 = very safe’.

Question 44 related to changes in safety: ‘over the last 12 months, how has the overall level of safety in your category of flying changed?’ The 5-point scale was ‘1 = very much deteriorated’, ‘2 = deteriorated’, ‘3 = unchanged’, ‘4 = improved’, and ‘5 = very much improved’.

3 DEMOGRAPHIC INFORMATION ON AUSTRALIAN PILOTS

3.1 Representation of flying categories

Most flying activity was in RPT followed by private flying (Table 1). To simplify the analysis, the categories were aggregated into four groups: RPT; charter (passenger and other); aerial work (emergency or medical, agricultural, surveying or spotting, flying training, and other); and private operations (Table 2).

A comparison of response frequencies with flying category data contained in the two previous 2004 reports (*ATSB Aviation Safety Survey – Safety Climate Factors* and *ATSB Aviation Safety Survey – Common Flying Errors*) with the current report will show some discrepancies. This is because some pilots did not respond to all items in Part A and Part B. Furthermore, pilots who answered question 45 (common flying errors) in Part B may not have responded to other questions in Part B. All graphs in this section (i.e. demographic information on Australian pilots) have accompanying tables with specific values in Appendix B.

Table 1: Responses by flying category

Flying category	Frequency	Per cent
RPT	355	28.8
Charter – passenger	181	14.7
Charter – other	22	1.8
Aerial work – emergency or medical	59	4.8
Aerial work – agricultural	42	3.4
Aerial work – surveying or spotting	28	2.3
Aerial work – flying training	149	12.1
Aerial work – other	51	4.1
Business	20	1.6
Private	324	26.3
Total	1,231	100

Note: Figures in this and subsequent tables may not add to totals due to rounding.

Table 2: Responses by aggregated flying category

Flying category	Frequency	Per cent
RPT	355	29.3
Charter	203	16.8
Aerial	329	27.2
Private	324	26.8
Total	1,211	100

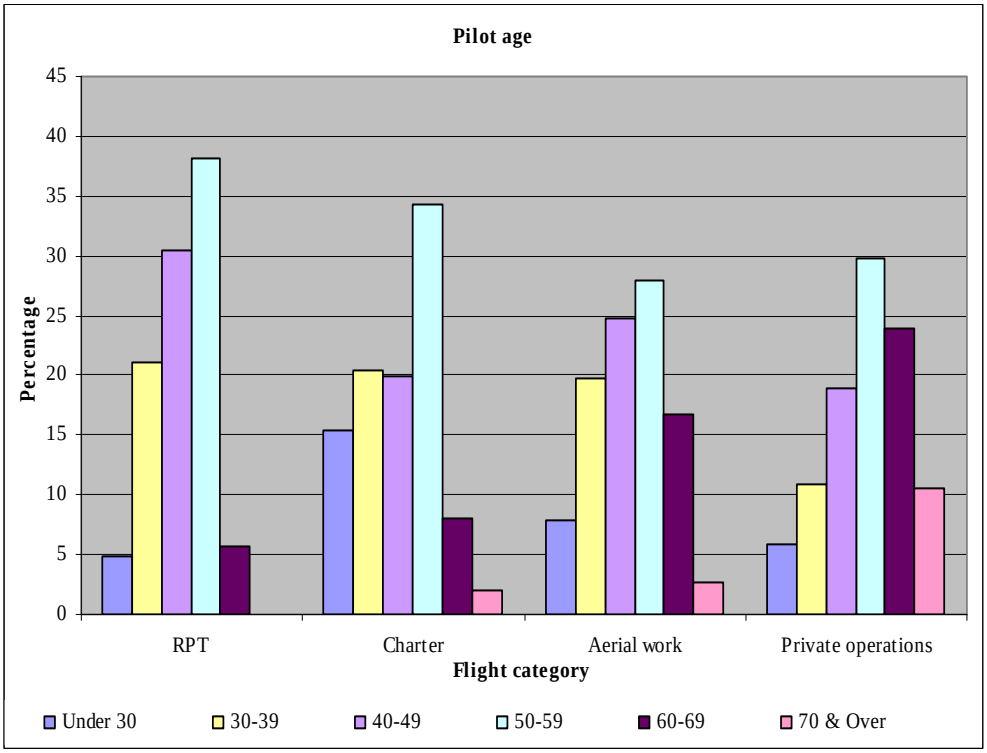
3.2 Age distribution of Australian pilots

Figure 1 shows the distribution of pilot age by flight category. Of the 1,211 pilots surveyed, 1,203 provided information on age (response rate of 99.3%) and these were used to calculate frequencies. Eight respondents did not provide information on either age or flying category.

Pilots in the RPT group ranged in age from 24 to 66 years (M = 46.37, SD = 9.74, N=352). Charter pilots ranged in age from 19 to 78 years (M = 44.85, SD = 12.70, N=201); aerial work pilots from 20 to 77 years (M = 47.87, SD = 12.46, N=328); and private operations pilots from 19 to 82 years (M = 53.05, SD = 13.56, N=322).

Figure 1 shows that for all flight categories the majority of pilots were aged between 50 and 59 years.

Figure 1: Pilot age range by flight category



3.3 Flying qualifications

Table 3 shows the highest level of pilot licence held by respondents in each of the four flight categories (N=1,211). The PPL was the highest qualification of 12.7% of pilots. This was unexpected, as the sample of pilots selected to receive the survey included only those with CPL or ATPL licences. One possible explanation for the unexpected finding is that respondents misinterpreted the question, identifying themselves as private pilots based on the status of their current medical results. The *ATSB Aviation Safety Survey – Common Flying Errors* report elaborates on this finding.

Table 3: Flight category by highest licence qualification held

Licence type		RPT	Charter	Aerial work	Private operations	Total
PPL	Count	0	0	0	41	41
	%	**0.0**	**0.0**	**0.0**	**12.7**	**3.4**
CPL	Count	12	117	208	237	574
	%	**3.4**	**57.6**	**63.2**	**73.1**	**47.4**
ATPL	Count	343	86	121	46	596
	%	**96.6**	**42.4**	**36.8**	**14.2**	**49.2**
Total	Count	355	203	329	324	1211
	%	**100**	**100**	**100**	**100**	**100**

3.4 Flying hours

The hours flown on average by pilots in the 12 months preceding the survey were:

RPT: 629.9 hours (SD=175.35, N=351)

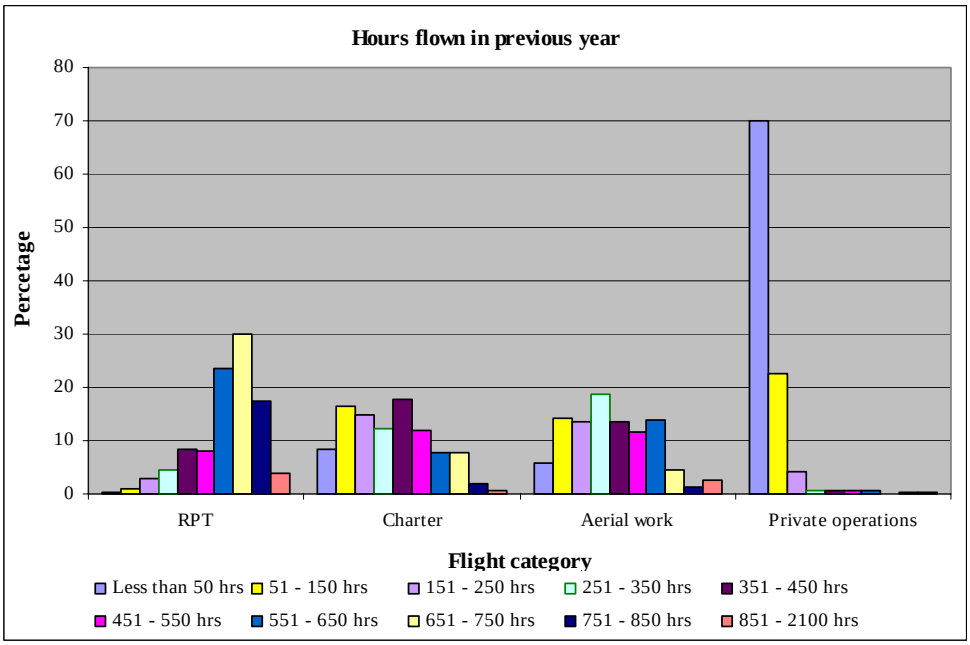
Charter 352.3 hours (SD=218.4, N=202)

Aerial work: 373.3 hours (SD=221.7, N=328)

Private pilots: 66.4 hours (SD=140.1, N=323).

Figure 2 shows the similarity between the hours flown by charter and aerial work pilots compared with the hours flown in RPT and private operations. In general, most pilots in charter (81.7%) and aerial work (77.4%) flew less than 550 hours, while most RPT pilots (74.7%) flew more than 550 hours. The pattern of hours flown in private operations appears quite different from other categories, with 92.6 per cent of respondents having experienced less than 150 hours flight time in the previous 12 months. Data were not provided by seven respondents (N=1,204).

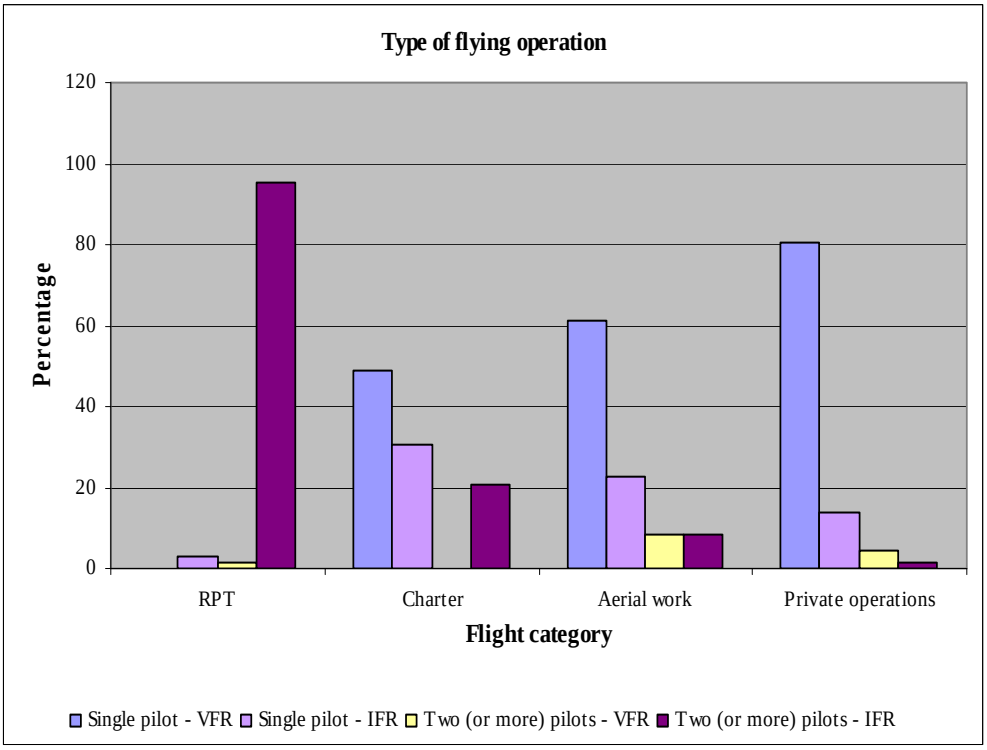
Figure 2: Hours flown in previous year by flight category



3.5 Type of flying operation

Figure 3 illustrates the type of flying operation predominantly flown by respondents in the previous 12 months (N=1,211). The pattern for charter and aerial work pilots is relatively similar. The predominant type of RPT activity involved instrument flight rules (IFR) with two or more pilots (95.5%); none of these pilots were engaged in single pilot visual flight rules (VFR) operations. Approximately 80 per cent of pilots in the private group flew single-pilot VFR operations, with five (1.5%) indicating that they flew predominantly IFR two-pilot operations in the previous year.

Figure 3: Type of flying operation by flight category



3.6 Type of aircraft flown

Table 4 shows the type of operation in which respondents were predominantly involved during the 12 months preceding the survey. Of the 1,211 responses, 1,154 were classified as either fixed wing or rotary. A category could not be determined for 57 respondents. The majority of pilots indicated they had mainly flown fixed-wing aircraft in the 12-month period. There was more use of rotary aircraft in aerial work and charter work (24.4% and 18.1% respectively) due to activities such as medical work, isolated-area work and mustering, than in RPT and private operations. However, for all types of operations, the involvement of fixed wing aircraft was over seven times that of rotary wing aircraft.

Table 4: Flight category by type of aircraft flown

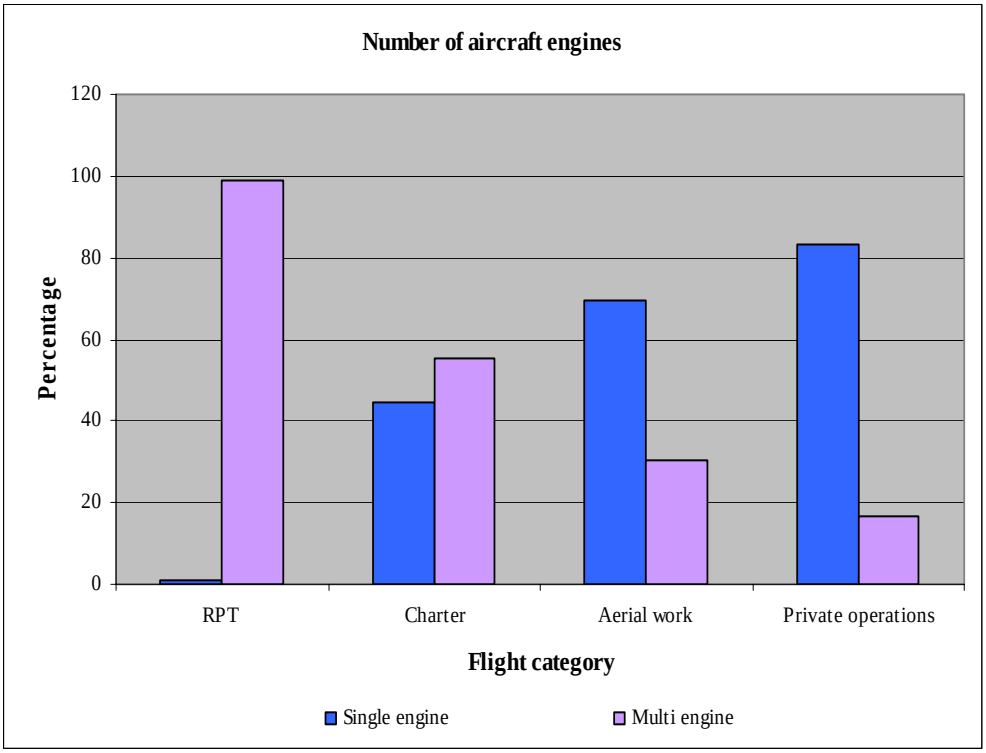
Type of aircraft		RPT	Charter	Aerial work	Private operations	Total
Fixed	Count	335	154	238	291	1018
	%	**99.4**	**81.9**	**75.6**	**92.7**	**88.2**
Rotary	Count	2	34	77	23	136
	%	**0.6**	**18.1**	**24.4**	**7.3**	**11.8**
Total	Count	337	188	315	314	1154
	%	**100**	**100**	**100**	**100**	**100**

3.7 Number of engines

Respondents were asked about the number of engines in the type of aircraft they had flown most often during the 12-month period preceding the survey. Of the 1,211 responses, 1,124 were used to calculate frequencies (response rate of 92.8%).

Figure 4 shows that the pattern for pilots involved in aerial work and private operations tended to be similar: they flew a larger proportion of single-engine aircraft (69.7% and 83.2%, respectively) than multi-engine aircraft. Charter pilots flew more multi-engine than single-engine aircraft (55.2% and 44.8%, respectively), whereas RPT pilots flew predominantly multi-engine aircraft (99.0%).

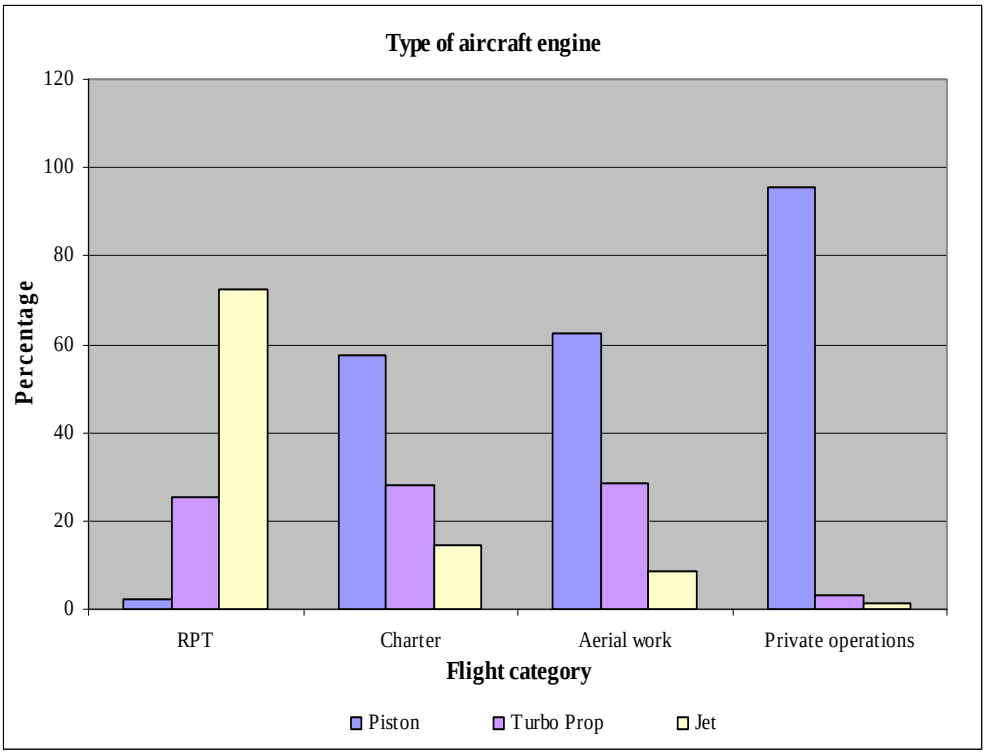
Figure 4: Number of aircraft engines by flight category



3.8 Engine type

The survey requested information on the type of engine used by pilots in their aircraft (N=1,024, response rate of 84.6%). Charter, aerial work and private pilots indicated that they mostly used piston-engine aircraft in the 12 months preceding the survey (57.6%, 62.7%, and 95.5%, respectively), followed by aircraft powered by turbo prop and jet engines. RPT pilots predominantly used aircraft with jet engines (72.4%), followed by turbo prop (25.2%) and piston engine (2.4%) aircraft. RPT, charter and aerial work pilots used similar proportions of turbo prop aircraft (25.2%, 27.9% and 28.7%, respectively).

Figure 5: Engine type by flight category



3.9 Aircraft capacity

There were 1,207 responses to the question concerning the number of passenger seats in aircraft flown by pilots (response rate: 99.7%) and the results are summarised in Table 5. Charter, aerial work and private pilots were associated with the highest proportion of aircraft having less than 10 passenger seats, distantly followed by 10-36 seat aircraft and aircraft with more than 36 seats. RPT aircraft displayed the reverse pattern, with the majority of aircraft having more than 36 seats, followed by 10-36 seat aircraft and aircraft with less than 10 seats.

Table 5: Aircraft capacity by flight category

Aircraft Capacity		RPT	Charter	Aerial work	Private operations	Total
< 10 passenger seats	Count	17	153	290	318	778
	%	**4.8**	**75.4**	**88.7**	**98.8**	**64.5**
10-36 passenger seats	Count	60	44	32	4	140
	%	**16.9**	**21.7**	**9.8**	**1.2**	**11.6**
> 36 passenger seats	Count	278	6	5	0	289
	%	**78.3**	**3.0**	**1.5**	**0.0**	**23.9**
Total	Count	355	203	327	322	1207
	%	**100**	**100**	**100**	**100**	**100**

4 PILOT'S FLYING EXPERIENCES

4.1 Influences negatively impacting flight safety in Australia

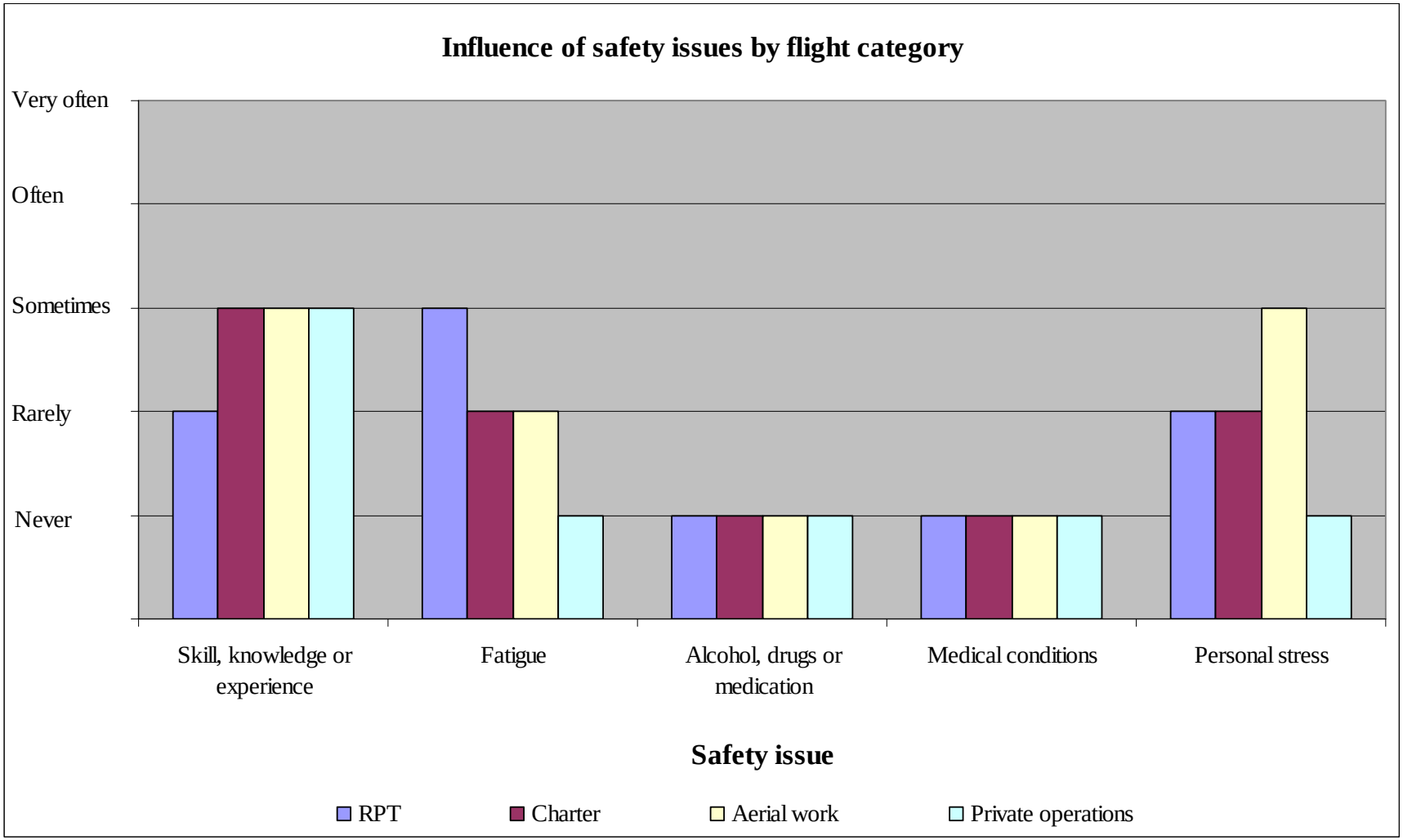
Pilots were asked how often they had personally seen five different factors negatively affecting flight safety in Australia in the 12 months preceding the survey. The five factors were:

- lack of pilot skill, knowledge or experience
- fatigue
- alcohol, drugs or prescribed medication use
- medical conditions
- personal stress.

Respondents were asked to rate these issues on a 5-point scale: '1 = never', '2 = rarely', '3 = sometimes', '4 = often', and '5 = very often'. This section addresses each factor in relation to flight category. Tables and graphs relating to each factor are in Appendix C. Descriptive statistics for all pilots by flight category are shown in Figure 6.

In this section, the mode or the rating that the majority of pilots nominated has been used to describe results instead of mean values, as the mode was a more appropriate descriptor than the mean.

Figure 6: Influence of safety issues by flight category



4.1.1 Skills, knowledge or experience

Irrespective of flight category, 39.4 per cent of pilots indicated that lack of pilot skills, knowledge or experience 'sometimes' negatively impacted flight safety, followed by 'rarely' at 31.3 per cent.

To compare responses among each flight category, a cross tabulation was prepared (Figure 6 and Appendix C; N=1,205).

Pilot skills, knowledge or experience was found to have 'never' negatively impacted flight safety by 11.5 per cent of all pilots, irrespective of flight category. The rating provided most frequently by RPT pilots was 'rarely' at 46.5 per cent (N=355). Aerial work (44.2%, N=328), private (43.8%, N=322) and charter pilots (38.5%, N=200) indicated that the lack of pilot skills, knowledge or experience 'sometimes' had a negative impact on flight safety.

4.1.2 Fatigue

There were 1,194 responses in regard to fatigue. The most frequently identified rating by all pilots, irrespective of flight category, for how often fatigue negatively affected flight safety was 'sometimes' (32.2%) followed by 'rarely' (29.4%).

Approximately 25 per cent of pilots indicated that fatigue 'never' detrimentally affected flight safety. In the RPT group, 46 per cent (N=352) of pilots indicated that fatigue 'sometimes' had a negative impact. That fatigue 'rarely' negatively impacted flight safety was indicated by 36 per cent of pilots (N=200) and 36.8 per cent of aerial work (N=326) pilots. Over 54 per cent of pilots engaged in private operations indicated that fatigue 'never' detrimentally affected flight safety (N=314).

4.1.3 Alcohol, drugs or prescribed medication use

There were 1,196 responses relating to alcohol, drugs or prescribed medication use. The most frequently identified rating by all pilots, irrespective of flight category, for how often alcohol, drugs or prescribed medication use affected flight safety was 'never' at 77.5 per cent, distantly followed by 'rarely' at 18.2 per cent.

All flight categories had a similar pattern. The most commonly stated rating was 'never': RPT 75.8 per cent (N=355); charter 71.5 per cent (N=200); aerial work 74.3 per cent (N=327); and private operations 86.6 per cent (N=314). The 'never' rating was followed in decreasing frequency by 'rarely', 'sometimes', 'often' and 'very often'.

4.1.4 Medical conditions

The rating most often identified by pilots, irrespective of flight category, as best describing how frequently medical conditions negatively affected flight safety was 'never' at 65.7 per cent, followed by 'rarely' at 26.5 per cent. This factor received 1,192 responses.

The pattern was relatively similar for all flight categories, with medical conditions rated by the largest proportion of pilots as 'never' negatively affecting flight safety: RPT 60.7 per cent (N=354); charter 62 per cent (N=200); aerial work 60.7 per cent (N=326); and private operations 78.8 per cent (N=312). The 'never' rating was followed by 'rarely', and distantly by 'sometimes', 'often' and 'very often'.

4.1.5 Personal stress

Irrespective of flight category, 36.6 per cent of pilots most commonly indicated that personal stress 'rarely' negatively impacted on safety. This rating was followed by 'sometimes' (30.5%). There were 1,199 responses relating to this factor.

Twenty-four per cent of pilots indicated that personal stress 'never' detrimentally affected flight safety. The proportions of RPT and charter pilots indicating that personal stress 'rarely' had a negative impact on flight safety were similar (38.1% and 41.6%, respectively). Personal stress was considered as 'sometimes' having a detrimental effect on safety by 36.7 per cent of aerial work pilots, while 43.4 per cent of private pilots indicated that stress 'never' had such an effect.

4.1.6 Comparison of safety factors

A comparison of the safety factors indicated that lack of skills, knowledge or experience, and to a lesser extent fatigue and personal stress, were considered by pilots to have a greater detrimental effect on overall flight safety than alcohol, drugs or medication, or medical conditions. Both medical conditions and alcohol, drugs or medication were considered by and large to have 'never' negatively impacted on safety.

4.2 Potential safety deficiencies encountered by pilots in Australia

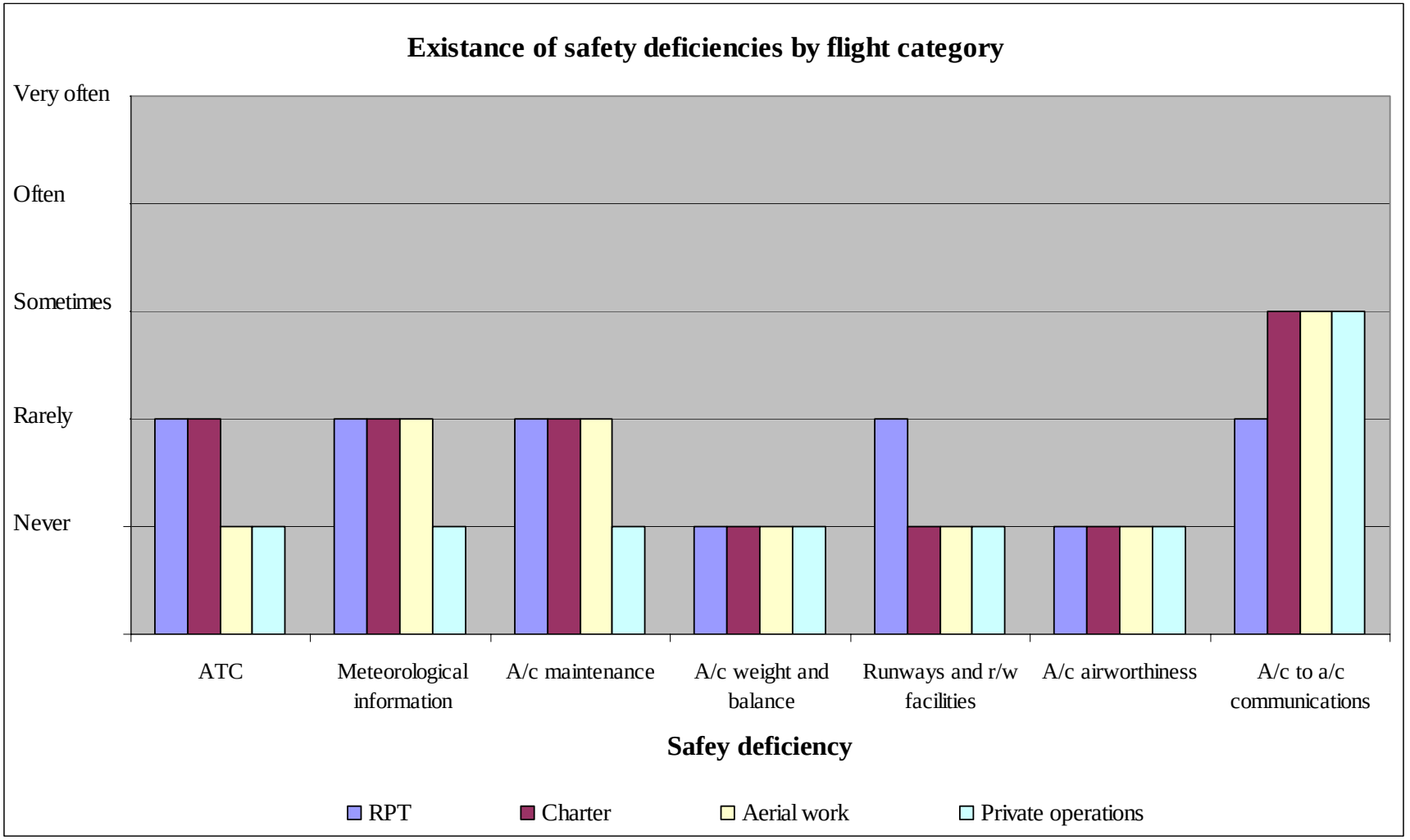
Pilots were asked how often they had personally encountered significant safety deficiencies in a number of areas over the 12-months preceding the survey. The seven areas they were asked to consider were:

- air traffic control
- meteorological information
- aircraft maintenance
- aircraft weight and balance
- runways and runway facilities (lights, signs, etc)
- aircraft airworthiness
- aircraft to aircraft communications.

Respondents were asked to rate the presence of safety deficiencies on a 5-point scale: ‘1 = never’, ‘2 = rarely’, ‘3 = sometimes’, ‘4 = often’, and ‘5 = very often’. This section addresses each item in relation to flight category and Figure 7 shows the results graphically (corresponding tables are in Appendix D).

As with the previous section, the mode or the rating that the majority of pilots nominated has been used to describe pilots’ responses.

Figure 7: Existence of safety deficiencies by each flight category



4.2.1 Air traffic control (ATC)

Forty-two per cent of pilots indicated that they 'never' encountered significant safety deficiencies with ATC; 38.4 per cent indicated 'rarely'.

The largest proportion of RPT (48.2%, N=355) and charter (43.6%, N=202) pilots 'rarely' encountered significant safety deficiencies with ATC. Of pilots involved in aerial work, 42.8 per cent (N=325) indicated that significant deficiencies in ATC were 'never' encountered, as did 65.3 per cent of private operations pilots (N=314); this was followed by 'rarely' (37.8% and 24.5%, respectively).

4.2.2 Meteorological information

Over 37 per cent of pilots indicated that they 'rarely' experienced significant safety deficiencies in regard to meteorological information.

Approximately 30 per cent of pilots indicated that they 'never' encountered significant safety deficiencies with meteorological information. The categories of pilots that 'rarely' experienced safety deficiencies with meteorological information were: RPT (43.9%, N=355); charter (38.6%, N=202); and aerial work (37.3%, N=327). Over 45 per cent of private pilots (N=318) indicated that safety deficiencies in meteorological information were 'never' encountered.

4.2.3 Aircraft maintenance

Over 40 per cent of pilots, irrespective of flight category, indicated that they 'rarely' encountered significant safety deficiencies in aircraft maintenance.

The majority of pilots engaged in RPT (54.2%, N=354), charter (40.6%, N=202), and aerial work (40.1%, N=327) operations indicated that they 'rarely' encountered significant safety deficiencies in aircraft maintenance. Nearly 50 per cent of private pilots (N=319) indicated that they 'never' encountered significant deficiencies in aircraft maintenance.

4.2.4 Aircraft weight and balance

Fifty-seven per cent of pilots (N=1,198) indicated that they 'never' encountered significant safety deficiencies with aircraft weight and balance.

The majority of pilots, in all flight categories, indicated that they 'never' encountered significant safety deficiencies due to aircraft weight and balance. The results were: RPT (52%, N=354); charter (52.2%, N=201); aerial work (53.1%, N=326) and private operations (69.7%, N=317). The pattern was similar across all flight categories: 'never' being the most commonly mentioned rating, followed by 'rarely', 'sometimes', 'often' and 'very often'.

4.2.5 Runways and runway facilities (lights, signs, etc)

Over 50 per cent of pilots (N=1,200) indicated that they 'never' experienced significant safety deficiencies in runways or runway facilities in the 12-months preceding the survey.

Approximately 43 per cent of RPT pilots (N=355) indicated that issues with runways or runway facilities were 'rarely' a problem affecting safety. The largest proportion of

pilots in charter (N=201), aerial work (N=326), and private operations (N=318) indicated that they had 'never' encountered significant safety deficiencies in runways or runway facilities in the year preceding the survey (46.3, 51.5, and 68.2 per cent respectively).

4.2.6 Aircraft airworthiness

Irrespective of flight category, approximately 50 per cent (N=1,195) of pilots indicated that they had 'never' encountered deficiencies in aircraft airworthiness.

The results for all flight categories indicated that the highest proportion of pilots had 'never' encountered a significant safety deficiency with airworthiness. Results were: RPT 52.1 per cent (N=353); charter 42.2 per cent (N=199); aerial work 45.4 per cent (N=328), and private operations 54.9 per cent (N=315). Furthermore, all flight categories displayed a similar pattern in that 'never' was the most frequently stated rating, followed closely by 'rarely' and then distantly by 'sometimes', 'often' and 'very often' (see Appendix D).

4.2.7 Aircraft to aircraft communications

Thirty-three per cent of pilots (N=1,206) indicated that aircraft to aircraft communications 'sometimes' acted as a significant factor that detrimentally affected safety.

Approximately 24 per cent of all pilots, irrespective of flight category, indicated that they 'never' encountered significant safety deficiencies with aircraft to aircraft communications. The largest proportion of RPT pilots (N=354) indicated that they 'rarely' experienced safety issues with this factor (33.1%). Charter (N=201), aerial work (N=328), and private pilots (N=323) indicated that they 'sometimes' encountered significant deficiencies in aircraft to aircraft communications (37.3%, 40.2%, and 34.4%, respectively).

4.2.8 Comparison of safety deficiencies

Aircraft to aircraft communications was considered to be the most frequently experienced safety deficiency by pilots across all of the flight categories. Issues with meteorological information and aircraft maintenance were identified by pilots to be the next most significant safety deficiency. The least significant factors rated by pilots were aircraft weight and balance, and aircraft airworthiness. Overall, there were no factors that pilots considered to 'often' or 'very often' have a significant detrimental effect on safety.

5 GREATEST HAZARD OR PROBLEM CURRENTLY AFFECTING FLIGHT SAFETY

Pilots were asked to identify three of the greatest hazards or problems currently affecting flight safety in Australia. As pilots were not asked to rate their responses in order of severity, all responses were incorporated into one data set. Responses were recoded into 12 top-level categories:

- air space management (e.g. NAS confusion about airspace rules)
- air traffic control (e.g. peak high workload on ATC)
- collision with airborne object (e.g. bird strike)
- communication issues (e.g. aircraft to aircraft communications, chatter)
- fitness for duty (e.g. fatigue – shifts longer than 10hrs)
- flight planning (e.g. pre-flight planning and preparation)
- maintenance (e.g. aging aircraft)
- operating costs (e.g. government charges)
- organisation issues (e.g. less money for training)
- procedures and regulations (e.g. lack of understanding)
- training and experience (e.g. lack of refresher training)
- other (e.g. insufficient accident investigation – only fatal accidents).

Within each of these categories various sub-components were identified (Table 6). Examples of each sub-component are in Appendix E.

This section has been divided into two groups: private and commercial (RPT, charter and aerial work) operations. An overall summary of the most common hazards or problems has been provided for each group and the sub-components for each hazard or problem has been addressed. Tables containing frequencies for each of the top level categories and sub-components are in Appendix F.

Table 6: Top level categories and each of the sub-components

Air Space Management	• See and avoid • NAS reforms • Terminal controls (e.g. MBZ, tower hours, etc) • Airspace management general
Air Traffic Control	• Cutbacks/overwork/staffing issues • Unrealistic expectations • ATC non-compliance with procedures • ATC – general
Collision with Airborne Object	• Parachute operations • Bird strike • Wire strike • Military aircraft • Other – midair
Communication Issues	• Pilot-pilot • Pilot-ground (ATC, etc) • Technical issues with radio • Non-compliance with radio procedures • Communication issues – general
Fitness for Duty	• Fatigue/duty time pressures • Physical/mental fitness • Alcohol • Stress
Flight Planning	• General lack of flight planning • Fuel management • Weather forecast/NOTAM issues (readability, etc)
Maintenance	• Aging aircraft • Aircraft maintenance • Facility maintenance
Operating Costs	• Costs – general • Maintaining currency (operating cost)
Organisational Issues	• Pilot attitude/safety culture • Political interference in safety management • Commercial pressures • Organisational – general
Procedures and Regulation	• Regulation – general • Rate of change of regulations • Over-regulation • Surveillance (too much, not enough, inappropriate, etc) • Complexity • Non-compliance with procedures general • Procedures – general
Training and Experience	• Quality of training • Thoroughness • Inexperienced instructors • Ongoing training • Currency (training and experience) • Inexperience – general • Effects of automation on skill levels (GPS, FANS, etc)
Other	• Security concerns • Weather/pressing on • Congestion • Facilities • Other

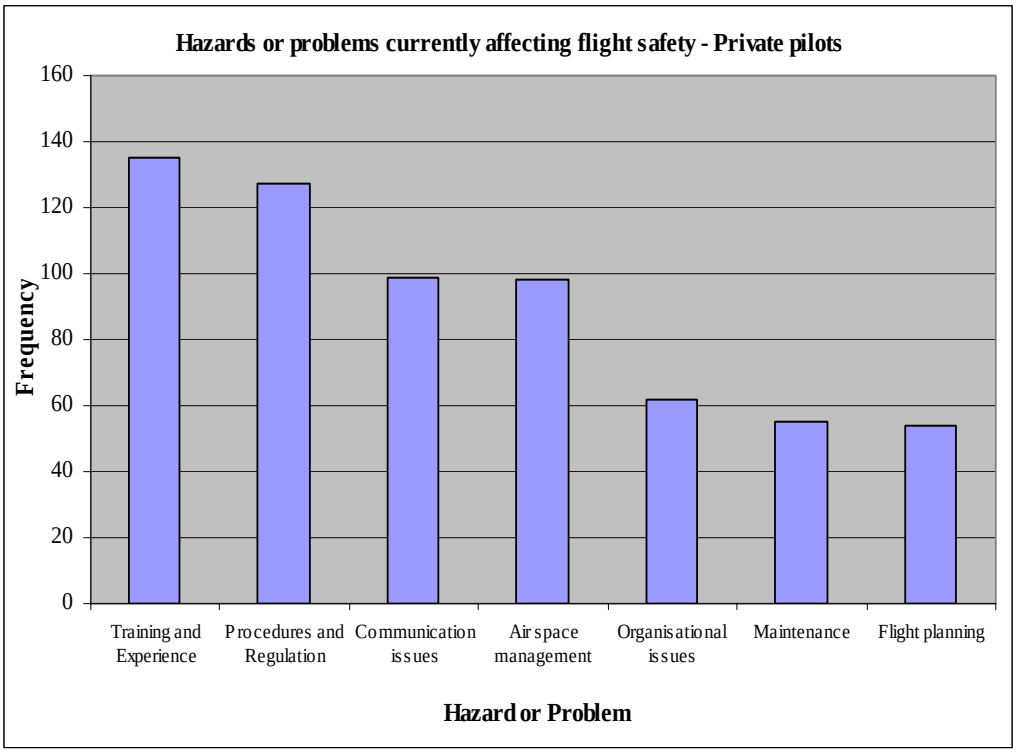
5.1 Private pilots

Of the 324 respondents, 292 (90.1%) identified 760 hazards or problems currently affecting flight safety in Australia (Figure 8). The seven most frequently identified hazards or problems were:

- training and experience (N=135)
- procedures and regulations (N=127)
- communication issues (N=99)
- air space management (N=98)
- organisational issues (N=62)
- maintenance (N=55)
- flight planning (N=54).

The full table of values is in Appendix F.

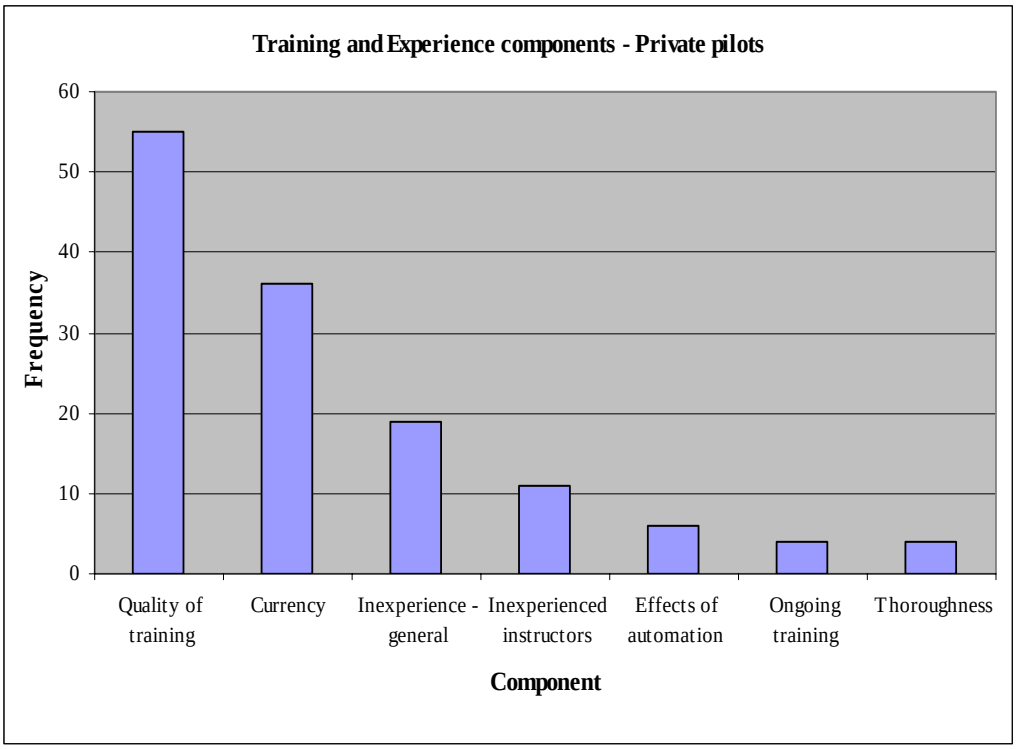
Figure 8: The seven primary hazards identified by private pilots as affecting flight safety



5.1.1 Training and experience

The category 'training and experience' consisted of six components (Figure 9). The most frequently identified component was quality of training (N=55), followed by currency (N=36), inexperience – general (N=19), inexperienced instructors (N=11), effects of automation on skill level (e.g. Global Positioning System [GPS], Future Air Navigation System [FANS]; N=6), ongoing training (N=4), and thoroughness of training (N=4).

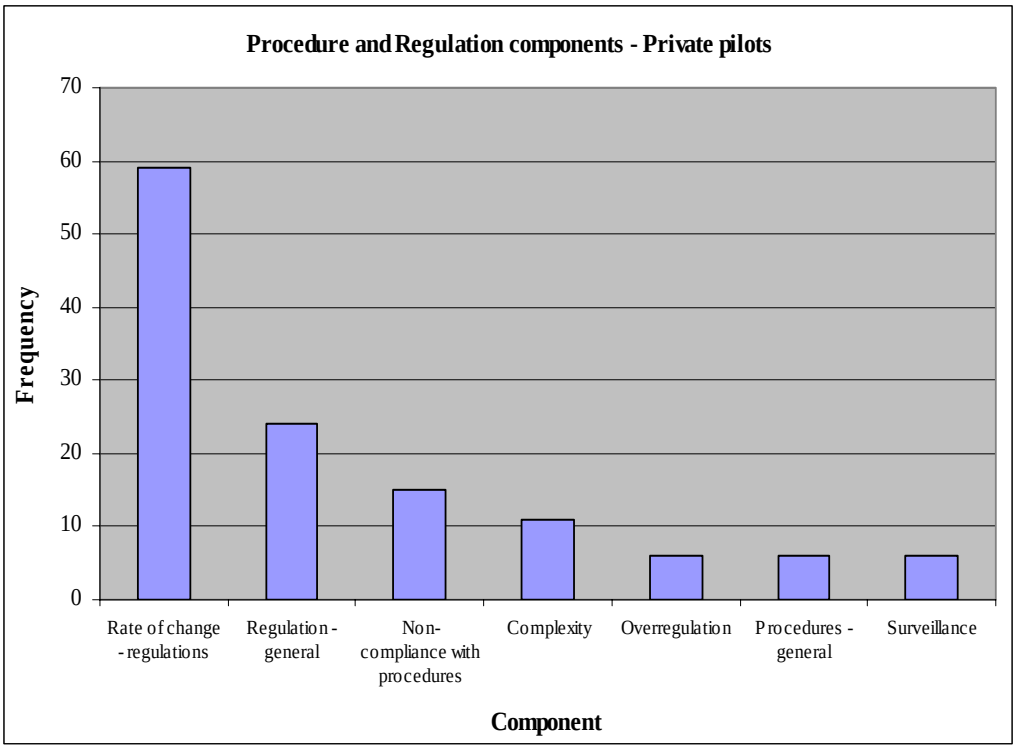
Figure 9: The seven 'training and experience' components for private pilots



5.1.2 Procedures and regulations

Procedures and regulations consisted of seven components (Figure 10). The most frequently identified hazard or problem was the rate of change of regulations (N=59); regulations – general (N=24); non-compliance with procedures (N=15); complexity (N=11); over-regulation (N=6); procedures – general (N=6); and surveillance – too much, not enough, etc (N=6).

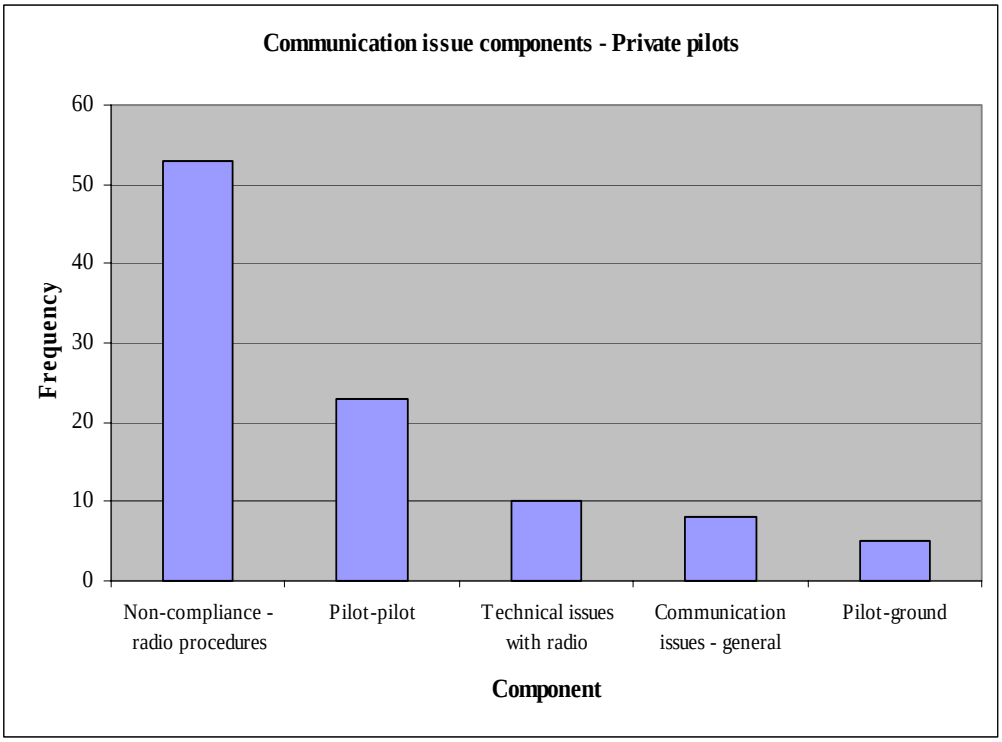
Figure 10: The seven 'procedures and regulations' components for private pilots



5.1.3 Communication issues

Five components were determined for communication issues (Figure 11). Results were: non-compliance with radio procedures (N=53); pilot-to-pilot communications (N=23); technical issues with the radio (N=10); communication issues – general (N=8); and pilot-to-ground communications (e.g. ATC etc, N=5).

Figure 11: The five 'communication issues' components for private pilots



5.1.4 Airspace management

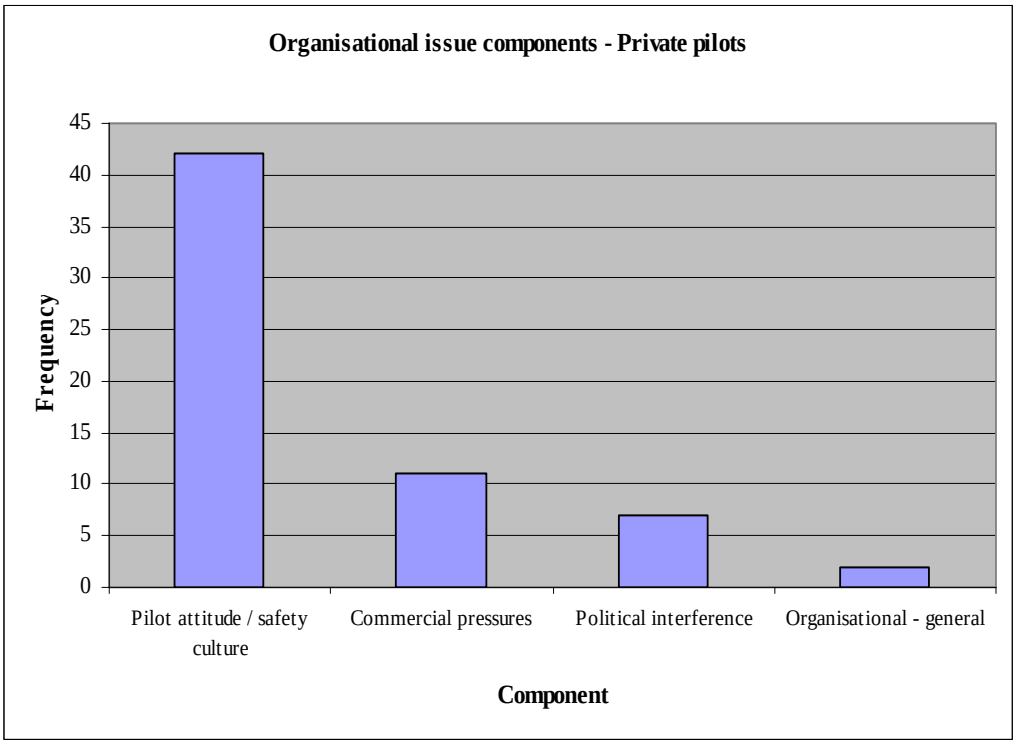
Analysis of airspace management responses identified four components (Figure 12). The most frequently identified perceived hazard or problem was National Airspace System (NAS) reforms (N=42), followed by see and avoid (N=34), terminal controls (e.g. Mandatory Broadcast Zones [MBZ], tower hours; N=12), and air space management – general (N=10). The NAS result was most likely to have been influenced by temporal factors as the survey coincided with NAS 2b reforms in November 2003 which were somewhat controversial. Subsequent amendments to these reforms occurred in November 2004.

Figure 12: The five 'airspace management' components for private pilots

5.1.5 Organisational issues

Four components were identified for organisational issues (Figure 13). Results were: pilot attitude/safety culture (N=42); commercial pressures (N=11); 'political' interference in safety management (N=7); and organisational – general (N=2).

Figure 13: The four 'organisational issues' components for private pilots



5.1.6 Maintenance

Three components were determined for maintenance issues. Private pilots identified only two of these hazards or problems. Responses were for aircraft maintenance (N=39), and aging aircraft (N=16).

5.1.7 Flight planning

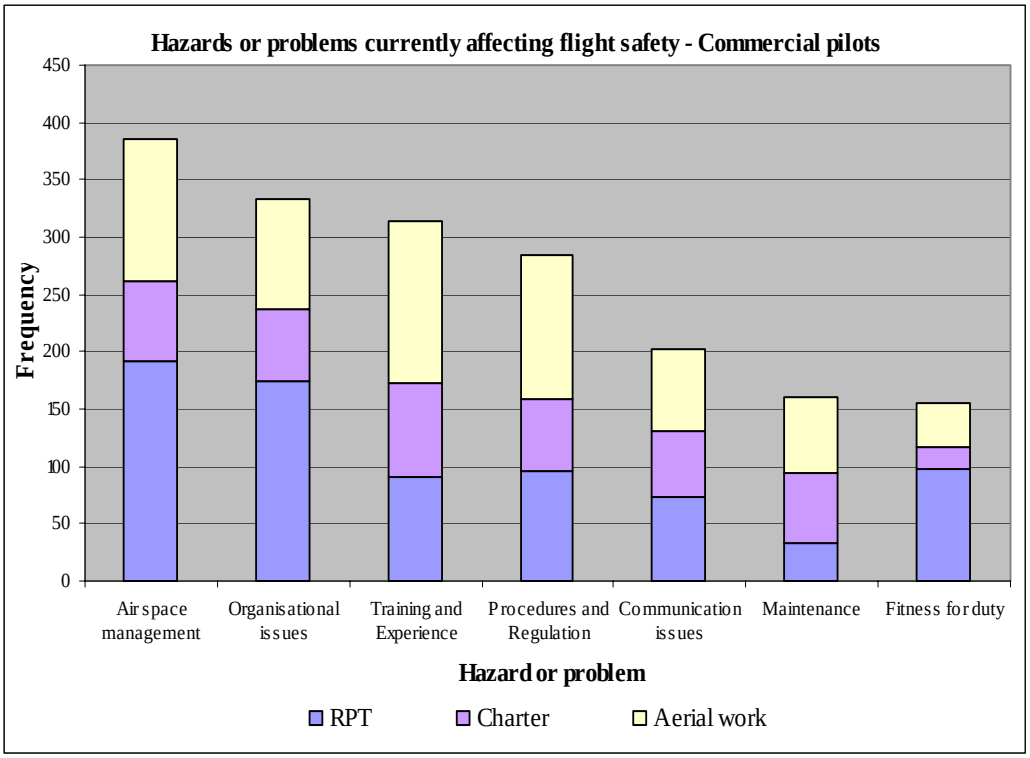
Analysis of responses for flight planning identified three components: weather forecast/NOTAM (Notice to Airmen) issues (e.g. readability, N=36); general lack of flight planning (N=16); and fuel management (N=2).

5.2 Commercial pilots

Of the 940 respondents, 820 pilots (87.2%) identified 2,202 hazards or problems currently affecting flight safety in Australia: RPT (N=337, 914 issues); charter (N=182, 486 issues); and aerial work (N=301, 802 issues).

Figure 14 illustrates the seven most frequently identified hazards or problems by all pilots and also by each flight category. These were: airspace management (N=385); organisational issues (N=334); training and experience (N=314); procedures and regulations (N=284); communication issues (N=203); maintenance (N=161); and fitness for duty (N=156). Appendix F contains the full table of values.

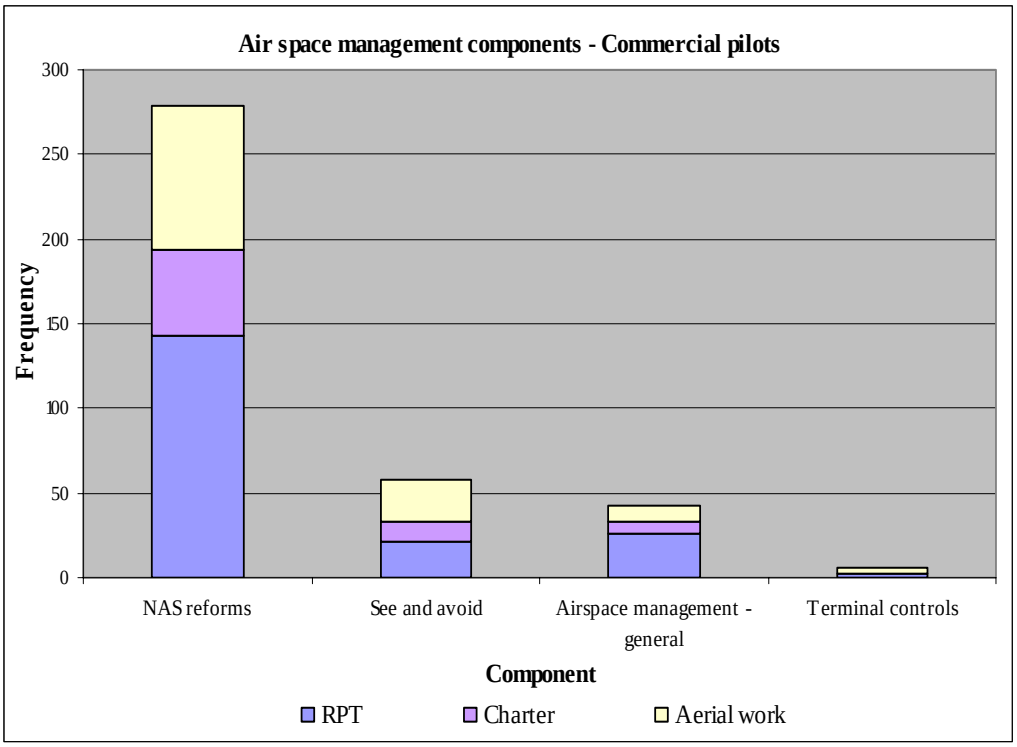
Figure 14: The seven primary hazards identified by commercial pilots as affecting flight safety



5.2.1 Air space management

Four general hazards or problems were identified for the airspace maintenance category (Figure 15). Concern with NAS reforms was the most frequently cited issue (N=279), followed by see and avoid (N=58), airspace management – general (N=42), and terminal controls (e.g. MBZ, tower hours, N=6). As noted at 5.1.4, the somewhat controversial NAS 2b reform introduction coincided with the survey.

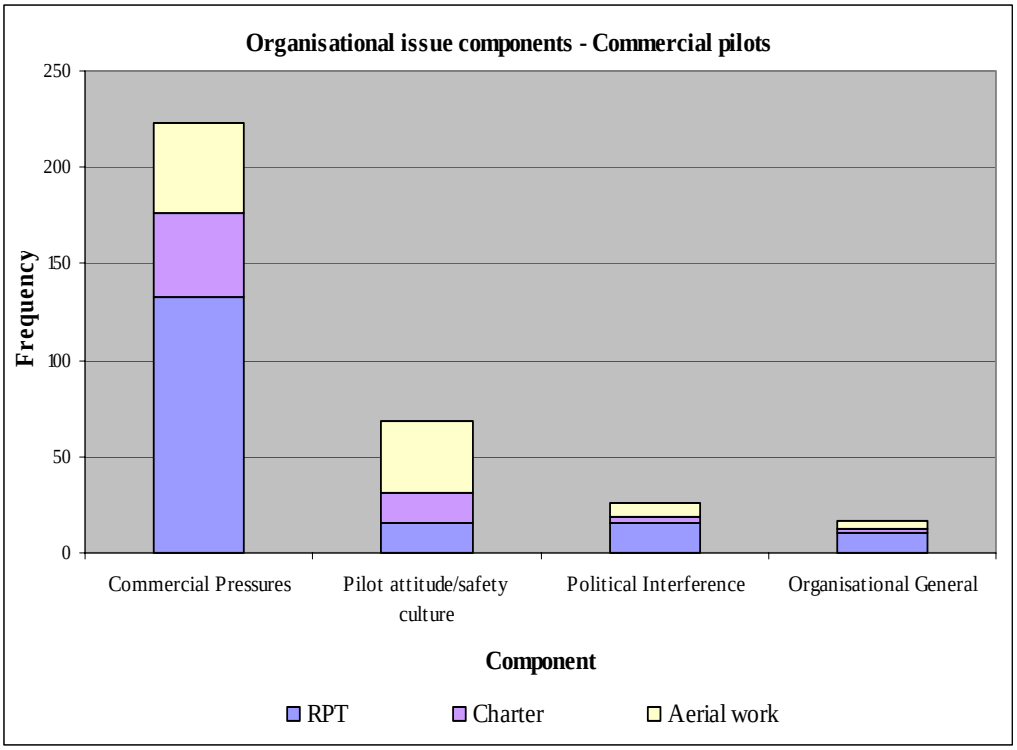
Figure 15: The four 'airspace management' components for commercial pilots



5.2.2 Organisational issues

Analysis of organisational issue responses identified four components (Figure 16). The most frequently identified hazard or problem was commercial pressures (N=223), followed by pilot attitude/safety culture (N=68), 'political' interference in safety management (N=26), and organisational – general (N=17).

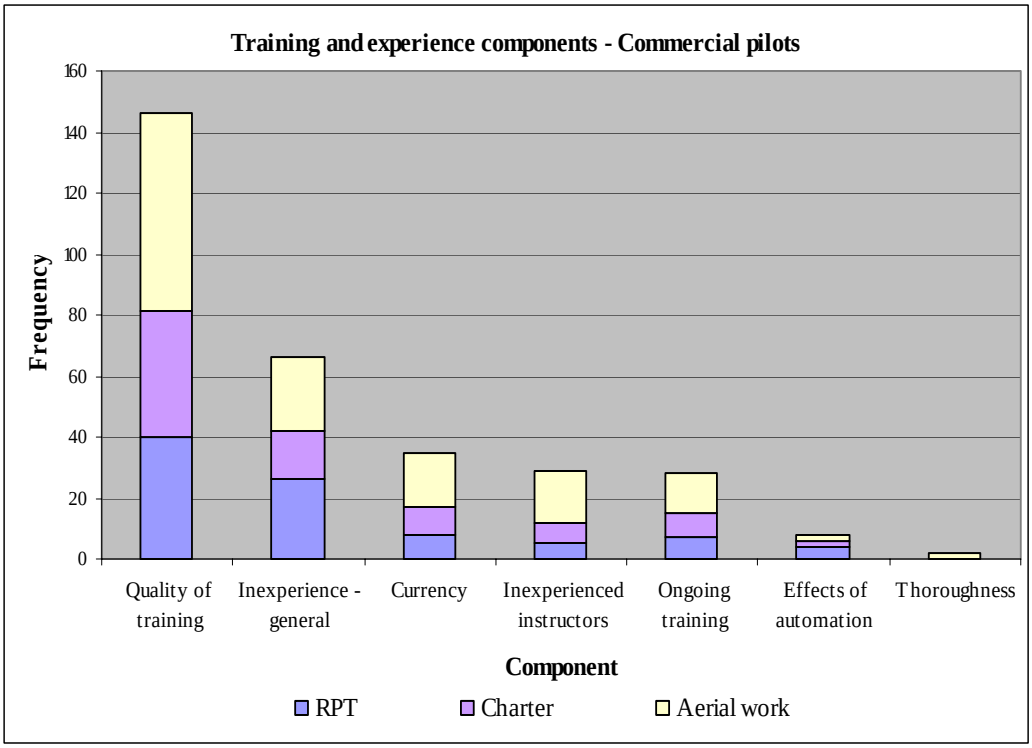
Figure 16: The four 'organisational issue' components for commercial pilots



5.2.3 Training and experience

Seven components were identified for training and experience responses of commercial pilots (Figure 17). Results were: quality of training (N=146); inexperience – general (N=66); currency (N=35); inexperienced instructors (N=29); ongoing training (N=28); effect of automation on skill levels (e.g. GPS, FANS, N=8); and thoroughness (N=2).

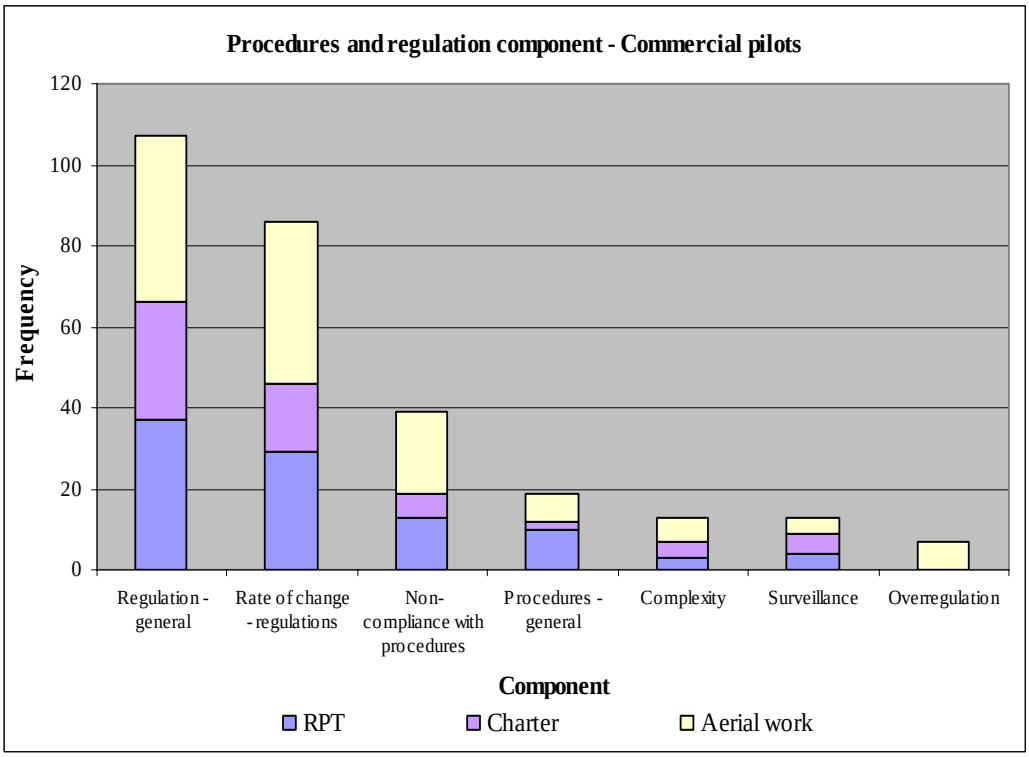
Figure 17: The seven 'training and experience' components for commercial pilots



5.2.4 Procedures and regulation

Seven general hazards or problems were identified for procedures and regulation (Figure 18). The most frequently reported issue was regulation – general (N=107), followed by rate of change – regulations (N=86); non-compliance with procedures (N=39); procedures – general (N=19); surveillance – too much, not enough, etc (N=13); complexity (N=13); and over-regulation (N=7).

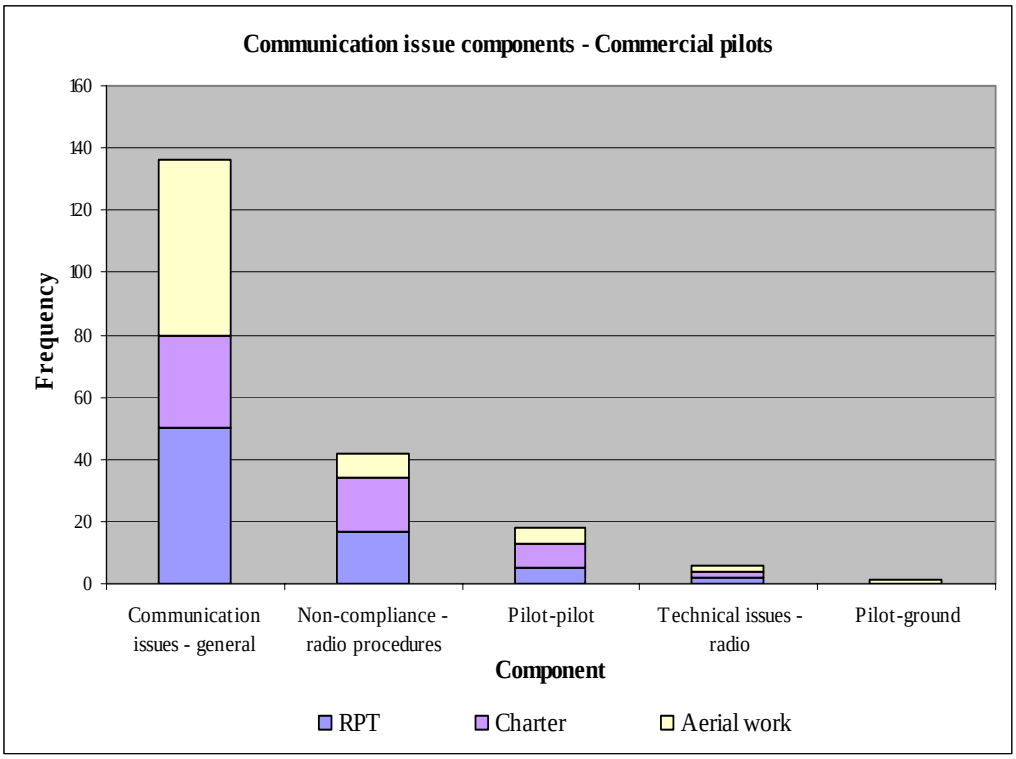
Figure 18: The seven 'procedures and regulations' components for commercial pilots



5.2.5 Communication issues

Analysis of communication issues identified five overarching hazards or problems affecting commercial pilots (Figure 19). The first of these was communication issues in general (N=136), followed by non-compliance with radio procedures (N=42); pilot-to-pilot communications (N=18); technical issues with the radio (N=6); and pilot-to-ground (e.g. ATC etc, N=1).

Figure 19: The five 'communication issue' components for commercial pilots



5.2.6 Maintenance

Three components were identified in the maintenance category. The most frequently cited hazard or problem occurred with aircraft maintenance (N=109), followed by aging aircraft (N=46), and facility maintenance (N=6).

5.2.7 Fitness for duty

Analysis of the hazards or problems identified for fitness of duty responses produced three of the four components shown in Table 6. The most frequently identified was fatigue/duty pressures (N=143), followed by stress (N=12), and alcohol (N=1).

6 INCIDENT INVOLVMENT IN THE PREVIOUS 12 MONTHS

Pilots were asked to indicate either ‘yes’ or ‘no’ to involvement in 13 incident types over the 12 months preceding the survey. These incident types were:

- violation of controlled airspace (VCA)
- failure to comply with air traffic control instructions or clearances
- unsure of position
- wheels up landing or other landing gear problem
- near collision with terrain, water or obstacle (in-flight)
- near collision with other aircraft (in-flight)
- low fuel situation (had to use reserve fuel) or other fuel-related problem
- loss of aircraft control (in-flight)
- loss of control on landing or landing roll
- weight and balance (loading) problem that affected aircraft performance
- engine failure or problem (in-flight)
- failure of critical system or component (other than engine)
- aircraft accident (substantial damage or serious injury).

See Table 7 for details.

The responses indicated that, over the 12 months preceding the survey, the vast majority of incident types occurred relatively infrequently.

6.1 Type of incident

6.1.1 Violation of controlled airspace (VCA)

Within the flying community, approximately four per cent of pilots said they were involved in a VCA in the year preceding the survey. The flight category involved least in this incident type was RPT, where less than two per cent of pilots violated controlled airspace. Aerial work and private operation pilots displayed similar results, with approximately 5.5 per cent of pilots involved in this type of incident.

6.1.2 Failure to comply with ATC instructions or clearances

Approximately nine per cent of pilots indicated that they had failed to comply with ATC instructions or clearances. Thirteen per cent of RPT pilots stated that they were involved in this type of incident compared with less than four per cent of private operations pilots.

6.1.3 Unsure of position

Over five per cent of pilots indicated that they were unsure of their position in the year preceding the survey. In excess of 11 per cent of private pilots said they experienced ambiguity in terms of their position compared with less than one per cent of RPT pilots.

6.1.4 Wheels up landing or other landing gear problem

Wheels up landings or other landing gear problems were relatively consistent across all commercial flight categories at approximately 4.5 per cent. Private operations pilots appeared to experience less occurrences of this incident type (less than two per cent of responses).

Table 7: Involvement in incident types by flight category

		Flight category				
		RPT	Charter	Aerial work	Private	Total
Violation of controlled airspace						
Yes	Count	6	9	18	17	50
	%	**1.7**	**4.4**	**5.5**	**5.3**	**4.1**
No	Count	349	194	310	306	1159
	%	**98.3**	**95.6**	**94.5**	**94.7**	**95.9**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Failure to comply with ATC instructions or clearances						
Yes	Count	46	14	34	11	105
	%	**13.0**	**6.9**	**10.4**	**3.4**	**8.7**
No	Count	309	188	294	312	1103
	%	**87.0**	**93.1**	**89.6**	**96.6**	**91.3**
Total	Count	355	202	328	323	1208
	%	**100**	**100**	**100**	**100**	**100**
Unsure of position						
Yes	Count	2	11	12	37	62
	%	**0.6**	**5.4**	**3.7**	**11.5**	**5.1**
No	Count	353	192	316	286	1147
	%	**99.4**	**94.6**	**96.3**	**88.5**	**94.9**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Wheels up landing or other landing gear problem						
Yes	Count	16	10	14	6	46
	%	**4.5**	**4.9**	**4.3**	**1.9**	**3.8**
No	Count	339	193	314	317	1163
	%	**95.5**	**95.1**	**95.7**	**98.1**	**96.2**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**

6.1.5 Near collision with terrain, water or obstacle in-flight

Both RPT and private pilots stated that they were involved in less than one per cent of incidents occasioning a near collision with terrain, water or obstacle in-flight. In the 12 months preceding the survey, pilots engaged in aerial work indicated the most involvement: 9.5 per cent experienced a near collision.

6.1.6 Near collision with other aircraft in-flight

Around 16 per cent of pilots, irrespective of flight category, responded that they were involved in a near in-flight collision with another aircraft in the year prior to the survey. The proportion was highest for aerial work operations, with over 22 per cent of pilots involved in a near collision. RPT operations had the lowest involvement with less than 11 per cent.

6.1.7 Low fuel situation (used reserve fuel) or other fuel-related problem

Based on the responses, involvement in a low fuel situation or other fuel-related problem was experienced by 5.5 per cent of pilots in 12 months preceding the survey. This pattern was relatively consistent across all flight categories.

6.1.8 Loss of aircraft control in-flight

Less than 0.5 of a percentage point of pilots indicated that they were involved in an incident where aircraft control was lost in-flight. Responses indicate that no RPT pilots experienced this incident type, compared with less than 1 per cent for each of the other flight categories.

6.1.9 Loss of control on landing or landing roll

Based on the responses, involvement in a loss of control on landing or landing roll incident was experienced by less than two per cent of pilots in the year preceding the survey. Aerial work and private pilots stated that they were involved in less than three per cent of these types of incidents, whereas RPT indicated involvement in less than one per cent.

Table 7: Involvement in incident types by flight category (continued)

		Flight category				
		RPT	Charter	Aerial work	Private	Total
Near collision with terrain, water or obstacle in-flight						
Yes	Count	3	4	31	3	41
	%	**0.8**	**2.0**	**9.5**	**0.9**	**3.4**
No	Count	352	199	297	320	1168
	%	**99.2**	**98.0**	**90.5**	**99.1**	**96.6**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Near collision with other aircraft in-flight						
Yes	Count	38	35	73	49	195
	%	**10.7**	**17.2**	**22.3**	**15.2**	**16.1**
No	Count	317	168	255	274	1014
	%	**89.3**	**82.8**	**77.7**	**84.8**	**83.9**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Low fuel situation (used reserve fuel) or other fuel-related problem						
Yes	Count	15	13	22	17	67
	%	**4.2**	**6.4**	**6.7**	**5.3**	**5.5**
No	Count	340	190	306	306	1142
	%	**95.8**	**93.6**	**93.3**	**94.7**	**94.5**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Loss of aircraft control in-flight						
Yes	Count	0	1	3	1	5
	%	**0.0**	**0.5**	**0.9**	**0.3**	**0.4**
No	Count	355	202	325	322	1204
	%	**100**	**99.5**	**99.1**	**99.7**	**99.6**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Loss of control on landing or landing roll						
Yes	Count	2	2	9	9	22
	%	**0.6**	**1.0**	**2.7**	**2.8**	**1.8**
No	Count	353	200	319	314	1186
	%	**99.4**	**99.0**	**97.3**	**97.2**	**98.2**
Total	Count	355	202	328	323	1208
	%	**100**	**100**	**100**	**100**	**100**

6.1.10 Weight and balance (loading) problem that affected aircraft performance

Approximately 4.5 per cent of pilots indicated that they had experienced weight and balance problems that affected aircraft performance. Charter pilots had the highest reported incidence of weight and balance problems at 6.4 per cent and private operations the least at 2.8 per cent.

6.1.11 Engine failure or problem in-flight

Incidents involving an engine failure or problem in-flight were relatively consistent across the commercial flight categories, with approximately 13 per cent of pilots indicating having experienced this incident type. Less than 10 per cent of private pilots stated that they had experienced this problem in the previous 12 months.

6.1.12 Failure of critical system or component other than engine

Overall, approximately 16 per cent of respondents were involved in an incident where a critical system or component other than the engine failed. RPT pilots had the highest reported incidence at around 22 per cent. Both aerial and charter categories had similar levels (approximately 15%), compared with private operations which indicated that they had experienced less than 12 per cent of incidents of this type.

6.1.13 Aircraft accident – substantial damage or serious injury

Involvement in an aircraft accident resulting is substantial damage or serious injury was experienced by approximately two per cent of pilots, based on their survey responses. The highest was aerial work at 2.4 per cent; RPT had less than one per cent.

Table 7: Involvement in incident types by flight category (continued)

		Flight category				
		RPT	Charter	Aerial work	Private	Total
Weight and balance (loading) problem that affected aircraft performance						
Yes	Count	17	13	13	9	52
	%	**4.8**	**6.4**	**4.0**	**2.8**	**4.3**
No	Count	338	190	315	314	1157
	%	**95.2**	**93.6**	**96.0**	**97.2**	**95.7**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**
Engine failure or problem in-flight						
Yes	Count	43	27	44	30	144
	%	**12.1**	**13.3**	**13.5**	**9.3**	**11.9**
No	Count	312	176	283	293	1064
	%	**87.9**	**86.7**	**86.5**	**90.7**	**88.1**
Total	Count	355	203	327	323	1208
	%	**100**	**100**	**100**	**100**	**100**
Failure of critical system or component other than engine						
Yes	Count	77	30	51	38	196
	%	**21.8**	**14.8**	**15.5**	**11.8**	**16.2**
No	Count	277	173	277	285	1012
	%	**78.2**	**85.2**	**84.5**	**88.2**	**83.8**
Total	Count	354	203	328	323	1208
	%	**100**	**100**	**100**	**100**	**100**
Aircraft accident - substantial damage or serious injury						
Yes	Count	3	4	8	3	18
	%	**0.8**	**2.0**	**2.4**	**0.9**	**1.5**
No	Count	352	199	320	320	1191
	%	**99.2**	**98.0**	**97.6**	**99.1**	**98.5**
Total	Count	355	203	328	323	1209
	%	**100**	**100**	**100**	**100**	**100**

7 LEVEL OF SAFETY IN THE PREVIOUS 12 MONTHS

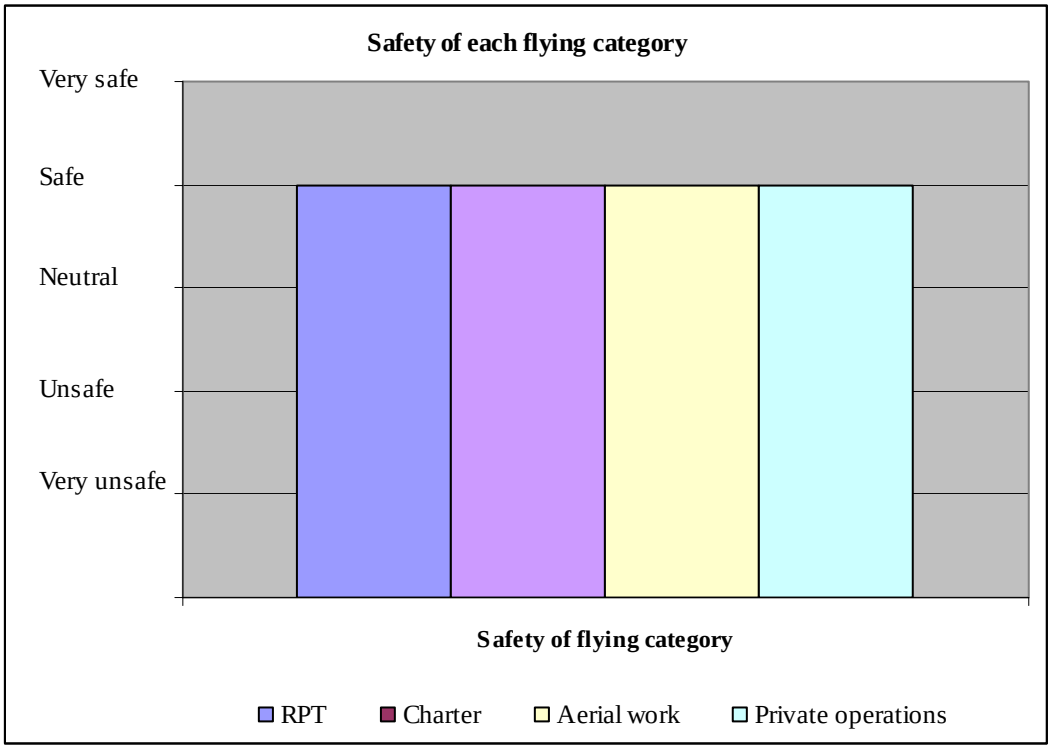
Pilots were asked to respond to two questions regarding safety in their flight category. The first was: 'over the last 12 months, how safe do you think flying was in your category of flying? (RPT, charter, agricultural, training, private, etc)'. The 5-point scale was: '1 = very unsafe', '2 = unsafe', '3 = neutral', '4 = safe', and '5 = very safe'. The second question was: 'over the last 12 months, how has the overall level of safety in your category of flying changed? (RPT, charter, agricultural, training, private, etc)'. The 5-point scale on which pilots were asked to rate the question was: '1 = very much deteriorated', '2 = deteriorated', '3 = unchanged', '4 = improved', and '5 = very much improved'. Detailed results for both questions are in Appendix G.

7.1.1 Safety of flying category

Pilots were asked how safe flying had been in their flight category in the 12 months preceding the survey. Across all flight categories, 58.6 per cent of respondents indicated that flying had been 'safe' in their category.

Figure 20 illustrates the relationship between each of the flight categories and pilots' perceptions of safety in their flying category (N=1,208). The largest proportion of pilots in all flight categories indicated that their flying category had been 'safe' in the year preceding the survey: RPT 51.3 per cent (N=355); charter 64.4 per cent (N=202); aerial work 62.6% (N=329); and private operations 59.0 per cent (N=322). The rating of 'safe' was followed by 'very safe' (25.7%), 'neutral' (12.4%), 'unsafe' (3.1%), and 'very unsafe' (0.2%).

Figure 20: Level of safety by each flying category

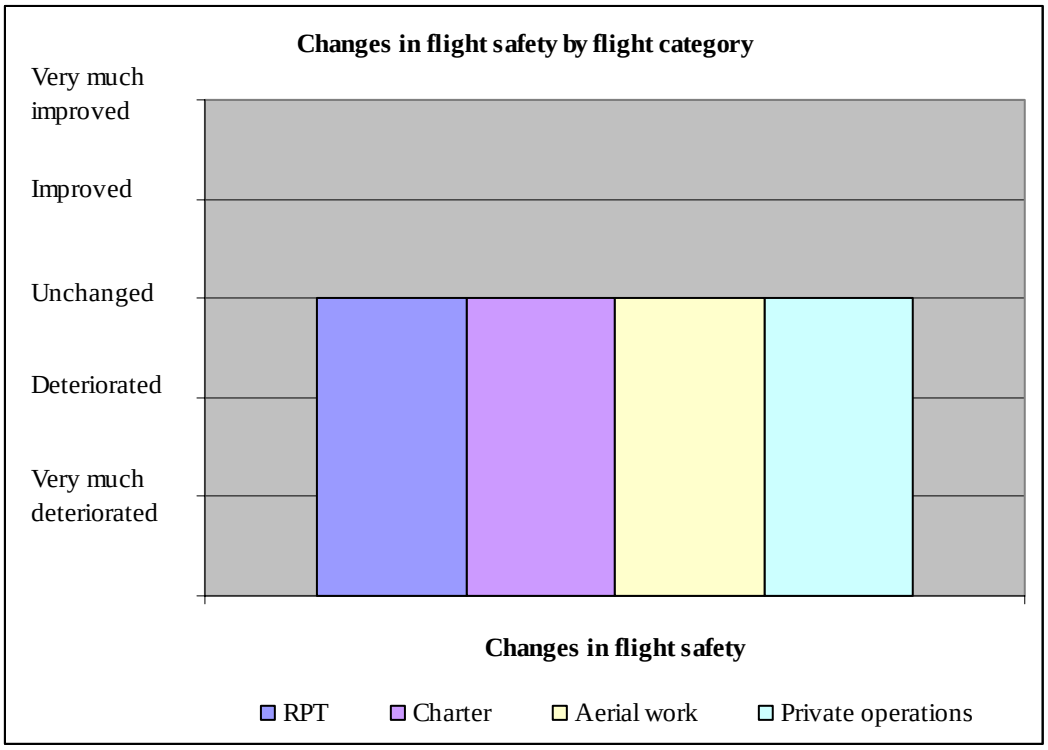


7.1.2 Changes in flight safety

Pilots were asked whether the overall level of safety in their flight category had changed over the previous 12 months. Across all flight categories, 64.6 per cent of pilots indicated that the level of safety in their category of flying had remained 'unchanged'.

The relationship between pilots' perception of changes in their flight category over the previous 12 months and each of the flight categories is shown in Figure 21. The largest percentage of pilots in all flight categories indicated that safety in their flight category had remained unchanged: RPT 64.0 per cent (N=353); charter 65.8 per cent (N=202); aerial work 61.4 per cent (N=329); and private operations 67.9 per cent (N=321). The rating of 'unchanged' was followed by 'improved' (18.0%) and 'deteriorated' (15.5%). The proportions for 'very much improved' and 'very much deteriorated' were similar (1.0% and 0.8% respectively).

Figure 21: Changes in safety level by each flight category



8 CONCLUSIONS

The aim of this study was to communicate pilots' perceptions and experiences of safety to the wider flying community in the hope that increased knowledge and insight could lead to improved safety. Approximately 1,211 pilots provided information by answering a series of questions designed to identify how various factors affected safety.

When asked to rate a number of issues according to their negative effect on safety, pilots generally determined that lack of pilot skill, knowledge or experience, and to a lesser extent fatigue and personal stress, had a greater detrimental effect than alcohol, drugs or medications, or medical conditions. Pilots indicated that the largest deficiency in safety they experienced was related to aircraft to aircraft communication. Aircraft maintenance and meteorological information were considered to be the next most important factors affecting safety. However, none of the areas of interest were considered by pilots to 'often' or 'very often' have a significant detrimental effect on safety.

Responses from commercial and private operations indicated that irrespective of type of flying activity, pilots generally identified similar hazards or problems as affecting flight safety: their order of importance, however, varied slightly. This finding suggests that there is some agreement on what pilots, irrespective of flying purpose or occupation, perceive as problematic or having a negative impact on their safety.

Irrespective of flight category, approximately 59 per cent of pilots indicated that their flying category had been 'safe' during the 12-month period preceding the survey; 65 per cent of pilots indicated that the level of safety in their flying category had remained 'unchanged'.

9 APPENDIX A – SURVEY PART B QUESTIONS ADDRESSED IN THIS REPORT

Please respond to the following questions in terms of your flying experience in the last 12 months. This information will be analysed in large groups, **individual responses will remain confidential.**

39. How often did you personally seen the following influences **negatively** affect flight safety in Australia in the **last 12 months**?

		Very Often	Often	Sometimes	Rarely	Never
a)	Lack of pilot skill, knowledge or experience	1	2	3	4	5
b)	Fatigue	1	2	3	4	5
c)	Alcohol, drugs or prescribed medication abuse	1	2	3	4	5
d)	Medical conditions	1	2	3	4	5
e)	Personal stress	1	2	3	4	5

40. How often did you personally encounter safety deficiencies in the following areas in Australia in the **last 12 months**?

		Very Often	Often	Sometimes	Rarely	Never
a)	Air traffic control	1	2	3	4	5
b)	Meteorological information	1	2	3	4	5
c)	Aircraft maintenance	1	2	3	4	5
d)	Aircraft weight and balance	1	2	3	4	5
e) f)	Runways and runway facilities (lights, signs etc.)	1	2	3	4	5
g)	Aircraft airworthiness	1	2	3	4	5
h)	Aircraft to aircraft communications	1	2	3	4	5

41. Please state what you consider to be the three (3) biggest safety hazards or problems affecting flight safety at the present time.

a)
b)
c)

42. Please indicate if you have been involved in any of the following types of flight safety incidents in the **last 12 months**.

a) Violation of controlled airspace (VCA)	❑ Yes	❑ No
b) Failure to comply with air traffic control instructions or clearances.	❑ Yes	❑ No
c) Unsure of position (due to bad weather or lack of charts)	❑ Yes	❑ No
d) Wheels up landing or other landing gear problem	❑ Yes	❑ No
e) Near collision with terrain, water or obstacle (in-flight)	❑ Yes	❑ No
f) Near collision with other aircraft (in-flight)	❑ Yes	❑ No
g) Low fuel situation (had to use reserve fuel) or other fuel related problem	❑ Yes	❑ No
h) Loss of aircraft control (in-flight)	❑ Yes	❑ No
i) Loss of control on landing or landing roll	❑ Yes	❑ No
j) Weight and balance (loading) problem that affected aircraft performance	❑ Yes	❑ No
k) Engine failure	❑ Yes	❑ No
l) Failure of critical system or component (other than engine)	❑ Yes	❑ No
m) Aircraft accident (substantial damage or serious injury)	❑ Yes	❑ No

	Very Unsafe	Unsafe	Neutral	Safe	Very Safe
43. Over the **last 12 months**, how safe do you think flying was in your category of flying (RPT, charter, agricultural, training etc.)	1	2	3	4	5

	Very Much Deteriorated	Deteriorated	Unchanged	Improved	Very Much Improved
44. Over the **last 12 months**, how has the overall level of safety in your category of flying changed? (RPT, charter, agricultural, training etc.)	1	2	3	4	5

10 APPENDIX B – DEMOGRAPHIC INFORMATION ON AUSTRALIAN PILOTS

Pilot age range by flight category

Age Range		RPT	Charter	Aerial work	Private operations	Total
Under 29	Count	17	31	26	19	93
	%	**4.8**	**15.4**	**7.9**	**5.9**	**7.7**
30-39	Count	74	41	65	35	215
	%	**21.0**	**20.4**	**19.8**	**10.9**	**17.9**
40-49	Count	107	40	81	61	289
	%	**30.4**	**19.9**	**24.7**	**18.9**	**24.0**
50-59	Count	134	69	92	96	391
	%	**38.1**	**34.3**	**28.0**	**29.8**	**32.5**
60-69	Count	20	16	55	77	168
	%	**5.7**	**8.0**	**16.8**	**23.9**	**14.0**
70 & Over	Count	0	4	9	34	47
	%	**0.0**	**2.0**	**2.7**	**10.6**	**3.9**
Total	Count	352	201	328	322	1203
	%	**100**	**100**	**100**	**100**	**100**

Aggregated flying hours by flight category

Aggregated flying hours		RPT	Charter	Aerial work	Private operations	Total
Less than 50 hrs	Count	1	17	19	226	263
	%	**0.3**	**8.4**	**5.8**	**70.0**	**21.8**
51 - 150 hrs	Count	4	33	47	73	157
	%	**1.1**	**16.3**	**14.3**	**22.6**	**13.0**
151 - 250 hrs	Count	10	30	44	14	98
	%	**2.8**	**14.9**	**13.4**	**4.3**	**8.1**
251 - 350 hrs	Count	16	25	61	2	104
	%	**4.6**	**12.4**	**18.6**	**0.6**	**8.6**
351 - 450 hrs	Count	30	36	45	2	113
	%	**8.5**	**17.8**	**13.7**	**0.6**	**9.4**
451 - 550 hrs	Count	28	24	38	2	92
	%	**8.0**	**11.9**	**11.6**	**0.6**	**7.6**
551 - 650 hrs	Count	82	16	46	2	146
	%	**23.4**	**7.9**	**14.0**	**0.6**	**12.1**
651 - 750 hrs	Count	105	16	15	0	136
	%	**29.9**	**7.9**	**4.6**	**0.0**	**11.3**
751 - 850 hrs	Count	61	4	4	1	70
	%	**17.4**	**2.0**	**1.2**	**0.3**	**5.8**
851 - 2100 hrs	Count	14	1	9	1	25
	%	**4.0**	**0.5**	**2.7**	**0.3**	**2.1**
Total	Count	351	202	328	323	1204
	%	**100**	**100**	**100**	**100**	**100**

Type of flying operation by flight category

Type of flying operation		RPT	Charter	Aerial work	Private operations	Total
Single pilot – VFR	Count	0	99	201	261	561
	%	**0.0**	**48.8**	**61.1**	**80.6**	**46.3**
Single pilot – IFR	Count	10	62	74	44	190
	%	**2.8**	**30.5**	**22.5**	**13.6**	**15.7**
Two (or more) pilots – VFR	Count	6	0	27	14	47
	%	**1.7**	**0.0**	**8.2**	**4.3**	**3.9**
Two (or more) pilots – IFR	Count	339	42	27	5	413
	%	**95.5**	**20.7**	**8.2**	**1.5**	**34.1**
Total	Count	355	203	329	324	1211
	%	**100**	**100**	**100**	**100**	**100**

Number of engines by flight category

Engine number		RPT	Charter	Aerial work	Private operations	Total
Single engine	Count	3	87	221	263	574
	%	**1.0**	**44.8**	**69.7**	**83.2**	**51.1**
Multi engine	Count	294	107	96	53	550
	%	**99.0**	**55.2**	**30.3**	**16.8**	**48.9**
Total	Count	297	194	317	316	1124
	%	**100**	**100**	**100**	**100**	**100**

Type of engine by flight category

Engine type		RPT	Charter	Aerial work	Private operations	Total
Piston	Count	8	99	168	236	511
	%	**2.4**	**57.6**	**62.7**	**95.5**	**49.9**
Turbo Prop	Count	85	48	77	8	218
	%	**25.2**	**27.9**	**28.7**	**3.2**	**21.3**
Jet	Count	244	25	23	3	295
	%	**72.4**	**14.5**	**8.6**	**1.2**	**28.8**
Total	Count	337	172	268	247	1024
	%	**100**	**100**	**100**	**100**	**100**

11 APPENDIX C – INFLUENCES NEGATIVELY IMPACTING FLIGHT SAFETY IN AUSTRALIA

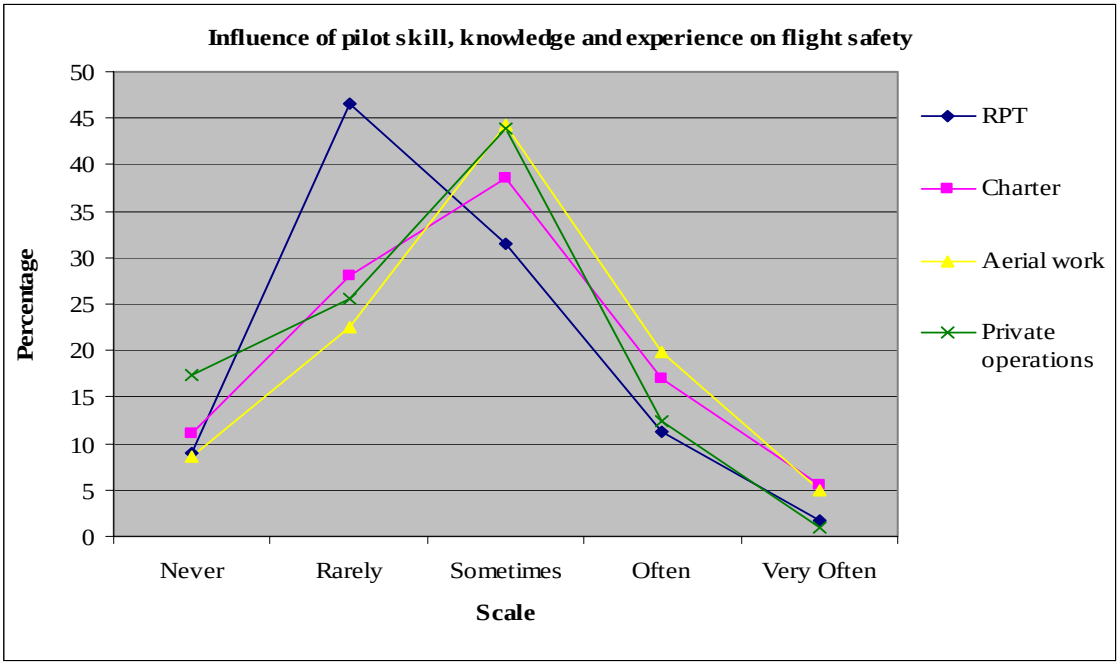
Modes (most frequently nominated rating) across all flight categories

Influences	RPT	Charter	Aerial work	Private operations	All pilots
Skill, knowledge or experience	2	3	3	3	3
Fatigue	3	2	2	1	3
Alcohol, drugs or medication	1	1	1	1	1
Medical conditions	1	1	1	1	1
Personal stress	2	2	3	1	2

NB: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Very Often

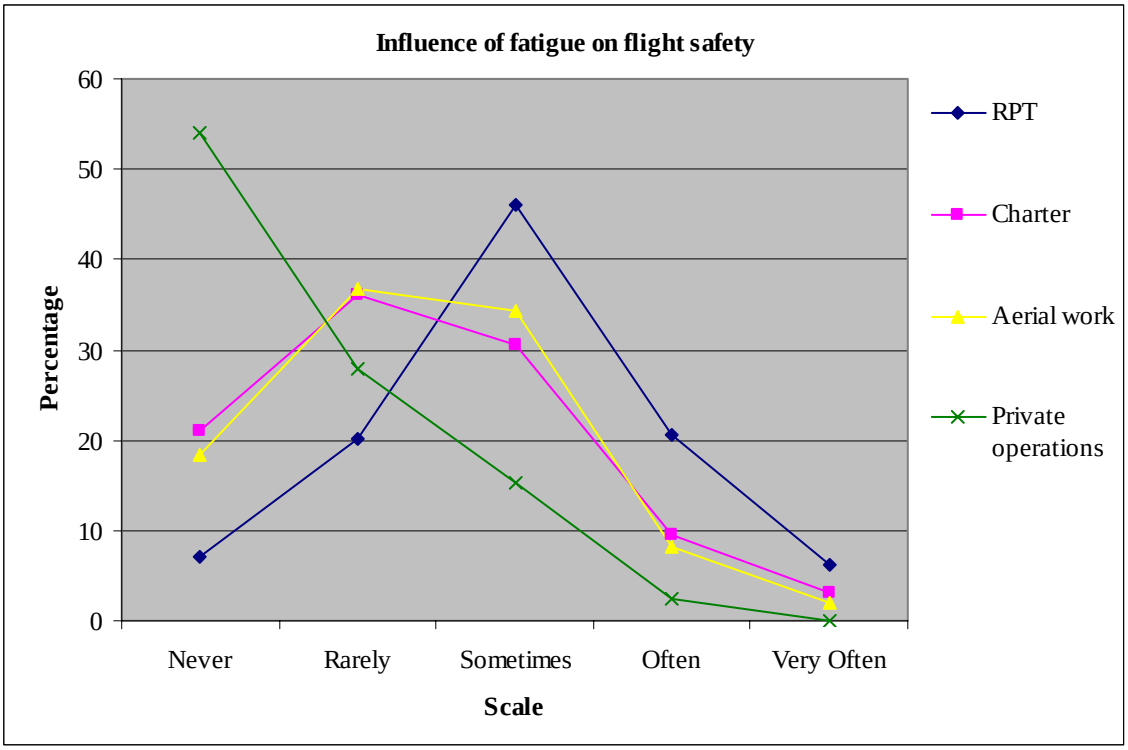
Influence of pilot skills, knowledge and experience on flight safety

Pilot skills, knowledge or experience		RPT	Charter	Aerial work	Private operations	Total
Never	Count	32	22	28	56	138
	%	**9.0**	**11.0**	**8.5**	**17.4**	**11.5**
Rarely	Count	165	56	74	82	377
	%	**46.5**	**28.0**	**22.6**	**25.5**	**31.3**
Sometimes	Count	112	77	145	141	475
	%	**31.5**	**38.5**	**44.2**	**43.8**	**39.4**
Often	Count	40	34	65	40	179
	%	**11.3**	**17.0**	**19.8**	**12.4**	**14.9**
Very Often	Count	6	11	16	3	36
	%	**1.7**	**5.5**	**4.9**	**0.9**	**3.0**
Total	Count	355	200	328	322	1205
	%	**100**	**100**	**100**	**100**	**100**



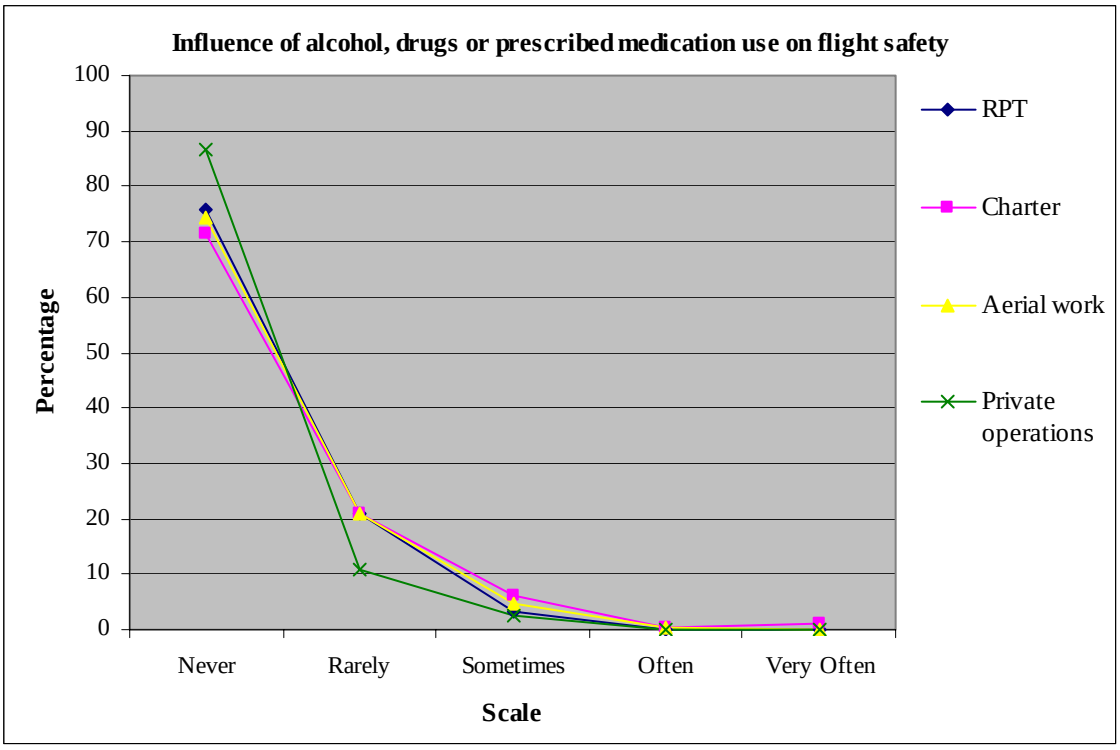
Influence of fatigue on flight safety

Fatigue		RPT	Charter	Aerial work	Private operations	Total
Never	Count	25	42	60	170	297
	%	**7.1**	**21.0**	**18.4**	**54.1**	**24.9**
Rarely	Count	71	72	120	88	351
	%	**20.1**	**36.0**	**36.8**	**28.0**	**29.4**
Sometimes	Count	163	61	112	48	384
	%	**46.0**	**30.5**	**34.4**	**15.3**	**32.2**
Often	Count	73	19	27	8	127
	%	**20.6**	**9.5**	**8.3**	**2.5**	**10.6**
Very Often	Count	22	6	7	0	35
	%	**6.2**	**3.0**	**2.1**	**0.0**	**2.9**
Total	Count	354	200	326	314	1194
	%	**100**	**100**	**100**	**100**	**100**



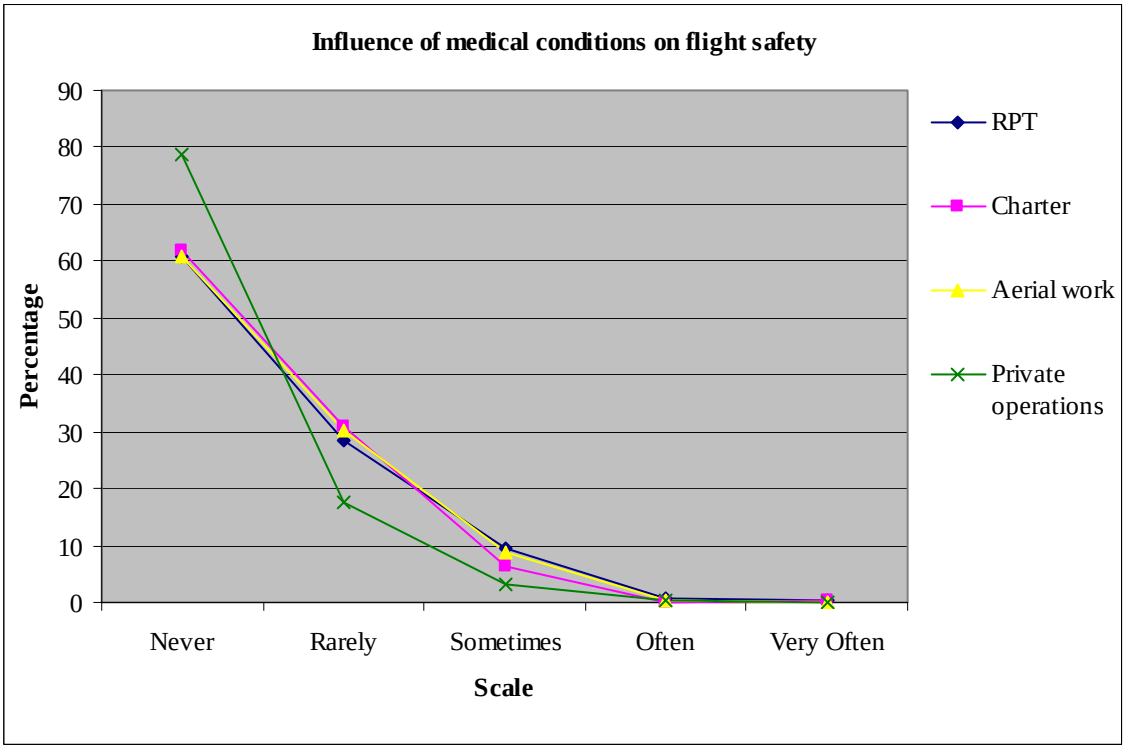
Influence of alcohol, drugs or prescribed medication use on flight safety

Alcohol, drugs or prescribed medication use		RPT	Charter	Aerial work	Private operations	Total
Never	Count	269	143	243	272	927
	%	**75.8**	**71.5**	**74.3**	**86.6**	**77.5**
Rarely	Count	74	42	68	34	218
	%	**20.8**	**21.0**	**20.8**	**10.8**	**18.2**
Sometimes	Count	12	12	15	8	47
	%	**3.4**	**6.0**	**4.6**	**2.5**	**3.9**
Often	Count	0	1	1	0	2
	%	**0.0**	**0.5**	**0.3**	**0.0**	**0.2**
Very Often	Count	0	2	0	0	2
	%	**0.0**	**1.0**	**0.0**	**0.0**	**0.2**
Total	Count	355	200	327	314	1196
	%	**100**	**100**	**100**	**100**	**100**



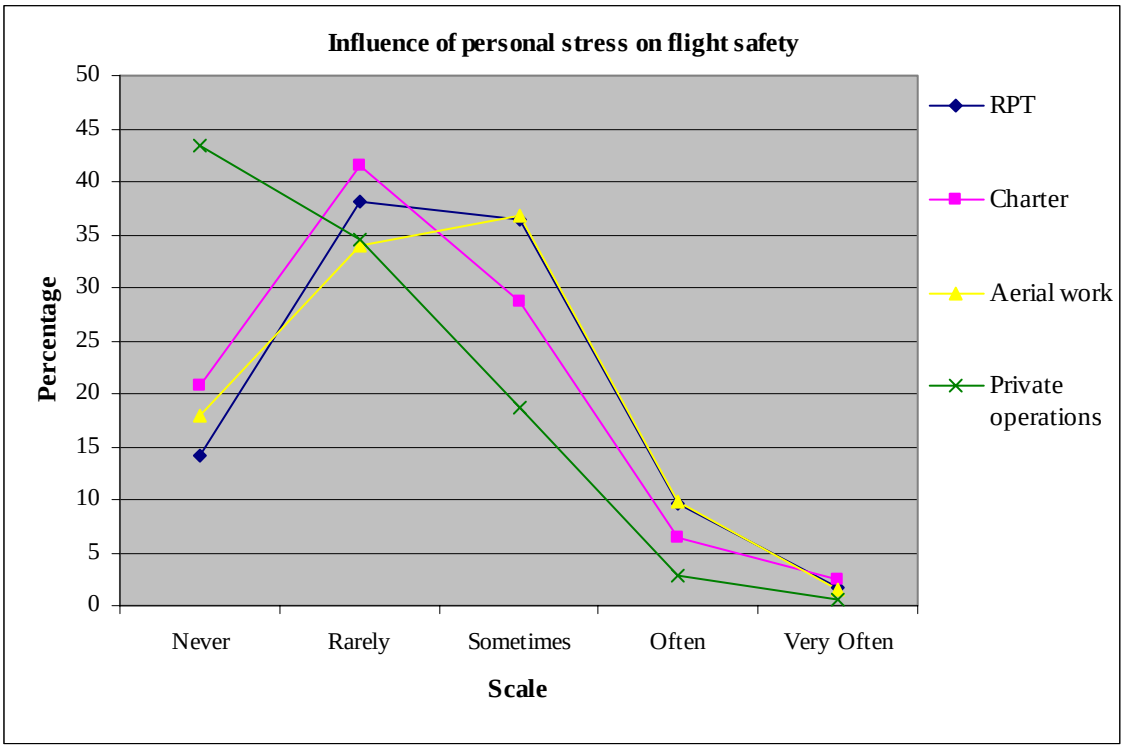
Influence of medical conditions on flight safety

Medical conditions		RPT	Charter	Aerial work	Private operations	Total
Never	Count	215	124	198	246	783
	%	**60.7**	**62.0**	**60.7**	**78.8**	**65.7**
Rarely	Count	101	62	98	55	316
	%	**28.5**	**31.0**	**30.1**	**17.6**	**26.5**
Sometimes	Count	34	13	29	10	86
	%	**9.6**	**6.5**	**8.9**	**3.2**	**7.2**
Often	Count	3	0	1	1	5
	%	**0.8**	**0.0**	**0.3**	**0.3**	**0.4**
Very Often	Count	1	1	0	0	2
	%	**0.3**	**0.5**	**0.0**	**0.0**	**0.2**
Total	Count	354	200	326	312	1192
	%	**100**	**100**	**100**	**100**	**100**



Influence of personal stress on flight safety

Personal stress		RPT	Charter	Aerial work	Private operations	Total
Never	Count	50	42	59	137	288
	%	**14.1**	**20.8**	**18.0**	**43.4**	**24.0**
Rarely	Count	135	84	111	109	439
	%	**38.1**	**41.6**	**33.9**	**34.5**	**36.6**
Sometimes	Count	129	58	120	59	366
	%	**36.4**	**28.7**	**36.7**	**18.7**	**30.5**
Often	Count	34	13	32	9	88
	%	**9.6**	**6.4**	**9.8**	**2.8**	**7.3**
Very Often	Count	6	5	5	2	18
	%	**1.7**	**2.5**	**1.5**	**0.6**	**1.5**
Total	Count	354	202	327	316	1199
	%	**100**	**100**	**100**	**100**	**100**



12 APPENDIX D – POTENTIAL SAFETY DEFICIENCIES ENCOUNTERED BY PILOTS

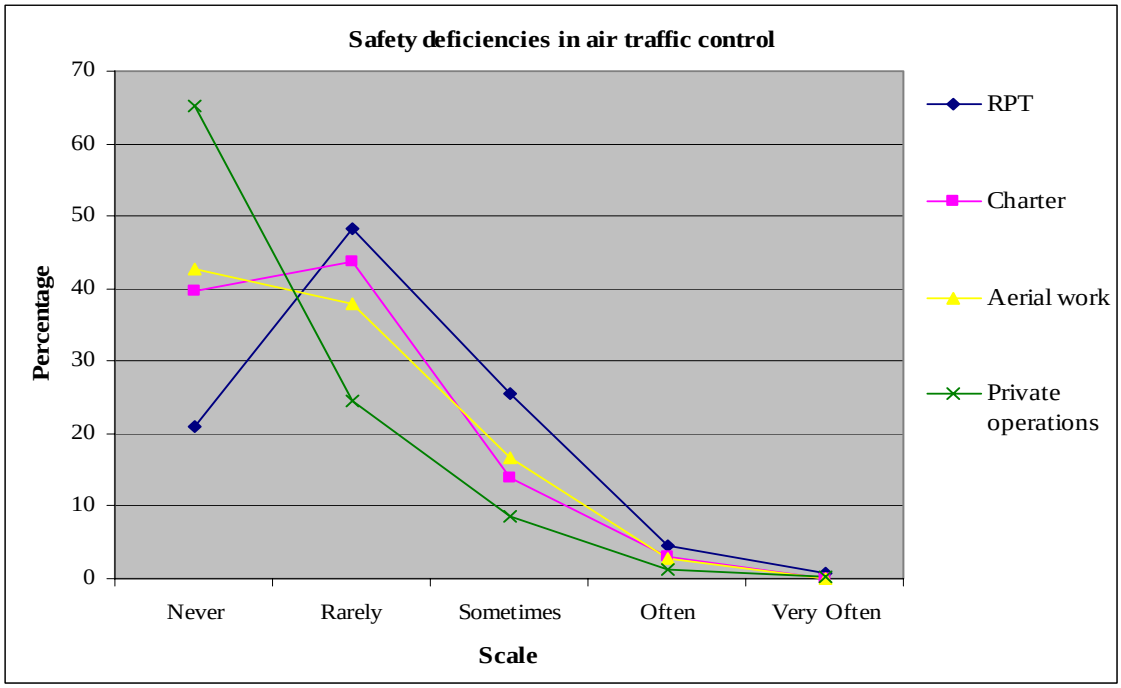
Modes (most frequently nominated rating) across all flight categories

Factor	RPT	Charter	Aerial work	Private operations	All pilots
ATC	2	2	1	1	1
Meteorological information	2	2	2	1	2
Aircraft maintenance	2	2	2	1	2
Aircraft weight and balance	1	1	1	1	1
Runways and runway facilities	2	1	1	1	1
Aircraft airworthiness	1	1	1	1	1
Aircraft to aircraft communications	2	3	3	3	3

NB: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Very Often

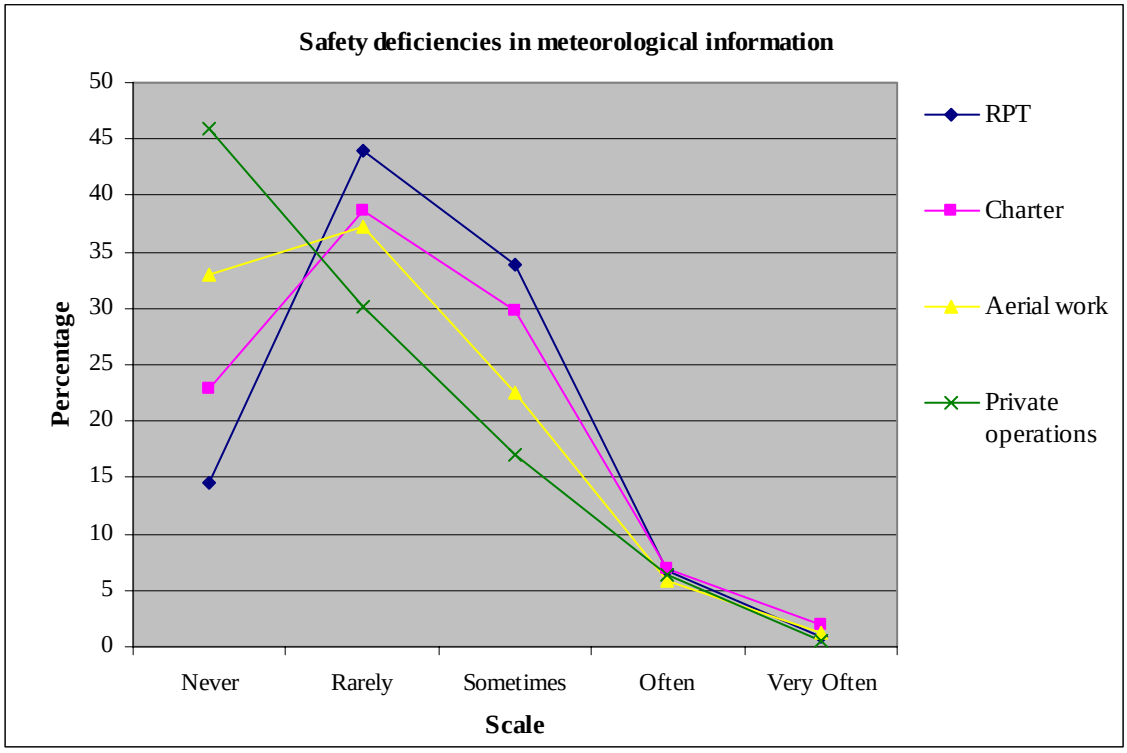
Safety deficiencies in air traffic control

Air traffic control		RPT	Charter	Aerial work	Private operations	Total
Never	Count	75	80	139	205	499
	%	**21.1**	**39.6**	**42.8**	**65.3**	**41.7**
Rarely	Count	171	88	123	77	459
	%	**48.2**	**43.6**	**37.8**	**24.5**	**38.4**
Sometimes	Count	90	28	54	27	199
	%	**25.4**	**13.9**	**16.6**	**8.6**	**16.6**
Often	Count	16	6	9	4	35
	%	**4.5**	**3.0**	**2.8**	**1.3**	**2.9**
Very Often	Count	3	0	0	1	4
	%	**0.8**	**0.0**	**0.0**	**0.3**	**0.3**
Total	Count	355	202	325	314	1196
	%	**100**	**100**	**100**	**100**	**100**



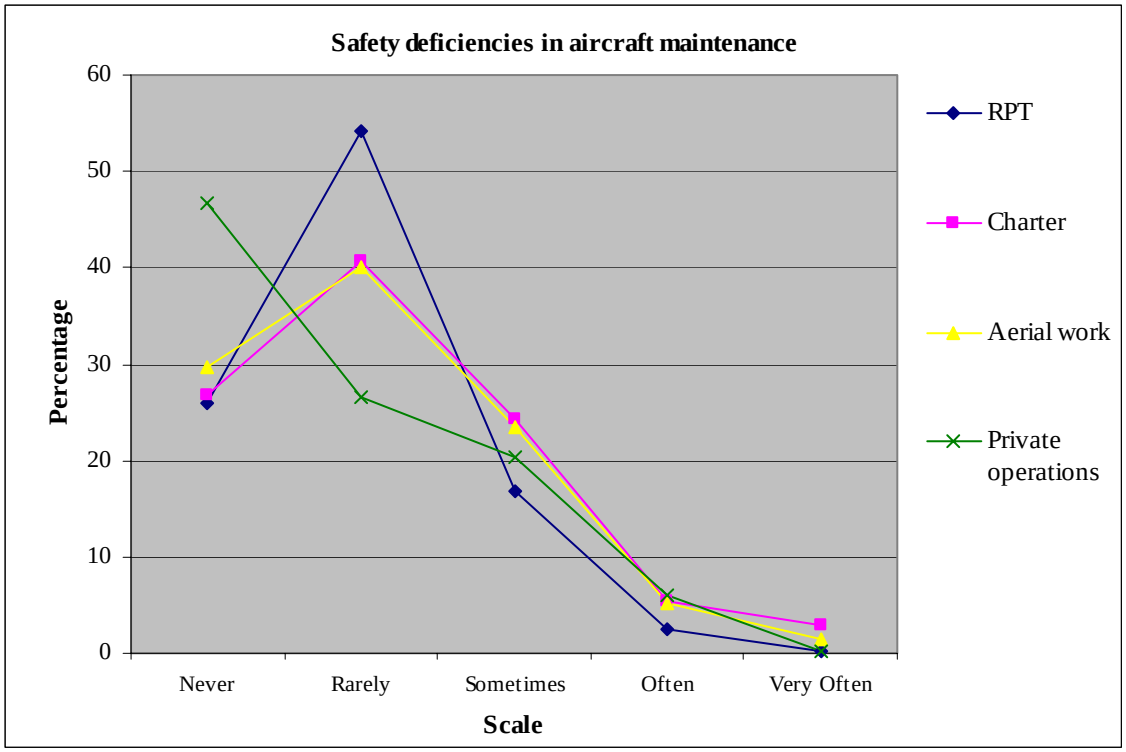
Safety deficiencies in meteorological information

Meteorological information		RPT	Charter	Aerial work	Private operations	Total
Never	Count	52	46	108	146	352
	%	**14.6**	**22.8**	**33.0**	**45.9**	**29.3**
Rarely	Count	156	78	122	96	452
	%	**43.9**	**38.6**	**37.3**	**30.2**	**37.6**
Sometimes	Count	120	60	74	54	308
	%	**33.8**	**29.7**	**22.6**	**17.0**	**25.6**
Often	Count	24	14	19	20	77
	%	**6.8**	**6.9**	**5.8**	**6.3**	**6.4**
Very Often	Count	3	4	4	2	13
	%	**0.8**	**2.0**	**1.2**	**0.6**	**1.1**
Total	Count	355	202	327	318	1202
	%	**100**	**100**	**100**	**100**	**100**



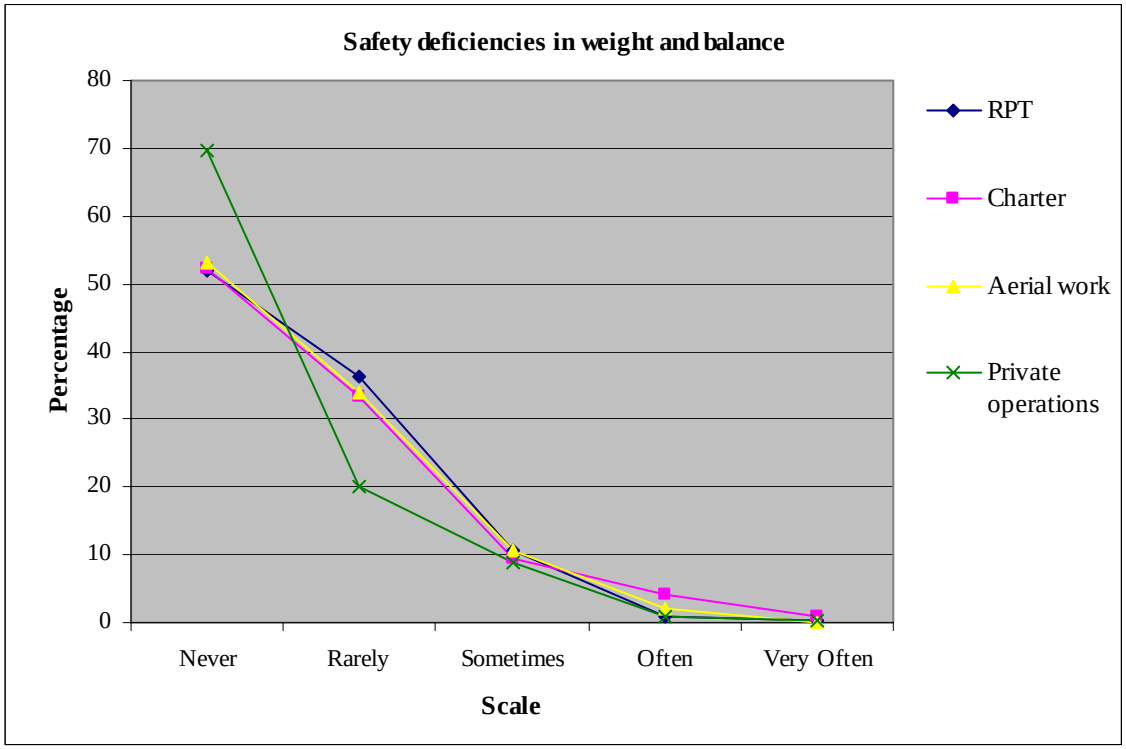
Safety deficiencies in aircraft maintenance

Aircraft maintenance		RPT	Charter	Aerial work	Private operations	Total
Never	Count	92	54	97	149	392
	%	**26.0**	**26.7**	**29.7**	**46.7**	**32.6**
Rarely	Count	192	82	131	85	490
	%	**54.2**	**40.6**	**40.1**	**26.6**	**40.8**
Sometimes	Count	60	49	77	65	251
	%	**16.9**	**24.3**	**23.5**	**20.4**	**20.9**
Often	Count	9	11	17	19	56
	%	**2.5**	**5.4**	**5.2**	**6.0**	**4.7**
Very Often	Count	1	6	5	1	13
	%	**0.3**	**3.0**	**1.5**	**0.3**	**1.1**
Total	Count	354	202	327	319	1202
	%	**100**	**100**	**100**	**100**	**100**



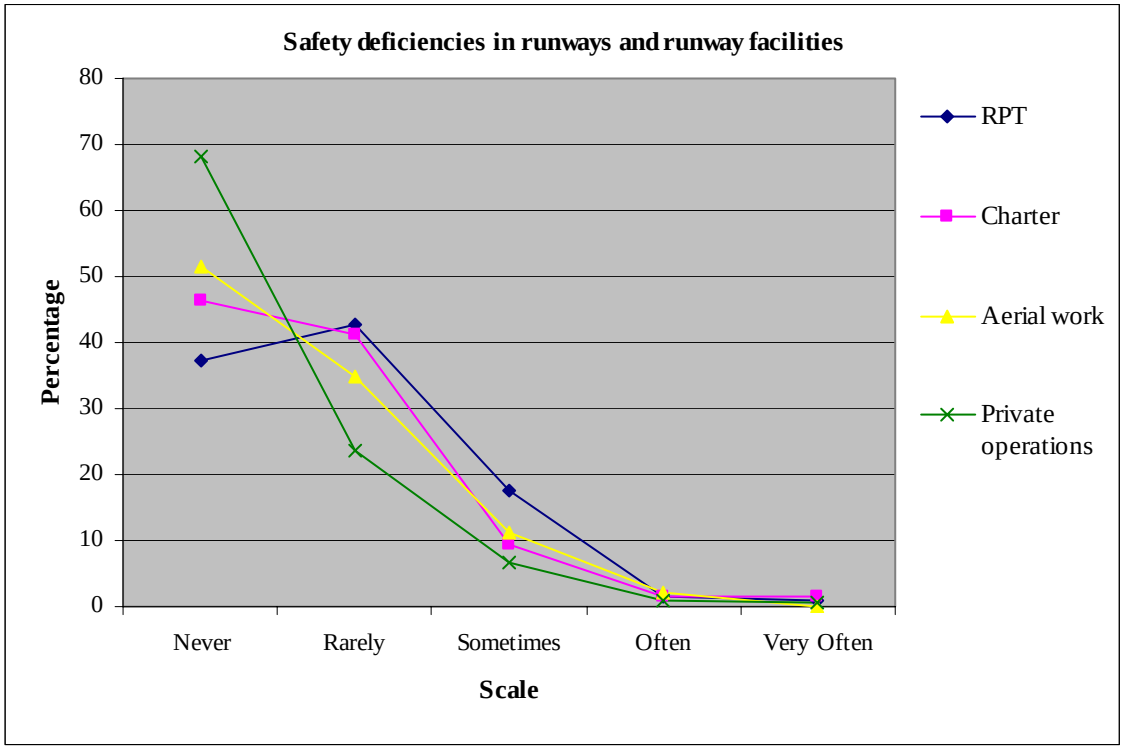
Safety deficiencies in aircraft weight and balance

Weight and balance		RPT	Charter	Aerial work	Private operations	Total
Never	Count	184	105	173	221	683
	%	**52.0**	**52.2**	**53.1**	**69.7**	**57.0**
Rarely	Count	129	67	111	64	371
	%	**36.4**	**33.3**	**34.0**	**20.2**	**31.0**
Sometimes	Count	37	19	35	28	119
	%	**10.5**	**9.5**	**10.7**	**8.8**	**9.9**
Often	Count	3	8	7	3	21
	%	**0.8**	**4.0**	**2.1**	**0.9**	**1.8**
Very Often	Count	1	2	0	1	4
	%	**0.3**	**1.0**	**0.0**	**0.3**	**0.3**
Total	Count	354	201	326	317	1198
	%	**100**	**100**	**100**	**100**	**100**



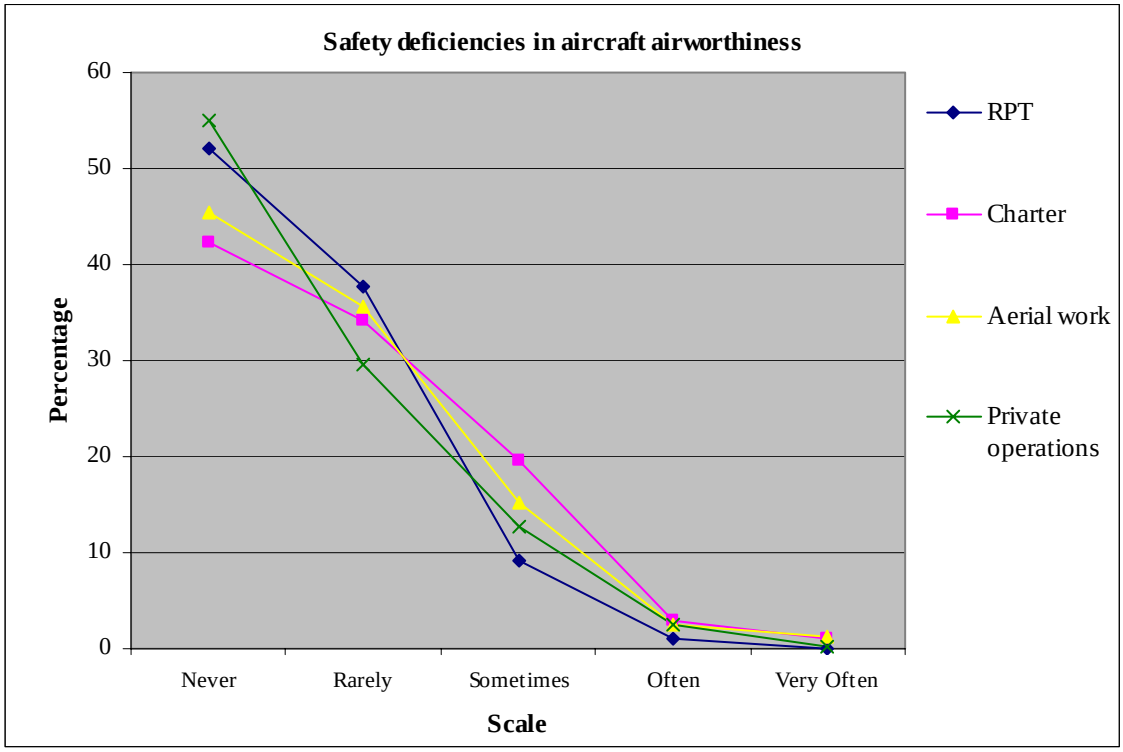
Safety deficiencies in runways and runway facilities (lights, signs, etc)

Runways		RPT	Charter	Aerial work	Private operations	Total
Never	Count	132	93	168	217	610
	%	**37.2**	**46.3**	**51.5**	**68.2**	**50.8**
Rarely	Count	152	83	114	75	424
	%	**42.8**	**41.3**	**35.0**	**23.6**	**35.3**
Sometimes	Count	63	19	37	21	140
	%	**17.7**	**9.5**	**11.3**	**6.6**	**11.7**
Often	Count	5	3	7	3	18
	%	**1.4**	**1.5**	**2.1**	**0.9**	**1.5**
Very Often	Count	3	3	0	2	8
	%	**0.8**	**1.5**	**0.0**	**0.6**	**0.7**
Total	Count	355	201	326	318	1200
	%	**100**	**100**	**100**	**100**	**100**



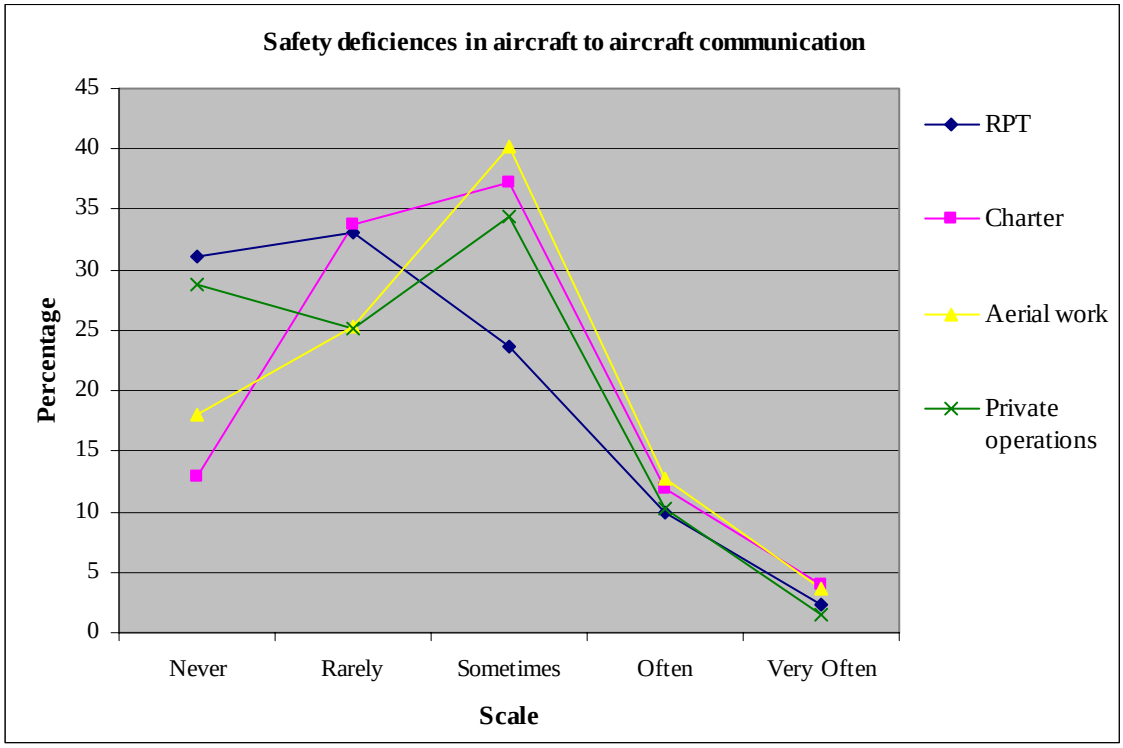
Safety deficiencies in aircraft airworthiness

Aircraft airworthiness		RPT	Charter	Aerial work	Private operations	Total
Never	Count	184	84	149	173	590
	%	**52.1**	**42.2**	**45.4**	**54.9**	**49.4**
Rarely	Count	133	68	117	93	411
	%	**37.7**	**34.2**	**35.7**	**29.5**	**34.4**
Sometimes	Count	32	39	50	40	161
	%	**9.1**	**19.6**	**15.2**	**12.7**	**13.5**
Often	Count	4	6	8	8	26
	%	**1.1**	**3.0**	**2.4**	**2.5**	**2.2**
Very Often	Count	0	2	4	1	7
	%	**0.0**	**1.0**	**1.2**	**0.3**	**0.6**
Total	Count	353	199	328	315	1195
	%	**100**	**100**	**100**	**100**	**100**



Safety deficiencies in aircraft to aircraft communications

Aircraft to aircraft communication		RPT	Charter	Aerial work	Private operations	Total
Never	Count	110	26	59	93	288
	%	**31.1**	**12.9**	**18.0**	**28.8**	**23.9**
Rarely	Count	117	68	83	81	349
	%	**33.1**	**33.8**	**25.3**	**25.1**	**28.9**
Sometimes	Count	84	75	132	111	402
	%	**23.7**	**37.3**	**40.2**	**34.4**	**33.3**
Often	Count	35	24	42	33	134
	%	**9.9**	**11.9**	**12.8**	**10.2**	**11.1**
Very Often	Count	8	8	12	5	33
	%	**2.3**	**4.0**	**3.7**	**1.5**	**2.7**
Total	Count	354	201	328	323	1206
	%	**100**	**100**	**100**	**100**	**100**



13 APPENDIX E – GREATEST HAZARD OR PROBLEM CURRENTLY AFFECTING FLIGHT SAFETY: ELEMENTS AND EXAMPLES

Location of Hazard	Element	Example
Airspace Management	See and avoid	• See and avoid – IFR pilots not looking out in VFR conditions • See and avoid – new emphasis as the primary means of collision avoidance • See and avoid – lack of lookout leading to lack of separation • Radio – VFR traffic and non-controlled aerodromes - unsighted and silent • See and avoid – over complicated tasks inhibiting lookout
	NAS reforms	• System is too complicated • Removing a radio boundaries – its unsafe we do not have 100% radar coverage • NAS– introduction of light aircraft to class E airspace with no communications potentially conflicting with jet aircraft • Deregulation, non-transponder equipped VFR aircraft • Inadequate education/briefing
	Terminal controls e.g., MBZ, tower hours, etc	• Peak traffic at non-controlled aerodromes • CTAF system means aircraft are often proximate but incommunicado on different frequencies • GAAP, MBZ and CTAF – non-standard procedures • MBZ/CTAF – arrival procedures (VFR) confusion
	Airspace management – general	• Changes to the airspace – this is a major safety issue (detrimental) • ATS charges • Mix of inexperienced pilots with commercial traffic
Air Traffic Control	Cutbacks / overworked / staffing issues	• Reduction in ATC services • Overloaded tower insufficient staff • Combining of frequencies coupled with reductions in staff levels
	Unrealistic expectations	• ATC – instructions too fast and too many • Unrealistic expectations by ATC to heavy jet operations (i.e. company speed limits on approach) • ATC – lack of operational knowledge of aircraft performance profiles, etc • Congested ATC and use of into wind runways • ATC – they often seem to be working against the pilots rather than working with the pilots
	ATC non-compliance with procedures	• ATC pushing for visual high ROD profiles • ATC last minute runway changes and SID and STAR • ATC practices in Sydney pushing for high-speed on final for traffic flow
	ATC – general	• Insufficient directed traffic information • Air traffic control procedures and standards • Over-reliance on transponders of primary ATC

Collision with Airborne Object	Parachute operations	• Parachutists dropping through cloud • Parachutists dropping onto an airport with active aircraft • Parachutists dropping when target area not in sight
	Bird strike	• Birds • Bird strike
	Wire strike	• Powerlines – disconnected from low poles • Powerlines – unmarked • Low-level operations – power and other kinds of wires
	Military aircraft	• Low-level military aircraft • Military jets in heavily flown CTAF areas
	Other midair	• Potential for midair collision on two runway aerodromes with RVAV equipped aircraft • Tail rotor strikes • Midair collisions – OCTA
Communication Issues	Pilot-pilot	• Aircraft to aircraft communication in OCTA • VFR/IFR communications • Lack of common VHS frequency for VFR and IFR aircraft in class E & G
	Pilot-ground (ATC, etc)	• The flight watch communication procedure • Radio – ATC communication too fast • Radio – aircraft to ground communication problems
	Technical issues with radio	• Downgrading of HF com systems and lack of effective communication coverage to replace HF • Poor HF reception / interference • Too many aircraft on the one CTAF frequency. Frequency congestion • No radio required in CTAF
	Non-compliance with radio procedures	• Not knowing and / or not communicating their position and / or intentions • Not broadcasting to avoid costs, etc • VFR pilots not responding to CTAF / MBZ calls
	Communication issues – general	• Radio – retransmission of high flying jets on in-bound channel • Language difficulties • Radio – lack of communication VFR/IFR aircraft
Fitness for Duty	Fatigue / duty time pressures	• Duty time limitations • Fatigue – tiring duty cycles, back of clock and crossing time zones • Fatigue on long-haul operations
	Physical / mental fitness	• Physical fitness • Mental fitness
	Alcohol	• Alcoholism among pilots – eight hours bottle to throttle is a joke • Alcohol
	Stress	• Stress • Road rage type symptoms creeping into aviation • Morale of the crew

Flight Planning	General lack of	• Not planning ahead • Flight preparation • Lack of personal pre-flight / flight planning briefing facilities
	Fuel management	• Poor fuel planning and management • Fuel management – planning and flight planning / inexperienced pilots • Fuel management – no official policy
	Weather forecast / NOTAM issues e.g., readability, etc	• Access to weather information in-flight • Inaccurate meteorological forecasting • NOTAMS – poorly written, obscure • Weather forecast – pilots knowledge of meteorological information
Maintenance	Aging aircraft	• Operation of outdated piston engine aircraft on RPT operations • Still in commercial use • Lack of modern aircraft for flight training and hire
	Aircraft maintenance	• Application of multiple MEL's • Poor maintenance caused by too high workload on LAME's • Lack of maintenance on old aircraft • Poor maintenance
	Facility maintenance	• Bush airstrips – poor standards • Councils not maintaining regional airports • Runway excursions / missed taxiways due to poor markings
Operating Costs	Costs – general	• Cost of regulatory publications • Costs – landing fees and charges • Costs at all levels especially CASA changes imposing higher levels of the necessary / mandatory administrative requirements
	Maintaining currency	• Documentation / maps cost too much for most to keep current • Lack of currency due to poor business • Costs – maintenance, currency and services deterring more experience • Currency – lack of hours flown due to cost
Organisational Issues	Pilot attitude / safety culture	• Unprofessional attitude amongst some pilots • Lack of cooperation between airline and GA pilots • Poor airmanship – the decline of by both flight crew and ATC
	Political interference in safety management	• Politics in air safety • Politically influential individuals • Upper management interference in operational safety matters • Emphasis by regulator on political correctness rather than honest decisions • Political interference – SID and STAR / noise reduction practices that put aircraft on the same runway
	Commercial pressures	• Costs – pressuring operators / pilots to take added risks • Poor pay conditions • No profit margins leading to cutting corners
	Organisational – general	• Management – lack of genuine interest in safety • Lack of consultation • Attitudes by some employers, one strike and you're out. Stops incident reporting

Procedures and Regulation	Regulation – general	• CASA – inappropriate conduct and waste of public resources • CASA – lack of resources and lack of surveillance and action • CASA the delay in producing updated understandable regulations • Lack of communication between CASA and industry • Unrealistic expectations at all levels – from customer to CASA • Reluctance to communicate with authority in case they incriminate themselves
	Rate of change of regulations	• Constant changes in airspace and procedures • Continual changes to rules and regulations – pilots unaware • Constantly changing rules and regulations – unnecessary changes
	Overregulation	• Excessive regulation and enforcement – stifling safety reporting systems • Overregulation – pilots seem more worried about paperwork than flying • CASA strong regulatory culture emphasising enforcement over safety
	Surveillance – too much, not enough, inappropriate, etc	• CASA reluctance to act on reports of suspect operators • CASA – airworthiness inspectors not being thorough with checks • Lack of regulatory enforcement and compliance • CASA – poor level of meaningful surveillance • CASA– too much pressure on certain companies
	Complexity	• Complicated new / existing rules • Complex airspace system • Trend towards increasing operational complexity in regard to ATC procedures, instrument approach, airspace
	Non-compliance with procedures –general	• Non-compliance – rule breaking or stretching • Shonky operators falsifying records to compete with commercial operators • Expecting VFR pilots to know and avoid IFR approach and holding
	Procedures – general	• Poor procedures in AIP e.g. visual approach, radio transmission • Complicated company procedures relating to operation of the aircraft • Inadequate operations manuals
Training and Experience	Quality of training	• Training – for pilots skills – checking system not harsh enough on those who don't meet standards • Poor pilot standards / no CASA testing / ATO system corrupt • Poor standard of newly inducted pilots into company • CASA should conduct examinations for instrument and instructor ratings
	Thoroughness	• Inadequate pilot proficiency – emergency operations • Training – lack of theoretical knowledge • Training – engine out twin training
	Inexperienced instructors	• Training – inexperienced pilots – low time pilots becoming instructor pilots • Level of training – most instructors have just got their licence • Lack of experience of GA instructors
	Ongoing training	• Lack of continuous training • GA pilots not keeping up with the changes • Poor or nonexistent education processes for changes in rules and regulations
	Currency	• Currency – weekend pilots • Currency / recency – up-to-date pilot knowledge • Lack of currency due to poor business

	Inexperience – general	• Lack of experience – no time co-pilot being upgraded to command with low quality / quantity of training • Exploitation of young pilots in GA • Low time pilots breaching regulations to satisfy employers
	Effects of automation on skill levels e.g., GPS, FANS, etc	• Removal of spatial awareness with the use of FANS • Loss of navigational skills through use of GPS • Over-reliance on technology, lack of understanding how the systems actually work and what they do • GPS usage degrading external lookout / situation awareness
Other	Security concerns	• Unlawful activities by passengers – air rage • Security – terrorism, hijack • Security of aircraft parked at airfields
	Weather / pressing on	• VFR pilots flying into IFR conditions • Pressing on – perceived need to get to a destination • Pressing on – into deteriorating weather
	Congestion	• GAAP – congestion and busy periods • Terminal congestion (in the terminal area and on the ground) • Traffic congested OCTA around CTRs • Peak traffic at non-controlled aerodromes
	Facilities	• lack of refuelling access at some airports • Lack of runway line approaches at regional centres • Lack of slope guidance for country airports • Non-placement of fire fighting services and meteorological information / briefing services at secondary aerodromes
	Other	• Insufficient accident investigation – only fatals • Use of NVFR rules for MPT operations and EMS/SAR operations • Cabin safety – flammable line items in hand luggage • High workloads

14 APPENDIX F – HAZARDS AND PROBLEMS IDENTIFIED BY PILOTS AS AFFECTING FLIGHT SAFETY

Private pilots

Hazard or Problem	Frequency
Training and Experience	135
Procedures and Regulation	127
Communication issues	99
Air space management	98
Organisational issues	62
Maintenance	55
Flight planning	54
Other*	48
Operating costs	41
Collision with airborne object	15
Fitness for duty	15
ATC	11
Total	760

* The 'other' category consisted for five components: security concerns, weather/pressing on, congestion, facilities, and other. The last component, 'other', consisting of hazards that could not be categorised anywhere else. Although the frequency of the overriding category, 'Other', was initially high, once this catch all group was removed it no longer resembled a primary hazard to flight safety.

Commercial pilots

Hazard or Problem	RPT	Charter	Aerial work	Total
Air space management	192	70	123	385
Organisational issues	175	63	96	334
Training and Experience	90	83	141	314
Procedures and Regulation	96	63	125	284
Communication issues	74	57	72	203
*Other	86	32	76	194
Maintenance	34	60	67	161
Fitness for duty	97	20	39	156
ATC	35	13	26	74
Flight planning	25	20	18	63
Collision with airborne object	9	2	7	18
Operating costs	1	3	12	16
Total	914	486	802	2202

* The 'Other' category consisted for five components: security concerns, weather/pressing on, congestion, facilities, and other. The last component, 'other', consisting of hazards that could not be categorised anywhere else. Although the frequency of the overriding category, 'Other', was initially high, once this catch all group was removed it no longer resembled a primary hazard to flight safety.

Air space management

Component	RPT	Charter	Aerial work	Total
See and avoid	21	12	25	58
NAS reforms	143	51	85	279
Terminal controls e.g., MBZ, Tower hours, etc	2	0	4	6
Air space management – general	26	7	9	42
Total	192	70	123	385

Organisational issues

Component	RPT	Charter	Aerial work	Total
Pilot attitude / safety culture	16	15	37	68
Political interference in safety management	16	3	7	26
Commercial pressures	133	43	47	223
Organisational – general	10	2	5	17
Total	175	63	96	334

Training and Experience

Component	RPT	Charter	Aerial work	Total
Quality of training	40	41	65	146
Thoroughness	0	0	2	2
Inexperienced instructors	5	7	17	29
Ongoing training	7	8	13	28
Currency	8	9	18	35
Inexperience – general	26	16	24	66
Effects of automation on skill levels e.g., GPS, FANS, etc	4	2	2	8
Total	90	83	141	314

Procedures and Regulation

Component	RPT	Charter	Aerial work	Total
Regulation – general	37	29	41	107
Rate of change of regulations	29	17	40	86
Overregulation	0	0	7	7
Surveillance – too much, not enough, inappropriate	4	5	4	13
Complexity	3	4	6	13
Non-compliance with procedures – general	13	6	20	39
Procedures – general	10	2	7	19
Total	96	63	125	284

Communication issues

Component	RPT	Charter	Aerial work	Total
Pilot-pilot	5	8	5	18
Pilot-ground e.g., ATC, etc	0	0	1	1
Technical issues with radio	2	2	2	6
Non-compliance with radio procedures	17	17	8	42
Communication issues – general	50	30	56	136
Total	74	57	72	203

Other

Component	RPT	Charter	Aerial work	Total
Security concerns	23	1	2	26
Weather / pressing on	8	8	15	31
Congestion	7	1	5	13
Facilities	17	1	3	21
Other	31	21	51	103
Total	86	32	76	194

Maintenance

Component	RPT	Charter	Aerial work	Total
Aging aircraft	12	14	20	46
Aircraft maintenance	20	44	45	109
Facility maintenance	2	2	2	6
Total	34	60	67	161

Fitness for duty

Component	RPT	Charter	Aerial work	Total
Fatigue / duty time pressures	89	17	37	143
Physical / mental fitness	0	0	0	0
Alcohol	0	1	0	1
Stress	8	2	2	12
Total	97	20	39	156

Air Traffic Control

Component	RPT	Charter	Aerial work	Total
Cutbacks / overworked / staffing issues	6	5	15	26
Unrealistic expectations	8	3	2	13
ATC non-compliance with procedures	8	0	2	10
ATC – general	13	5	7	25
Total	35	13	26	74

Flight planning

Component	RPT	Charter	Aerial work	Total
General lack of	1	3	5	9
Fuel management	1	3	2	6
Weather forecast / NOTAM issues e.g., readability, etc	23	14	11	48
Total	25	20	18	63

Collision with airborne object

Component	RPT	Charter	Aerial work	Total
Parachute operations	0	0	0	0
Bird strike	4	0	1	5
Wire strike	0	1	4	5
Military aircraft	0	1	0	1
Other – midair	5	0	2	7
Total	9	2	7	18

Operating costs

Component	RPT	Charter	Aerial work	Total
Costs – general	1	2	11	14
Maintaining currency e.g., operating cost	0	1	1	2
Total	1	3	12	16

15 APPENDIX G – LEVEL OF SAFETY IN THE 12 MONTHS PRECEDING THE SURVEY

Safety of flying category over previous 12 months

Safety of flying category		RPT	Charter	Aerial work	Private operations	Total
Very unsafe	Count	0	0	1	2	3
	%	**0.0**	**0.0**	**0.3**	**0.6**	**0.2**
Unsafe	Count	7	5	14	11	37
	%	**2.0**	**2.5**	**4.3**	**3.4**	**3.1**
Neutral	Count	31	25	47	47	150
	%	**8.7**	**12.4**	**14.3**	**14.6**	**12.4**
Safe	Count	182	130	206	190	708
	%	**51.3**	**64.4**	**62.6**	**59.0**	**58.6**
Very safe	Count	135	42	61	72	310
	%	**38.0**	**20.8**	**18.5**	**22.4**	**25.7**
Total	Count	355	202	329	322	1208
	%	**100**	**100**	**100**	**100**	**100**

Changes in safety over previous 12 months

Changes in safety		RPT	Charter	Aerial work	Private operations	Total
Very much deteriorated	Count	4	0	4	2	10
	%	**1.1**	**0.0**	**1.2**	**0.6**	**0.8**
Deteriorated	Count	65	28	47	47	187
	%	**18.4**	**13.9**	**14.3**	**14.6**	**15.5**
Unchanged	Count	226	133	202	218	779
	%	**64.0**	**65.8**	**61.4**	**67.9**	**64.6**
Improved	Count	56	39	72	50	217
	%	**15.9**	**19.3**	**21.9**	**15.6**	**18.0**
Very much improved	Count	2	2	4	4	12
	%	**0.6**	**1.0**	**1.2**	**1.2**	**1.0**
Total	Count	353	202	329	321	1205
	%	**100**	**100**	**100**	**100**	**100**

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